

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas, Marshall Division on the following

Trademarks or Patents. (the patent action involves 35 U.S.C. § 292.):

DOCKET NO. TBD	DATE FILED 7/18/2018	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF SAS Institute Inc.		DEFENDANT World Programming Limited, MineQuest Business Analytics, LLC, MineQuest LLC, Angoss Software Corp., Luminex Software, Inc., Yum! Brands, Inc., Shaw Industries Group, Inc., and Hitachi Vantara Corp.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 7,170,519	1/30/2007	SAS Institute Inc.
2 7,447,686	11/4/2008	SAS Institute Inc.
3 8,498,996	7/30/2013	SAS Institute Inc.
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY	
	<input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director . Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	01/30/2007	7170519	343355600045	4700

7590 01/10/2007

John V. Biernacki
Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue
Cleveland, OH 44114

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 86 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

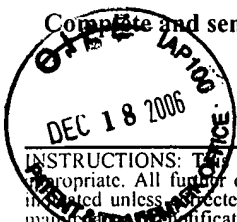
Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Himesh G. Patel, Apex, NC;
Frank Lee Wimmer, Raleigh, NC;
Cleester Daniel Heath IV, Clayton, NC;
Paul W. Layne, Cary, NC;
Kevin Dale Smith, Raleigh, NC;

PART B - FEE(S) TRANSMITTAL



Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless specified below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

7590 09/15/2006

John V. Biernacki
 Jones, Day, Reavis & Pogue
 North Point, 901 Lakeside Avenue
 Cleveland, OH 44114

Certificate of Mailing or Transmission
 I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

12/19/2006 SFELEKE2 00000079 501432 10122584

01 FC:1501 1400.00 DA
 02 FC:1504 300.00 DA

Kathie J. Kopczyk	(Depositor's name)
<i>Kathie J. Kopczyk</i>	(Signature)
December 14, 2006	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

TITLE OF INVENTION: COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR GENERATING DATA GRAPHICAL DISPLAYS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	12/15/2006

EXAMINER	ART UNIT	CLASS-SUBCLASS
HARRISON, CHANTE E	2628	345-440000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
 Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
 (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Jones Day
 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: **SAS Institute Inc.**
 (B) RESIDENCE: (CITY and STATE OR COUNTRY) **Cary, North Carolina**

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:
 Issue Fee
 Publication Fee (No small entity discount permitted)
 Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)
 A check is enclosed.
 Payment by credit card. Form PTO-2038 is attached.
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 501432 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)
 a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature: *John V. Biernacki* Date: December 14, 2006
 Typed or printed name: John V. Biernacki Registration No.: 40,511

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIBDATASHEET

CONFIRMATION NO. 4700

Bib Data Sheet

SERIAL NUMBER 10/122,584	FILING OR 371(c) DATE 04/15/2002	CLASS 345	GROUP ART UNIT 2628	ATTORNEY DOCKET NO. 343355600045
RULE				

APPLICANTS

Himesh G. Patel, Apex, NC;
 Frank Lee Wimmer, Raleigh, NC;
 Cleester Daniel Heath IV, Clayton, NC;
 Paul W. Layne, Cary, NC;
 Kevin Dale Smith, Raleigh, NC;

**** CONTINUING DATA *******

This appln claims benefit of 60/368,896 03/29/2002

**** FOREIGN APPLICATIONS *******

IF REQUIRED, FOREIGN FILING LICENSE GRANTED

** 05/21/2002

Foreign Priority claimed <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	STATE OR COUNTRY NC	SHEETS DRAWING 23	TOTAL CLAIMS 56	INDEPENDENT CLAIMS 3
35 USC 119 (a-d) conditions met <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance				
Verified and Acknowledged	Examiner's Signature	Initials		

ADDRESS

John V. Biernacki
 Jones, Day, Reavis & Pogue
 North Point, 901 Lakeside Avenue
 Cleveland, OH44114

TITLE

COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR GENERATING DATA GRAPHICAL DISPLAYS

FILING FEE RECEIVED 1574	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees
		<input type="checkbox"/> 1.16 Fees (Filing)
		<input type="checkbox"/> 1.17 Fees (Processing Ext. of time)
		<input type="checkbox"/> 1.18 Fees (Issue)
		<input type="checkbox"/> Other _____
		<input type="checkbox"/> Credit

*DNW
10-3-04*



m.f

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 09/15/2006

John V. Biernacki
Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue
Cleveland, OH 44114

EXAMINER: HARRISON, CHANTE E
ART UNIT: 2628
PAPER NUMBER:
DATE MAILED: 09/15/2006

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 10/122,584, 04/15/2002, Himesh G. Patel, 343355600045, 4700
TITLE OF INVENTION: COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR GENERATING DATA GRAPHICAL DISPLAYS

Table with 7 columns: APPLN. TYPE, SMALL ENTITY, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE
Row 1: nonprovisional, NO, \$1400, \$300, \$0, \$1700, 12/15/2006

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or
B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
 or **Fax** (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

7590 09/15/2006

John V. Biernacki
 Jones, Day, Reavis & Pogue
 North Point, 901 Lakeside Avenue
 Cleveland, OH 44114

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/122,584 04/15/2002 Himesh G. Patel 343355600045 4700

TITLE OF INVENTION: COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR GENERATING DATA GRAPHICAL DISPLAYS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1400 \$300 \$0 \$1700 12/15/2006

EXAMINER	ART UNIT	CLASS-SUBCLASS
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HARRISON, CHANTE E 2628 345-440000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:

- Issue Fee
- Publication Fee (No small entity discount permitted)
- Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- A check is enclosed.
- Payment by credit card. Form PTO-2038 is attached.
- The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
10/122,584 04/15/2002 Himesh G. Patel 343355600045 4700

7590 09/15/2006
John V. Biernacki
Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue
Cleveland, OH 44114

Table with 2 columns: EXAMINER, ART UNIT, PAPER NUMBER
EXAMINER: HARRISON, CHANTE E
ART UNIT: 2628
PAPER NUMBER:
DATE MAILED: 09/15/2006

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 89 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 89 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/122,584

Examiner

Chante Harrison

Applicant(s)

PATEL ET AL.

Art Unit

2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1. This communication is responsive to Amendment 7/3/06.
 - 2. The allowed claim(s) is/are 1-59.
 - 3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

- 4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 - 5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- 6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1. Notice of References Cited (PTO-892)
- 2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3. Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
- 4. Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 5. Notice of Informal Patent Application
- 6. Interview Summary (PTO-413),
Paper No./Mail Date _____
- 7. Examiner's Amendment/Comment
- 8. Examiner's Statement of Reasons for Allowance
- 9. Other _____


KEE M. TUNG
SUPERVISORY PATENT EXAMINER



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
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Bib Data Sheet

CONFIRMATION NO. 4700

SERIAL NUMBER 10/122,584	FILING OR 371(c) DATE 04/15/2002 RULE	CLASS 345	GROUP ART UNIT 2628	ATTORNEY DOCKET NO. 343355600045
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APPLICANTS
 Himesh G. Patel, Apex, NC;
 Frank Lee Wimmer, Raleigh, NC;
 Cleester Daniel Heath IV, Clayton, NC;
 Paul W. Layne, Cary, NC;
 Kevin Dale Smith, Raleigh, NC;

**** CONTINUING DATA ******* *N/A verified on 9/11/06*

**** FOREIGN APPLICATIONS ******* *N/A verified on 9/11/06*

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
**** 05/21/2002**

Foreign Priority claimed <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	STATE OR COUNTRY NC	SHEETS DRAWING 23	TOTAL CLAIMS 56	INDEPENDENT CLAIMS 3
35 USC 119 (a-d) conditions met <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance				
Verified and Acknowledged <i>[Signature]</i> Examiner's Signature	<i>[Initials]</i> Initials			

ADDRESS
 John V. Biernacki
 Jones, Day, Reavis & Pogue
 North Point, 901 Lakeside Avenue
 Cleveland, OH44114

TITLE
 Computer-implemented system and method for generating data graphical displays

FILING FEE RECEIVED 1574	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees
		<input type="checkbox"/> 1.16 Fees (Filing)
		<input type="checkbox"/> 1.17 Fees (Processing Ext. of time)
		<input type="checkbox"/> 1.18 Fees (Issue)
		<input type="checkbox"/> Other _____
		<input type="checkbox"/> Credit

Issue Classification



Application/Control No.

10122584

Applicant(s)/Patent under Reexamination
PATEL ET AL.

Examiner

Harrison, Chante

Art Unit

2628

ORIGINAL		INTERNATIONAL CLASSIFICATION			
CLASS	SUBCLASS	CLAIMED		NON-CLAIMED	
345	440	G	0 6 T	11 / 20	
CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
345	440.2				
Chante Harrison (Assistant Examiner)		9/11/06 (Date)		Total Claims Allowed: 59	
 Chante Harrison (Assistant Examiner)		 Kee M. Tunng (Primary Examiner)		O.G. Print 1 2	
 Meltzer (Legal Instruments Examiner)		9/13/06 (Date)		O.G. Print 1 2	

U.S. Patent and Trademark Office

Part of Paper No. 20060911

Index of Claims



Application/Control No.

10122584

Applicant(s)/Patent under Reexamination

PATEL ET AL.

Examiner

Harrison, Chante

Art Unit

2628

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant

CPA

T.D.

R.1.47

CLAIM		DATE									
Final	Original	9/11/06									
1	1	=									
2	2	=									
3	3	=									
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27	27	=									
28	28	=									
29	29	=									
30	30	=									
31	31	=									
32	32	=									
34	33	=									

Index of Claims



Application/Control No.

10122584

Applicant(s)/Patent under Reexamination

PATEL ET AL.

Examiner

Harrison, Chante

Art Unit

2628

✓	Rejected
=	Allowed

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N	Non-Elected
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Claims renumbered in the same order as presented by applicant

CPA

T.D.


R.1.47

CLAIM		DATE									
Final	Original	9/11/06									
35	34	=									
36	35	=									
37	36	=									
38	37	=									
39	38	=									
40	39	=									
41	40	=									
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59	58	=									
33	59	=									

Search Notes 	Application/Control No. 10122584	Applicant(s)/Patent Under Reexamination PATEL ET AL.
	Examiner Harrison, Chante	Art Unit 2628


Notes	Date	Examiner
Update full doc image & text search; US & PGpubs; see search history	9/11/06	CH

U.S. Patent and Trademark Office	Part of Paper No.: 20060911
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Interference Searched 	Application/Control No. 10122584	Applicant(s)/Patent Under Reexamination PATEL ET AL.
	Examiner Harrison, Chante	Art Unit 2628

Class	SubClass	Date	Examiner
see search history		9/11/06	CH

U.S. Patent and Trademark Office	Part of Paper No.:	20060911
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<p>Searched</p> 	<p>Application/Control No.</p> <p>10122584</p>	<p>Applicant(s)/Patent Under Reexamination</p> <p>PATEL ET AL.</p>
	<p>Examiner</p> <p>Harrison, Chante</p>	<p>Art Unit</p> <p>2628</p>

Class	SubClass	Date	Examiner
345	581,619,440,440.2	9/11/06	CH

U.S. Patent and Trademark Office	Part of Paper No.: 20060911
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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2952	345/581.ccls. 345/619.ccls. 345/440.ccls. 345/440.2.ccls.	US-PGPUB; USPAT	OR	ON	2006/09/11 13:15
L2	43151	graph near4 (style characteristic\$2 variable)	US-PGPUB; USPAT	OR	ON	2006/09/11 13:59
L3	8548	(statistic\$2 mean) near5 graph\$4	US-PGPUB; USPAT	OR	ON	2006/09/11 14:01
L4	333	2 and 3	US-PGPUB; USPAT	OR	ON	2006/09/11 13:16
L5	16	1 and 4	US-PGPUB; USPAT	OR	ON	2006/09/11 13:59
L8	74	(graph near4 (style characteristic\$2)).clm.	US-PGPUB	OR	ON	2006/09/11 14:00
L9	23	(statistic\$2 near4 metadata).clm.	US-PGPUB	OR	ON	2006/09/11 14:00
L10	0	8 and 9	US-PGPUB	OR	ON	2006/09/11 14:01
L11	187	((statistic\$2 mean) near5 graph\$4).clm.	US-PGPUB	OR	ON	2006/09/11 14:01
L12	1	11 and 8	US-PGPUB	OR	ON	2006/09/11 14:01



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

7590 07/10/2006

John V. Biernacki
Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue
Cleveland, OH 44114

EXAMINER

HARRISON, CHANTE E

ART UNIT PAPER NUMBER

2628

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary	Application No. 10/122,584	Applicant(s) PATEL ET AL.	
	Examiner Chante Harrison	Art Unit 2628	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Chante Harrison. (3) Tim Wilson.
(2) John Biernacki. (4) Gary Kuhn & Application Inventors.

Date of Interview: 27 June 2006.

Type: a) Telephonic b) Video Conference
c) Personal [copy given to: 1) applicant 2) applicant's representative]

Exhibit shown or demonstration conducted: d) Yes e) No.
If Yes, brief description: _____.

Claim(s) discussed: 1.

Identification of prior art discussed: Watts US 6,614,433.

Agreement with respect to the claims f) was reached. g) was not reached. h) N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's and Representative discussed a proposed amendment and how it distinguishes over the cited prior art, in that the present invention uses metadata having statistical descriptors to define roles independent of data.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.


Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : H. Patel

Title : Computer-Implemented System And Method For Generating Data Graphical Displays

Application No. : 10/122,584

Filed : April 15, 2002

Attorney Docket : 343355600045

Examiner : C. Harrison

Art Unit : 2675

Mail Stop Amendment
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
 on June 30, 2006

By: Kathie J. Kopyak

RESPONSIVE AMENDMENT

Please amend this application as follows and consider the following remarks.

07/06/2006 MBIZUNES 00000023 501432 10122584
 01 FC:1202 50.00 DA

IN THE CLAIMS

1. **(Currently Amended)** A computer-implemented method for generating data graphical displays, comprising the steps of:

receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

~~accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items;~~

said graph style data items containing graph style metadata that have descriptors specifying what statistical ~~specify analytical roles that~~ different data variables have within the data;

wherein the specified statistical roles are used to define display characteristics for the data;

wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata.

2. **(Original)** The method of claim 1 wherein the non-textual format includes a graphic format.

3. **(Original)** The method of claim 2 wherein the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

4. **(Original)** The method of claim 1 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

5. **(Currently Amended)** The method of claim 1 wherein
wherein the graph style data items include a first association between the data and the variables;

wherein the graph style data items include a second association between the statistical roles and the different variables;

wherein the first association and the second association are used in displaying the data in the non-textual format.

~~the roles of the different data variables are used to express what mathematical meanings the different data variables have within an analytical graph.~~

6. **(Currently Amended)** The method of claim 4-5 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being ~~analytical~~ statistical roles and used ~~by-in-to~~ generate different output non-textual formats.

7. **(Currently Amended)** The method of claim 6 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs;

wherein the first association and the second association are used in generating a bar chart representation of the received data;

wherein the first association and the second association are used in generating a pie chart representation of the received data.

8. **(Original)** The method of claim 7 wherein the category role identifies the data variable to be associated with an axis for the non-textual format.

9. **(Original)** The method of claim 8 wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

10. **(Original)** The method of claim 9 wherein the category role identifies the data variable to be used to determine the number of slices in a pie chart.

11. **(Original)** The method of claim 10 wherein the response role identifies the data variable to be used to determine the sizes of the pie chart slices.

12. **(Original)** The method of claim 1 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output.

13. **(Original)** The method of claim 12 wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

14. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

15. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

16. **(Original)** The method of claim 1 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

17. **(Original)** The method of claim 1 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

18. **(Original)** The method of claim 17 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables,

wherein the data is displayed in accordance with the graph style data items and the graph style metadata,

wherein the theme is selected based upon the roles contained within the graph style metadata.

19. **(Original)** The method of claim 1 wherein the graph style data is expressed in an XML format.

20. **(Original)** The method of claim 1 wherein a style editor is used to modify the display characteristics of the graph style data items.

21. **(Original)** The method of claim 1 wherein the graph style data items are used to format display of a statistical analysis graph.

22. **(Original)** The method of claim 21 wherein the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure.

23. **(Original)** The method of claim 22 wherein the response comprises a set of points.

24. **(Original)** The method of claim 22 wherein the response comprises a response curve.

25. **(Original)** The method of claim 22 wherein the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands.

26. **(Original)** The method of claim 22 wherein the statistical measure is a mean.

27. **(Original)** The method of claim 1 wherein the received data was generated by data source generating means.

28. **(Original)** The method of claim 1 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

29. **(Original)** The method of claim 1 wherein the graph data items are used within server side computer system means.

30. **(Original)** Computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1.

31. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

32. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing data source specification means and view specification means, said data structure indicating display characteristics for tabular data,

wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure.

33. **(Currently Amended)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that defines display characteristics for data through the metadata associating at least two of the variables with ~~analytical~~statistical roles;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure.

34. **(Original)** The apparatus of claim 33 wherein the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps, x-y graphs, statistical analysis graphs, and combinations thereof.

35. **(Original)** The apparatus of claim 33 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

36. **(Original)** The apparatus of claim 33 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

37. **(Original)** The apparatus of claim 36 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, statistical analysis graphs, and x-y graphs.

38. **(Original)** The apparatus of claim 37 wherein the category role identifies the data variable to be associated with an axis for the non-textual format, wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

39. **(Original)** The apparatus of claim 33 wherein different types of software applications access the graph style data items in order to display non-textual formatted output.

40. **(Original)** The apparatus of claim 33 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output, wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

41. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

42. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

43. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

44. **(Original)** The apparatus of claim 33 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

45. **(Original)** The apparatus of claim 44 wherein the theme is selected based upon the roles contained within the graph style metadata.

46. **(Original)** The apparatus of claim 33 wherein the graph styles data structure is expressed in an XML format.

47. **(Original)** The apparatus of claim 33 wherein a style editor is used to modify the display characteristics of the graph style data items.

48. **(Original)** The apparatus of claim 33 wherein the received data was generated by data source generating means.

49. **(Original)** The apparatus of claim 33 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

50. **(Original)** The apparatus of claim 33 further comprising:

a server-side computer system that contains the graph styles data structure,
said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,

said generated graphic outputs having display characteristics that are based upon the graph styles data structure.

51. **(Previously Amended)** The apparatus of claim 33 wherein the graph styles data structure is located in a first computer-based storage medium location, and the graph generator module is located in a second computer-based storage medium location.

52. **(Previously Amended)** The apparatus of claim 51 wherein the data is received by the graph generator module from a third computer-based storage medium location.

53. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

54. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing data source specification means and a view specification means.

55. **(Original)** The apparatus of claim 33 wherein the graph style data structure contains graph style data items for formatting display of a statistical analysis graph.

56. **(Currently Amended)** A computer-implemented apparatus for generating data graphical displays, comprising:

means for receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

means for retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

said graph style data items containing graph style metadata that specify ~~analytical~~ statistical roles that different data variables have within the data;

means for accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style metadata.

57. **(Currently Amended)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that define display characteristics for data through the metadata associating at least two of the variables with ~~analytical~~statistical roles;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure;

a server-side computer system that contains the graph styles data structure,

said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,

said generated graphic outputs having display characteristics that are based upon the graph styles data structure;

wherein graph style information contained within the graph styles data structure is accessible by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style information;

wherein the different types of software applications include at least two applications selected from the group consisting of a document creation and editing application, a web browser application, and a statistical software application.

58. **(Currently Amended)** The ~~method~~ apparatus of claim ~~157~~, wherein the document creation and editing application is a word processing application; wherein a business application includes the statistical software application.

59. **(New)** The method of claim 1, wherein the accessing of the graph style metadata having descriptors that specify statistical roles is by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style metadata.

REMARKS

Claims 1-58 stand rejected by the Examiner. Claims 1, 33, 56, and 57 are independent claims. Claim 59 has been added. Assignee traverses the rejections.

Interview

Assignee would like to thank Examiner Harrison for the courtesies extended to assignee's representatives during the telephone interview on June 27, 2006. During the interview, the Watts reference was discussed with reference to claim 1's use of statistical roles in determining how a display should be generated. The remarks and amendments contained herein further summarize the interview.

Claim Rejections - 35 U.S.C. § 112

Claims 1, 5, 33, 56, and 57 stand rejected under the written description requirement of 35 U.S.C. § 112, first paragraph. More specifically the office action maintains that claims 1, 33, 56 and 57 reference "analytical roles" for which no support was provided for in the assignee's specification, and that claim 5 references "mathematical meanings" for which no support was provided for in the assignee's specification. Although assignee respectfully disagrees with the instant rejection the claims have been amended to recite that the roles are "statistical roles," and the term "mathematical meanings" has been removed from claim 5.

The claim amendment of "statistical roles" is supported throughout the specification. For example, support is shown on page 15, lines 8-9 of assignee's specification:

The graph styles metadata may also designate the role of any other data to have a statistical meaning.

Examples of designation of statistical roles that data variables may have within the data can include (as disclosed in assignee's specification) but are not limited to:

- * On page 4, lines 20-23: "The graph styles metadata 54 may designate format attributes based upon the role(s) that a variable has within the input data. For example, a variable may be designated to have as its role in the data set to be the "category" variable."
- * On page 5, lines 11-12: "As another example, a different variable in the input data may have as its role to be the "response" variable."
- * On page 15, lines 7-8: "The graph styles metadata may indicate that a certain set of points or set of curves has as its role to be the confidence bands within a graph."
- * On page 15, lines 8-10: "The graph styles metadata may also designate the role of any other data to have a statistical meaning. For example, the graph styles metadata may designate that a line is to act as the mean for the graph."
- * On page 15, lines 19-21: "For example, points that are further away from a preselected statistic (such as the mean) may have their styles modified to better distinguish them from those points closer to the statistic."

Assignee respectfully submits that the instant rejection has been traverse and these claims should proceed to issuance.

Claim Rejections - 35 U.S.C. § 102

Claims 1-12, 14-17, 20, 27-32 and 56 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,614,433 to Watts (“Watts”). Claims 13, 18-19, 21-24, 33-55 and 57-58 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,614,433 to Watts (“Watts”), and further in view of Leland Wilkinson, U.S. Pub. No. 2002/0149604, 10/2002 (“Wilkinson”). Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watts and Wilkinson, and further in view of Georges Grinstein et al., U.S. Pub. No. 2003/0030637. These rejections are traversed.

Claim 1 is directed to a computer-implemented method for generating data graphical displays. Claim 1 has been amended to recite, in combination with its other limitations, that graph style data items contain graph style metadata which have descriptors specifying what statistical roles different data variables have within the data. Watts does not disclose such limitations of claim 1. In fact any discussion of what graph styles are within Watts is at best an ancillary topic to Watts. This is because Watts is more concerned with disclosing a graphics server system to confront the following drawback: “dynamically generating graphics files in such an environment [...] is generally computationally expensive.” (See Watts, col. 1, lines 22-24.) To address this drawback, Watts discloses using a “graphics server system”:

The advantages are twofold for implementing the functionality of the **graphics server system** 108 on a computer system that is

separate from the database server system 106. First, the separate graphics server off-loads processing from the database server system 106. Thus, the process of generating graphics files will be less likely to adversely impact other requests to the database server system 106 for data only (i.e., those without graphics requests). Second, multiple database server systems 106 can be coupled to a single graphics server system 108, depending upon the particular needs of various applications in such an environment. Coupling multiple database server systems to a single graphics server promotes efficient use of resources.
(See Watts, col. 4, lines 7-19; Emphasis added)

In Watts, the graphics server system is configured to receive graphics requests and transmit graphics files, and the graphics server application is arranged to generate a graphics file in response to the graphics request.

Given that the discussion of graph styles (if any) is an ancillary topic in Watts, Watts does not disclose claim 1's recitation that graph style data items contain graph style metadata that specify statistical roles which different data variables have within the data, let alone claim 1's specific recitation that the graph style metadata have *descriptors* specifying the statistical roles of different data variables. As an illustration, col. 4, lines 40-60 of Watts does not disclose such limitations. This passage from Watts is as follows:

```
DATE 25 JUL 97 13:16:32 REPORT GENERATION WEBUSER
Factors Base Report Corporate Factors Base C0004
*Sub      Demo
*Key      Quantity
A         7
B         60
C         110
D         60
E         245
F         15
G         25
H         1
I         2
J         3
K         4
(Graph format codes)
```

In this passage from Watts, Watts is discussing what values (i.e., quantities) different variables (e.g., A, B, C, etc.) have. This passage shows that the Watts' system is not concerned with disclosing any specific details of graph format approaches, by only elliptically mentioning that "(Graph format codes)" follow the specification of what quantities each component has. Figure 2 of Watts only shows the displayed values of "A", "B", etc. in conformity with the graph format codes. However not shown or disclosed in Watts is any discussion of *descriptors* in metadata to specify what statistical roles different data variables have. Because Watts does not disclose the limitations of claim 1, claim 1 is allowable.

Claim 5 has been amended to recite:

wherein the graph style data items include a first association between the data and the variables;
wherein the graph style data items include a second association between the statistical roles and the different variables;
wherein the first association and the second association are used in displaying the data in the non-textual format.

It is noted that the proposed amendments for claim 5 is supported in assignee's specification. As an illustration, a first association (i.e., an association between the data and the variables) is disclosed on page 7, lines 3-8 of assignee's specification:

The values for each of the four variables are shown within the ValuesList tags 112. For example, the variable Year4 has the value 1997 as shown at 114. The variable Year31 also has the value 1997 as shown at 116. The Sales9 variable has a value of 10000 as shown at 118. The frequency variable has a value of 1 as shown at 120. Additional data (e.g., within Values tags 150) values for the variables are contained in this example within the ValuesList tags 112.

An example of a second association (i.e., an association between a data variable and its respective statistical role) is discussed on page 8, lines 20-23:

The Roles tags 180 specify the role a variable has within the data set. For example, the Year31 variable has as its role within the data set to be the "category" as shown at 182. As another example, the Sales9 variable has as its role within the data set that of a "response" variable as shown at 184.

Because the cited references do not disclose (whether considered alone or in combination with each other) such specific first and second associations as recited in claim 5, claim 5 is allowable and should proceed to issuance.

Claim 7 has been amended to recite:

wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs;
wherein the first association and the second association are used in generating a bar chart representation of the received data;
wherein the first association and the second association are used in generating a pie chart representation of the received data.

An example of claim 7 is shown in Figures 5 and 6 of assignee's specification. Figure 5 shows a bar chart that has been constructed in accordance with the first and second association information contained in the XML data structure of FIGS. 4A-4E. Figure 6 depicts a pie chart that has also been constructed using the first and second association information contained in the XML data structure of FIGS. 4A-4E.

The cited references do not disclose (whether considered alone or in combination with each other) that the same associations (i.e., the first and second associations of claim 7) be used in the generation of different non-textual formats (e.g., a bar chart and a pie chart). Accordingly claim 7 is allowable and should proceed to issuance.

Claim 59 has been added as a dependent to claim 1 and recites:

wherein the accessing of the graph style metadata having descriptors that specify statistical roles is by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style metadata.

Because the cited references do not disclose (whether considered alone or in combination with each other) such limitations as recited in claim 59, claim 59 is allowable and should proceed to issuance.

Independent claims 33, 56, and 57 recite, in combination with their respective limitations, graph style metadata that specify statistical roles that different data variables have within the data. Because at least for the reason that the cited references do not disclose (whether considered alone or in combination with each other) such limitations, these claims are allowable and should proceed to issuance.

CONCLUSION

For the foregoing reasons, assignee respectfully submit that the pending claims are allowable. Therefore, the examiner is respectfully requested to pass this case to issuance.

Respectfully submitted,

By: 

John V. Biernacki
Reg. No. 40,511
JONES DAY
North Point; 901 Lakeside Avenue
Cleveland, Ohio 44114
(216) 586-3939



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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
 10/122,584

APPLICATION AS FILED – PART I

(Column 1) (Column 2)

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))		

RATE (\$)	FEE (\$)
N/A	
N/A	
N/A	
X =	
X =	
N/A	
N/A	
TOTAL	

RATE (\$)	FEE (\$)
N/A	
N/A	
N/A	
X =	
X =	
N/A	
N/A	
TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II

(Column 1) (Column 2) (Column 3)

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

C

	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total (37 CFR 1.16(i))	* 58	Minus	** 57	= 1
Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0
Application Size Fee (37 CFR 1.16(s))				
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))				

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL ADD'L FEE	

RATE (\$)	ADDITIONAL FEE (\$)
X 50 =	50.00
X 200 =	-0-
N/A	
TOTAL ADD'L FEE	50.00

(Column 1) (Column 2) (Column 3)

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

D

	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total (37 CFR 1.16(i))	* 59	Minus	** 58	= 1
Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0
Application Size Fee (37 CFR 1.16(s))				
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))				

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL ADD'L FEE	

RATE (\$)	ADDITIONAL FEE (\$)
X 50 =	50.00
X 200 =	-0-
N/A	
TOTAL ADD'L FEE	50.00

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

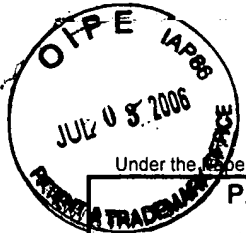
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PATENT APPLICATION FEE DETERMINATION RECORD
 Substitute for Form PTO-875

Application or Docket Number
 10/122,584

APPLICATION AS FILED – PART I			SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A	740.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	56 minus 20 =	36	x =		x 18 =	648.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	0	x =		x 84 =	-0-
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			N/A		N/A	
* If the difference in column 1 is less than zero, enter *0 in column 2.			TOTAL		TOTAL	1388.00

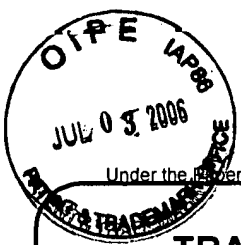
APPLICATION AS AMENDED – PART II						SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT A	(Column 1)	(Column 2)	(Column 3)	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 57	Minus	** 56	=	1	x =		x 18 =
Independent (37 CFR 1.16(h))	* 4	Minus	*** 3	=	1	x =		x 86 =	86.00
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						N/A		N/A	
						TOTAL ADD'L FEE		TOTAL ADD'L FEE	104.00

AMENDMENT B	(Column 1)	(Column 2)	(Column 3)	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 57	Minus	** 57	=	0	x =		x =
Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	=	0	x =		x =	-0-
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						N/A		N/A	
						TOTAL ADD'L FEE		TOTAL ADD'L FEE	-0-

* If the entry in column 1 is less than the entry in column 2, write *0 in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter *20.
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter *3.
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IFW #2675

Approved for use through 07/31/2006. OMB 0651-0031
 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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TRANSMITTAL FORM	Application Number	10/122,584
	Filing Date	April 15, 2002
	First Named Inventor	Patel et al.
	Art Unit	2675
	Examiner Name	Chante E. Harrison
Total Number of Pages in This Submission	26	Attorney Docket Number 343355600045

(to be used for all correspondence after initial filing)

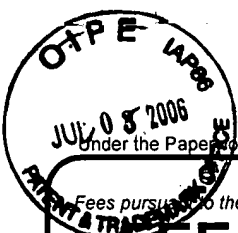
ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to TC
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input checked="" type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	Patent Application Fee Determination Record
<input type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> CD, Number of CD(s) _____	
	<input type="checkbox"/> Landscape Table on CD	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="text" value="Remarks"/>	
<input type="checkbox"/> Reply to Missing Parts/ Incomplete Application		
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Jones Day		
Signature			
Printed name	John V. Biernacki		
Date	June 30, 2006	Reg. No.	40,511

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name	Kathie J. Kopczyk	Date	June 30, 2006

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL

For FY 2006

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 50.00

Complete if Known

Application Number	10/122,584
Filing Date	April 15, 2002
First Named Inventor	Patel et al.
Examiner Name	Chante E. Harrison
Art Unit	2675
Attorney Docket No.	343355600045

METHOD OF PAYMENT (check all that apply)

Check Credit Card Money Order None Other (please identify): _____

Deposit Account Deposit Account Number: 501432 Deposit Account Name: Jones Day

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

- Charge fee(s) indicated below Charge fee(s) indicated below, except for the filing fee
 Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION (All the fees below are due upon filing or may be subject to a surcharge.)

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims **Extra Claims** **Fee (\$)** **Fee Paid (\$)** **Multiple Dependent Claims**
 _____ - 20 or HP = 1 x 50 = 50.00 **Fee (\$)** **Fee Paid (\$)**

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims **Extra Claims** **Fee (\$)** **Fee Paid (\$)**
 _____ - 3 or HP = _____ x _____ = _____

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets **Extra Sheets** **Number of each additional 50 or fraction thereof** **Fee (\$)** **Fee Paid (\$)**
 _____ - 100 = _____ / 50 = _____ (round up to a whole number) x _____ = _____

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount) **Fees Paid (\$)**
 Other (e.g., late filing surcharge): _____

SUBMITTED BY			
Signature	<i>John V. Biernacki</i>	Registration No. (Attorney/Agent) 40,511	Telephone (216) 586-3939
Name (Print/Type)	John V. Biernacki		Date June 30, 2006

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number
10/122584

CLAIMS AS FILED - PART I

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE (37 CFR 1.16(a))		
TOTAL CLAIMS (37 CFR 1.16(c))	minus 20 =	*
INDEPENDENT CLAIMS (37 CFR 1.16(b))	minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))		

SMALL ENTITY	
RATE	FEE
	\$ _____
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL	

OTHER THAN SMALL ENTITY

RATE	FEE
	\$ _____
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

CLAIMS AS AMENDED - PART II

5/27/05

	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total (37 CFR 1.16(c))	58	57	1
Independent (37 CFR 1.16(b))	4	4	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))			

SMALL ENTITY	
RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
X \$ <u>50</u> =	<u>50.00</u>
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	<u>50.00</u>

7/3/06

	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total (37 CFR 1.16(c))	58	37	1
Independent (37 CFR 1.16(b))	4	4	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))			

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total (37 CFR 1.16(c))	*	**	=
Independent (37 CFR 1.16(b))	*	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))			

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

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EXAMINER

HARRISON, CHANTE E

ART UNIT PAPER NUMBER

2628

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/122,584	Applicant(s) PATEL ET AL.	
	Examiner Chante Harrison	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 January 2006.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-58 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-58 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/26/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communications: Amendment filed on 1/17/06.
2. Claims 1-58 are pending in the case. Claims 1, 30, 33, 56 and 57 are independent claims. Claims 1, 5, 6, 33, 56 and 57 have been amended.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 5, 33, 56 and 57 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant's claim 1, line 12 and claims 33, 56 and 57, line 9, reference "analytical roles" for which no support was provided for in the Applicant's specification. Additionally Applicant's claim 5, reference "mathematical meanings" for which no support was provided for in the Applicant's specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-12, 14-17, 20, 27-32 and 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Watts, U.S. Patent 6,614,433, 9/2003.

As per independent claim 1, Watts discloses receiving data to be displayed in a non-textual format (i.e. receiving a request for display of data that includes categories of data, e.g. A-K as displayed in Fig. 2, and numerical values associated with the data) (col. 3, ll. 60-65), said received data being indicative of a plurality of variables (i.e. variables A-K and 1-250) (col. 4, ll. 40-60; Fig. 2), retrieving graph style data items (i.e. retrieving the codes specifying the attributes for the graph to be displayed) from a data file (col. 3, ll. 65-67; col. 4, ll. 20-25), said graph style data items (i.e. attributes describing the visual display of the graph data) containing display characteristics to be used in displaying the data in a non-textual format (col. 4, ll. 20-25); and accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items (i.e. differing computer systems sending a request to a network server to transmit data for display of graph information) (col. 3, ll. 25-30; col. 5, ll. 24-30, 48-49), said graph style data items containing graph style metadata that specify analytical roles that different data variables have within the data (i.e. the

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columns of data in the generated report, i.e. sub key and demo quantity, are metadata that specify data variables, A-K and 1-250, which have roles as x and y axis data values) (col. 4, ll. 40-60; Fig. 2) ; wherein the specified roles are used to define display characteristics for the data (i.e. the key and quantity values define the data to be displayed on the x and y axes of the graph) (col. 4, ll. 40-60; Fig. 2); wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata (col. 6, ll. 55-60).

As per dependent claim 2, Watts discloses the non-textual format includes a graphic format (col. 4, ll. 20-25).

As per dependent claims 3 and 7, Watts discloses the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps (i.e. area graph) and x-y graphs (i.e. line graph) (col. 4, ll. 20-25).

As per dependent claim 4, Watts discloses the display characteristics include characteristics selected from the group consisting of font characteristics (i.e. line width), color characteristics, border characteristics (i.e. 3D effects), and combinations thereof (col. 4, ll. 25-28).

As per dependent claim 5, Watts discloses the roles of the different data variables are used to express what mathematical meanings the different data variables

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have within an analytical graph (Fig. 2; col. 4, ll. 20-28, 40-57) (i.e. the graphics request includes data A-K, where each is a category having a displayable mathematical value, and each item of data is displayed by its category and with its desired visual attributes).

As per dependent claim 6, Watts discloses the graph style metadata identifies a data variable as having a category role (i.e. categories A-K) (col. 4, ll. 40-57) and identifies another data variable as having a response role (i.e. the range or numerical value of the category) (col. 4, ll. 40-57), said category role and said response role being analytical roles (i.e. representative of mathematical values defined as category and response data respectively displayed on the x and y axis) (col. 4, ll. 40-60) and used by different output non-textual formats (col. 4, ll. 20-30).

As per dependent claim 8, Watts discloses the category role identifies the data variable to be associated with an axis for the non-textual format (i.e. A-K displayed along the horizontal axis) (Fig. 2).

As per dependent claim 9, Watts discloses the response role identifies the data variable to be associated with an axis for the non-textual format (i.e. the height of the bars) (Fig. 2).

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As per dependent claim 10, Watts discloses the category role identifies the data variable to be used to determine the number of slices in a pie chart (i.e. A-K when displayed in a pie chart).

As per dependent claim 11, Watts discloses the response role identifies the data variable to be used to determine the sizes of the pie chart slices (i.e. the values of A-K, as indicated in the graphics request and vertically displayed in Fig. 2, would be displayed as slices in a pie chart) (Fig. 2; col. 4, ll. 20-25).

As per dependent claim 12, Watts discloses the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output (col. 3, ll. 9-10; col. 4-5, ll. 65-1; col. 5, ll. 24-35).

As per dependent claim 14, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style data items specifying display attributes for all of the graphical display components (col. 4, ll. 20-28).

As per dependent claim 15, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style

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data items specifying different display attributes for each of the graphical display components (col. 4, ll.20-28).

As per dependent claim 16, Watts discloses non-textual formatted output includes a first (i.e. the height of the bars indicates the values) and second set (i.e. the size of a pie slice indicates the value) of graphical display components (i.e. bar, slices, lines) that indicate values of the received data (Fig. 2), said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components (col. 4, ll. 20-28).

As per dependent claim 17, Watts discloses the graph style data items contain theme (i.e. symbols) information that is to be displayed within the non-textual formatted output (i.e. displaying the graph with differing labels) (col. 4, ll. 59-61).

As per dependent claim 20, Watts discloses a style editor is used to modify the display characteristics of the graph style data items (i.e. graph style may be specified) (col. 4, ll. 25-28).

As per dependent claim 27, Watts discloses the received data was generated by data source generating means (i.e. the graph request is generated by a service application) (col. 4, ll. 35-40).

As per dependent claim 28, Watts discloses the graph style data items contain data to additional data means to format the non-textual formatted output (col. 4, ll. 59-61).

As per dependent claim 29, Watts discloses the graph data items are used within server side computer system means (Fig. 1).

As per independent claim 30, Watts discloses computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1 (abstract).

As per dependent claim 31, Watts discloses the graph style data items are contained within a data structure (col. 5, ll. 31-33), said data structure also containing a data source specification and a view specification (col. 5, ll. 33-36), said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data (col. 4 ll. 39-56), said view specification indicating how tabular data is to be visually represented within the report (col. 4, ll. 20-25), said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format (col. 4, ll. 58-60).

As per dependent claim 32, Watts discloses the graph style data items are contained within a data structure (i.e. file) (col. 4, ll. 20-22), said data structure also

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containing data source specification means (i.e. data identifying the name and path of the data file) (col.4, ll. 62-67) and view specification means (i.e. specifying which graph, e.g. bar, line, etc., is to be displayed) (col. 4, ll. 20-28), said data structure indicating display characteristics for tabular data (i.e. style data that is specified for each graph) (col. 4, ll. 25-29, 59-61), wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure (i.e. the graph is displayed with the numerical data and the visual characteristics specified for its display) (Fig. 2).

As per independent claim 56, Watts in view of Wilkinson discloses a computer-implemented apparatus for generating data graphical displays (Fig. 1) by the method of claim 1. Therefore the rationale applied in the rejection of claim 1 applies herein.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 13, 18, 19, 21-24, 33-55 and 57-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts, U.S. Patent 6,614,433, 9/2003, and further in view of Leland Wilkinson, U.S. PG Pub 2002/0149604, 10/2002.

As per dependent claim 13, Watts discloses the output formats include the HTML formats (col. 5, ll. 40-50).

Watts fails to disclose the formats include XML, PDF, and text.

Wilkinson discloses the XML format (i.e. string description) (pp. 6, Para 124), but fails to disclose the PDF and text formats.

It would have been obvious to one of skill in the art to incorporate Wilkinson's XML format with the disclosure of Watts as well as the PDF and text formats because each are text description formats, where the use of any provides communication for describing and generating data for systems that process differing formats.

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As per dependent claims 19 and 46, Wilkinson discloses the graph styles data structure is expressed in an XML format (i.e. string description) (pp. 6, Para 124), which Watts fails to disclose.

Watts teaches the data is in an HTML format.

Wilkinson teaches using a string description to express the data.

It would have been obvious to one of skill in the art to incorporate Wilkinson's XML format with the disclosure of Watts because HTML and XML are both text description format, where the use of XML provides the advantage of having another format for describing the data.

As per dependent claim 21, Watts teaches displaying graph data using any of a plurality of graph display types (col. 4, ll. 20-30).

Watts fails to specifically disclose the graph style data items are used to format display of a statistical analysis graph, which Wilkinson discloses (pp. 1, Para 3-4).

It would have been obvious to incorporate Wilkinson's display of a statistical analysis graph with the disclosure of Watts to increase the types of graphical data formats in which to display data, which provides the benefit of having a variety of systems in which to use the graphical data.

As per dependent claim 22, Watts teaches displaying multiple types of graphs, one of which is a Gantt chart (col. 4, ll. 20-30).

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Watts and Wilkinson fail to specifically disclose the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure.

It would have been obvious to one of skill in the art to incorporate displaying a response based upon the response's departure from a preselected statistical measure with the disclosures of Watts in view of Wilkinson, because a Gantt chart which is used to track the completion of tasks versus a time frame of completion, would graphically illustrate the departure of a task's completion, e.g. value/response, from the predetermined time in which the task should be completed, e.g. the preselected statistical measure.

As per dependent claim 23, Watts discloses the response comprises a set of points (i.e. in the display of a scatter graph the response/displayed data values would be points) (col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claim 24, Watts discloses the response comprises a response curve (i.e. in the display of a line graph the response/displayed data values may be curves) (col. 4, ll. 20-25), in view of Wilkinson.

As per independent claim 33, Watts discloses a graph generator module that receives data to be displayed in a non-textual format (col. 3, ll. 60-65), said received data being indicative of a plurality of variables (i.e. data types represented by A-K displayed along

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the horizontal axis) (Fig. 2); graph styles file that defines display characteristics to be used in displaying the data in a non-textual format (i.e. a file that defines the graph data) (col. 4, ll. 20-22), said graph style file containing graph style metadata that defines display characteristics for data through the metadata associating at least one of two variables with analytical roles (i.e. data types represented by A-K, which are displayed as different categories/roles along the horizontal axis) (Fig. 2); said graph generator module having data access to the graph style data structure (i.e. a service application transmits and returns data for generating the graph) (col. 5, ll. 24-36), said graph generator module generating at least one graphical output based upon the received data (i.e. displaying one representation) (Fig. 2; col. 4, ll. 65-67), said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure (i.e. the graph is displayed with the numerical data and the visual characteristics specified for its display) (Fig. 2).

Watts fails to specifically disclose a data structure, which Wilkinson discloses (i.e. data organized hierarchically and expressed as a graph dimension that maps attributes) (pp. 2, Para 41; pp. 7, Para 132-133).

It would have been obvious to one of skill in the art to incorporate Wilkinson's data structure with the disclosure of Watts because Watts teaches using a graphics file to define the graph style data using codes, where codes are used to map data attributes to the requested graph data so as to display the data in the manner specified by the request/user. Use of a data structure or file provides the benefit of a graphic file that is applicable to a variety of systems.

As per dependent claims 34 and 37, Watts discloses the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps (i.e. area), and x-y graphs (i.e. lines) (col.4, ll. 20-26).

Watts fails to specifically disclose the graphical output selection group also consisting of statistical analysis graphs, and combinations thereof, which Wilkinson discloses (pp. 1, Para 3-4).

It would have been obvious to incorporate Wilkinson's graphical output selection group also consisting of statistical analysis graphs, and combinations thereof with the disclosure of Watts to increase the types of graphical data formats in which to display data, which provides the benefit of making the data applicable to a variety of systems.

As per dependent claim 35, Watts discloses the display characteristics include characteristics selected from the group consisting of font characteristics (i.e. line width), color characteristics, border characteristics (i.e. 3D effects), and combinations thereof (col. 4, ll. 25-28), in view of Wilkinson.

As per dependent claim 36, Watts discloses the graph style metadata identifies a data variable as having a category role (i.e. categories A-K) (col. 4, ll. 40-57) and identifies another data variable as having a response role (i.e. the range or numerical value of the category) (col. 4, ll. 40-57), said category role and said response role being used by different output non-textual formats (col. 4, ll. 20-30), in view of Wilkinson.

As per dependent claim 38, Watts discloses the category role identifies the data variable to be associated with an axis for the non-textual format (i.e. categories A-K along the horizontal axis) (Fig. 2; col. 4, ll. 40-57), wherein the response (i.e. data values/variable range) role identifies the data variable to be associated with an axis for the non-textual format (i.e. the values of A-K displayed along the vertical axis) (Fig. 2; col. 4, ll. 40-57), in view of Wilkinson.

As per dependent claim 39, Watts discloses the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output (col. 3, ll. 9-10; col. 4-5, ll. 65-1; col. 5, ll. 24-35), in view of Wilkinson.

As per dependent claim 40, Watts discloses the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output (col. 3, ll. 9-10; col. 4-5, ll. 65-1; col. 5, ll. 24-35). Additionally, the rationale as applied in the rejection of claim 13 applies herein.

As per dependent claim 41, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style data items specifying display attributes for all of the graphical display components (col. 4, ll. 20-28), in view of Wilkinson.

As per dependent claim 42, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style data items specifying different display attributes for each of the graphical display components (col. 4, ll.20-28), in view of Wilkinson.

As per dependent claim 43, Watts discloses non-textual formatted output includes a first (i.e. the height of the bars indicates the values) and second set (i.e. the size of a pie slice indicates the value) of graphical display components (i.e. bar, slices, lines) that indicate values of the received data (Fig. 2), said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components (col. 4, ll. 20-28), in view of Wilkinson.

As per dependent claim 44, Watts discloses the graph style data items contain theme (i.e. symbols) information that is to be displayed within the non-textual formatted output (i.e. displaying the graph with differing labels) (col. 4, ll. 59-61), in view of Wilkinson.

As per dependent claims 18 and 45, Watts discloses graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables (i.e. the display data includes graphic codes that specify

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additional display attributes) (col. 4, ll. 57-61), wherein the data is displayed in accordance with the graph style data items and the graph style metadata (i.e. the data is displayed based on the category and the selected style) (col. 4, ll. 20-28, 40-57).

Watts fails to specifically disclose wherein the theme is selected based upon the roles contained within the graph style metadata, which Wilkinson discloses

Watts teaches associating graph variable data with labels/themes (col. 4, ll. 59-61) that are transmitted as code with the variable data.

Wilkinson teaches assigning themes (i.e. axis, legend) (pp, 7-8, Para 143-145).

It would have been obvious to one of skill in the art to incorporate Wilkinson's selection of a theme based on the role of the graph style metadata with the disclosure of Watts so that the labeling of graph data would correspond to the type of data, which provides the benefit of having a variety of systems in which to use the graphical data.

As per dependent claim 47, Watts discloses a style editor is used to modify the display characteristics of the graph style data items (i.e. graph style may be specified) (col. 4, ll. 25-28), in view of Wilkinson.

As per dependent claim 48, Watts discloses the received data was generated by data source generating means (i.e. the graph request is generated by a service application) (col. 4, ll. 35-40), in view of Wilkinson.

As per dependent claim 49, Watts discloses the graph style data items contain data to additional data means to format the non-textual formatted output (col. 4, ll. 59-61), in view of Wilkinson.

As per dependent claim 50, Watts discloses a server-side computer system that contains the graph styles data structure (col. 4, ll. 29-35), said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application (col. 4-5, ll. 65-7), said generated graphic outputs having display characteristics that are based upon the graph styles data structure (col. 4, ll. 20-29), in view of Wilkinson.

As per dependent claim 51, Wilkinson discloses the graph styles data structure is located in a first computer-based storage medium location (pp. 1, Para 12), and the graph generator module is located in a second computer-based storage medium location (i.e. separate memories having separate instructions for presenting a graphical representation and designating and defining the graph style data) (pp. 13, Para 239), as does Watts (i.e. transmitting the graph data file over a network to be generated and displayed on a computer) (Fig. 1).

As per dependent claim 52, Wilkinson discloses the data is received by the graph generator module from a third computer-based storage medium location (pp. 3, Para 50), which Watts also discloses (Fig. 1), in view of Wilkinson.

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As per dependent claim 53, Watts discloses the graph style data structure is contained within a report model data structure (col. 4, ll. 35-57), said report model data structure also containing a data source specification (col. 4, ll. 60-67) and a view specification (col. 4, ll. 20-28), said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data (col. 4-5, ll. 65-7), said view specification indicating how tabular data is to be visually represented within the report (i.e. the view, e.g. bar, line, etc., is specified by the graph style code) (col. 4, ll. 20-28), said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format (i.e. additional style attributes, e.g. color, effects, shading, etc., are used to display the graph) (col. 4, ll. 25-28), in view of Wilkinson.

As per dependent claim 54, Watts discloses the graph style data structure is contained within a report model data structure (col. 4, ll. 40-58), said report model data structure also containing data source specification means (i.e. the file and name and path that specify the requested graph data) (col. 4, ll. 62-67) and a view specification means (i.e. the view, e.g. bar, line, etc., is specified by a graph style code) (col. 4, 20-28), in view of Wilkinson.

As per dependent claim 55, Watts teaches displaying differing types of graphs (col. 4, ll. 20-25).

Watts fails to specifically disclose the graph style data structure contains graph style data items for formatting display of a statistical analysis graph, which Wilkinson discloses (pp. 1, Para 3, 7).

It would have been obvious to one of skill in the art to incorporate Wilkinson's display of a statistical analysis graph with the disclosure of Watts to have additional types of graphs for which data can be displayed, which provides the benefit of having a variety of systems in which to use the graphical data.

As per independent claim 57, Watts in view of Wilkinson discloses a computer-implemented apparatus for generating data graphical displays (Fig. 1) by the method of claim 33. Therefore the rationale applied in the rejection of claim 33 applies herein. Watts discloses a server-side computer system that contains the graph styles data structure (Fig. 1 "114"; Fig. 3 "108"), said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application (Fig. 3; col. 2, ll. 20-34), said generated graphic outputs having display characteristics that are based upon the graph styles data structure (col. 4, ll. 20-29); wherein graph style information contained within the graph styles data structure is accessible by different types of software applications in order to display through the different types of software applications non-textural formatted output based upon the graph style information (i.e. differing computer systems sending a request to a network server to transmit data for display of graph information) (col. 3, ll. 25-30; col. 5, ll. 24-30, 48-49).

As per dependent claim 58, Watts discloses the document creation and editing application is a word processing application (i.e. a data processing application) (col. 1, ll. 38-45).

Watts fails to disclose a business application includes the statistical software application, which Wilkinson discloses (pp. 1, Para 3).

Watts teaches generating graphs of various styles including Gantt and scatter charts, which are used to display statistical data.

Wilkinson teaches graphically displaying mathematical and statistical relations.

It would have been obvious to one of ordinary skill in the art to include Wilkinson's statistical software application with the dynamic graph generation method of Watts because Watts teaches displaying differing business related graphical displays, such as Gantt, polar and scatter charts, upon receiving a request from a browser or data processing application. Inclusion of statistical software application provides the benefit of having a variety of systems in which to use the graphical data.

3. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts and Wilkinson, as above in claim 1, and further in view of Georges Grinstein et al., U.S. PG Pub 2003/0030637, 2/2003.

As per dependent claim 25, Watts and Wilkinson both fail to disclose the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands, which Grinstein discloses (Fig. 4A).

Grinstein teaches displaying low and high limits of data differently.

Watts teaches applying differing style effects to graphically displayed data (col. 4, ll. 25-29).

Wilkinson teaches associating metadata/attributes to data that are visually descriptive of the relevance of display data (pp. 6, Para 123; pp. 8, Para 145).

It would have been obvious to one of skill in the art to incorporate Grinstein's confidence bands that are used to display data outside of a range differently than the values corresponding to the graph data, e.g. response data within the confidence bands, with the disclosures of Watts and Wilkinson to better visually identify the data that is relevant to the topic of the graphical display.

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As per dependent claim 26, Watts and Wilkinson both fail to disclose the statistical measure is a mean, which Grinstein discloses (pp. 2, Para 16).

Grinstein teaches displaying the statistical data, which includes a mean, along one axis and the attributes of the data along a second axis.

Watts teaches displaying any of a variety of differing types of graphs (col. 4, ll. 20-26).

Wilkinson teaches displaying different types of graphs, including graphs displaying statistical data, and combinations of differing types of graphs (pp. 1, Para 3-4).

It would have been obvious to one of skill in the art to incorporate Grinstein's disclosure of a mean as a statistical measure with the disclosures of Watts and Wilkinson to increase the type of numerical data that can be coded and linked for the graphical display of statistical data.

Response to Arguments

4. Applicant's arguments filed 1/17/06 have been fully considered but they are not persuasive.

Applicant argues Wilkinson does not disclose the use of metadata to specify the one or more roles that a data variable has within the data for the purposes of generating a graphic output.

In reply, Wilkinson teaches metadata is a collection of data having a string description and a MIME type (pp. Para 36 & 38). Wilkinson teaches various types of metadata, which include table (pp. 6, Para 118), variable (pp. 6, Para 119), value (pp. 6, Para 120), item (pp. Para 121) and categorical meta (pp. 7, Para 134), each having a MIME type that is used to determine the "player" of the metadata (pp. 6, Para 124) as the metadata is associated with categories (pp. 6, Para 123). Applicant's specification defines metadata as defining a role, which specifies a category (Specification pp. 5, ll. 20-24; pp. 10, ll. 11-17). Therefore, the categories of metadata as taught by Wilkinson correspond to the Applicant's claimed metadata. Additionally, Applicant's specification fails to define or identify analytical roles. Thus, the Examiner interprets the claimed "analytical roles" as data that is displayed as a category along a x axis and/or data that is displayed as a response along a y axis. Watts teaches displaying data along both x and y axes (Fig. 2) as well as storing data, i.e. variables, with codes that define the

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various graphic styles that are to be applied during display of the data in any graphic format (col. 4) applicable to a variety of systems (col. 3, ll. 9-15).

Thus, the claims are not deemed to be in condition for allowance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chante Harrison whose telephone number is 571-272-7659. The examiner can normally be reached on Monday, Tuesday and Wednesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on 571-272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chante Harrison
Examiner
Art Unit 2628

Ch
March 27, 2006



Kee M. Tung
Primary Examiner



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : H. Patel
Title : Computer-Implemented System And Method For Generating Data Graphical Displays
Application No. : 10/122,584
Filed : April 15, 2002
Attorney Docket : 343355600045
Examiner : C. Harrison
Art Unit : 2675

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

on Jan. 13, 2006

By: John Biondi

RESPONSIVE AMENDMENT

Please amend this application as follows and consider the following remarks.

IN THE CLAIMS

1. **(Currently Amended)** A computer-implemented method for generating data graphical displays, comprising the steps of:

receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items;

~~wherein the different types of software applications include at least two applications selected from the group consisting of a document creation and editing application, a web browser application, and a statistical software application~~

said graph style data items containing graph style metadata that specify analytical roles that different data variables have within the data;

wherein the specified roles are used to define display characteristics for the data;

wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata.

2. **(Original)** The method of claim 1 wherein the non-textual format includes a graphic format.

3. **(Original)** The method of claim 2 wherein the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

4. **(Original)** The method of claim 1 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

5. **(Currently Amended)** The method of claim 1 wherein the roles of the different data variables are used to express what mathematical meanings the different data variables have within an analytical graph~~wherein said graph style data items contain graph style metadata that specify one or more roles that a data's variable has within the data; wherein the specified one or more roles are used to describe display characteristics for the data such that the display characteristics are defined for the data at the data role level; wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata.~~

6. **(Currently Amended)** The method of claim 5-1 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being analytical roles and used by in different output non-textual formats.

7. **(Original)** The method of claim 6 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

8. **(Original)** The method of claim 7 wherein the category role identifies the data variable to be associated with an axis for the non-textual format.

9. **(Original)** The method of claim 8 wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

10. **(Original)** The method of claim 9 wherein the category role identifies the data variable to be used to determine the number of slices in a pie chart.

11. **(Original)** The method of claim 10 wherein the response role identifies the data variable to be used to determine the sizes of the pie chart slices.

12. **(Original)** The method of claim 1 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output.

13. **(Original)** The method of claim 12 wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

14. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

15. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

16. **(Original)** The method of claim 1 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

17. **(Original)** The method of claim 1 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

18. **(Original)** The method of claim 17 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables,

wherein the data is displayed in accordance with the graph style data items and the graph style metadata,

wherein the theme is selected based upon the roles contained within the graph style metadata.

19. **(Original)** The method of claim 1 wherein the graph style data is expressed in an XML format.

20. **(Original)** The method of claim 1 wherein a style editor is used to modify the display characteristics of the graph style data items.

21. **(Original)** The method of claim 1 wherein the graph style data items are used to format display of a statistical analysis graph.

22. **(Original)** The method of claim 21 wherein the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure.

23. **(Original)** The method of claim 22 wherein the response comprises a set of points.

24. **(Original)** The method of claim 22 wherein the response comprises a response curve.

25. **(Original)** The method of claim 22 wherein the statistical measure comprises confidence bands, said graph style data items being used to format display of the

response that is outside the confidence bands differently than the portion of the response contained within the confidence bands.

26. **(Original)** The method of claim 22 wherein the statistical measure is a mean.

27. **(Original)** The method of claim 1 wherein the received data was generated by data source generating means.

28. **(Original)** The method of claim 1 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

29. **(Original)** The method of claim 1 wherein the graph data items are used within server side computer system means.

30. **(Original)** Computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1.

31. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

32. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing data source specification means and view specification means, said data structure indicating display characteristics for tabular data,

wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure.

33. **(Currently Amended)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that ~~describes~~ defines display characteristics for data through the metadata associating at least ~~one~~ two of the variables with ~~a~~ analytical ~~roles~~, wherein the associating through the metadata allows the display characteristics to be defined for the data at the data role level;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure.

34. **(Original)** The apparatus of claim 33 wherein the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps, x-y graphs, statistical analysis graphs, and combinations thereof.

35. **(Original)** The apparatus of claim 33 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

36. **(Original)** The apparatus of claim 33 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

37. **(Original)** The apparatus of claim 36 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, statistical analysis graphs, and x-y graphs.

38. **(Original)** The apparatus of claim 37 wherein the category role identifies the data variable to be associated with an axis for the non-textual format, wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

39. **(Original)** The apparatus of claim 33 wherein different types of software applications access the graph style data items in order to display non-textual formatted output.

40. **(Original)** The apparatus of claim 33 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output, wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

41. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

42. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

43. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received

data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

44. **(Original)** The apparatus of claim 33 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

45. **(Original)** The apparatus of claim 44 wherein the theme is selected based upon the roles contained within the graph style metadata.

46. **(Original)** The apparatus of claim 33 wherein the graph styles data structure is expressed in an XML format.

47. **(Original)** The apparatus of claim 33 wherein a style editor is used to modify the display characteristics of the graph style data items.

48. **(Original)** The apparatus of claim 33 wherein the received data was generated by data source generating means.

49. **(Original)** The apparatus of claim 33 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

50. **(Original)** The apparatus of claim 33 further comprising:

a server-side computer system that contains the graph styles data structure,
said server-side computer system generating graphic outputs based upon
requests received through an internet network from a client web application,
said generated graphic outputs having display characteristics that are
based upon the graph styles data structure.

51. **(Previously Amended)** The apparatus of claim 33 wherein the graph styles data structure is located in a first computer-based storage medium location, and the graph generator module is located in a second computer-based storage medium location.

52. **(Previously Amended)** The apparatus of claim 51 wherein the data is received by the graph generator module from a third computer-based storage medium location.

53. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing a data source specification and a view specification,
said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,
said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

54. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing data source specification means and a view specification means.

55. **(Original)** The apparatus of claim 33 wherein the graph style data structure contains graph style data items for formatting display of a statistical analysis graph.

56. **(Currently Amended)** A computer-implemented apparatus for generating data graphical displays, comprising:

means for receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

means for retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

said graph style data items containing graph style metadata that specify analytical roles that different data variables have within the data;

means for accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style metadatatadata items.

1

57. **(Currently Amended)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that ~~describes~~ define display characteristics for data through the metadata associating at least ~~one~~ two of the variables with ~~a~~ analytical roles;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure;

a server-side computer system that contains the graph styles data structure,

said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,

said generated graphic outputs having display characteristics that are based upon the graph styles data structure;

wherein graph style information contained within the graph styles data structure is accessible by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style information;

wherein the different types of software applications include at least two applications selected from the group consisting of a document creation and editing application, a web browser application, and a statistical software application.

58. **(Previously Added)** The method of claim 1, wherein the document creation and editing application is a word processing application; wherein a business application includes the statistical software application.

REMARKS

Claims 1-58 stand rejected by the Examiner. Assignee traverses the rejections.

Claim Rejections - 35 U.S.C. § 112

Claims 5 and 33 stand rejected under the written description requirement of 35 U.S.C. § 112, first paragraph because of the term “the data role level” in those claims. Although assignee respectfully disagrees with the instant rejection, claims 5 and 33 have been amended to remove the term in order to expedite prosecution of this application. Because of the amendments, assignee respectfully submits that the instant rejection has been addressed and these claims should proceed to issuance.

Claim Rejections - 35 U.S.C. § 103

Claims 1-24, 27-57 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,614,433 to Watts (“Watts”), and further in view of Leland Wilkinson, U.S. Pub. No. 2002/0149604, 10/2002 (“Wilkinson”). Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watts and Wilkinson, and further in view of Georges Grinstein et al., U.S. Pub. No. 2003/0030637. These rejections are traversed.

Assignee would like to thank Examiner Harrison for the courtesies extended to assignee’s representative during the telephone interview on November 9, 2005. During the interview, the Watts and Wilkinson cited references were discussed with reference to use of variable roles (e.g., as recited in claim 5) in determining how a display should be

generated. The remarks and amendments contained herein further summarize the interview.

Claim 1 is directed to a computer-implemented method for generating data graphical displays. Claim 1 has been amended to recite that graph style data items containing graph style metadata specify *analytical roles* that different data variables have within the data. The specified analytical roles are used to define display characteristics for the data, and the data is displayed in a non-textual (e.g., graphical) format in accordance with the graph style data items and the graph style metadata. As an example of an analytical role, a data variable may have its role in data analysis be a response variable role (e.g., a dependent variable role). Because the graph styles data items use a metadata approach whose abstraction is at a level above the particular type of graphic used to display the data, the metadata (such as what role a variable has within a data set) can be used independent of the graphic type to graphically depict the data.

The office action on page 22 provides, *inter alia*, that Wilkinson discloses at paragraph 123 that metadata is associated with categories. Claim 1 has been amended to more expressly distinguish over Wilkinson. Claim 1 expressly recites that the graph style data items containing graph style metadata specify *analytical roles* that different data variables have within the data. Wilkinson does not disclose graph style metadata specifying analytical roles that different data variables have within the data. As an illustration, paragraph 123 of Wilkinson only generally discusses that categories may be used within a variable set and does not provide any details regarding the use of graph style metadata to specify analytical roles that different variables may have within the data as required by claim 1:

[0123] Also provided in the Data View package is an Associated Data interface 56 (meta-data) model for linking information to arbitrary objects. Associated Data interface 56 can be attached to an individual Item 71 of Data 12, groups of Items 71, Variable Sets 22, categories within a Variable Set 22, or entire tables. Abstract class Item Support 74 is a general method for defining an API and implementing a function of Item interface 72. Item Support 74 may use any of a Text Item 76, a Date Item 78, or a Number Item 80. Abstract Item Frame 82 implements functions of Item Frame interface 18. Abstract Item Frame 82 has a support class Item Frame Support 84.

Because Wilkinson and the other cited references do not disclose such limitations of claim 1, claim 1 is allowable and should proceed to issuance.

Assignee notes that claim 5 has been amended to further define the use of graph style metadata to specify analytical roles that different data variables have within the data. Claim 5 recites that the roles of the different data variables are used to express what *mathematical meanings* the different data variables have within an analytical graph. The cited references do not disclose the use of graph style metadata to specify analytical roles of different data variables, let alone the more specific limitations of claim 5. Accordingly, claim 5 is allowable and should proceed to issuance.

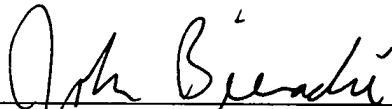
Independent claims 33, 56 and 57 have been amended to recite that the graph style metadata contains analytical role information. Because none of the cited references disclose such limitations as discussed above, these claims are allowable over the cited references and should proceed to issuance.

[Continued on the next page]

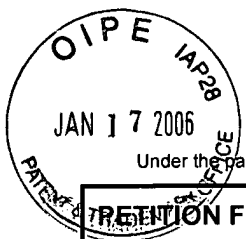
CONCLUSION

For the foregoing reasons, Assignee respectfully submit that the pending claims are allowable. Therefore, the Examiner is respectfully requested to pass this case to issuance.

Respectfully submitted,

By: 

John V. Biernacki
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2175/10 TFU
PTO/SB/22 (12,04)

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APPLICATION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)
FY 2005
(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)

Docket Number (Optional)
343355600045

Application Number **10/122,584** Filed **April 15, 2002**

For **Computer-Implemented System And Method For Generating Data Graphical Displays**

Art Unit **2675** Examiner **Chante E. Harrison**

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	
<input type="checkbox"/> One month (37 CFR 1.17(a)(1))	\$120	\$60	\$ _____
<input type="checkbox"/> Two months (37 CFR 1.17(a)(2))	\$450	\$225	\$ _____
<input checked="" type="checkbox"/> Three months (37 CFR 1.17(a)(3))	\$1020	\$510	\$ <u>1,020.00</u>
<input type="checkbox"/> Four months (37 CFR 1.17(a)(4))	\$1590	\$795	\$ _____
<input type="checkbox"/> Five months (37 CFR 1.17(a)(5))	\$2160	\$1080	\$ _____

- Applicant claims small entity status. See 37 CFR 1.27.
- A check in the amount of the fee is enclosed.
- Payment by credit card. Form PTO-2038 is attached.
- The Director has already been authorized to charge fees in this application to a Deposit Account.
- The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 501432 (343355600045). I have enclosed a duplicate copy of this sheet.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

- I am the
- applicant/inventor.
 - assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).
 - attorney or agent of record. Registration Number 40,511
 - attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

John Biernacki Signature Date January 13, 2006

John V. Biernacki Typed or printed name Telephone Number (216) 586-7747

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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PTO/SB/08 (12-04)

Approved for use through 7/31/2008. OMB 0651-0032

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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number
10/122,584

APPLICATION AS FILED - PART I

(Column 1) (Column 2)

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE (37 CFR 1.18(a), (b), or (c))	N/A	N/A
SEARCH FEE (37 CFR 1.18(k), (l), or (m))	N/A	N/A
EXAMINATION FEE (37 CFR 1.18(o), (p), or (q))	N/A	N/A
TOTAL CLAIMS (37 CFR 1.16(j))	56 minus 20 =	36
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	0
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))		

SMALL ENTITY

RATE (\$)	FEE (\$)
N/A	
N/A	
N/A	
x =	
x =	
N/A	
N/A	
TOTAL	

OR OTHER THAN SMALL ENTITY

RATE (\$)	FEE (\$)
N/A	740.00
N/A	
N/A	
x 18 =	648.00
x 84 =	-0-
N/A	
N/A	
TOTAL	1388.00

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED - PART II

(Column 1) (Column 2) (Column 3)

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA
	Total (37 CFR 1.16(j))	Minus	**	=	
	57		56	=	1
	4		3	=	1
Application Size Fee (37 CFR 1.16(s))					
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
x =	
x =	
N/A	
TOTAL ADD'L FEE	

OR OTHER THAN SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
x 18 =	18.00
x 86 =	86.00
N/A	
TOTAL ADD'L FEE	104.00

(Column 1) (Column 2) (Column 3)

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA
	Total (37 CFR 1.16(j))	Minus	**	=	
	57		57	=	0
	4		4	=	0
Application Size Fee (37 CFR 1.16(s))					
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
x =	
x =	
N/A	
TOTAL ADD'L FEE	

OR OTHER THAN SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
x =	-0-
x =	-0-
N/A	
TOTAL ADD'L FEE	-0-

- * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
- ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
- *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
- The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

7590 11/15/2005
John V. Biernacki
Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue
Cleveland, OH 44114

EXAMINER

HARRISON, CHANTE E

ART UNIT PAPER NUMBER

2677

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary	Application No. 10/122,584	Applicant(s) PATEL ET AL.	
	Examiner Chante Harrison	Art Unit 2677	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Chante Harrison. (3) John Biernacki.
(2) Amr Awad. (4) _____.

Date of Interview: 09 November 2005.

Type: a) Telephonic b) Video Conference
c) Personal [copy given to: 1) applicant 2) applicant's representative]

Exhibit shown or demonstration conducted: d) Yes e) No.
If Yes, brief description: _____.

Claim(s) discussed: 5.

Identification of prior art discussed: Wilkinson US 2002/0149604 A1.

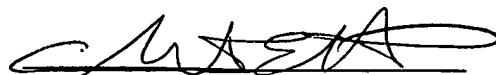
Agreement with respect to the claims f) was reached. g) was not reached. h) N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's Representative indicated Wilkinson's disclosed metadata differs from the claimed metadata because the metadata of Wilkinson does not specify the role of the data that is used in display of the data. Examiner identified Wilkinson as teaching categorical metadata, ultimately used in the display of a graph, as also claimed in Applicant's claim 6. Applicant's Representative additionally identified the claimed metadata as a mathematical data.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.


Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number).
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.



2672
EW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Smith et al.

Application No.: 10/122,584

Art Unit: 2672

Filed: April 15, 2002

Examiner: Harrison, Chante E.

For: **Computer-Implemented System And Method For Generating Data Graphical Display**

Attorney Docket No.: 343355600045

INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Statement is submitted in compliance with 37 C.F.R. § 1.97(c)(1).

A list of patent(s) and/or publication(s) is set forth on the attached form PTO-1449. A copy of each item is enclosed.

No item of information was known more than three months prior to the filing of this statement.

Any fees required for the proper filing of this Information Disclosure Statement should be withdrawn from Jones Day's Deposit Account No. 50-1432, account 343355600045.

Respectfully submitted,

John V. Biernacki
Registration No. 40,511
JONES DAY
North Point
901 Lakeside Avenue
Cleveland, Ohio 44114
(216) 586-7747

Date: Oct. 21, 2005

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

on October 21, 2005

By: Kathleen Kopczyk



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

7590 07/13/2005
John V. Biernacki
 Jones, Day, Reavis & Pogue
 North Point, 901 Lakeside Avenue
 Cleveland, OH 44114

EXAMINER

HARRISON, CHANTE E

ART UNIT	PAPER NUMBER
2677	

2677

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/122,584	Applicant(s) PATEL ET AL.	
	Examiner Chante Harrison	Art Unit 2677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 May 2005.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-58 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-58 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

1. This action is responsive to communications: Amendment and RCE filed on 5/27/05.
2. Claims 1-58 are pending in the case. Claims 1, 33, 56 and 57 are independent claims. Claims 1, 5, 33 and 57 have been amended. Claim 58 has been added.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
2. Claims 5 and 33 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant's claim 5, line 5 and claim 33, line 10, reference "the data role level" for which no support was provided for in the Applicant's specification.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-24, 27-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts, U.S. Patent 6,614,433, 9,2003, and further in view of Leland Wilkinson, U.S. PG Pub 2002/0149604, 10/2002.

As per independent claim 1, Watts discloses receiving data to be displayed in a non-textual format (i.e. receiving a request for display of data that includes categories of data, e.g. A-K as displayed in Fig. 2, and numerical values associated with the data) (col. 3, ll. 60-65), retrieving graph style data items (i.e. retrieving the codes specifying the attributes for the graph to be displayed) from a data file (col. 3, ll. 65-67; col. 4, ll. 20-25), said graph style data items (i.e. attributes describing the visual display of the graph data) containing display characteristics to be used in displaying the data in a non-textual format (col. 4, ll. 20-25); and accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data

items (i.e. differing computer systems sending a request to a network server to transmit data for display of graph information) (col. 3, ll. 25-30; col. 5, ll. 24-30, 48-49), wherein the different types of software applications include at least two applications selected from the group consisting of a document creation and editing application (e.g. graphics application generating a graphics file) (col. 1, ll. 38-45; Fig. 2 & 6), a web browser application (col. 1, ll. 52-60).

Watts fails to disclose said received data being indicative of a plurality of variables; and different types of software applications including a statistical software application, which Wilkinson discloses (pp. 6, Para 115; pp. 1, Para 3).

Watts teaches data items corresponding to graphics files that specify information such as headings, titles and labels; and generating graphs of various styles including Gantt and scatter charts, which are used to display statistical data.

Wilkinson teaches using meta-data and synthetic variables as a source for data to be displayed; and displaying mathematical and statistical relations.

It would have been obvious to one of ordinary skill in the art to include Wilkinson's disclosure of received data being indicative of a plurality of variables with the dynamic graph generation method of Watts because Watts teaches data items corresponding to graphics files that specify information such as headings, titles and labels, which are representative of various variables for which displayed data is representative. Additionally, it would have been obvious to one of skill in the art to include Wilkinson's statistical software application with the dynamic graph generation method of Watts because Watts teaches displaying differing mathematical and

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statistical graphical displays, such as Gantt, polar and scatter charts, upon receiving a request from a browser or data processing application.

As per dependent claim 2, Watts discloses the non-textual format includes a graphic format (col. 4, ll. 20-25) in view of Wilkinson.

As per dependent claims 3 and 7, Watts discloses the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps (i.e. area graph) and x-y graphs (i.e. line graph) (col. 4, ll. 20-25) in view of Wilkinson.

As per dependent claims 4 and 35, Watts discloses the display characteristics include characteristics selected from the group consisting of font characteristics (i.e. line width), color characteristics, border characteristics (i.e. 3D effects), and combinations thereof (col. 4, ll. 25-28) in view of Wilkinson.

As per dependent claim 5, Wilkinson discloses said graph style data items contain graph style metadata that specify one or more roles that a data's variable has within the data (i.e. metadata includes table, variable, value, item and categorical meta, which each have a MIME type that is used to determine the "player" of the metadata as the metadata is associated with categories)(pp. 6, Para 119-121, 123; pp. 7, Para 134); wherein the specified one or more roles are used to describe display characteristics for the data such that the display characteristics are defined for the data at the data role

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level (i.e. associated data/meta-data links information to objects by variable, category, etc.) (pp. 6, Para 123), wherein the data is displayed in accordance with the graph style data items (pp.7, Para 143) and the graph style metadata (pp. 7, Para 134) (i.e. the graphs are displayed using style data items that define display characteristics such as the legend, scale and axis; and the graphs are displayed using metadata such as the associated data linked to the objects), which Watts also discloses (Fig. 2; col. 4, ll. 20-28, 40-57) (i.e. the graphics request includes data A-K, where each is a category having a displayable value, and each item of data is displayed by its category and with its desired visual attributes).

As per dependent claims 6 and 36, Watts discloses the graph style metadata identifies a data variable as having a category role (i.e. categories A-K) (col. 4, ll. 40-57) and identifies another data variable as having a response role (i.e. the range or numerical value of the category) (col. 4, ll. 40-57), said category role and said response role being used by different output non-textual formats (col. 4, ll. 20-30), as does Wilkinson (pp. 7, Para 134, pp. 1, Para 11; Fig. 5; pp. 8, Para 157).

As per dependent claim 8, Watts discloses the category role identifies the data variable to be associated with an axis for the non-textual format (i.e. A-K displayed along the horizontal axis) (Fig. 2), in view of Wilkinson.

As per dependent claim 9, Watts discloses the response role identifies the data variable to be associated with an axis for the non-textual format (i.e. the height of the bars) (Fig. 2), in view of Wilkinson.

As per dependent claim 10, Watts discloses the category role identifies the data variable to be used to determine the number of slices in a pie chart (i.e. A-K when displayed in a pie chart), in view of Wilkinson.

As per dependent claim 11, Watts discloses the response role identifies the data variable to be used to determine the sizes of the pie chart slices (i.e. the values of A-K, as indicated in the graphics request and vertically displayed in Fig. 2, would be displayed as slices in a pie chart) (Fig. 2; col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claims 12 and 39, Watts discloses the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output (col. 3, ll. 9-10; col. 4-5, ll. 65-1; col. 5, ll. 24-35), in view of Wilkinson.

As per dependent claim 13, Watts discloses the output formats include the HTML formats (col. 5, ll. 40-50).

Watts fails to disclose the formats include XML, PDF, and text.

Wilkinson discloses the XML format (i.e. string description) (pp. 6, Para 124), but fails to disclose the PDF and text formats.

It would have been obvious to one of skill in the art to incorporate Wilkinson's XML format with the disclosure of Watts as well as the PDF and text formats because each are text description formats, where the use of any provides communication for describing and generating data for systems that process differing formats.

As per dependent claims 14 and 41, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style data items specifying display attributes for all of the graphical display components (col. 4, ll. 20-28), in view of Wilkinson.

As per dependent claims 15 and 42, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style data items specifying different display attributes for each of the graphical display components (col. 4, ll.20-28), in view of Wilkinson.

As per dependent claims 16 and 43, Watts discloses non-textual formatted output includes a first (i.e. the height of the bars indicates the values) and second set (i.e. the size of a pie slice indicates the value) of graphical display components (i.e. bar, slices, lines) that indicate values of the received data (Fig. 2), said graph style data items specifying first display attributes for the first set of graphical display components,

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said graph style data items specifying second display attributes for the second set of graphical display components (col. 4, ll. 20-28), in view of Wilkinson.

As per dependent claims 17 and 44, Watts discloses the graph style data items contain theme (i.e. symbols) information that is to be displayed within the non-textual formatted output (i.e. displaying the graph with differing labels) (col. 4, ll. 59-61), in view of Wilkinson.

As per dependent claim 18, Watts discloses graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables (i.e. the display data includes graphic codes that specify additional display attributes) (col. 4, ll. 57-61), wherein the data is displayed in accordance with the graph style data items and the graph style metadata (i.e. the data is displayed based on the category and the selected style) (col. 4, ll. 20-28, 40-57).

Watts fails to specifically disclose wherein the theme is selected based upon the roles contained within the graph style metadata, which Wilkinson discloses

Watts teaches associating graph data with labels/themes (col. 4, ll. 59-61).

Wilkinson teaches assigning themes (i.e. axis, legend) (pp, 7-8, Para 143-145).

It would have been obvious to one of skill in the art to incorporate Wilkinson's selection of a theme based on the role of the graph style metadata with the disclosure of Watts so that the labeling of graph data would correspond to the type of data.

As per dependent claims 19 and 46, Wilkinson discloses the graph styles data structure is expressed in an XML format (i.e. string description) (pp. 6, Para 124), which Watts fails to disclose.

Watts teaches the data is in an HTML format.

Wilkinson teaches using a string description to express the data.

It would have been obvious to one of skill in the art to incorporate Wilkinson's XML format with the disclosure of Watts because HTML and XML are both text description format, where the use of XML provides another format for describing the data.

As per dependent claims 20 and 47, Watts discloses a style editor is used to modify the display characteristics of the graph style data items (i.e. graph style may be specified) (col. 4, ll. 25-28), in view of Wilkinson.

As per dependent claim 21, Wilkinson discloses the graph style data items are used to format display of a statistical analysis graph (pp. 1, Para 3-4), which Watts fails to specifically disclose.

Watts teaches displaying graph data using any of a plurality of graph display types.

It would have been obvious to incorporate Wilkinson's display of a statistical analysis graph with the disclosure of Watts to increase the types of graphical data formats in which to display data.

As per dependent claim 22, Watts and Wilkinson fail to specifically disclose the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure. Watts teaches displaying multiple types of graphs, one of which is a Gantt chart.

It would have been obvious to one of skill in the art to incorporate displaying a response based upon the response's departure from a preselected statistical measure with the disclosures of Watts in view of Wilkinson, because a Gantt chart which is used to track the completion of tasks versus a time frame of completion, would graphically illustrate the departure of a task's completion, e.g. value/response, from the predetermined time in which the task should be completed, e.g. the preselected statistical measure.

As per dependent claim 23, Watts discloses the response comprises a set of points (i.e. in the display of a scatter graph the response/displayed data values would be points) (col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claim 24, Watts discloses the response comprises a response curve (i.e. in the display of a line graph the response/displayed data values may be curves) (col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claims 27 and 48, Watts discloses the received data was generated by data source generating means (i.e. the graph request is generated by a service application) (col. 4, ll. 35-40), in view of Wilkinson.

As per dependent claims 28 and 49, Watts discloses the graph style data items contain data to additional data means to format the non-textual formatted output (col. 4, ll. 59-61), in view of Wilkinson.

As per dependent claim 29, Watts discloses the graph data items are used within server side computer system means (Fig. 1), in view of Wilkinson.

As per independent claim 30, Watts discloses computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1 (abstract), in view of Wilkinson.

As per dependent claim 31, Watts discloses the graph style data items are contained within a data structure (col. 5, ll. 31-33), said data structure also containing a data source specification and a view specification (col. 5, ll. 33-36), said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data (col. 4 ll. 39-56), said view specification indicating how tabular data is to be visually represented within the report (col. 4, ll. 20-25), said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format (col. 4, ll. 58-60), in view of Wilkinson.

As per dependent claim 32, Watts discloses the graph style data items are contained within a data structure (i.e. file) (col. 4, ll. 20-22), said data structure also containing data source specification means (i.e. data identifying the name and path of the data file) (col.4, ll. 62-67) and view specification means (i.e. specifying which graph, e.g. bar, line, etc., is to be displayed) (col. 4, ll. 20-28), said data structure indicating display characteristics for tabular data (i.e. style data that is specified for each graph) (col. 4, ll. 25-29, 59-61), wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure (i.e. the graph is displayed with the numerical data and the visual characteristics specified for its display) (Fig. 2), in view of Wilkinson.

As per independent claim 33, Watts discloses a graph generator module that receives data to be displayed in a non-textual format (col. 3, ll. 60-65), said received data being indicative of a plurality of variables (i.e. data types represented by A-K displayed along the horizontal axis) (Fig. 2); graph styles file that defines display characteristics to be used in displaying the data in a non-textual format (i.e. a file that defines the graph data) (col. 4, ll. 20-22), said graph style file containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role (i.e. data types represented by A-K, which are displayed as different categories/roles along the horizontal axis) (Fig. 2)

wherein the associating through the metadata allows the display characteristics to be defined for the data at the data role level (i.e. metadata includes table, variable, value, item and categorical meta, which each have a MIME type that is used to determine the "player" of the metadata as the metadata is associated with categories)(pp. 6, Para 119-121, 123; pp. 7, Para 134); said graph generator module having data access to the graph style data structure (i.e. a service application transmits and returns data for generating the graph) (col. 5, ll. 24-36), said graph generator module generating at least one graphical output based upon the received data (i.e. displaying one representation) (Fig. 2; col. 4, ll. 65-67), said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure (i.e. the graph is displayed with the numerical data and the visual characteristics specified for its display) (Fig. 2). Watts fails to specifically disclose a data structure, which Wilkinson discloses (i.e. data organized hierarchically and expressed as a graph dimension that maps attributes) (pp. 2, Para 41; pp. 7, Para 132-133).

It would have been obvious to one of skill in the art to incorporate Wilkinson's data structure with the disclosure of Watts because Watts teaches using a graphics file to define the graph style data using codes, where codes are used to map data attributes to the requested graph data so as to display the data in the manner specified by the request/user.

As per dependent claims 34 and 37, Watts discloses the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps (i.e. area), and x-y graphs (i.e. lines) (col.4, ll. 20-26). Watts fails to specifically disclose the

graphical output selection group also consisting of statistical analysis graphs, and combinations thereof, which Wilkinson discloses (pp. 1, Para 3-4). Watts teaches displaying graph data using any of a plurality of graph display types.

It would have been obvious to incorporate Wilkinson's graphical output selection group also consisting of statistical analysis graphs, and combinations thereof with the disclosure of Watts to increase the types of graphical data formats in which to display data.

As per dependent claim 38, Watts discloses the category role identifies the data variable to be associated with an axis for the non-textual format (i.e. categories A-K along the horizontal axis) (Fig. 2; col. 4, ll. 40-57), wherein the response (i.e. data values/variable range) role identifies the data variable to be associated with an axis for the non-textual format (i.e. the values of A-K displayed along the vertical axis) (Fig. 2; col. 4, ll. 40-57).

As per dependent claim 40, the rationale applied in the rejection of claims 12 and 13 apply herein.

As per dependent claim 45, the rationale applied in the rejection of claim 18. applies herein.

As per dependent claim 50, Watts discloses a server-side computer system that contains the graph styles data structure (col. 4, ll. 29-35), said server-side computer

system generating graphic outputs based upon requests received through an internet network from a client web application (col. 4-5, ll. 65-7), said generated graphic outputs having display characteristics that are based upon the graph styles data structure (col. 4, ll. 20-29), in view of Wilkinson.

As per dependent claim 51, Wilkinson discloses the graph styles data structure is located in a first computer-based storage medium location (pp. 1, Para 12), and the graph generator module is located in a second computer-based storage medium location (i.e. separate memories having separate instructions for presenting a graphical representation and designating and defining the graph style data) (pp. 13, Para 239), as does Watts (i.e. transmitting the graph data file over a network to be generated and displayed on a computer) (Fig. 1).

As per dependent claim 52, Wilkinson discloses the data is received by the graph generator module from a third computer-based storage medium location (pp. 3, Para 50), which Watts also discloses (Fig. 1).

As per dependent claim 53, Watts discloses the graph style data structure is contained within a report model data structure (col. 4, ll. 35-57), said report model data structure also containing a data source specification (col. 4, ll. 60-67) and a view specification (col. 4, ll. 20-28), said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data (col. 4-5, ll. 65-7), said view specification indicating how tabular data is to

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be visually represented within the report (i.e. the view, e.g. bar, line, etc., is specified by the graph style code) (col. 4, ll. 20-28), said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format (i.e. additional style attributes, e.g. color, effects, shading, etc., are used to display the graph) (col. 4, ll. 25-28), in view of Wilkinson.

As per dependent claim 54, Watts discloses the graph style data structure is contained within a report model data structure (col. 4, ll. 40-58), said report model data structure also containing data source specification means (i.e. the file and name and path that specify the requested graph data) (col. 4, ll. 62-67) and a view specification means (i.e. the view, e.g. bar, line, etc., is specified by a graph style code) (col. 4, 20-28), in view of Wilkinson.

As per dependent claim 55, Wilkinson discloses the graph style data structure contains graph style data items for formatting display of a statistical analysis graph (pp. 1, Para 3, 7), which Watts fails to specifically disclose.

Watts teaches displaying differing types of graphs (col. 4, ll. 20-25).

It would have been obvious to one of skill in the art to incorporate Wilkinson's display of a statistical analysis graph with the disclosure of Watts to have additional types of graphs for which data can be displayed.

As per independent claim 56, Watts in view of Wilkinson discloses a computer-implemented apparatus for generating data graphical displays (Fig. 1) by the method of claim 1. Therefore the rationale applied in the rejection of claim 1 applies herein.

As per independent claim 57, Watts in view of Wilkinson discloses a computer-implemented apparatus for generating data graphical displays (Fig. 1) by the method of claim 33. Therefore the rationale applied in the rejection of claim 33 applies herein.

Watts discloses a server-side computer system that contains the graph styles data structure (Fig. 1 "114"; Fig. 3 "108"), said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application (Fig. 3; col. 2, ll. 20-34), said generated graphic outputs having display characteristics that are based upon the graph styles data structure (col. 4, ll. 20-29); wherein graph style information contained within the graph styles data structure is accessible by different types of software applications in order to display through the different types of software applications non-textural formatted output based upon the graph style information (i.e. differing computer systems sending a request to a network server to transmit data for display of graph information) (col. 3, ll. 25-30; col. 5, ll. 24-30, 48-49).

As per dependent claim 58, Watts discloses the document creation and editing application is a word processing application (i.e. a data processing application) (col. 1, ll. 38-45).

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Watts fails to disclose a business application includes the statistical software application, which Wilkinson discloses (pp. 1, Para 3).

Watts teaches generating graphs of various styles including Gantt and scatter charts, which are used to display statistical data.

Wilkinson teaches graphically displaying mathematical and statistical relations.

It would have been obvious to one of ordinary skill in the art to include Wilkinson's statistical software application with the dynamic graph generation method of Watts because Watts teaches displaying differing business related graphical displays, such as Gantt, polar and scatter charts, upon receiving a request from a browser or data processing application.

3. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts and Wilkinson, as above in claim 1, and further in view of Georges Grinstein et al., U.S. PG Pub 2003/0030637, 2/2003.

As per dependent claim 25, Watts and Wilkinson both fail to disclose the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands, which Grinstein discloses (Fig. 4A).

Grinstein teaches displaying low and high limits of data differently.

Watts teaches applying differing style effects to graphically displayed data (col. 4, ll. 25-29).

Wilkinson teaches associating metadata/attributes to data that are visually descriptive of the relevance of display data (pp. 6, Para 123; pp. 8, Para 145).

It would have been obvious to one of skill in the art to incorporate Grinstein's confidence bands that are used to display data outside of a range differently than the values corresponding to the graph data, e.g. response data within the confidence bands, with the disclosures of Watts and Wilkinson to better visually identify the data that is relevant to the topic of the graphical display.

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As per dependent claim 26, Watts and Wilkinson both fail to disclose the statistical measure is a mean, which Grinstein discloses (pp. 2, Para 16).

Grinstein teaches displaying the statistical data, which includes a mean, along one axis and the attributes of the data along a second axis.

Watts teaches displaying any of a variety of differing types of graphs (col. 4, ll. 20-26).

Wilkinson teaches displaying different types of graphs, including graphs displaying statistical data, and combinations of differing types of graphs (pp. 1, Para 3-4).

It would have been obvious to one of skill in the art to incorporate Grinstein's disclosure of a mean as a statistical measure with the disclosures of Watts and Wilkinson to increase the type of numerical data that can be coded and linked for the graphical display of statistical data.

Response to Arguments

4. Applicant's arguments filed 5/27/05 have been fully considered but they are not persuasive.

Applicant argues Wilkinson does not disclose the use of metadata to specify the one or more roles that a data variable has within the data for the purposes of generating a graphic output.

In reply, Wilkinson teaches metadata is a collection of data having a string description and a MIME type (pp. Para 36 & 38). Wilkinson teaches various types of metadata, which include table (pp. 6, Para 118), variable (pp. 6, Para 119), value (pp. 6, Para 120), item (pp. Para 121) and categorical meta (pp. 7, Para 134), each having a MIME type that is used to determine the "player" of the metadata (pp. 6, Para 124) as the metadata is associated with categories (pp. 6, Para 123). Applicant's specification defines metadata as defining a role, which specifies a category. Therefore, the categories of metadata as taught by Wilkinson correspond to the Applicant's claimed metadata.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chante Harrison whose telephone number is 571-272-7659. The examiner can normally be reached on Monday, Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chante Harrison
Examiner
Art Unit 2677

July 5, 2005


CHANH NGUYEN
PRIMARY EXAMINER

Notice of References Cited	Application/Control No. 10/122,584	Applicant(s)/Patent Under Reexamination PATEL ET AL.	
	Examiner Chante Harrison	Art Unit 2677	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
A	US-6,812,926	11-2004	Rugge, Robert D.	345/440
B	US-6,900,807	05-2005	Liongosari et al.	345/440
C	US-2002/0140699	10-2002	Miyadai, Isao	345/440
D	US-2003/0071814	04-2003	Jou et al.	345/440
E	US-			
F	US-			
G	US-			
H	US-			
I	US-			
J	US-			
K	US-			
L	US-			
M	US-			

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
N					
O					
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Q					
R					
S					
T					

NON-PATENT DOCUMENTS

*	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
U	
V	
W	
X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims



Application/Control No.

10/122,584

Examiner

Chante Harrison

Applicant(s)/Patent under Reexamination

PATEL ET AL.

Art Unit

2677

√	Rejected
=	Allowed

-	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
I	Interference

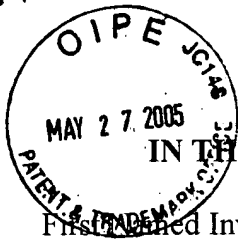
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Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	3801399	@rlad<"20020415" or @ad<"20020415"	US-PGPUB; USPAT	OR	OFF	2005/07/05 09:55
S15	12565849	@rlad<"20020415" or @ad<"20020415"	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2005/07/05 09:55
S16	940	345/440.ccls.	US-PGPUB; USPAT	OR	ON	2005/07/05 09:57
S17	801	S15 and S16	US-PGPUB; USPAT	OR	ON	2005/07/05 10:16
S18	23110	data adj item	US-PGPUB; USPAT	OR	ON	2005/07/05 10:16
S19	707408	graph\$4	US-PGPUB; USPAT	OR	ON	2005/07/05 10:16
S20	9214	(document edit\$4 web browser statist\$4 application) and S18 and S19	US-PGPUB; USPAT	OR	ON	2005/07/05 10:17
S21	62	S20 and S17	US-PGPUB; USPAT	OR	ON	2005/07/05 10:17
S22	0	("2002/0140699").URPN.	USPAT	OR	OFF	2005/07/05 10:33



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : H. Patel
Title : Computer-Implemented System And
Method For Generating Data Graphical
Displays
Application No. : 10/122,584
Filed : April 15, 2002
Attorney Docket : 343355-600-045
Examiner : C. Harrison
Art Unit : 2675

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

*I hereby certify that this correspondence is being deposited today with the United States
Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O.
Box 1450, Alexandria, VA 22313-1450
on May 25, 2005*

By: Kathie J. Kopczyk

PRELIMINARY AMENDMENT

Please amend this application as follows and consider the following remarks.

IN THE CLAIMS

1. **(Currently Amended)** A computer-implemented method for generating data graphical displays, comprising the steps of:

receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items;

wherein the different types of software applications include at least two applications selected from the group consisting of a document creation and editing application, a web browser application, and a statistical software application.

2. **(Original)** The method of claim 1 wherein the non-textual format includes a graphic format.

3. **(Original)** The method of claim 2 wherein the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

4. **(Original)** The method of claim 1 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

5. **(Currently Amended)** The method of claim 1 wherein said graph style data items contain graph style metadata that specify one or more roles that a data's variable has within the data; wherein the specified one or more roles are used to describe display characteristics for the data such that the display characteristics are defined for the data at the data role level; wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata.

6. **(Previously Amended)** The method of claim 5 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

7. **(Original)** The method of claim 6 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

8. **(Original)** The method of claim 7 wherein the category role identifies the data variable to be associated with an axis for the non-textual format.

9. **(Original)** The method of claim 8 wherein the response role identifies the data variable to be associated with an axis for the non-textual format.
10. **(Original)** The method of claim 9 wherein the category role identifies the data variable to be used to determine the number of slices in a pie chart.
11. **(Original)** The method of claim 10 wherein the response role identifies the data variable to be used to determine the sizes of the pie chart slices.
12. **(Original)** The method of claim 1 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output.
13. **(Original)** The method of claim 12 wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.
14. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.
15. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

16. **(Original)** The method of claim 1 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

17. **(Original)** The method of claim 1 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

18. **(Original)** The method of claim 17 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables,

wherein the data is displayed in accordance with the graph style data items and the graph style metadata,

wherein the theme is selected based upon the roles contained within the graph style metadata.

19. **(Original)** The method of claim 1 wherein the graph style data is expressed in an XML format.

20. **(Original)** The method of claim 1 wherein a style editor is used to modify the display characteristics of the graph style data items.

21. **(Original)** The method of claim 1 wherein the graph style data items are used to format display of a statistical analysis graph.
22. **(Original)** The method of claim 21 wherein the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure.
23. **(Original)** The method of claim 22 wherein the response comprises a set of points.
24. **(Original)** The method of claim 22 wherein the response comprises a response curve.
25. **(Original)** The method of claim 22 wherein the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands.
26. **(Original)** The method of claim 22 wherein the statistical measure is a mean.
27. **(Original)** The method of claim 1 wherein the received data was generated by data source generating means.

28. **(Original)** The method of claim 1 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

29. **(Original)** The method of claim 1 wherein the graph data items are used within server side computer system means.

30. **(Original)** Computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1.

31. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

32. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing data source specification means and view specification means, said data structure indicating display characteristics for tabular data,

wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure.

33. **(Currently Amended)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role, wherein the associating through the metadata allows the display characteristics to be defined for the data at the data role level;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure.

34. **(Original)** The apparatus of claim 33 wherein the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps, x-y graphs, statistical analysis graphs, and combinations thereof.

35. **(Original)** The apparatus of claim 33 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

36. **(Original)** The apparatus of claim 33 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

37. **(Original)** The apparatus of claim 36 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, statistical analysis graphs, and x-y graphs.

38. **(Original)** The apparatus of claim 37 wherein the category role identifies the data variable to be associated with an axis for the non-textual format, wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

39. **(Original)** The apparatus of claim 33 wherein different types of software applications access the graph style data items in order to display non-textual formatted output.

40. **(Original)** The apparatus of claim 33 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output, wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

41. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

42. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

43. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

44. **(Original)** The apparatus of claim 33 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

45. **(Original)** The apparatus of claim 44 wherein the theme is selected based upon the roles contained within the graph style metadata.

46. **(Original)** The apparatus of claim 33 wherein the graph styles data structure is expressed in an XML format.

47. **(Original)** The apparatus of claim 33 wherein a style editor is used to modify the display characteristics of the graph style data items.

48. **(Original)** The apparatus of claim 33 wherein the received data was generated by data source generating means.

49. **(Original)** The apparatus of claim 33 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

50. **(Original)** The apparatus of claim 33 further comprising:

a server-side computer system that contains the graph styles data structure,
said server-side computer system generating graphic outputs based upon
requests received through an internet network from a client web application,
said generated graphic outputs having display characteristics that are
based upon the graph styles data structure.

51. **(Previously Amended)** The apparatus of claim 33 wherein the graph styles data structure is located in a first computer-based storage medium location, and the graph generator module is located in a second computer-based storage medium location.

52. **(Previously Amended)** The apparatus of claim 51 wherein the data is received by the graph generator module from a third computer-based storage medium location.

53. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

54. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing data source specification means and a view specification means.

55. **(Original)** The apparatus of claim 33 wherein the graph style data structure contains graph style data items for formatting display of a statistical analysis graph.

56. **(Original)** A computer-implemented apparatus for generating data graphical displays, comprising:

means for receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

means for retrieving graph style data items from a data file, said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

means for accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items.

57. **(Currently Amended)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure;

a server-side computer system that contains the graph styles data structure, said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,

said generated graphic outputs having display characteristics that are based upon the graph styles data structure;

wherein graph style information contained within the graph styles data structure is accessible by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style information;

wherein the different types of software applications include at least two applications selected from the group consisting of a document creation and editing application, a web browser application, and a statistical software application.

58. (New) The method of claim 1, wherein the document creation and editing application is a word processing application; wherein a business application includes the statistical software application.

REMARKS

Claims 1-57 are pending in the present case. Claim 58 has been added. Claims 1-24, 27-57 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,614,433 to Watts (“Watts”), and further in view of Leland Wilkinson, U.S. Pub. No. 2002/0149604, 10/2002 (“Wilkinson”). Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watts and Wilkinson, and further in view of Georges Grinstein et al., U.S. Pub. No. 2003/0030637. These rejections are traversed.

Claim 1 is directed to a computer-implemented method for generating data graphical displays. Claim 1 recites in combination with its other limitations that “graph style data items contain[] display characteristics to be used in displaying the data in a non-textual format.” The graph style data items are used by “different types of software applications” in order to display non-textual formatted output based upon the graph style data items. Accordingly, graph style data items are structured in claim 1 to be application independent. Figure 2 of assignee’s specification illustrates in a non-limiting manner different types of software applications at reference numeral 56. As another non-limiting illustration, Figure 8 at reference numeral 320 shows different types of applications being used, such as a first type of application being Microsoft® Word and a second type of application being a web browser. Claim 1 has been amended to recite that “the different types of software applications include at least two applications selected from the group consisting of a document creation and editing application, a web browser application, and a statistical software application.” Claim 58 has been added to recite that the document creation and editing application is a word processing application and a business

application includes the statistical software application. Assignee respectfully submits that these claims are patentable over the cited references and should proceed to issuance.

Assignee respectfully disagrees with other rejections. For example, claim 5 recites that the graph style data items contain graph style metadata that specify one or more roles that a data's variable has within the data (e.g., a data variable may have its role be a response variable role). The roles are used to describe display characteristics for the data such that the display characteristics are defined for the data at the data role level.

Claim 5 reads as follows:

5. The method of claim 1 wherein said graph style data items contain graph style metadata that specify one or more roles that a data's variable has within the data; wherein the specified one or more roles are used to describe display characteristics for the data such that the display characteristics are defined for the data at the data role level; wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata.

Because the graph styles data items use a metadata approach whose abstraction is at a level above the particular type of graphic used to display the data (i.e., at the data role level), the metadata (such as what role a variable has within a data set) can be used independent of the graphic type to graphically depict the data. For example, a data variable may have its role be a response variable role (e.g., a dependent variable role). Contrary to the subject matter that is recited in claim 5, the Wilkinson reference does not disclose the use of metadata to specify the one or more roles that a data variable has within the data for the purposes of generating a graphic output. More specifically, assignee respectfully disagrees with the assertions contained in the advisory action that the Wilkinson reference discloses the limitations of claim 5 at paragraphs 118, 123, and 181.

Paragraphs 118, 123, and 181 of the Wilkinson reference read as follows

(emphases added):

[0118] Table Meta (2 screens)--The first screen asks for the JDBC Driver, the database URL (Universal Resource Locator), a user name, a password, and an SQL statement. The second screen prompts the user to choose (a) a column in the result set that contains the descriptions of meta-data, (b) a column that contains the MIME types for the meta-data, and (c) **a column that contains the actual meta-data**.

[....]

[0123] Also provided in the Data View package is an Associated Data interface 56 (**meta-data**) **model for linking information to arbitrary objects**. Associated Data interface 56 can be attached to an individual Item 71 of Data 12, groups of Items 71, Variable Sets 22, categories within a Variable Set 22, or entire tables. Abstract class Item Support 74 is a general method for defining an API and implementing a function of Item interface 72. Item Support 74 may use any of a Text Item 76, a Date Item 78, or a Number Item 80. Abstract Item Frame 82 implements functions of Item Frame interface 18. Abstract Item Frame 82 has a support class Item Frame Support 84.

[...]

[0181] All drawing primitive graph interfaces extend from Primitive Graph interface 34 which contains method signatures for getting/setting the object's Aesthetics 38 (an object that describes the primitive's colors, styles, visibility and so on), layering, and handling transformations. Primitive Graph interface 34 extends the Associated Data interface 56 so that **meta-data can be encoded into any drawing object**. Primitive Support abstract class 178 is an implementation of Primitive Graph interface 34 that handles most of the required methods, but leaves Renderer-dependent methods as abstract. Also provided is a Primitives abstract class 180 which is a collection of Primitive Graph interfaces 34 that can be manipulated as one interface.

These paragraphs of the Wilkinson reference do not disclose the limitations of claim 5 such as the limitations (in combination with the other limitations of claim 5) that the graph style metadata specifies roles that are used to describe display characteristics for the data such that the display characteristics are defined for the data at the data role level.

Instead these paragraphs of the Wilkinson reference at best only generally describe that metadata can be used to link information to arbitrary objects and be encoded into any drawing object. These paragraphs simply do not describe the specific type of metadata that forms the limitations of claim 5 (i.e., within the graph styles metadata of claim 5, display characteristics are defined for the data at the data role level). Accordingly, claim 5 is patentable over the cited references and should proceed to issuance.

CONCLUSION

For the foregoing reasons, Assignee respectfully submits that the pending claims are allowable. Therefore, the Examiner is respectfully requested to pass this case to issuance.

Date: May 25, 2005

Respectfully submitted,

By: 

John V. Biernacki

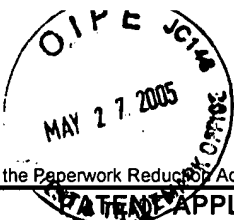
Reg. No. 40,511

JONES DAY

North Point; 901 Lakeside Avenue

Cleveland, Ohio 44114

(216) 586-3939



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PATENT APPLICATION FEE DETERMINATION RECORD
 Substitute for Form PTO-875

Application or Docket Number
 10/122,584

APPLICATION AS FILED - PART I

APPLICATION AS FILED - PART I			SMALL ENTITY		OTHER THAN SMALL ENTITY	
(Column 1)		(Column 2)				
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A	740.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	56 minus 20 =	36	x =		x 18 =	648.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	0	x =		x 84 =	-0-
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			N/A		N/A	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL		TOTAL	1388.00

APPLICATION AS AMENDED - PART II

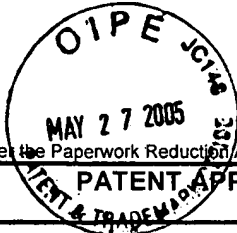
APPLICATION AS AMENDED - PART II					SMALL ENTITY		OTHER THAN SMALL ENTITY	
(Column 1)		(Column 2)	(Column 3)	(Column 4)				
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 57	Minus ** 56	= 1	x =		x 18 =	18.00
	Independent (37 CFR 1.16(h))	* 4	Minus *** 3	= 1	x =		x 86 =	86.00
	Application Size Fee (37 CFR 1.16(s))							
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		N/A	
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	104.00

APPLICATION AS AMENDED - PART II					SMALL ENTITY		OTHER THAN SMALL ENTITY	
(Column 1)		(Column 2)	(Column 3)	(Column 4)				
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 57	Minus ** 57	= 0	x =		x =	-0-
	Independent (37 CFR 1.16(h))	* 4	Minus *** 4	= 0	x =		x =	-0-
	Application Size Fee (37 CFR 1.16(s))							
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		N/A	
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	-0-

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number
10/122,584

APPLICATION AS FILED – PART I			SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED (Column 1)	NUMBER EXTRA (Column 2)	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X =		X =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X =		X =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			N/A		N/A	
			TOTAL		TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II					SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT C.	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(o))	58	Minus	57	= 1	X =		X 50 =
Independent (37 CFR 1.16(n))	4	Minus	4	= 0	X =		X 200 =	-0-
Application Size Fee (37 CFR 1.16(s))								
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		N/A	
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	50.00

AMENDMENT F.	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(o))		Minus		=	X =		X =
Independent (37 CFR 1.16(n))		Minus		=	X =		X =	
Application Size Fee (37 CFR 1.16(s))								
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		N/A	
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>	Application Number	10/122,584
	Filing Date	April 15, 2002
	First Named Inventor	Patel et al.
	Art Unit	2675
	Examiner Name	Chante E. Harrison
Total Number of Pages in This Submission	23	Attorney Docket Number 34335560045

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Preliminary Amendment Patent Application Fee Determination Record
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Jones Day		
Signature			
Printed name	John V. Biernacki		
Date	May 25, 2005	Reg. No.	40,511

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name	Kathie J. Kopczyk	Date	May 25, 2005

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Effective 12/08/04.
 Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL For FY 2005

Complete if Known

Application Number	10/122,586
Filing Date	April 15, 2002
First Named Inventor	Patel et al.
Examiner Name	Chante E. Harrison
Art Unit	2675
Attorney Docket No.	343355600045

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 50.00

METHOD OF PAYMENT (check all that apply)

Check Credit Card Money Order None Other (please identify): _____

Deposit Account Deposit Account Number: 501432 Deposit Account Name: Jones Day

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

- Charge fee(s) indicated below Charge fee(s) indicated below, except for the filing fee
 Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims - 20 or HP = 1 x 50 = 50.00

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims - 3 or HP = _____ x _____ = _____

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

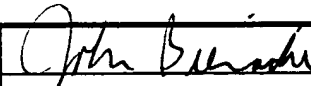
Total Sheets - 100 = _____ / 50 = _____ (round up to a whole number) x **Fee (\$)** = **Fee Paid (\$)**

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): _____

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	40,511	Telephone (216) 586-7747
Name (Print/Type)	John V. Biernacki			Date May 25, 2005

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

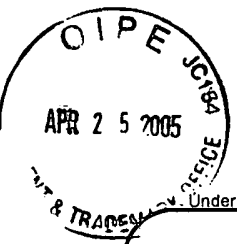
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PATENT APPLICATION FEE DETERMINATION RECORD					Application or Docket Number 10/122584	
Substitute for Form PTO-875						
CLAIMS AS FILED – PART I						
(Column 1)		(Column 2)			(Column 3)	
FOR	NUMBER FILED	NUMBER EXTRA				
BASIC FEE (37 CFR 1.16(a))						
TOTAL CLAIMS (37 CFR 1.16(c))	minus 20 =	*				
INDEPENDENT CLAIMS (37 CFR 1.16(b))	minus 3 =	*				
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))						
* If the difference in column 1 is less than zero, enter "0" in column 2.						
CLAIMS AS AMENDED – PART II						
(Column 1)		(Column 2)			(Column 3)	
AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
Total (37 CFR 1.16(c))	58	Minus	57	=	1	
Independent (37 CFR 1.16(b))	4	Minus	4	=	—	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))						
(Column 1) (Column 2) (Column 3)						
AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
Total (37 CFR 1.16(c))	*	Minus	**	=		
Independent (37 CFR 1.16(b))	*	Minus	***	=		
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))						
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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RCE
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PTO/SB/30 (09-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Request for Continued Examination (RCE) Transmittal Address to: Mail Stop RCE Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Application Number	10/122,584
	Filing Date	April 15, 2002
	First Named Inventor	Patel et al.
	Art Unit	2675
	Examiner Name	Chante E. Harrison
	Attorney Docket Number	343355600045

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

a. Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

i. Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

ii. Other Consider the arguments in the Amendment previously filed on January 24, 2005

b. Enclosed

i. Amendment/Reply

ii. Affidavit(s)/ Declaration(s)

iii. Information Disclosure Statement (IDS)

iv. Other _____

2. **Miscellaneous**

a. Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

b. Other Petition for Extension of Time

3. **Fees** The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

The Director is hereby authorized to charge the following fees, or credit any overpayments, to Deposit Account No. 501432. I have enclosed a duplicate copy of this sheet.

a. RCE fee required under 37 CFR 1.17(e)

ii. Extension of time fee (37 CFR 1.136 and 1.17)

iii. Other _____

b. Check in the amount of \$ _____ enclosed

c. Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

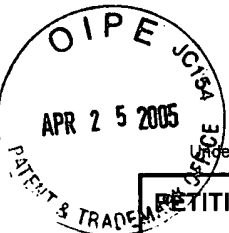
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED			
Signature	<i>John V. Biernacki</i>	Date	April 19, 2005
Name (Print/Type)	John V. Biernacki	Registration No.	40,511

CERTIFICATE OF MAILING OR TRANSMISSION			
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.			
Signature	<i>Kathie J. Kopczyk</i>	Date	April 19, 2005
Name (Print/Type)	Kathie J. Kopczyk		

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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501432
04/26/2005 SFELEKE1 00000028

790.00 DA
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional)	
FY 2005		343355600045	
(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)			
Application Number	10/122,584	Filed	April 15, 2002
For Computer-Implemented System And Method For Generating Data Graphical Displays			
Art Unit	2675	Examiner Chante E. Harrison	

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

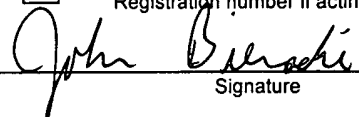
The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	
<input type="checkbox"/> One month (37 CFR 1.17(a)(1))	\$120	\$60	\$ _____
<input type="checkbox"/> Two months (37 CFR 1.17(a)(2))	\$450	\$225	\$ _____
<input checked="" type="checkbox"/> Three months (37 CFR 1.17(a)(3))	\$1020	\$510	\$ 1,020.00
<input type="checkbox"/> Four months (37 CFR 1.17(a)(4))	\$1590	\$795	\$ _____
<input type="checkbox"/> Five months (37 CFR 1.17(a)(5))	\$2160	\$1080	\$ _____

- Applicant claims small entity status. See 37 CFR 1.27.
- A check in the amount of the fee is enclosed.
- Payment by credit card. Form PTO-2038 is attached.
- The Director has already been authorized to charge fees in this application to a Deposit Account.
- The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 501432 (343355600045). I have enclosed a duplicate copy of this sheet.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

- I am the
- applicant/inventor.
 - assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).
 - attorney or agent of record. Registration Number 40,511
 - attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____


 Signature _____ Date April 19, 2005
 John V. Biernacki _____ (216) 586-7747
 Typed or printed name Telephone Number

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

04/26/2005 SFELEK1 00000028 501432 10122584
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
PATENT APPLICATION FEE DETERMINATION RECORD
 Substitute for Form PTO-875

Application or Docket Number
10/122584

CLAIMS AS FILED - PART I

FOR	NUMBER FILED (Column 1)	NUMBER EXTRA (Column 2)
BASIC FEE (37 CFR 1.16(a))		
TOTAL CLAIMS (37 CFR 1.16(c))	minus 20 =	•
INDEPENDENT CLAIMS (37 CFR 1.16(b))	minus 3 =	•
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))		

SMALL ENTITY

RATE	FEE
	\$ _____
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL	

OR OTHER THAN SMALL ENTITY

RATE	FEE
	\$ _____
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

CLAIMS AS AMENDED - PART II

4/25/05

	CLAIMS REMAINING AFTER AMENDMENT (Column 1)		HIGHEST NUMBER PREVIOUSLY PAID FOR (Column 2)	PRESENT EXTRA (Column 3)
AMENDMENT				
Total (37 CFR 1.16(c))	57	Minus	57	= _____
Independent (37 CFR 1.16(b))	4	Minus	4	= _____
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))				

SMALL ENTITY

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

	CLAIMS REMAINING AFTER AMENDMENT (Column 1)		HIGHEST NUMBER PREVIOUSLY PAID FOR (Column 2)	PRESENT EXTRA (Column 3)
AMENDMENT				
Total (37 CFR 1.16(c))	•	Minus	**	= _____
Independent (37 CFR 1.16(b))	•	Minus	***	= _____
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))				

SMALL ENTITY

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

	CLAIMS REMAINING AFTER AMENDMENT (Column 1)		HIGHEST NUMBER PREVIOUSLY PAID FOR (Column 2)	PRESENT EXTRA (Column 3)
AMENDMENT				
Total (37 CFR 1.16(c))	•	Minus	**	= _____
Independent (37 CFR 1.16(b))	•	Minus	***	= _____
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))				

SMALL ENTITY

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

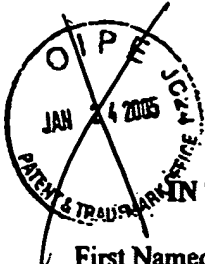
OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
X \$ _____ =	
X \$ _____ =	
+ \$ _____ =	
TOTAL ADD'L FEE	

• If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



4-25-05

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : H. Patel

Title : Computer-Implemented System And Method For Generating Data Graphical Displays

Application No. : 10/122,584

Filed : April 15, 2002

Attorney Docket : 343355-600-045

Examiner : C. Harrison

Art Unit : 2672

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Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 19, 2005

By: Kathleen G. Kopczynski

RESPONSIVE AMENDMENT

Please amend this application as follows and consider the following remarks.



UNITED STATES PATENT AND TRADEMARK OFFICE

WMA

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

7590 02/22/2005
 John V. Biernacki
 Jones, Day, Reavis & Pogue
 North Point, 901 Lakeside Avenue
 Cleveland, OH 44114

EXAMINER

HARRISON, CHANTE E

ART UNIT	PAPER NUMBER
2675	

2675

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action Before the Filing of an Appeal Brief	Application No. 10/122,584	Applicant(s) PATEL ET AL.	
	Examiner Chante Harrison	Art Unit 2672	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 24 January 2005 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. The reply was filed after a final rejection, but prior to filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
- a) The period for reply expires 3 months from the mailing date of the final rejection.
- b) The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
- Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) a set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. The reply was filed after the date of filing a Notice of Appeal, but prior to the date of filing an appeal brief. The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
- (a) They raise new issues that would require further consideration and/or search (see NOTE below);
- (b) They raise the issue of new matter (see NOTE below);
- (c) They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) They present additional claims without canceling a corresponding number of finally rejected claims.
- NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. Applicant's reply has overcome the following rejection(s): _____.
6. Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. For purposes of appeal, the proposed amendment(s): a) will not be entered, or b) will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
- The status of the claim(s) is (or will be) as follows:
- Claim(s) allowed: _____.
- Claim(s) objected to: _____.
- Claim(s) rejected: _____.
- Claim(s) withdrawn from consideration: _____.

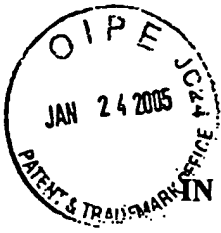
AFFIDAVIT OR OTHER EVIDENCE

8. The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. The request for reconsideration has been considered but does NOT place the application in condition for allowance because: Watts discloses accessing graph data by browser applications which suggests that any browser application may access the data. It is well known that browser applications may be different and thus not of the same type. Therefore, by disclosing access of data by multiple browser applications, Watts suggests access to graph data by different types of browser applications. Additionally, Wilkinson teaches (pp. 2, Para 36) that data is also referenced as raw data and that data includes meta data, which is sometimes referred to as associated data. Wilkinson further discloses categorizing meta data (Para 118) so that the meta data can be used to associate information with variables of objects (Para 123) and used in drawing the objects with the characteristics associated with the object through the primitive graph interface (Para 181).
12. Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____
13. Other: _____

Amr A. Awad
AMR A. AWAD
PRIMARY EXAMINER



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : H. Patel

Title : Computer-Implemented System And Method For Generating Data Graphical Displays

Application No. : 10/122,584

Filed : April 15, 2002

Attorney Docket : 343355-600-045

Examiner : C. Harrison

Art Unit : 2672

Amendment will be entered call 2/15/05

Mail Stop AF
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 19, 2005

By: Kathie G. Kopyev

RESPONSIVE AMENDMENT

Please amend this application as follows and consider the following remarks.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

7590 01/27/2005
 John V. Biernacki
 Jones, Day, Reavis & Pogue
 North Point, 901 Lakeside Avenue
 Cleveland, OH 44114

EXAMINER

HARRISON, CHANTE E

ART UNIT	PAPER NUMBER
2672	

2672

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary	Application No. 10/122,584	Applicant(s) PATEL ET AL.	
	Examiner Chante Harrison	Art Unit 2672	

All participants (applicant, applicant's representative, PTO personnel):

(1) Chante Harrison. (3)_____.

(2) John Biernacki. (4)_____.

Date of Interview: 18 January 2005.

Type: a) Telephonic b) Video Conference
c) Personal [copy given to: 1) applicant 2) applicant's representative]

Exhibit shown or demonstration conducted: d) Yes e) No.
If Yes, brief description: _____.

Claim(s) discussed: 1 and 5.

Identification of prior art discussed: Watts US 6,614,433 & Wilkinson US 2002/0149604.

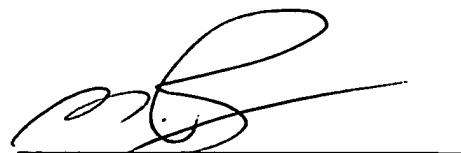
Agreement with respect to the claims f) was reached. g) was not reached. h) N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.


Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

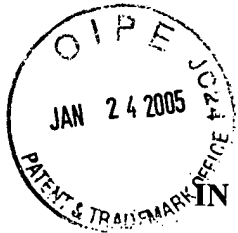
Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Representative indicated Applicants claim 1 references accessing data by different types of software applications which Watts fails to disclose. Applicant's Representative identified Watts as teaching using browser applications which run the same type of applications on different systems. Examiner identified Watts' disclosure of using browser applications present on different systems for transmitting requested data in a desired format as teaching the feature of claim 1 because browser are known to be used to access data in various document types. Representative identified Wilkinson as not teaching meta data descriptive of display characteristics based on a variable as claimed in claim 5. Examiner indicated Wilkinson teaches associating data, e.g. metadata, with the variables, where the associated data is used display to the graph of data .



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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : H. Patel

Title : Computer-Implemented System And Method For Generating Data Graphical Displays

Application No. : 10/122,584

Filed : April 15, 2002

Attorney Docket : 343355-600-045

Examiner : C. Harrison

Art Unit : 2672

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 Commissioner for Patents
 P.O. Box 1450
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 19, 2005

By: Kathie G. Kopczynski

RESPONSIVE AMENDMENT

Please amend this application as follows and consider the following remarks.

IN THE CLAIMS

1. **(Original)** A computer-implemented method for generating data graphical displays, comprising the steps of:

receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items.

2. **(Original)** The method of claim 1 wherein the non-textual format includes a graphic format.

3. **(Original)** The method of claim 2 wherein the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

4. **(Original)** The method of claim 1 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

5. **(Currently Amended)** The method of claim 1 wherein said graph style data items contain graph style metadata that specify one or more roles that a data's variable has within the data; wherein the specified one or more roles are used to describes display characteristics for ~~the data based upon roles of the data's variables;~~ wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata.

6. **(Currently Amended)** The method of claim ~~6~~5 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

7. **(Original)** The method of claim 6 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

8. **(Original)** The method of claim 7 wherein the category role identifies the data variable to be associated with an axis for the non-textual format.

9. **(Original)** The method of claim 8 wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

10. **(Original)** The method of claim 9 wherein the category role identifies the data variable to be used to determine the number of slices in a pie chart.
11. **(Original)** The method of claim 10 wherein the response role identifies the data variable to be used to determine the sizes of the pie chart slices.
12. **(Original)** The method of claim 1 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output.
13. **(Original)** The method of claim 12 wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.
14. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.
15. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.
16. **(Original)** The method of claim 1 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received

data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

17. **(Original)** The method of claim 1 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

18. **(Original)** The method of claim 17 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables,

wherein the data is displayed in accordance with the graph style data items and the graph style metadata,

wherein the theme is selected based upon the roles contained within the graph style metadata.

19. **(Original)** The method of claim 1 wherein the graph style data is expressed in an XML format.

20. **(Original)** The method of claim 1 wherein a style editor is used to modify the display characteristics of the graph style data items.

21. **(Original)** The method of claim 1 wherein the graph style data items are used to format display of a statistical analysis graph.

22. **(Original)** The method of claim 21 wherein the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure.
23. **(Original)** The method of claim 22 wherein the response comprises a set of points.
24. **(Original)** The method of claim 22 wherein the response comprises a response curve.
25. **(Original)** The method of claim 22 wherein the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands.
26. **(Original)** The method of claim 22 wherein the statistical measure is a mean.
27. **(Original)** The method of claim 1 wherein the received data was generated by data source generating means.
28. **(Original)** The method of claim 1 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

29. **(Original)** The method of claim 1 wherein the graph data items are used within server side computer system means.

30. **(Original)** Computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1.

31. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

32. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing data source specification means and view specification means, said data structure indicating display characteristics for tabular data,

wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure.

33. **(Original)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure.

34. **(Original)** The apparatus of claim 33 wherein the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps, x-y graphs, statistical analysis graphs, and combinations thereof.

35. **(Original)** The apparatus of claim 33 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

36. **(Original)** The apparatus of claim 33 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

37. **(Original)** The apparatus of claim 36 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, statistical analysis graphs, and x-y graphs.

38. **(Original)** The apparatus of claim 37 wherein the category role identifies the data variable to be associated with an axis for the non-textual format, wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

39. **(Original)** The apparatus of claim 33 wherein different types of software applications access the graph style data items in order to display non-textual formatted output.

40. **(Original)** The apparatus of claim 33 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output, wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

41. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

42. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

43. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

44. **(Original)** The apparatus of claim 33 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

45. **(Original)** The apparatus of claim 44 wherein the theme is selected based upon the roles contained within the graph style metadata.

46. **(Original)** The apparatus of claim 33 wherein the graph styles data structure is expressed in an XML format.

47. **(Original)** The apparatus of claim 33 wherein a style editor is used to modify the display characteristics of the graph style data items.

48. **(Original)** The apparatus of claim 33 wherein the received data was generated by data source generating means.

49. **(Original)** The apparatus of claim 33 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

50. **(Original)** The apparatus of claim 33 further comprising:

a server-side computer system that contains the graph styles data structure,
said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,
said generated graphic outputs having display characteristics that are based upon the graph styles data structure.

51. **(Previously Amended)** The apparatus of claim 33 wherein the graph styles data structure is located in a first computer-based storage medium location, and the graph generator module is located in a second computer-based storage medium location.

52. **(Previously Amended)** The apparatus of claim 51 wherein the data is received by the graph generator module from a third computer-based storage medium location.

53. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

54. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing data source specification means and a view specification means.

55. **(Original)** The apparatus of claim 33 wherein the graph style data structure contains graph style data items for formatting display of a statistical analysis graph.

56. **(Original)** A computer-implemented apparatus for generating data graphical displays, comprising:

means for receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

means for retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

means for accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items.

57. **(Previously Added)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure;

a server-side computer system that contains the graph styles data structure,

said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,

said generated graphic outputs having display characteristics that are based upon the graph styles data structure;

wherein graph style information contained within the graph styles data structure is accessible by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style information.

REMARKS

Claims 1-57 stand rejected by the Examiner. It is noted that claim 6 has been amended so that it can depend from its proper claim; claim 6 was not amended for any other purpose. Accordingly, the claim should be accorded its full range of equivalency.

Examiner's Interview

Patentee's representative would like to thank Examiner Harrison for the courtesies extended to patentee during the telephone interview on January 18, 2005. During the interview, the Watts and Wilkinson cited references were discussed in view of claim 1's recitation of different types of applications and graph style data items as well as claim 5's use of variable roles in determining how a display should be generated. The remarks and amendments contained herein further summarize the interview.

Claim Rejections - 35 U.S.C. § 103

Claims 1-24, 27-57 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,614,433 to Watts ("Watts"), and further in view of Leland Wilkinson, U.S. Pub. No. 2002/0149604, 10/2002 ("Wilkinson"). Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watts and Wilkinson, and further in view of Georges Grinstein et al., U.S. Pub. No. 2003/0030637. These rejections are traversed.

Claim 1 recites in combination with its other limitations that "graph style data items contain[] display characteristics to be used in displaying the data in a non-textual format." The graph style data items are used by "different types of software

applications” in order to display non-textual formatted output based upon the graph style data items. Accordingly, graph style data items are structured in claim 1 to be application independent. Figure 2 of Applicants’ specification illustrates in a non-limiting manner different types of software applications at reference numeral 56. As another non-limiting illustration, Figure 8 at reference numeral 320 shows different types of applications being used, such as a first type of application being Microsoft® Word and a second type of application being a web browser.

The office action maintains on page 20 that “different types of software applications” as recited by claim 1 in combination with its other limitations should be interpreted as “multiple software applications outputting graphical data.” Applicant respectfully disagrees. There is a difference between the claim term “different types of software applications” and the term “multiple software applications.” For example, there can be multiple software applications, but they could all be of the same type of application (e.g., multiple software applications all running the Microsoft Internet Explorer browser). Accordingly, while the cited Watts reference may disclose multiple software applications, the disclosed software applications are of the same type and not of different types as required by claim 1. Claim 1 is therefore allowable.

Applicant respectfully disagrees with other positions in the office action. For example, claim 5 recites that the “graph style data items contain graph style metadata that specify one or more roles that a data’s variable has within the data.” Claim 5 further recites that “the specified one or more roles are used to describe display characteristics for the data.” For example, a data variable may have its role be a response variable role (e.g., a dependent variable role). Because the graph styles data items use a metadata

approach whose abstraction is at a level above the particular type of graphic used to display the data, the metadata (such as what role a variable has within a data set) can be used independent of the graphic type to graphically depict the data. Contrary to this subject matter that is recited in claim 5, the Wilkinson reference does not disclose the use of metadata to specify the one or more roles that a data variable has within the data for the purposes of generating a graphic output. Moreover, Applicant respectfully disagrees with the assertions on page 21 of the office action, such as that raw data is, e.g., meta-data. The Wilkinson reference itself draws a distinction between raw data and meta-data in paragraph 0036 of the reference. In the second sentence of paragraph 0036, "Data" is considered to include raw data; and in the next sentence, the Wilkinson reference says that "Data" could also include meta-data. Thus, the Wilkinson reference differentiates between raw data and metadata by separately specifying them as being included in the term "Data." For such reasons, claim 5 is allowable over the Wilkinson reference whether considered alone or in combination with the other cited references.

CONCLUSION

For the foregoing reasons, Applicants respectfully submit that the pending claims are allowable. Therefore, the Examiner is respectfully requested to pass this case to issuance.

Date: 1/19/2005

Respectfully submitted,

By: John V. Biernacki

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

7590 10/19/2004
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EXAMINER

HARRISON, CHANTE E

ART UNIT	PAPER NUMBER
2672	

2672

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

M

Office Action Summary

Application No. 10/122,584	Applicant(s) PATEL ET AL.	
Examiner Chante Harrison	Art Unit 2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 July 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-57 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-57 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

1. This action is responsive to communications: Amendment filed on 7/6/04.

This action is made FINAL.

2. Claims 1-57 are pending in the case. Claims 1, 33, 56 and 57 are independent claims. Claims 5, 6, 51 and 52 have been amended. Claim 57 has been added.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-24, 27-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts, U.S. Patent 6,614,433, 9,2003, and further in view of Leland Wilkinson, U.S. PG Pub 2002/0149604, 10/2002.

As per independent claim 1, Watts discloses receiving data to be displayed in a non-textual format (i.e. receiving a request for display of data that includes categories of data, e.g. A-K as displayed in Fig. 2, and numerical values associated with the data) (col. 3, ll. 60-65), retrieving graph style data items (i.e. retrieving the codes specifying the attributes for the graph to be displayed) from a data file (col. 3, ll. 65-67; col. 4, ll. 20-25), said graph style

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data items (i.e. attributes describing the visual display of the graph data) containing display characteristics to be used in displaying the data in a non-textual format (col. 4, ll. 20-25); and accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items (i.e. differing computer systems sending a request to a network server to transmit data for display of graph information) (col. 3, ll. 25-30; col. 5, ll. 24-30, 48-49).

Watts fails to disclose said received data being indicative of a plurality of variables, which Wilkinson discloses (pp. 6, Para 115).

Watts teaches data items corresponding to graphics files that specify information such as headings, titles and labels.

Wilkinson teaches using meta-data and synthetic variables as a source for data to be displayed.

It would have been obvious to one of ordinary skill in the art to incorporate Wilkinson's disclosure of received data being indicative of a plurality of variables with the disclosure of Watts because Watts teaches data items corresponding to graphics files that specify information such as headings, titles and labels, which are representative of various variables for which displayed data is representative.

As per dependent claim 2, Watts discloses the non-textual format includes a graphic format (col. 4, ll. 20-25) in view of Wilkinson.

As per dependent claims 3 and 7, Watts discloses the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps (i.e. area graph) and x-y graphs (i.e. line graph) (col. 4, ll. 20-25) in view of Wilkinson.

As per dependent claims 4 and 35, Watts discloses the display characteristics include characteristics selected from the group consisting of font characteristics (i.e. line width), color characteristics, border characteristics (i.e. 3D effects), and combinations thereof (col. 4, ll. 25-28) in view of Wilkinson.

As per dependent claim 5, Wilkinson discloses said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables (i.e. associated data/meta-data links information to objects by variable, category, etc.) (pp. 6, Para 123), wherein the data is displayed in accordance with the graph style data items (pp.7, Para 143) and the graph style metadata (pp. 7, Para 134) (i.e. the graphs are displayed using style data items that define display characteristics such as the legend, scale and axis; and the graphs are displayed using metadata such as the associated data linked to the objects), which Watts also discloses (Fig. 2; col. 4, ll. 20-28, 40-57) (i.e. the graphics request includes data A-K, where each is a category having a displayable value, and each item of data is displayed by its category and with its desired visual attributes).

As per dependent claims 6 and 36, Watts discloses the graph style metadata identifies a data variable as having a category role (i.e. categories A-K) (col. 4, ll. 40-57) and identifies another data variable as having a response role (i.e. the range or numerical value of the category) (col. 4, ll. 40-57), said category role and said response role being used by different output non-textual formats (col. 4, ll. 20-30), as does Wilkinson (pp. 7, Para 134, pp. 1, Para 11; Fig. 5; pp. 8, Para 157).

As per dependent claim 8, Watts discloses the category role identifies the data variable to be associated with an axis for the non-textual format (i.e. A-K displayed along the horizontal axis) (Fig. 2), in view of Wilkinson.

As per dependent claim 9, Watts discloses the response role identifies the data variable to be associated with an axis for the non-textual format (i.e. the height of the bars) (Fig. 2), in view of Wilkinson.

As per dependent claim 10, Watts discloses the category role identifies the data variable to be used to determine the number of slices in a pie chart (i.e. A-K when displayed in a pie chart), in view of Wilkinson.

As per dependent claim 11, Watts discloses the response role identifies the data variable to be used to determine the sizes of the pie chart slices (i.e.

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the values of A-K, as indicated in the graphics request and vertically displayed in Fig. 2, would be displayed as slices in a pie chart) (Fig. 2; col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claims 12 and 39, Watts discloses the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output (col. 3, ll. 9-10; col. 4-5, ll. 65-1; col. 5, ll. 24-35), in view of Wilkinson.

As per dependent claim 13, Watts discloses the output formats include the HTML formats (col. 5, ll. 40-50).

Watts fails to disclose the formats include XML, PDF, and text.

Wilkinson discloses the XML format (i.e. string description) (pp. 6, Para 124), but fails to disclose the PDF and text formats.

It would have been obvious to one of skill in the art to incorporate Wilkinson's XML format with the disclosure of Watts as well as the PDF and text formats because each are text description formats, where the use of any provides communication for describing and generating data for systems that process differing formats.

As per dependent claims 14 and 41, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig.

2), said graph style data items specifying display attributes for all of the graphical display components (col. 4, ll. 20-28), in view of Wilkinson.

As per dependent claims 15 and 42, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style data items specifying different display attributes for each of the graphical display components (col. 4, ll.20-28), in view of Wilkinson.

As per dependent claims 16 and 43, Watts discloses non-textual formatted output includes a first (i.e. the height of the bars indicates the values) and second set (i.e. the size of a pie slice indicates the value) of graphical display components (i.e. bar, slices, lines) that indicate values of the received data (Fig. 2), said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components (col. 4, ll. 20-28), in view of Wilkinson.

As per dependent claims 17 and 44, Watts discloses the graph style data items contain theme (i.e. symbols) information that is to be displayed within the non-textual formatted output (i.e. displaying the graph with differing labels) (col. 4, ll. 59-61), in view of Wilkinson.

As per dependent claim 18, Watts discloses graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables (i.e. the display data includes graphic codes that specify additional display attributes) (col. 4, ll. 57-61), wherein the data is displayed in accordance with the graph style data items and the graph style metadata (i.e. the data is displayed based on the category and the selected style) (col. 4, ll. 20-28, 40-57).

Watts fails to specifically disclose wherein the theme is selected based upon the roles contained within the graph style metadata, which Wilkinson discloses

Watts teaches associating graph data with labels/themes (col. 4, ll. 59-61).

Wilkinson teaches assigning themes (i.e. axis, legend) (pp. 7-8, Para 143-145).

It would have been obvious to one of skill in the art to incorporate Wilkinson's selection of a theme based on the role of the graph style metadata with the disclosure of Watts so that the labeling of graph data would correspond to the type of data.

As per dependent claims 19 and 46, Wilkinson discloses the graph styles data structure is expressed in an XML format (i.e. string description) (pp. 6, Para 124), which Watts fails to disclose.

Watts teaches the data is in an HTML format.

Wilkinson teaches using a string description to express the data.

It would have been obvious to one of skill in the art to incorporate Wilkinson's XML format with the disclosure of Watts because HTML and XML are both text description format, where the use of XML provides another format for describing the data.

As per dependent claims 20 and 47, Watts discloses a style editor is used to modify the display characteristics of the graph style data items (i.e. graph style may be specified) (col. 4, ll. 25-28), in view of Wilkinson.

As per dependent claim 21, Wilkinson discloses the graph style data items are used to format display of a statistical analysis graph (pp. 1, Para 3-4), which Watts fails to specifically disclose.

Watts teaches displaying graph data using any of a plurality of graph display types.

It would have been obvious to incorporate Wilkinson's display of a statistical analysis graph with the disclosure of Watts to increase the types of graphical data formats in which to display data.

As per dependent claim 22, Watts and Wilkinson fail to specifically disclose the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure. Watts teaches displaying multiple types of graphs, one of which is a Gantt chart.

It would have been obvious to one of skill in the art to incorporate displaying a response based upon the response's departure from a preselected statistical measure with the disclosures of Watts in view of Wilkinson, because a Gantt chart which is used to track the completion of tasks versus a time frame of completion, would graphically illustrate the departure of a task's completion, e.g. value/response, from the predetermined time in which the task should be completed, e.g. the preselected statistical measure.

As per dependent claim 23, Watts discloses the response comprises a set of points (i.e. in the display of a scatter graph the response/displayed data values would be points) (col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claim 24, Watts discloses the response comprises a response curve (i.e. in the display of a line graph the response/displayed data values may be curves) (col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claims 27 and 48, Watts discloses the received data was generated by data source generating means (i.e. the graph request is generated by a service application) (col. 4, ll. 35-40), in view of Wilkinson.

As per dependent claims 28 and 49, Watts discloses the graph style data items contain data to additional data means to format the non-textual formatted output (col. 4, ll. 59-61), in view of Wilkinson.

As per dependent claim 29, Watts discloses the graph data items are used within server side computer system means (Fig. 1), in view of Wilkinson.

As per independent claim 30, Watts discloses computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim1 (abstract), in view of Wilkinson.

As per dependent claim 31, Watts discloses the graph style data items are contained within a data structure (col. 5, ll. 31-33), said data structure also containing a data source specification and a view specification (col. 5, ll. 33-36), said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data (col. 4 ll. 39-56), said view specification indicating how tabular data is to be visually represented within the report (col. 4, ll. 20-25), said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format (col. 4, ll. 58-60), in view of Wilkinson.

As per dependent claim 32, Watts discloses the graph style data items are contained within a data structure (i.e. file) (col. 4, ll. 20-22), said data structure also containing data source specification means (i.e. data identifying the name and path of the data file) (col.4, ll. 62-67) and view specification means (i.e. specifying which graph, e.g. bar, line, etc., is to be displayed) (col. 4, ll. 20-28),

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said data structure indicating display characteristics for tabular data (i.e. style data that is specified for each graph) (col. 4, ll. 25-29, 59-61), wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure (i.e. the graph is displayed with the numerical data and the visual characteristics specified for its display) (Fig. 2), in view of Wilkinson.

As per independent claim 33, Watts discloses a graph generator module that receives data to be displayed in a non-textual format (col. 3, ll. 60-65), said received data being indicative of a plurality of variables (i.e. data types represented by A-K displayed along the horizontal axis) (Fig. 2); graph styles file that defines display characteristics to be used in displaying the data in a non-textual format (i.e. a file that defines the graph data) (col. 4, ll. 20-22), said graph style file containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role (i.e. data types represented by A-K, which are displayed as different categories/roles along the horizontal axis) (Fig. 2); said graph generator module having data access to the graph style data structure (i.e. a service application transmits and returns data for generating the graph) (col. 5, ll. 24-36), said graph generator module generating at least one graphical output based upon the received data (i.e. displaying one representation) (Fig. 2; col. 4, ll. 65-67), said graphical output being generated in accordance with the defined data

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characteristics of the graph styles data structure (i.e. the graph is displayed with the numerical data and the visual characteristics specified for its display) (Fig. 2). Watts fails to specifically disclose a data structure, which Wilkinson discloses (i.e. data organized hierarchically and expressed as a graph dimension that maps attributes) (pp. 2, Para 41; pp. 7, Para 132-133).

It would have been obvious to one of skill in the art to incorporate Wilkinson's data structure with the disclosure of Watts because Watts teaches using a graphics file to define the graph style data using codes, where codes are used to map data attributes to the requested graph data so as to display the data in the manner specified by the request/user.

As per dependent claims 34 and 37, Watts discloses the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps (i.e. area), and x-y graphs (i.e. lines) (col.4, ll. 20-26). Watts fails to specifically disclose the graphical output selection group also consisting of statistical analysis graphs, and combinations thereof, which Wilkinson discloses (pp. 1, Para 3-4). Watts teaches displaying graph data using any of a plurality of graph display types.

It would have been obvious to incorporate Wilkinson's graphical output selection group also consisting of statistical analysis graphs, and combinations thereof with the disclosure of Watts to increase the types of graphical data formats in which to display data.

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As per dependent claim 38, Watts discloses the category role identifies the data variable to be associated with an axis for the non-textual format (i.e. categories A-K along the horizontal axis) (Fig. 2; col. 4, ll. 40-57), wherein the response (i.e. data values/variable range) role identifies the data variable to be associated with an axis for the non-textual format (i.e. the values of A-K displayed along the vertical axis) (Fig. 2; col. 4, ll. 40-57).

As per dependent claim 40, the rationale applied in the rejection of claims 12 and 13 apply herein.

As per dependent claim 45, the rationale applied in the rejection of claim 18. applies herein.

As per dependent claim 50, Watts discloses a server-side computer system that contains the graph styles data structure (col. 4, ll. 29-35), said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application (col. 4-5, ll. 65-7), said generated graphic outputs having display characteristics that are based upon the graph styles data structure (col. 4, ll. 20-29), in view of Wilkinson.

As per dependent claim 51, Wilkinson discloses the graph styles data structure is located in a first computer-based storage medium location (pp. 1, Para 12), and the graph generator module is located in a second computer-

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based storage medium location (i.e. separate memories having separate instructions for presenting a graphical representation and designating and defining the graph style data) (pp. 13, Para 239), as does Watts (i.e. transmitting the graph data file over a network to be generated and displayed on a computer) (Fig. 1).

As per dependent claim 52, Wilkinson discloses the data is received by the graph generator module from a third computer-based storage medium location (pp. 3, Para 50), which Watts also discloses (Fig. 1).

As per dependent claim 53, Watts discloses the graph style data structure is contained within a report model data structure (col. 4, ll. 35-57), said report model data structure also containing a data source specification (col. 4, ll. 60-67) and a view specification (col. 4, ll. 20-28), said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data (col. 4-5, ll. 65-7), said view specification indicating how tabular data is to be visually represented within the report (i.e. the view, e.g. bar, line, etc., is specified by the graph style code) (col. 4, ll. 20-28), said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format (i.e. additional style attributes, e.g. color, effects, shading, etc., are used to display the graph) (col. 4, ll. 25-28), in view of Wilkinson.

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As per dependent claim 54, Watts discloses the graph style data structure is contained within a report model data structure (col. 4, ll. 40-58), said report model data structure also containing data source specification means (i.e. the file and name and path that specify the requested graph data) (col. 4, ll. 62-67) and a view specification means (i.e. the view, e.g. bar, line, etc., is specified by a graph style code) (col. 4, 20-28), in view of Wilkinson.

As per dependent claim 55, Wilkinson discloses the graph style data structure contains graph style data items for formatting display of a statistical analysis graph (pp. 1, Para 3, 7), which Watts fails to specifically disclose.

Watts teaches displaying differing types of graphs (col. 4, ll. 20-25).

It would have been obvious to one of skill in the art to incorporate Wilkinson's display of a statistical analysis graph with the disclosure of Watts to have additional types of graphs for which data can be displayed.

As per independent claim 56, Watts in view of Wilkinson discloses a computer-implemented apparatus for generating data graphical displays (Fig. 1) by the method of claim 1. Therefore the rationale applied in the rejection of claim 1 applies herein.

As per independent claim 57, Watts in view of Wilkinson discloses a computer-implemented apparatus for generating data graphical displays (Fig. 1) by the method of claim 33. Therefore the rationale applied in the rejection of claim 33

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applies herein. Watts discloses a server-side computer system that contains the graph styles data structure (Fig. 1 "114"; Fig. 3 "108"), said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application (Fig. 3; col. 2, ll. 20-34), said generated graphic outputs having display characteristics that are based upon the graph styles data structure (col. 4, ll. 20-29); wherein graph style information contained within the graph styles data structure is accessible by different types of software applications in order to display through the different types of software applications non-textural formatted output based upon the graph style information (i.e. differing computer systems sending a request to a network server to transmit data for display of graph information) (col. 3, ll. 25-30; col. 5, ll. 24-30, 48-49).

3. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts and Wilkinson, as above in claim 1, and further in view of Georges Grinstein et al., U.S. PG Pub 2003/0030637, 2/2003.

As per dependent claim 25, Watts and Wilkinson both fail to disclose the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands, which Grinstein discloses (Fig. 4A).

Grinstein teaches displaying low and high limits of data differently.

Watts teaches applying differing style effects to graphically displayed data (col. 4, ll. 25-29).

Wilkinson teaches associating metadata/attributes to data that are visually descriptive of the relevance of display data (pp. 6, Para 123; pp. 8, Para 145).

It would have been obvious to one of skill in the art to incorporate Grinstein's confidence bands that are used to display data outside of a range differently than the values corresponding to the graph data, e.g. response data within the confidence bands, with the disclosures of Watts and Wilkinson to better visually identify the data that is relevant to the topic of the graphical display.

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As per dependent claim 26, Watts and Wilkinson both fail to disclose the statistical measure is a mean, which Grinstein discloses (pp. 2, Para 16).

Grinstein teaches displaying the statistical data, which includes a mean, along one axis and the attributes of the data along a second axis.

Watts teaches displaying any of a variety of differing types of graphs (col. 4, ll. 20-26).

Wilkinson teaches displaying different types of graphs, including graphs displaying statistical data, and combinations of differing types of graphs (pp. 1, Para 3-4).

It would have been obvious to one of skill in the art to incorporate Grinstein's disclosure of a mean as a statistical measure with the disclosures of Watts and Wilkinson to increase the type of numerical data that can be coded and linked for the graphical display of statistical data.

Response to Arguments

4. Applicant's arguments filed 7/6/2004 have been fully considered but they are not persuasive.

Applicant argues (pp. 16, Para 3) with respect to claim 1, Watts fails to disclose the access of graph style data items by different types of software applications.

In reply, Applicants specification (pp. 4, ll. 5-10) discloses

the same graph styles data 40 may be universally used by multiple software applications 56 to define the applications' respective graphical output appearance as well as the output type (e.g., HTML, PDF, etc.).

Thus, the Examiner's interpretation of the claimed "different types of software applications" was that there are multiple software applications outputting graphical data, where the output graphical data type is defined by the graph style data. Watts specifically discloses multiple software applications in that he teaches handling requests from multiple computers running browser applications (col. 3, ll. 25-30). Watts discloses that the graph styles data defines graphical output appearance type (col. 4, ll. 20-29).

Claims 39 and 56 also recite in combination with their respective limitations the access of graph style data by different types of software applications. Accordingly, these claims are rejected on the same basis as provided above for claim 1.

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Applicant argues (pp. 17, Para 2) Wilkinson fails to disclose metadata designates attributes based upon a role of a variable.

In reply, Wilkinson specifically discloses that data refers to a collection of information and is sometimes referred to as raw data; and that data includes meta-data (pp. 2, Para 36). Wilkinson discloses that a data view is a function used for indexing or organizing raw data, e.g. meta-data (pp. 2, Para 41).

Wilkinson further discloses that the data view package includes an associated data interface (meta-data) model for linking information to objects, where the associated data interface (meta-data) can be attached to variable sets, or categories within a variable set (pp. 6, Para 123). Wilkinson also discloses that the basic drawing interface, primitive graph interface, implements associated data interface so that meta-data can be encoded into any object that is drawn on the screen (pp. 6, Para 124). Wilkinson also discloses all drawing primitive graph interfaces extend from Primitive Graph interface which contains method signatures for getting/setting the object's Aesthetics (an object that describes the primitive's colors, styles, visibility and so on), layering, and handling transformations. Primitive Graph interface extends the Associated Data interface so that meta-data can be encoded into any drawing object. Thus, Wilkinson specifically teaches that meta-data is organized data associated with variables and categories; and used to encode attributes based upon a role, e.g. variable.

With respect to claim 25, Applicant argues (pp. 18, par 1) Grinstein fails to disclose confidence bands.

In reply, Grinstein's discloses methods of analyzing data to determine relationship among variables by using a visual representation of data (pp. 1, Para 4-5). Grinstein discloses using statistical metadata to visualize data on a display (pp. 14, Para 168); where the visualized data is displayed with varying bands of differing color representing the analyzed values corresponding to the statistic (Fig. 4A & 10A).

With respect to claim 33, Applicant argues (pp. 18, Para 2) Watts fails to disclose a graph style data structure containing graph style metadata that describes display characteristic for data based upon the metadata associating at least on of the variables with a role.

In reply, Fig. 2 of Watts represents a graphic file generated by the graphic server system (col. 4, ll. 20-22), having a graph style code that specifies attributes of the graph (col. 4, ll. 25-28), where the graph data codes specify attributes for differing variables, e.g. graph sections, having roles (col. 4, ll. 59-61). Such that in Fig. 2, the horizontal axis displays differing variables, A-K,

each has a role as a category since each is displayed as a graphical bar representing information relative to the variable.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chante Harrison whose telephone number is 703-305-3937. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chante Harrison
Examiner
Art Unit 2672

ceh



MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Index of Claims



Application No.

10/122,584

Examiner

Chante Harrison

Applicant(s)

PATEL ET AL.

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2672

√	Rejected
=	Allowed

-	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claim		Date	
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L Number	Hits	Search Text	DB	Time stamp
1	3801399	@rlad<20020415 or @ad<20020415	USPAT; US-PGPUB	2004/10/05 13:05
2	594	(server or network) and (graph near6 (style or attribute))	USPAT; US-PGPUB	2004/10/05 13:06
3	532	((@rlad<20020415 or @ad<20020415) and ((server or network) and (graph near6 (style or attribute))))	USPAT; US-PGPUB	2004/10/05 13:06
4	791	345/619.ccls.	USPAT; US-PGPUB	2004/10/05 13:07
5	842	345/440.ccls.	USPAT; US-PGPUB	2004/10/05 13:07
6	86	345/440.2.ccls.	USPAT; US-PGPUB	2004/10/05 13:07
7	1666	345/619.ccls. or 345/440.ccls. or 345/440.2.ccls.	USPAT; US-PGPUB	2004/10/05 13:07
8	567	345/418.ccls.	USPAT; US-PGPUB	2004/10/05 13:07
9	460	345/581.ccls.	USPAT; US-PGPUB	2004/10/05 13:08
10	1017	345/418.ccls. or 345/581.ccls.	USPAT; US-PGPUB	2004/10/05 13:08
11	2622	((345/418.ccls. or 345/581.ccls.) or (345/619.ccls. or 345/440.ccls. or 345/440.2.ccls.))	USPAT; US-PGPUB	2004/10/05 13:08
12	44	((345/418.ccls. or 345/581.ccls.) or (345/619.ccls. or 345/440.ccls. or 345/440.2.ccls.)) and ((@rlad<20020415 or @ad<20020415) and ((server or network) and (graph near6 (style or attribute))))	USPAT; US-PGPUB	2004/10/05 13:08
13	300637	((multipl\$6 or plural\$4 or more) near4 (browser or application or computer or server))	USPAT; US-PGPUB	2004/10/05 13:09
14	28	((multipl\$6 or plural\$4 or more) near4 (browser or application or computer or server)) and (((345/418.ccls. or 345/581.ccls.) or (345/619.ccls. or 345/440.ccls. or 345/440.2.ccls.)) and ((@rlad<20020415 or @ad<20020415) and ((server or network) and (graph near6 (style or attribute))))))	USPAT; US-PGPUB	2004/10/05 13:09



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

7590 07/12/2004
John V. Biernacki
Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue
Cleveland, OH 44114

EXAMINER

HARRISON, CHANTE E

ART UNIT	PAPER NUMBER
2672	5

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary

Application No.

10/122,584

Applicant(s)

PATEL ET AL.

Examiner

Chante Harrison

Art Unit

2672

All participants (applicant, applicant's representative, PTO personnel):

(1) Chante Harrison.

(3) Daniel Heath.

(2) John Biernacki.

(4) Gary Kuhn.

Date of Interview: 6/29/04.

Type: a) Telephonic b) Video Conference
c) Personal [copy given to: 1) applicant 2) applicant's representative]

Exhibit shown or demonstration conducted: d) Yes e) No.
If Yes, brief description: _____.

Claim(s) discussed: 1 and 5.

Identification of prior art discussed: Watts US 6,614,433 & Wilkinson.


Agreement with respect to the claims f) was reached. g) was not reached. h) N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.



Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

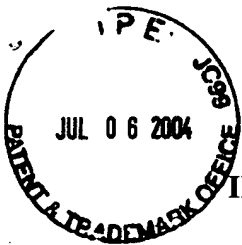
- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Representative and Applicant indicate Watts disclosure of a web server running a browser system limits the type of application to an HTML browser and thus differs from Applicant's claimed access of data by different types of software applications. Examiner indicated that Watts suggest access by differing applications because he teaches a web server running browser systems that have applications that aren't necessarily the same. Representative and Applicant indicate that the synthetic variables of Wilkinson do not specify a display format as they are a means of customizing the data view, which is a table describing the format of the display but does not affect the display characteristics as does the variables of Applicants of claim 1. Representative and Applicant also indicate Watts does not disclose metadata describing display characteristics based upon the role of the variable..



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Patel

Title : Computer-Implemented System And Method For Generating Data Graphical Displays

Application No. : 10/122,584

Filed : April 15, 2002

Attorney Docket : 343355-600-045

Examiner : C. Harrison

Art Unit : 2672

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 JUL 13 2004
 Technology Center 2600

Box Amendment
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

on June 29, 2004

By: John V. Biradi

RESPONSIVE AMENDMENT

Please amend this application as follows and consider the following remarks.

07/08/2004 WABRHAM1 00000074 501432 10122584

01 FC:1201 86.00 DA

IN THE CLAIMS

1. **(Original)** A computer-implemented method for generating data graphical displays, comprising the steps of:

receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items.

2. **(Original)** The method of claim 1 wherein the non-textual format includes a graphic format.

3. **(Original)** The method of claim 2 wherein the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

4. **(Original)** The method of claim 1 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

5. **(Currently Amended)** The method of claim 1 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables, wherein the data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata.

6. **(Currently Amended)** The method of claim ~~4~~6 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

7. **(Original)** The method of claim 6 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

8. **(Original)** The method of claim 7 wherein the category role identifies the data variable to be associated with an axis for the non-textual format.

9. **(Original)** The method of claim 8 wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

10. **(Original)** The method of claim 9 wherein the category role identifies the data variable to be used to determine the number of slices in a pie chart.

11. **(Original)** The method of claim 10 wherein the response role identifies the data variable to be used to determine the sizes of the pie chart slices.

12. **(Original)** The method of claim 1 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output.

13. **(Original)** The method of claim 12 wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

14. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

15. **(Original)** The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

16. **(Original)** The method of claim 1 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

17. **(Original)** The method of claim 1 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

18. **(Original)** The method of claim 17 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables,

wherein the data is displayed in accordance with the graph style data items and the graph style metadata,

wherein the theme is selected based upon the roles contained within the graph style metadata.

19. **(Original)** The method of claim 1 wherein the graph style data is expressed in an XML format.

20. **(Original)** The method of claim 1 wherein a style editor is used to modify the display characteristics of the graph style data items.

21. **(Original)** The method of claim 1 wherein the graph style data items are used to format display of a statistical analysis graph.

22. **(Original)** The method of claim 21 wherein the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure.
23. **(Original)** The method of claim 22 wherein the response comprises a set of points.
24. **(Original)** The method of claim 22 wherein the response comprises a response curve.
25. **(Original)** The method of claim 22 wherein the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands.
26. **(Original)** The method of claim 22 wherein the statistical measure is a mean.
27. **(Original)** The method of claim 1 wherein the received data was generated by data source generating means.
28. **(Original)** The method of claim 1 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

29. **(Original)** The method of claim 1 wherein the graph data items are used within server side computer system means.

30. **(Original)** Computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1.

31. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

32. **(Original)** The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing data source specification means and view specification means, said data structure indicating display characteristics for tabular data,

wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure.

33. **(Original)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure.

34. **(Original)** The apparatus of claim 33 wherein the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps, x-y graphs, statistical analysis graphs, and combinations thereof.

35. **(Original)** The apparatus of claim 33 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

36. **(Original)** The apparatus of claim 33 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

37. **(Original)** The apparatus of claim 36 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, statistical analysis graphs, and x-y graphs.

38. **(Original)** The apparatus of claim 37 wherein the category role identifies the data variable to be associated with an axis for the non-textual format, wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

39. **(Original)** The apparatus of claim 33 wherein different types of software applications access the graph style data items in order to display non-textual formatted output.

40. **(Original)** The apparatus of claim 33 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output, wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

41. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

42. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

43. **(Original)** The apparatus of claim 33 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

44. **(Original)** The apparatus of claim 33 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

45. **(Original)** The apparatus of claim 44 wherein the theme is selected based upon the roles contained within the graph style metadata.

46. **(Original)** The apparatus of claim 33 wherein the graph styles data structure is expressed in an XML format.

47. **(Original)** The apparatus of claim 33 wherein a style editor is used to modify the display characteristics of the graph style data items.

48. **(Original)** The apparatus of claim 33 wherein the received data was generated by data source generating means.

49. **(Original)** The apparatus of claim 33 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

50. **(Original)** The apparatus of claim 33 further comprising:

a server-side computer system that contains the graph styles data structure,
said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,
said generated graphic outputs having display characteristics that are based upon the graph styles data structure.

51. **(Currently Amended)** The apparatus of claim 33 wherein the graph styles data structure is located in a first computer-based ~~non-volatile~~ storage medium location, and the graph generator module is located in a second computer-based ~~non-volatile~~ storage medium location.

52. **(Currently Amended)** The apparatus of claim 51 wherein the data is received by the graph generator module from a third computer-based ~~non-volatile~~ storage medium location.

53. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

54. **(Original)** The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing data source specification means and a view specification means.

55. **(Original)** The apparatus of claim 33 wherein the graph style data structure contains graph style data items for formatting display of a statistical analysis graph.

56. **(Original)** A computer-implemented apparatus for generating data graphical displays, comprising:

means for receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

means for retrieving graph style data items from a data file, said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

means for accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items.

57. **(New)** A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure;

a server-side computer system that contains the graph styles data structure,
said server-side computer system generating graphic outputs based upon
requests received through an internet network from a client web application,

said generated graphic outputs having display characteristics that are
based upon the graph styles data structure;

wherein graph style information contained within the graph styles data
structure is accessible by different types of software applications in order to display
through the different types of software applications non-textual formatted output based
upon the graph style information.

REMARKS

Claims 1-56 stand rejected by the Examiner. Claim 57 has been added. It is noted that claim 6 has been amended so that it can depend from its proper claim; claim 6 was not amended for any other purpose. Accordingly, the claim should be accorded its full range of equivalency.

Examiner's Interview

Patentee's representative would like to thank Examiner Harrison for the courtesies extended to patentee during the telephone interview on June 29, 2004. During the interview, the Watts and Wilkinson cited references were discussed in view of claim 1's recitation of different types of applications and graph style data items as well as claim 5's use of variable roles in determining how a display should be generated. The remarks and amendments contained herein further summarize the interview.

Specification

The office action objected to the specification maintaining that the specification failed to provide proper antecedent basis for the claimed subject matter. More specifically, the office action maintains that correction of the following was required: "non-volatile memory" in claims 51 and 52. In order to clarify claims 51 and 52, the term "non-volatile" has been removed from claims 51 and 52 with the understanding that any storage mechanism can be utilized with the pending claims even non-volatile ones since the originally submitted claims contained that aspect and thus the application as originally filed supports the use of non-volatile storage mechanisms.

Claim Rejections - 35 U.S.C. § 103

Claims 1-24, 27-56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,614,433 to Watts (“Watts”), and further in view of Leland Wilkinson, U.S. Pub. No. 2002/0149604, 10/2002 (“Wilkinson”). Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watts and Wilkinson, and further in view of Georges Grinstein et al., U.S. Pub. No. 2003/0030637. These rejections are traversed.

Claim 1 recites in combination with its other limitations that “graph style data items contain[] display characteristics to be used in displaying the data in a non-textual format.” The graph style data items are used by different types of software applications in order to display non-textual formatted output based upon the graph style data items. Accordingly, graph style data items are structured in claim 1 to be application independent. Figure 2 of Applicants’ specification illustrates in a non-limiting manner different types of software applications at reference numeral 56. As another non-limiting illustration, Figure 8 at reference numeral 320 shows different types of viewing applications being used, such as Microsoft® Word, web browsers, etc.

The office action maintains on page 3 that Watts discloses the access of graph style data items by different types of software applications at column 3, lines 25-30 and column 5, lines 24-30 and 48-49. However, Watts discloses therein the same type of application, namely browser type applications. For example, Watts discloses:

The browser system 102 can be a conventional personal computer running a browser application, for example, and is coupled to web server 104 via a network 110. The web server 104 is a computer

system capable of handling requests from browser system 102 as well as from other browser systems (not shown).
(See, Watts at col. 3, lines 25-30; emphasis added)

The “other browser systems” are still the same type of application, namely a browser type application. Column 5 of Watts further supports this by disclosing only a browser type system. Because claim 1 in combination with its other limitations allows the access of the graph style data items by different types of software applications, claim 1 is not rendered obvious by Watts (whether considered alone or in combination with Wilkinson). Accordingly, claim 1 is allowable as well as its dependent claims.

Claims 39 and 56 also recite in combination with their respective limitations the access of graph style data by different types of software application. Accordingly, these claims are allowable.

Applicants respectfully disagree with other positions in the office action. For example, claim 5 recites that the “graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data’s variables.” The data is displayed in a non-textual format in accordance with the graph style data items and the graph style metadata. As a non-limiting example, graph styles metadata may designate format attributes based upon a role that a variable has within the input data. A variable can have many roles, such as having as its role in the data set to be the “category” variable. Based upon that role, the metadata designates format attributes for use in displaying data associated with that variable. The office action on page 4 relies upon the Wilkinson reference as disclosing the limitations of claim 5, such as in paragraph 123 of Wilkinson. Applicants respectfully disagree. Wilkinson mentions the term “meta-data” in conjunction with a Data View package in paragraph 123. However, there is no disclosure therein that the meta-data is being used to describe display

characteristics or being used to display data based upon roles of the data's variables as required by claim 5. Furthermore, a Data View package as disclosed in paragraph 123 is to generate data views which are data sets produced from "indexed raw data," such as may be found in "hierarchical, relational or topological" organizing schemes (see paragraph 0041 of Wilkinson). The data views (i.e., produced data sets) are tabular representations of the indexed raw data and do not include data being displayed in a non-textual format as required by claim 5. Because, Wilkinson does not teach, suggest or motivate such aspects whether considered alone or in combination, claim 5 is allowable.

With reference to claim 25, claim 25 recites graph style data items being used to format a response based upon the response's departure from a preselected statistical measure (i.e., confidence bands). The graph style data items are used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands. Applicants respectfully disagree with the office action's position that Grinstein in Fig. 4A discloses one or more aspects of claim 25, such as the confidence bands. Fig. 4A of Grinstein is directed to indicating "whether a particular attribute value 306 is considered to be low (dark gray/black 402a), medium (medium gray 402b) or high (light gray 402c)." Such indicators do not provide an indication of confidence, let alone a confidence graphical band display as required by claim 25, and accordingly, claim 25 is allowable.

Claim 33 recites in combination with its other limitations a graph style data structure containing graph style metadata. The graph style metadata describes display characteristics for data based upon the metadata associating at least one of the variables with a role. The office action maintains that these limitations are disclosed in Figure 2 of

Watts. However, Figure 2 and its accompanying description in the specification of Watts does not disclose using a variable's role as metadata in determining how a display should be rendered. Accordingly, Watts whether viewed alone or in combination with another cited reference cannot render claim 33 obvious, and claim 33 and its dependent claims are allowable.

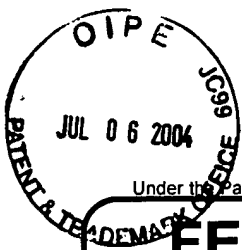
CONCLUSION

For the foregoing reasons, Applicants respectfully submit that the pending claims are allowable. Therefore, the Examiner is respectfully requested to pass this case to issuance.

Respectfully submitted,

Date: June 29, 2004

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2672 \$

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)**86.00**

Complete if Known	
Application Number	10/122,584
Filing Date	April 15, 2002
First Named Inventor	Patel et al.
Examiner Name	Chante E. Harrison
Art Unit	2672
Attorney Docket No.	343355600045

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METHOD OF PAYMENT (check all that apply)

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Charge any additional fee(s) or any underpayment of fee(s)

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FEE CALCULATION (continued) JUL 13 2004

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1)			(\$) -0-

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(g)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	
Other fee (specify)			
*Reduced by Basic Filing Fee Paid			
SUBTOTAL (3)			(\$) -0-

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims: -20** = X = **-0-**

Independent Claims: -3** = X = **86**

Multiple Dependent: = **-0-**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1202 18	2202 9	Claims in excess of 20	
1201 86	2201 43	Independent claims in excess of 3	
1203 290	2203 145	Multiple dependent claim, if not paid	
1204 86	2204 43	** Reissue independent claims over original patent	
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)			(\$) 86.00

**or number previously paid, if greater; For Reissues, see above

SUBMITTED BY (Complete if applicable)

Name (Print/Type)	John V. Biernacki	Registration No. (Attorney/Agent)	40,511	Telephone	216-586-7747
Signature	<i>John Biernacki</i>	Date	June 29, 2004		

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/122,584	04/15/2002	Himesh G. Patel	343355600045	4700

7590 03/29/2004
John V. Biernacki
 Jones, Day, Reavis & Pogue
 North Point, 901 Lakeside Avenue
 Cleveland, OH 44114

EXAMINER

HARRISON, CHANTE E

ART UNIT	PAPER NUMBER
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2672

4

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Handwritten mark

Office Action Summary

Application No.

10/122,584

Applicant(s)

PATEL ET AL.

Examiner

Chante Harrison

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 April 2002.
- 2a) This action is FINAL.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-56 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-56 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 - Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 - Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 - * See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) Interview Summary (PTO-413) Paper No(s). _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other:

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "non-volatile memory" in claims 51 and 52.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-24, 27-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts, U.S. Patent 6,614,433, 9,2003, and further in view of Leland Wilkinson, U.S. PG Pub 2002/0149604, 10/2002.

As per independent claim 1, Watts discloses receiving data to be displayed in a non-textual format (i.e. receiving a request for display of data that includes categories of data, e.g. A-K as displayed in Fig. 2, and numerical values associated with the data) (col. 3, ll. 60-65), retrieving graph style data items (i.e. retrieving the codes specifying the attributes for the graph to be displayed) from a data file (col. 3, ll. 65-67; col. 4, ll.

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20-25), said graph style data items (i.e. attributes describing the visual display of the graph data) containing display characteristics to be used in displaying the data in a non-textual format (col. 4, ll. 20-25); and accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items (i.e. differing computer systems sending a request to a network server to transmit data for display of graph information) (col. 3, ll. 25-30; col. 5, ll. 24-30, 48-49).

Watts fails to disclose said received data being indicative of a plurality of variables, which Wilkinson discloses (pp. 6, Para 115).

Watts teaches data items corresponding to graphics files that specify information such as headings, titles and labels.

Wilkinson teaches using meta-data and synthetic variables as a source for data to be displayed.

It would have been obvious to one of ordinary skill in the art to incorporate Wilkinson's disclosure of received data being indicative of a plurality of variables with the disclosure of Watts because Watts teaches data items corresponding to graphics files that specify information such as headings, titles and labels, which are representative of various variables for which displayed data is representative.

As per dependent claim 2, Watts discloses the non-textual format includes a graphic format (col. 4, ll. 20-25) in view of Wilkinson.

As per dependent claims 3 and 7, Watts discloses the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps (i.e. area graph) and x-y graphs (i.e. line graph) (col. 4, ll. 20-25) in view of Wilkinson.

As per dependent claims 4 and 35, Watts discloses the display characteristics include characteristics selected from the group consisting of font characteristics (i.e. line width), color characteristics, border characteristics (i.e. 3D effects), and combinations thereof (col. 4, ll. 25-28) in view of Wilkinson.

As per dependent claim 5, Wilkinson discloses said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables (i.e. associated data/meta-data links information to objects by variable, category, etc.) (pp. 6, Para 123), wherein the data is displayed in accordance with the graph style data items (pp.7, Para 143) and the graph style metadata (pp. 7, Para 134) (i.e. the graphs are displayed using style data items that define display characteristics such as the legend, scale and axis; and the graphs are displayed using metadata such as the associated data linked to the objects), which Watts also discloses (Fig. 2; col. 4, ll. 20-28, 40-57) (i.e. the graphics request includes data A-K, where each is a category having a displayable value, and each item of data is displayed by its category and with its desired visual attributes).

As per dependent claims 6 and 36, Watts discloses the graph style metadata identifies a data variable as having a category role (i.e. categories A-K) (col. 4, ll. 40-57) and identifies another data variable as having a response role (i.e. the range or numerical value of the category) (col. 4, ll. 40-57), said category role and said response role being used by different output non-textual formats (col. 4, ll. 20-30), as does Wilkinson (pp. 7, Para 134, pp. 1, Para 11; Fig. 5; pp. 8, Para 157).

As per dependent claim 8, Watts discloses the category role identifies the data variable to be associated with an axis for the non-textual format (i.e. A-K displayed along the horizontal axis) (Fig. 2), in view of Wilkinson.

As per dependent claim 9, Watts discloses the response role identifies the data variable to be associated with an axis for the non-textual format (i.e. the height of the bars) (Fig. 2), in view of Wilkinson.

As per dependent claim 10, Watts discloses the category role identifies the data variable to be used to determine the number of slices in a pie chart (i.e. A-K when displayed in a pie chart), in view of Wilkinson.

As per dependent claim 11, Watts discloses the response role identifies the data variable to be used to determine the sizes of the pie chart slices (i.e. the values of A-K,

as indicated in the graphics request and vertically displayed in Fig. 2, would be displayed as slices in a pie chart) (Fig. 2; col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claims 12 and 39, Watts discloses the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output (col. 3, ll. 9-10; col. 4-5, ll. 65-1; col. 5, ll. 24-35), in view of Wilkinson.

As per dependent claim 13, Watts discloses the output formats include the HTML formats (col. 5, ll. 40-50).

Watts fails to disclose the formats include XML, PDF, and text.

Wilkinson discloses the XML format (i.e. string description) (pp. 6, Para 124), but fails to disclose the PDF and text formats.

It would have been obvious to one of skill in the art to incorporate Wilkinson's XML format with the disclosure of Watts as well as the PDF and text formats because each are text description formats, where the use of any provides communication for describing and generating data for systems that process differing formats.

As per dependent claims 14 and 41, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style data items specifying display attributes for all of the graphical display components (col. 4, ll. 20-28), in view of Wilkinson.

As per dependent claims 15 and 42, Watts discloses non-textual formatted output includes graphical display components (i.e. bar, slices, lines) to indicate values of the received data (i.e. the height of the bars indicates the values) (Fig. 2), said graph style data items specifying different display attributes for each of the graphical display components (col. 4, ll.20-28), in view of Wilkinson.

As per dependent claims 16 and 43, Watts discloses non-textual formatted output includes a first (i.e. the height of the bars indicates the values) and second set (i.e. the size of a pie slice indicates the value) of graphical display components (i.e. bar, slices, lines) that indicate values of the received data (Fig. 2), said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components (col. 4, ll. 20-28), in view of Wilkinson.

As per dependent claims 17 and 44, Watts discloses the graph style data items contain theme (i.e. symbols) information that is to be displayed within the non-textual formatted output (i.e. displaying the graph with differing labels) (col. 4, ll. 59-61), in view of Wilkinson.

As per dependent claim 18, Watts discloses graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables (i.e. the display data includes graphic codes that specify additional

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display attributes) (col. 4, ll. 57-61), wherein the data is displayed in accordance with the graph style data items and the graph style metadata (i.e. the data is displayed based on the category and the selected style) (col. 4, ll. 20-28, 40-57).

Watts fails to specifically disclose wherein the theme is selected based upon the roles contained within the graph style metadata, which Wilkinson discloses

Watts teaches associating graph data with labels/themes (col. 4, ll. 59-61).

Wilkinson teaches assigning themes (i.e. axis, legend) (pp. 7-8, Para 143-145).

It would have been obvious to one of skill in the art to incorporate Wilkinson's selection of a theme based on the role of the graph style metadata with the disclosure of Watts so that the labeling of graph data would correspond to the type of data.

As per dependent claims 19 and 46, Wilkinson discloses the graph styles data structure is expressed in an XML format (i.e. string description) (pp. 6, Para 124), which Watts fails to disclose.

Watts teaches the data is in an HTML format.

Wilkinson teaches using a string description to express the data.

It would have been obvious to one of skill in the art to incorporate Wilkinson's XML format with the disclosure of Watts because HTML and XML are both text description format, where the use of XML provides another format for describing the data.

As per dependent claims 20 and 47, Watts discloses a style editor is used to modify the display characteristics of the graph style data items (i.e. graph style may be specified) (col. 4, ll. 25-28), in view of Wilkinson.

As per dependent claim 21, Wilkinson discloses the graph style data items are used to format display of a statistical analysis graph (pp. 1, Para 3-4), which Watts fails to specifically disclose.

Watts teaches displaying graph data using any of a plurality of graph display types.

It would have been obvious to incorporate Wilkinson's display of a statistical analysis graph with the disclosure of Watts to increase the types of graphical data formats in which to display data.

As per dependent claim 22, Watts and Wilkinson fail to specifically disclose the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure. Watts teaches displaying multiple types of graphs, one of which is a Gantt chart.

It would have been obvious to one of skill in the art to incorporate displaying a response based upon the response's departure from a preselected statistical measure with the disclosures of Watts in view of Wilkinson, because a Gantt chart which is used to track the completion of tasks versus a time frame of completion, would graphically illustrate the departure of a task's completion, e.g. value/response, from the

predetermined time in which the task should be completed, e.g. the preselected statistical measure.

As per dependent claim 23, Watts discloses the response comprises a set of points (i.e. in the display of a scatter graph the response/displayed data values would be points) (col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claim 24, Watts discloses the response comprises a response curve (i.e. in the display of a line graph the response/displayed data values may be curves) (col. 4, ll. 20-25), in view of Wilkinson.

As per dependent claims 27 and 48, Watts discloses the received data was generated by data source generating means (i.e. the graph request is generated by a service application) (col. 4, ll. 35-40), in view of Wilkinson.

As per dependent claims 28 and 49, Watts discloses the graph style data items contain data to additional data means to format the non-textual formatted output (col. 4, ll. 59-61), in view of Wilkinson.

As per dependent claim 29, Watts discloses the graph data items are used within server side computer system means (Fig. 1), in view of Wilkinson.

As per independent claim 30, Watts discloses computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim1 (abstract), in view of Wilkinson.

As per dependent claim 31, Watts discloses the graph style data items are contained within a data structure (col. 5, ll. 31-33), said data structure also containing a data source specification and a view specification (col. 5, ll. 33-36), said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data (col. 4 ll. 39-56), said view specification indicating how tabular data is to be visually represented within the report (col. 4, ll. 20-25), said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format (col. 4, ll. 58-60), in view of Wilkinson.

As per dependent claim 32, Watts discloses the graph style data items are contained within a data structure (i.e. file) (col. 4, ll. 20-22), said data structure also containing data source specification means (i.e. data identifying the name and path of the data file) (col.4, ll. 62-67) and view specification means (i.e. specifying which graph, e.g. bar, line, etc., is to be displayed) (col. 4, ll. 20-28), said data structure indicating display characteristics for tabular data (i.e. style data that is specified for each graph) (col. 4, ll. 25-29, 59-61), wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure (i.e. the graph is displayed with the

numerical data and the visual characteristics specified for its display) (Fig. 2), in view of Wilkinson.

As per independent claim 33, Watts discloses a graph generator module that receives data to be displayed in a non-textual format (col. 3, ll. 60-65), said received data being indicative of a plurality of variables (i.e. data types represented by A-K displayed along the horizontal axis) (Fig. 2); graph styles file that defines display characteristics to be used in displaying the data in a non-textual format (i.e. a file that defines the graph data) (col. 4, ll. 20-22), said graph style file containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role (i.e. data types represented by A-K, which are displayed as different categories/roles along the horizontal axis) (Fig. 2); said graph generator module having data access to the graph style data structure (i.e. a service application transmits and returns data for generating the graph) (col. 5, ll. 24-36), said graph generator module generating at least one graphical output based upon the received data (i.e. displaying one representation) (Fig. 2; col. 4, ll. 65-67), said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure (i.e. the graph is displayed with the numerical data and the visual characteristics specified for its display) (Fig. 2). Watts fails to specifically disclose a data structure, which Wilkinson discloses (i.e. data organized hierarchically and expressed as a graph dimension that maps attributes) (pp. 2, Para 41; pp. 7, Para 132-133).

It would have been obvious to one of skill in the art to incorporate Wilkinson's data structure with the disclosure of Watts because Watts teaches using a graphics file to define the graph style data using codes, where codes are used to map data attributes to the requested graph data so as to display the data in the manner specified by the request/user.

As per dependent claims 34 and 37, Watts discloses the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps (i.e. area), and x-y graphs (i.e. lines) (col.4, ll. 20-26). Watts fails to specifically disclose the graphical output selection group also consisting of statistical analysis graphs, and combinations thereof, which Wilkinson discloses (pp. 1, Para 3-4). Watts teaches displaying graph data using any of a plurality of graph display types.

It would have been obvious to incorporate Wilkinson's graphical output selection group also consisting of statistical analysis graphs, and combinations thereof with the disclosure of Watts to increase the types of graphical data formats in which to display data.

As per dependent claim 38, Watts discloses the category role identifies the data variable to be associated with an axis for the non-textual format (i.e. categories A-K along the horizontal axis) (Fig. 2; col. 4, ll. 40-57), wherein the response (i.e. data values/variable range) role identifies the data variable to be associated with an axis for the non-textual format (i.e. the values of A-K displayed along the vertical axis) (Fig. 2; col. 4, ll. 40-57).

As per dependent claim 40, the rationale applied in the rejection of claims 12 and 13 apply herein.

As per dependent claim 45, the rationale applied in the rejection of claim 18. applies herein.

As per dependent claim 50, Watts discloses a server-side computer system that contains the graph styles data structure (col. 4, ll. 29-35), said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application (col. 4-5, ll. 65-7), said generated graphic outputs having display characteristics that are based upon the graph styles data structure (col. 4, ll. 20-29), in view of Wilkinson.

As per dependent claim 51, Wilkinson discloses the graph styles data structure is located in a first computer-based non-volatile storage medium location (pp. 1, Para 12), and the graph generator module is located in a second computer-based non-volatile storage medium location (i.e. separate non-volatile memories having separate instructions for presenting a graphical representation and designating and defining the graph style data) (pp. 13, Para 239).

Watts fails to specifically disclose non-volatile memory, but teaches transmitting the graph data file over a network to be generated and displayed on a computer.

It would have been obvious to incorporate Wilkinson's disclosure of differing non-volatile storage medium locations for the graph generator module and the graph styles data structure with the disclosure of Watts for the benefit of transmitting and generating graph style data within a network.

As per dependent claim 52, Wilkinson discloses the data is received by the graph generator module from a third computer-based non-volatile storage medium location (pp. 3, Para 50), which Watts also discloses (Fig. 1).

As per dependent claim 53, Watts discloses the graph style data structure is contained within a report model data structure (col. 4, ll. 35-57), said report model data structure also containing a data source specification (col. 4, ll. 60-67) and a view specification (col. 4, ll. 20-28), said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data (col. 4-5, ll. 65-7), said view specification indicating how tabular data is to be visually represented within the report (i.e. the view, e.g. bar, line, etc., is specified by the graph style code) (col. 4, ll. 20-28), said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format (i.e. additional style attributes, e.g. color, effects, shading, etc., are used to display the graph) (col. 4, ll. 25-28), in view of Wilkinson.

As per dependent claim 54, Watts discloses the graph style data structure is contained within a report model data structure (col. 4, ll. 40-58), said report model data

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structure also containing data source specification means (i.e. the file and name and path that specify the requested graph data) (col. 4, ll. 62-67) and a view specification means (i.e. the view, e.g. bar, line, etc., is specified by a graph style code) (col. 4, 20-28), in view of Wilkinson.

As per dependent claim 55, Wilkinson discloses the graph style data structure contains graph style data items for formatting display of a statistical analysis graph (pp. 1, Para 3, 7), which Watts fails to specifically disclose.

Watts teaches displaying differing types of graphs (col. 4, ll. 20-25).

It would have been obvious to one of skill in the art to incorporate Wilkinson's display of a statistical analysis graph with the disclosure of Watts to have additional types of graphs for which data can be displayed.

As per independent claim 56, Watts in view of Wilkinson discloses a computer-implemented apparatus for generating data graphical displays (Fig. 1) by the method of claim 1. Therefore the rationale applied in the rejection of claim 1 applies herein.

3. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts and Wilkinson, as above in claim 1, and further in view of Georges Grinstein et al., U.S. PG Pub 2003/0030637, 2/2003.

As per dependent claim 25, Watts and Wilkinson both fail to disclose the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands, which Grinstein discloses (Fig. 4A).

Grinstein teaches displaying low and high limits of data differently.

Watts teaches applying differing style effects to graphically displayed data (col. 4, ll. 25-29).

Wilkinson teaches associating metadata/attributes to data that are visually descriptive of the relevance of display data (pp. 6, Para 123; pp. 8, Para 145).

It would have been obvious to one of skill in the art to incorporate Grinstein's confidence bands that are used to display data outside of a range differently than the values corresponding to the graph data, e.g. response data within the confidence bands, with the disclosures of Watts and Wilkinson to better visually identify the data that is relevant to the topic of the graphical display.

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As per dependent claim 26, Watts and Wilkinson both fail to disclose the statistical measure is a mean, which Grinstein discloses (pp. 2, Para 16).

Grinstein teaches displaying the statistical data, which includes a mean, along one axis and the attributes of the data along a second axis.

Watts teaches displaying any of a variety of differing types of graphs (col. 4, ll. 20-26).

Wilkinson teaches displaying different types of graphs, including graphs displaying statistical data, and combinations of differing types of graphs (pp. 1, Para 3-4).

It would have been obvious to one of skill in the art to incorporate Grinstein's disclosure of a mean as a statistical measure with the disclosures of Watts and Wilkinson to increase the type of numerical data that can be coded and linked for the graphical display of statistical data.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chante Harrison whose telephone number is 703-305-3937. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chante Harrison
Examiner
Art Unit 2672

March 19, 2004



MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

AT

Notice of References Cited	Application/Control No. 10/122,584	Applicant(s)/Patent Under Reexamination PATEL ET AL.	
	Examiner Chante Harrison	Art Unit 2672	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
A	US-6,614,433 B1 /	09-2003	Watts, Julian C.	345/440
B	US-2002/0149604 A1 /	10-2002	Wilkinson, Leland	345/643
C	US-6,301,579 B1 /	10-2001	Becker, Barry G.	707/102
D	US-2003/0071814 A1 /	04-2003	Jou et al.	345/440
E	US-2003/0030637 /	02-2003	Grinstein et al.	345/420
F	US-			
G	US-			
H	US-			
I	US-			
J	US-			
K	US-			
L	US-			
M	US-			

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
N					
O					
P					
Q					
R					
S					
T					

NON-PATENT DOCUMENTS

*	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
U	
V	
W	
X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

L Number	Hits	Search Text	DB	Time stamp
-	951068	pie or bar or graph\$3	USPAT; US-PGPUB	2004/02/11 10:51
-	765	((345/440).CCLS.)	USPAT; US-PGPUB	2004/02/11 10:38
-	619	((pie or bar or graph\$3) and ((345/440).CCLS.))	USPAT; US-PGPUB	2004/02/11 10:51
-	951068	pie bar or graph\$3	USPAT; US-PGPUB	2004/02/11 10:51
-	1288	pie and bar and graph\$3	USPAT; US-PGPUB	2004/02/11 10:52
-	55	((pie and bar and graph\$3) and ((pie or bar or graph\$3) and ((345/440).CCLS.))	USPAT; US-PGPUB	2004/02/11 10:52
-	55	((pie and bar and graph\$3) and ((345/440).CCLS.))	USPAT; US-PGPUB	2004/02/11 11:03
-	1	((345/440).CCLS.) and (html and xml and pdf and text)	USPAT; US-PGPUB	2004/02/11 11:04
-	282	((345/440).CCLS.) and (html or xml or pdf or text)	USPAT; US-PGPUB	2004/02/11 11:16
-	38	((pie and bar and graph\$3) and ((345/440).CCLS.)) and ((345/440).CCLS.) and (html or xml or pdf or text))	USPAT; US-PGPUB	2004/02/11 11:16

APPLICATION TRANSFER REQUEST FOR _____

Section I. TRANSFER REQUEST BY (PRINT NAME) Hony Date 2/11/09

TO: Art Unit 2672 Class/sub 345/4004 FROM: A.U. 2178 Class 715

REASON: Claims directed specifically to graph generation.

Hand carried: Personally accepted by _____

Section II a. DISPOSITION BY RECEIVING TC By: _____ A.U. _____ Date _____

ACCEPTED BY RECEIVING T.C.

NOT ACCEPTED Forward to receiving TC Post Classifier

Non-classification issue/other, return to Originating TC/AU _____

REASON:

Section II b. DISPOSITION BY RECEIVING TC POST CLASSIFIER

This dispute was resolved. Forward to TC/AU _____ Class/Sub _____ Post Classifier _____ Date _____

Concurring _____ Date _____

This dispute was not resolved, forward to DISPUTE RESOLUTION PANEL

Post Classifier Assessment: _____

Post Classifier _____ Date _____

Section III. DISPOSITION BY DISPUTE RESOLUTION PANEL _____ Date _____

Panel Decision: Forward to Technology Center / Art Unit _____ Class/sub _____

REASON:

Panel Member _____ Concurring Panel Member _____

This application MAY NOT be returned to the dispute resolution panel. THIS IS A FINAL DISPOSITION.

PW



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0300

PATENT

Attorney Docket No. 343355600045

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Patel et al.

Serial No.: 10/122,584
Filed: April 15, 2002
For: COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR
GENERATING DATA GRAPHICAL DISPLAYS

BOX MISSING PARTS
COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

This replies to the Notice to File Corrected Application Papers mailed
May 23, 2002. A copy of the Notice is enclosed.

Substitute Drawings

Enclosed are substitute drawings in compliance with 37 C.F.R. 1.84(g).

Authorization to Charge Additional Fees

The Commissioner is hereby authorized to charge any fees which may be required
by this paper only to Jones, Day, Reavis & Pogue Deposit Account No. 501432, account
343355600045.

Respectfully submitted,

John V. Biernacki
Registration No. 40,511
JONES, DAY, REAVIS & POGUE
North Point
901 Lakeside Avenue
Cleveland, OH 44114
(216) 586-7747

Attorney for SAS Institute Inc.

I hereby certify that this correspondence
is being deposited today with the United
States Postal Service as first class mail in
an envelope addressed to: Commissioner for
Patents, Washington, D.C. 20231
on JUNE 3, 2002

By: Kathie G. Kopeck

Date: June 3, 2002



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UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/122,584	04/15/2002	Himesh G. Patel	343355600045

John V. Biernacki
Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue
Cleveland, OH 44114



CONFIRMATION NO. 4700

FORMALITIES LETTER



OC00000008179600

Date Mailed: 05/23/2002

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

This application has been accorded an Application Number and Filing Date. The application, however, is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given **TWO MONTHS** from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a)

The required item(s) identified below must be timely submitted to avoid abandonment:

- Substitute drawings in compliance with 37 CFR 1.84 because:
 - drawing sheets do not have the appropriate margin(s) (see 37 CFR 1.84(g)). Each sheet must include a top margin of at least 2.5 cm. (1 inch), a left side margin of at least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom margin of at least 1.0 cm. (3/8 inch);

*A copy of this notice **MUST** be returned with the reply.*

Melaniebet kibret

Customer Service Center
Initial Patent Examination Division (703) 308-1202

PART 2 - COPY TO BE RETURNED WITH RESPONSE

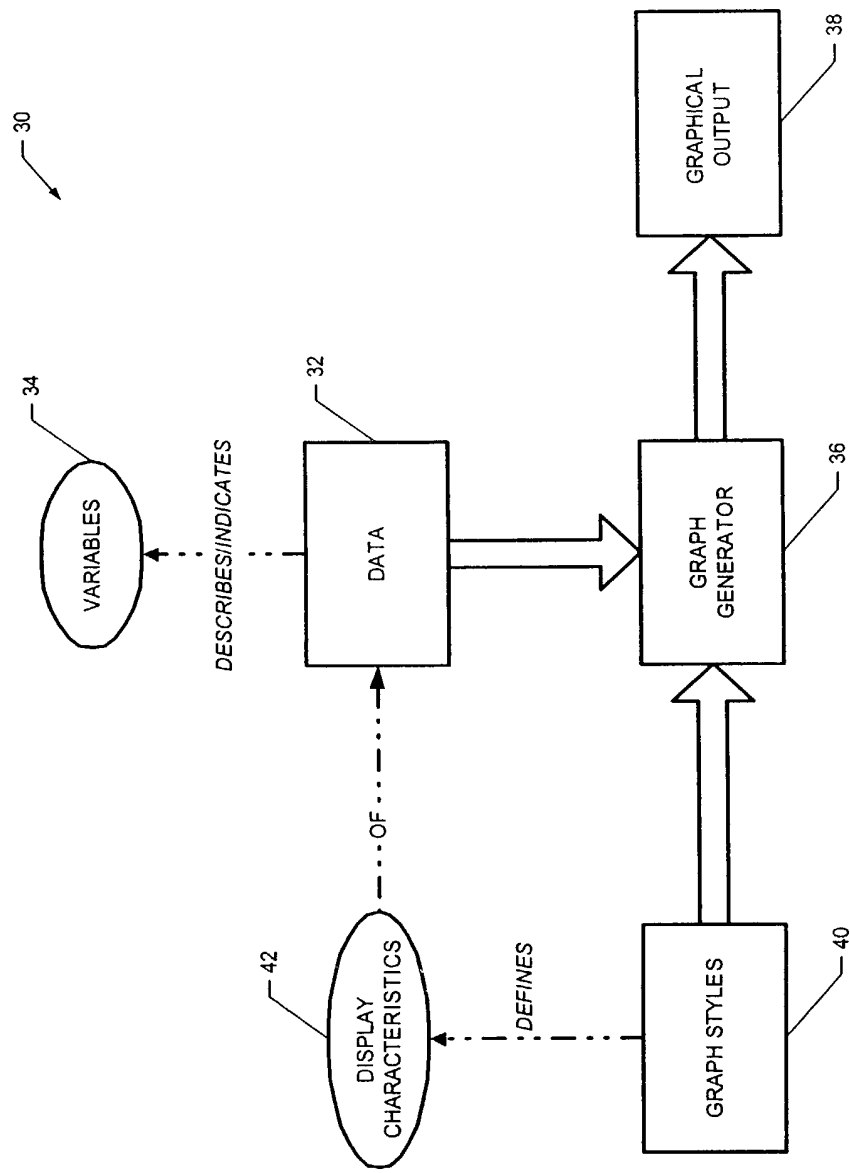


FIG. 1

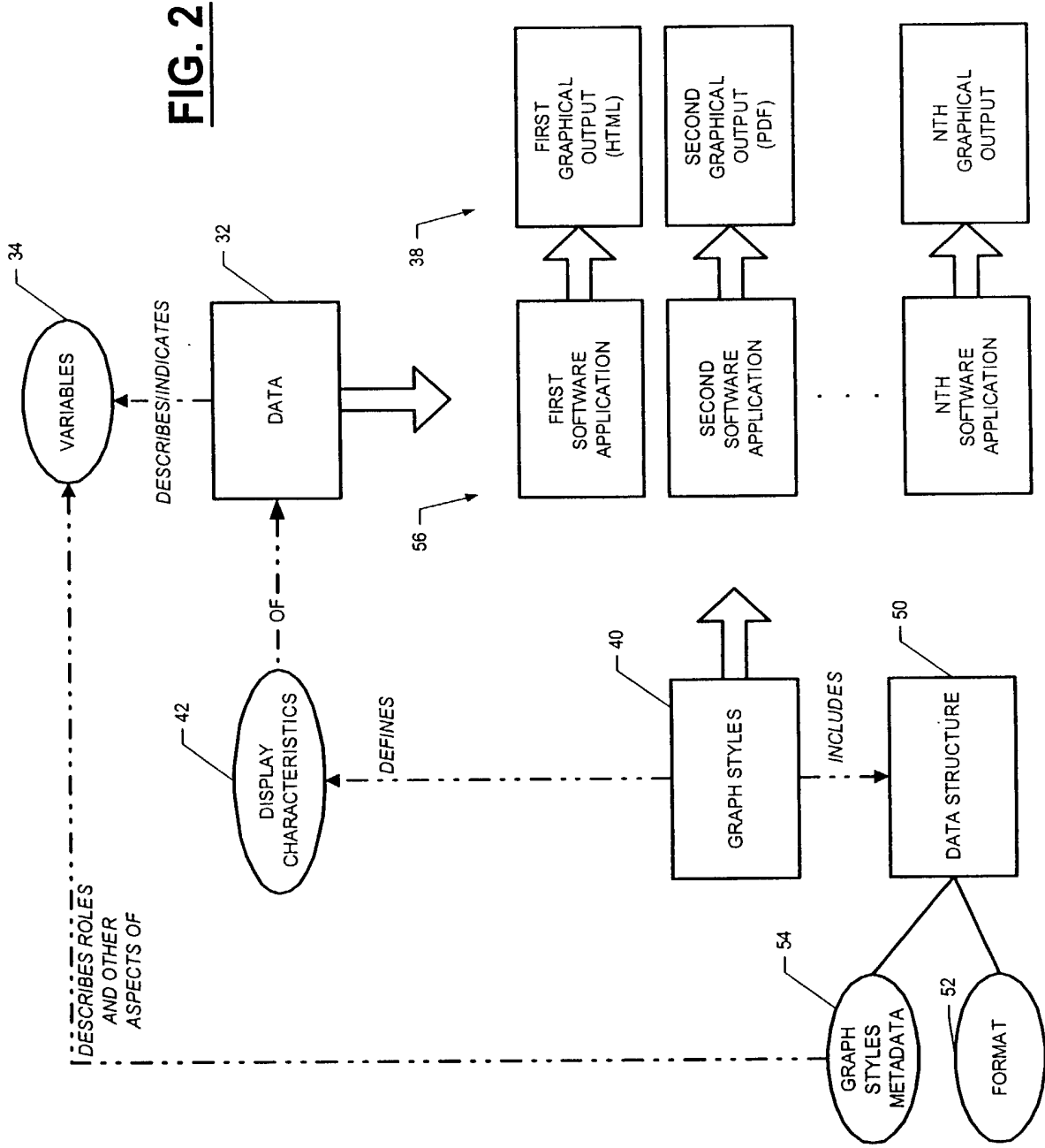


FIG. 2

FIG. 2

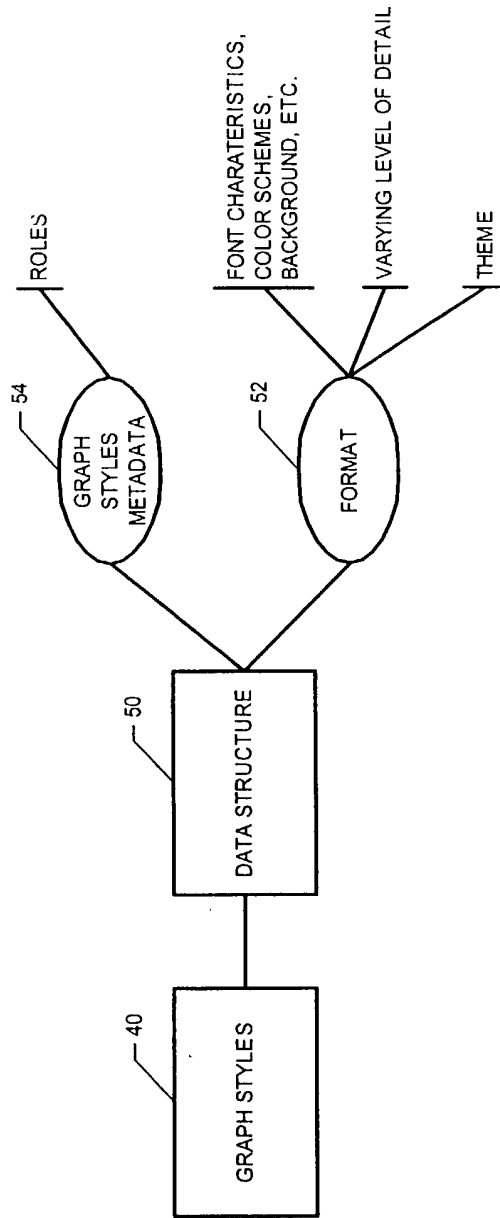


FIG. 3


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              ="String"/>
            <Variable name="Year31" varName="Year3" label="Year" type
              ="String"/>
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110  </Variables>
112  <ValuesList>
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FIG. 4A

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="Pattern"/>
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="Pattern"/>
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="5%" yOffset="5%"/>
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</style:Scheme>

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FIG. 4C

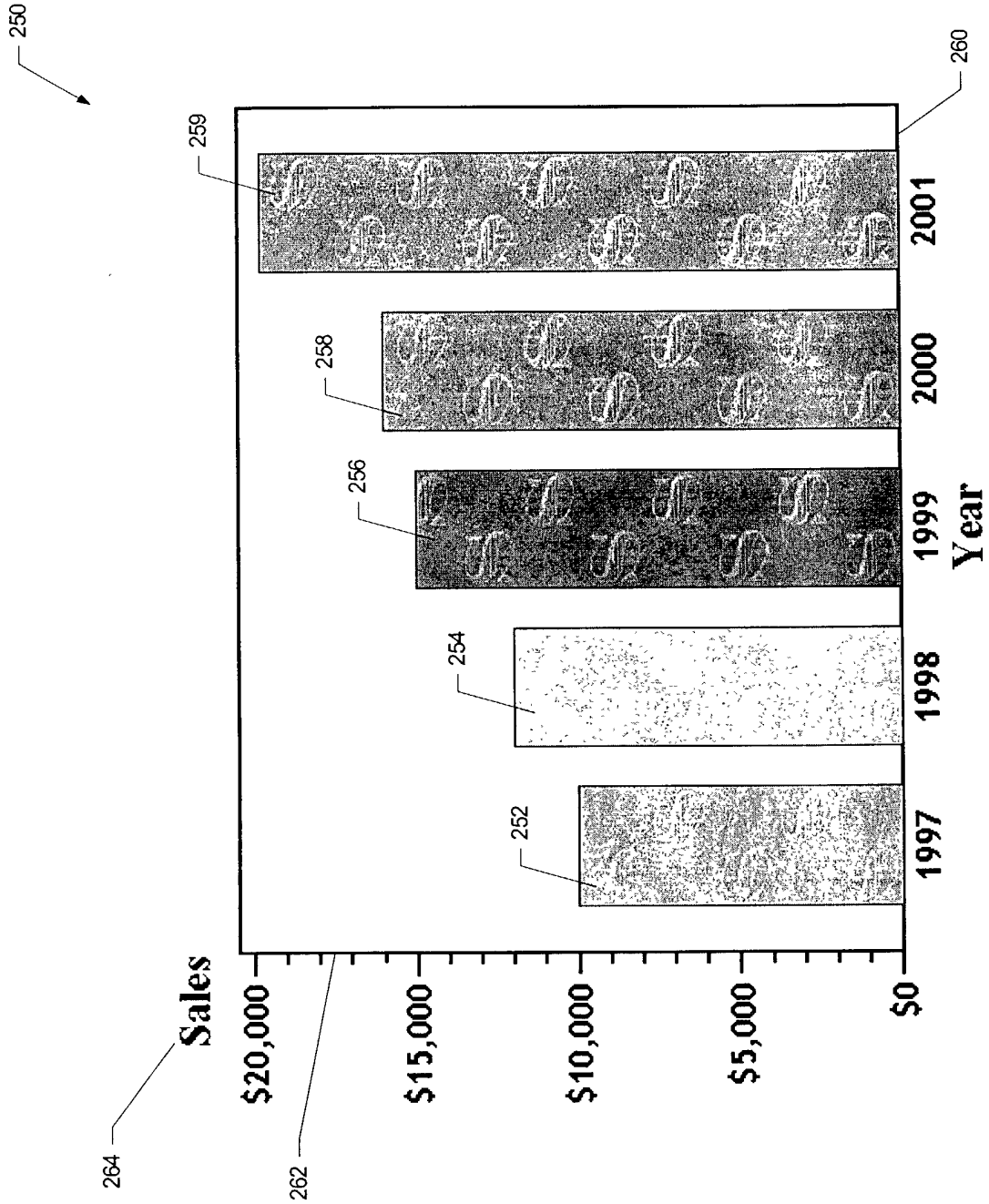


FIG. 5

282

280

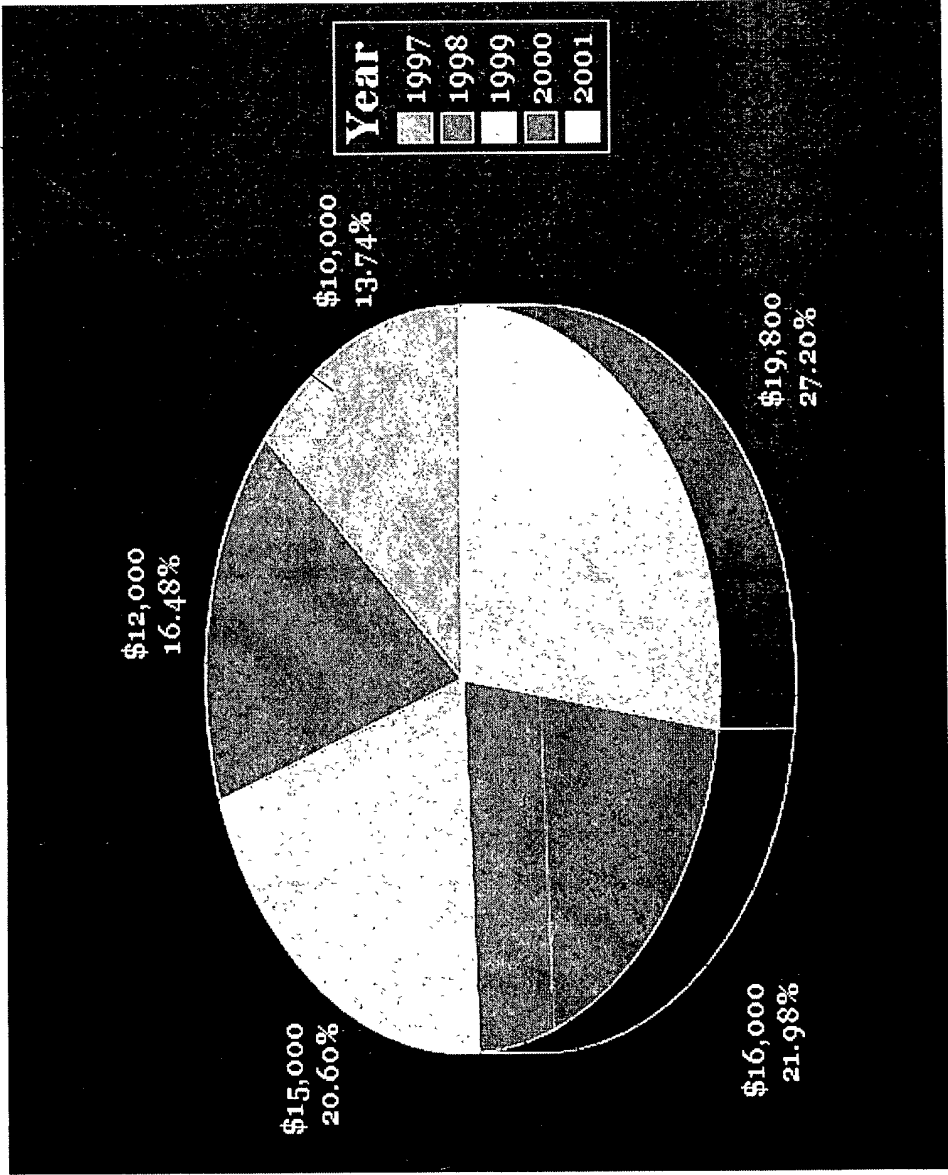


FIG. 6

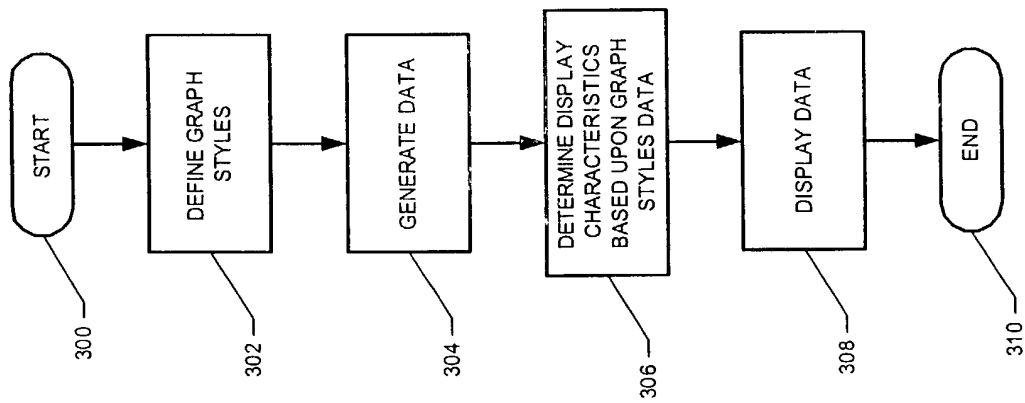


FIG. 7

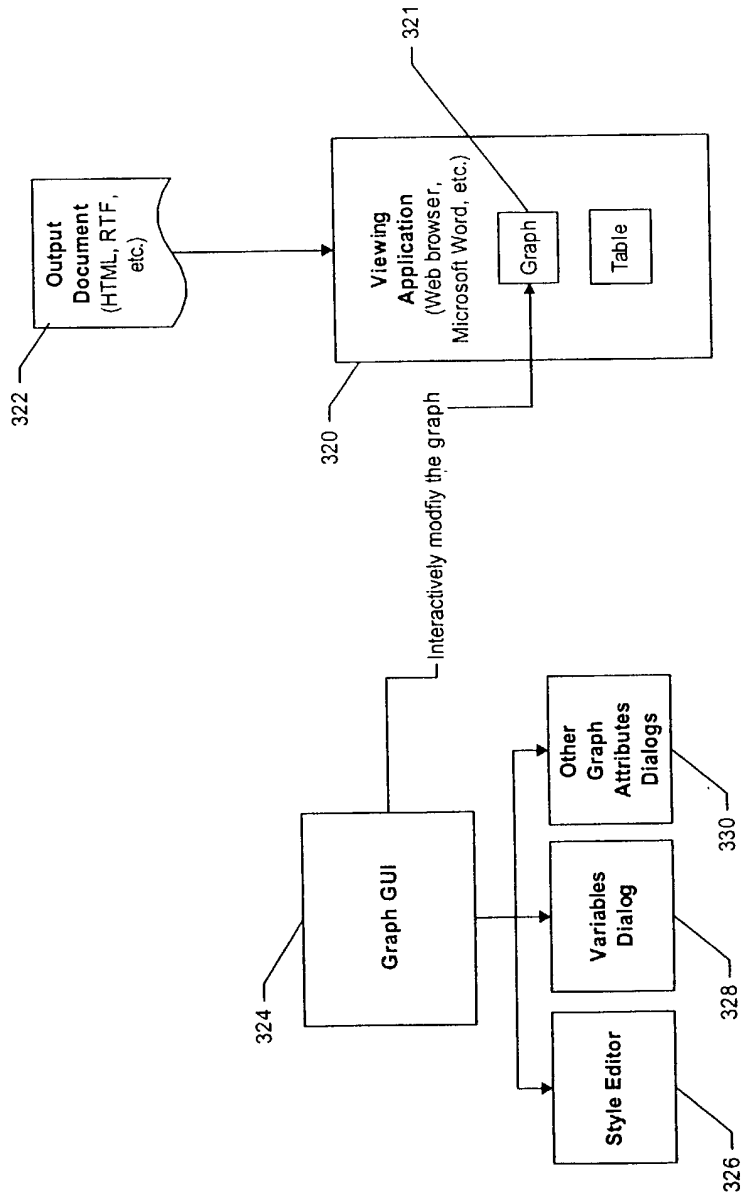


FIG. 8

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

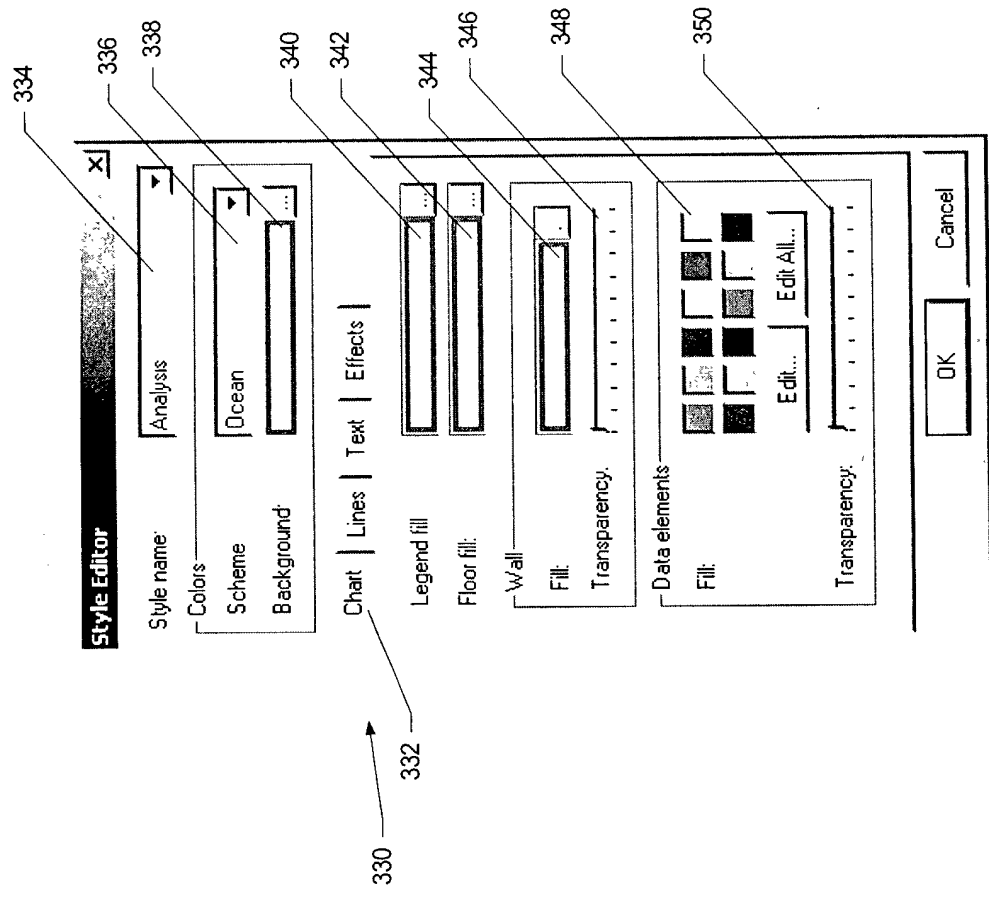


FIG. 9

334

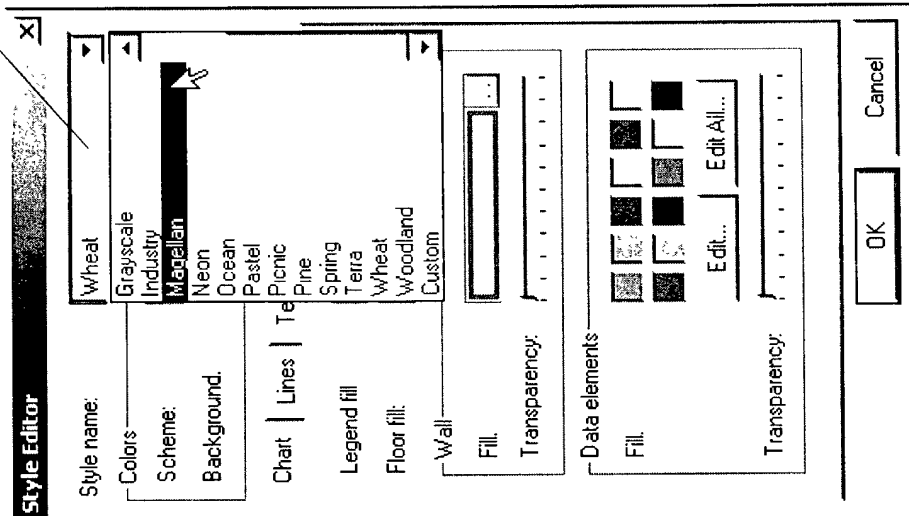


FIG. 10

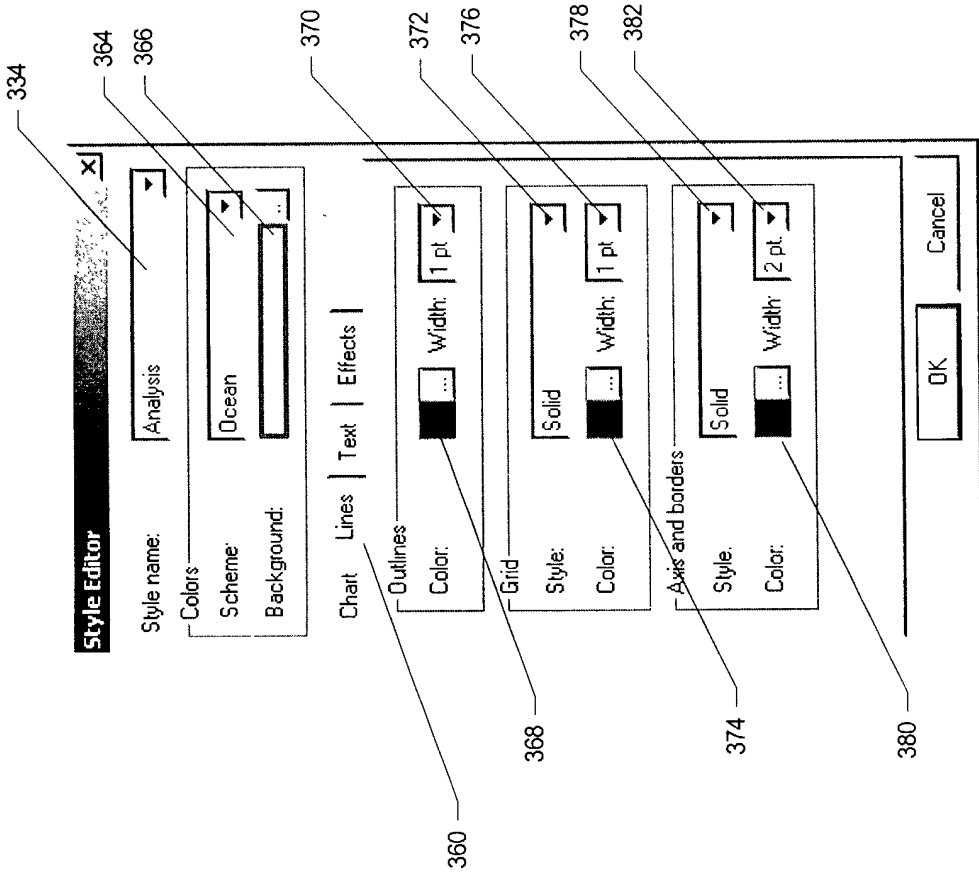


FIG. 11

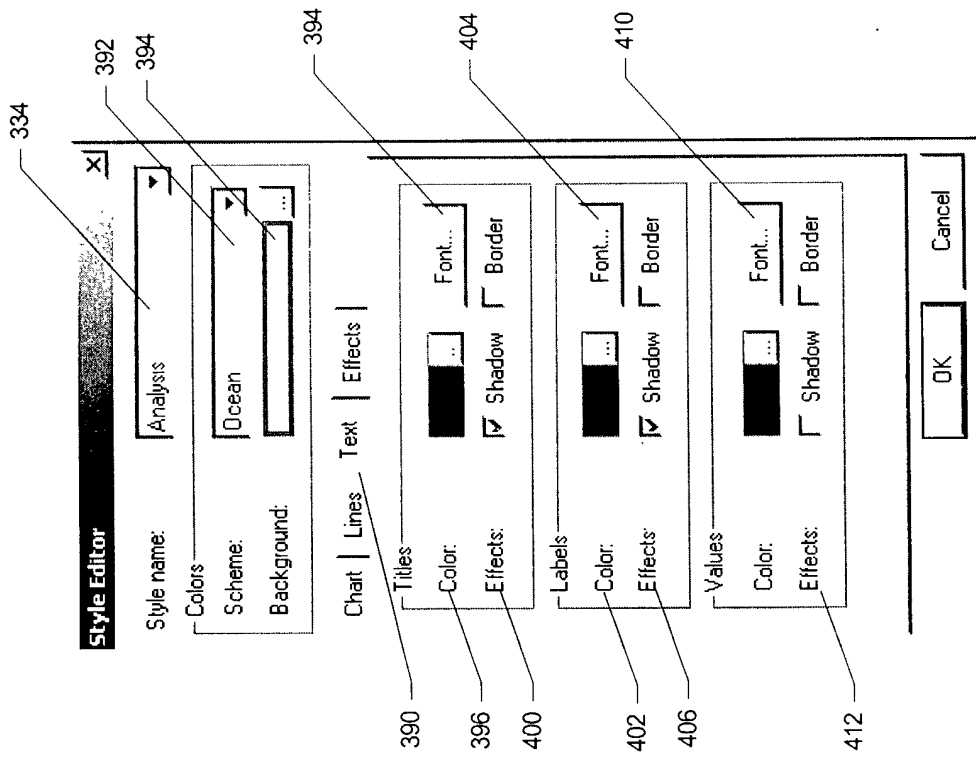


FIG. 12

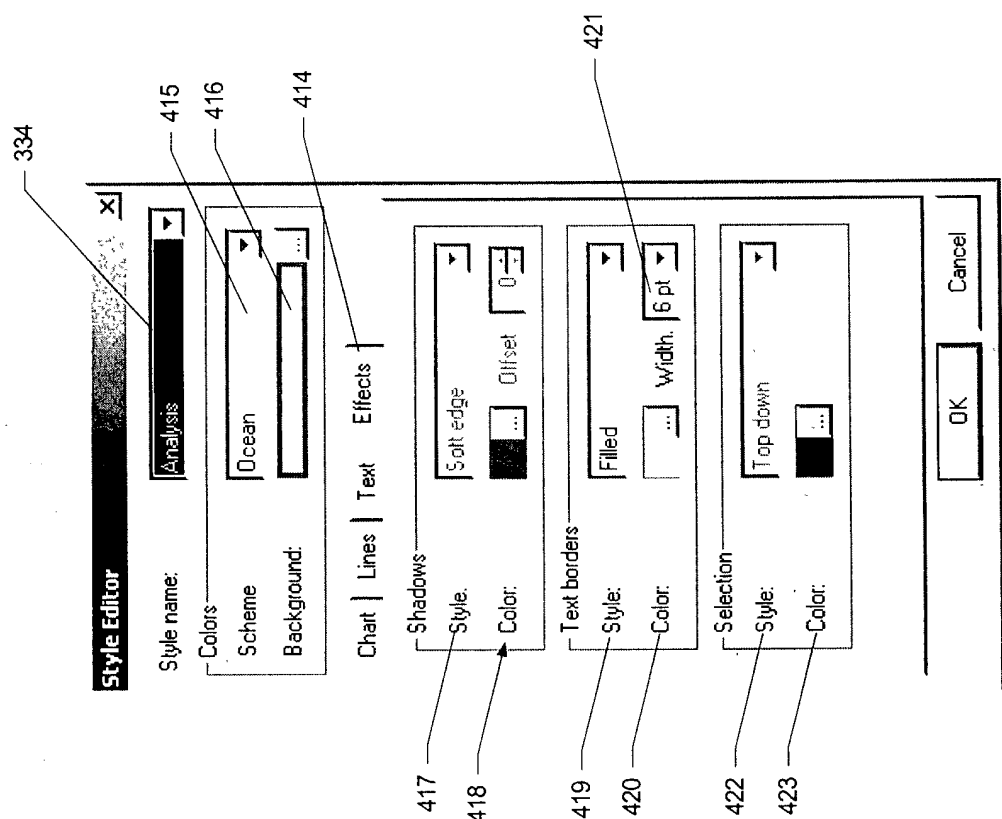


FIG. 13

425

427

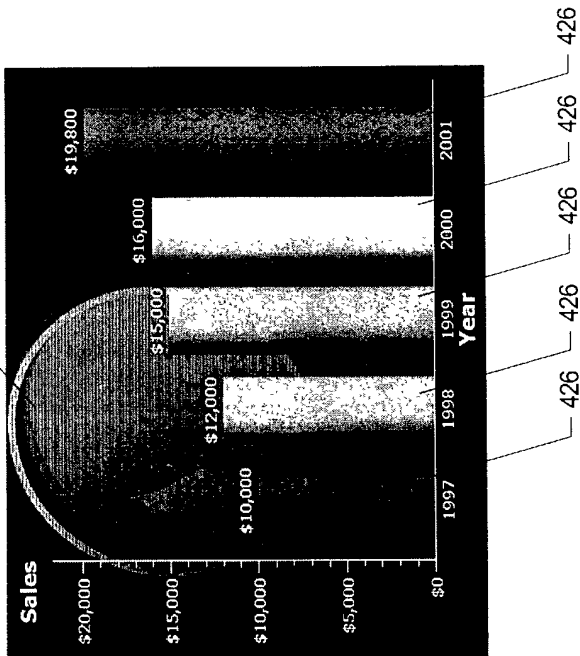


FIG. 14

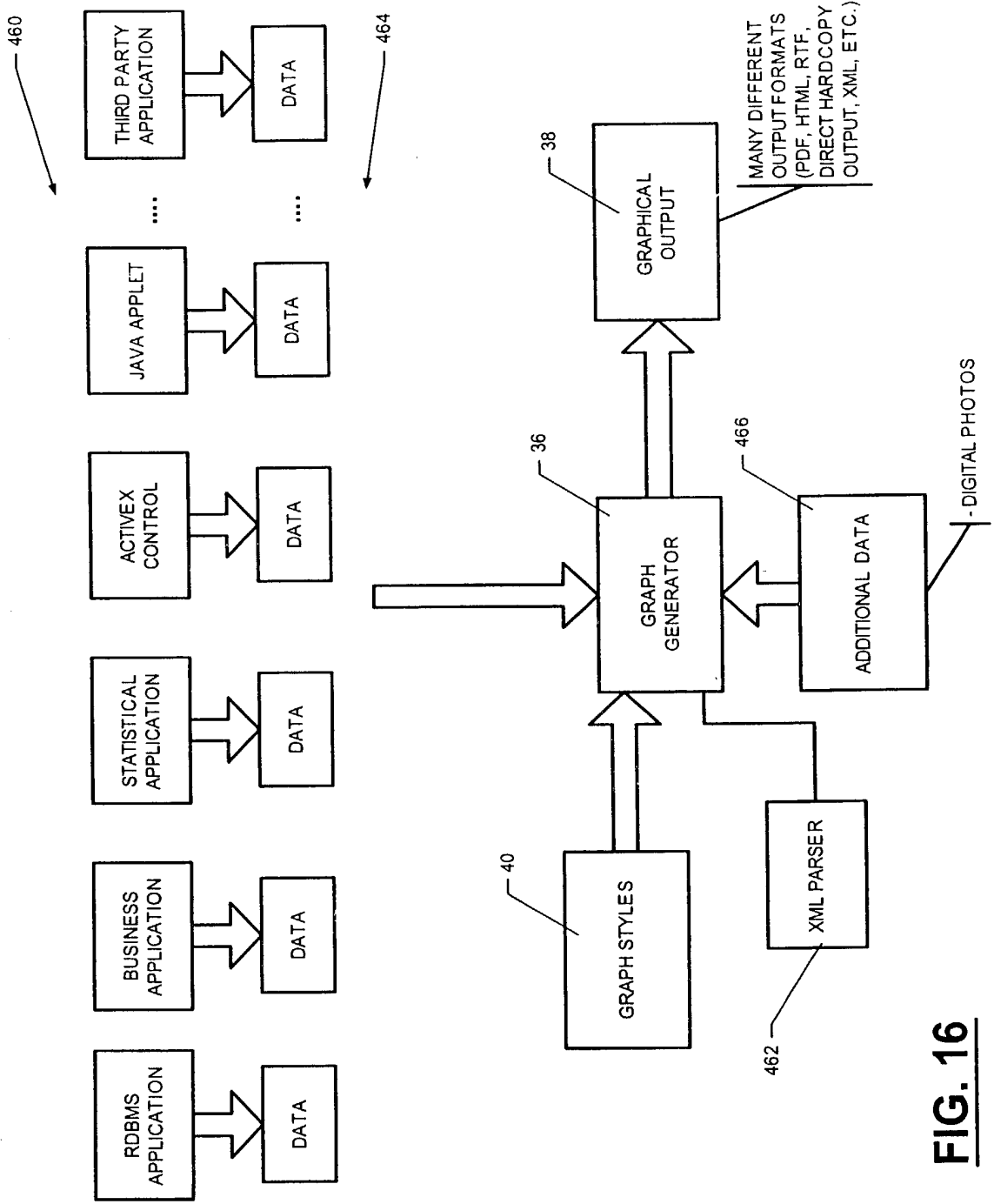


FIG. 16

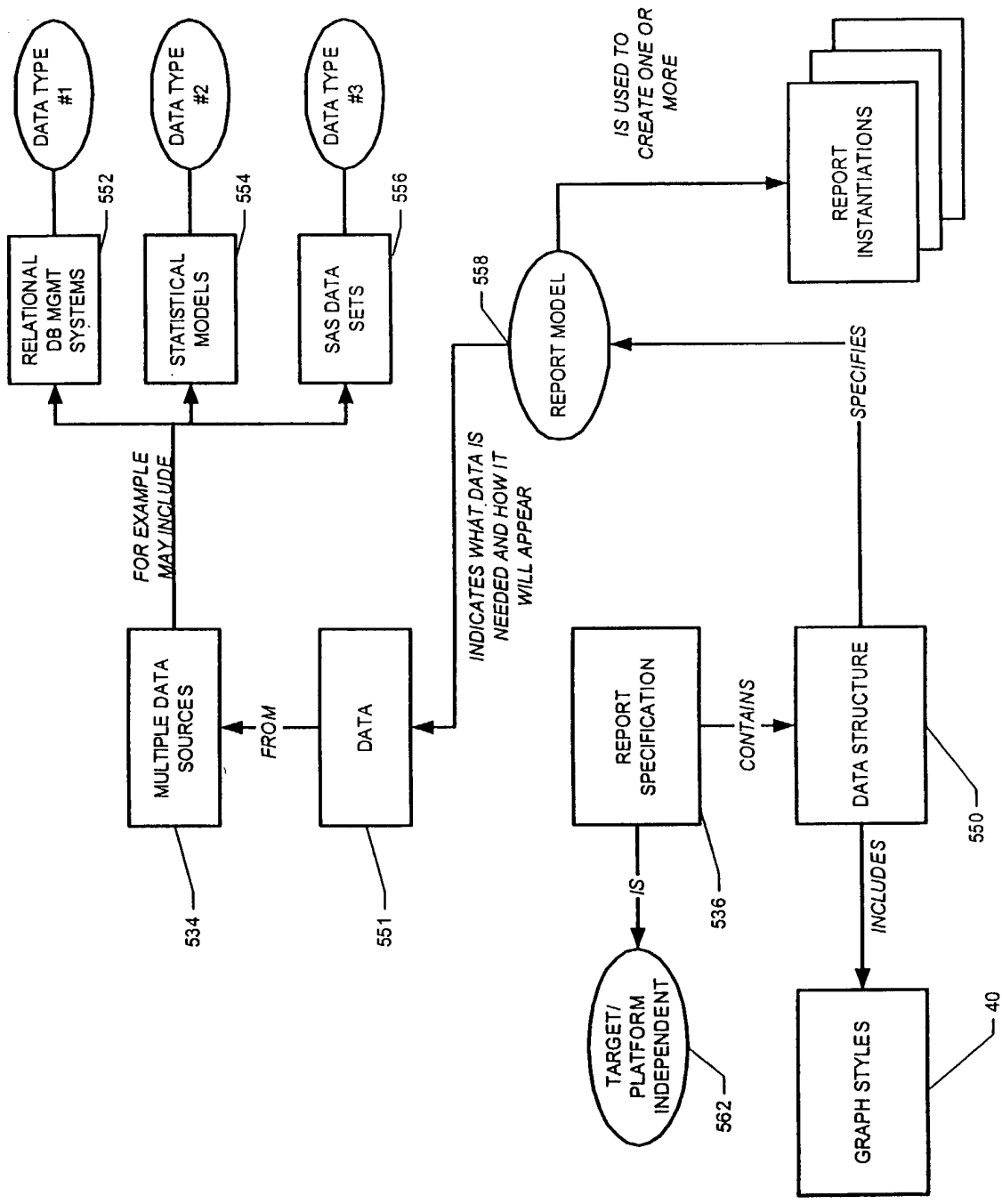
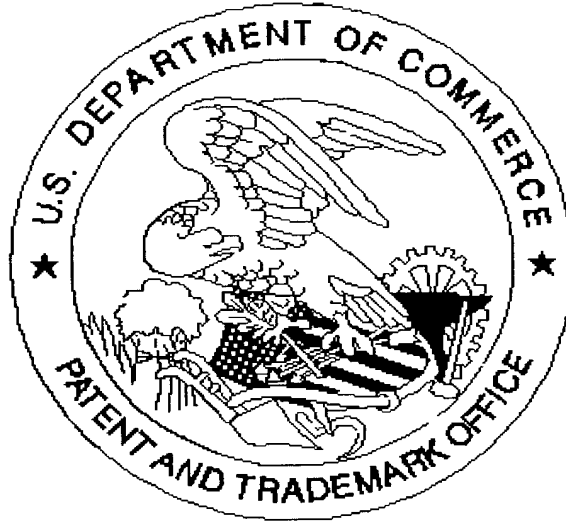


FIG. 19

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PATENT

Attorney Docket No. 343355600045



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Patel et al.

Serial No.: 10/122,584
Filed: April 15, 2002
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Cleveland, OH 44114
(216) 586-7747

Attorney for SAS Institute Inc.

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on June 3, 2002

By: Kathie G. Kopyak

Date: June 3, 2002

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UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/122,584	04/15/2002	Himesh G. Patel	343355600045

John V. Biernacki
Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue
Cleveland, OH 44114



CONFIRMATION NO. 4700

FORMALITIES LETTER



Date Mailed: 05/23/2002

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

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A copy of this notice MUST be returned with the reply.

Melbaebat kibret

Customer Service Center

Initial Patent Examination Division (703) 308-1202

PART 2 - COPY TO BE RETURNED WITH RESPONSE

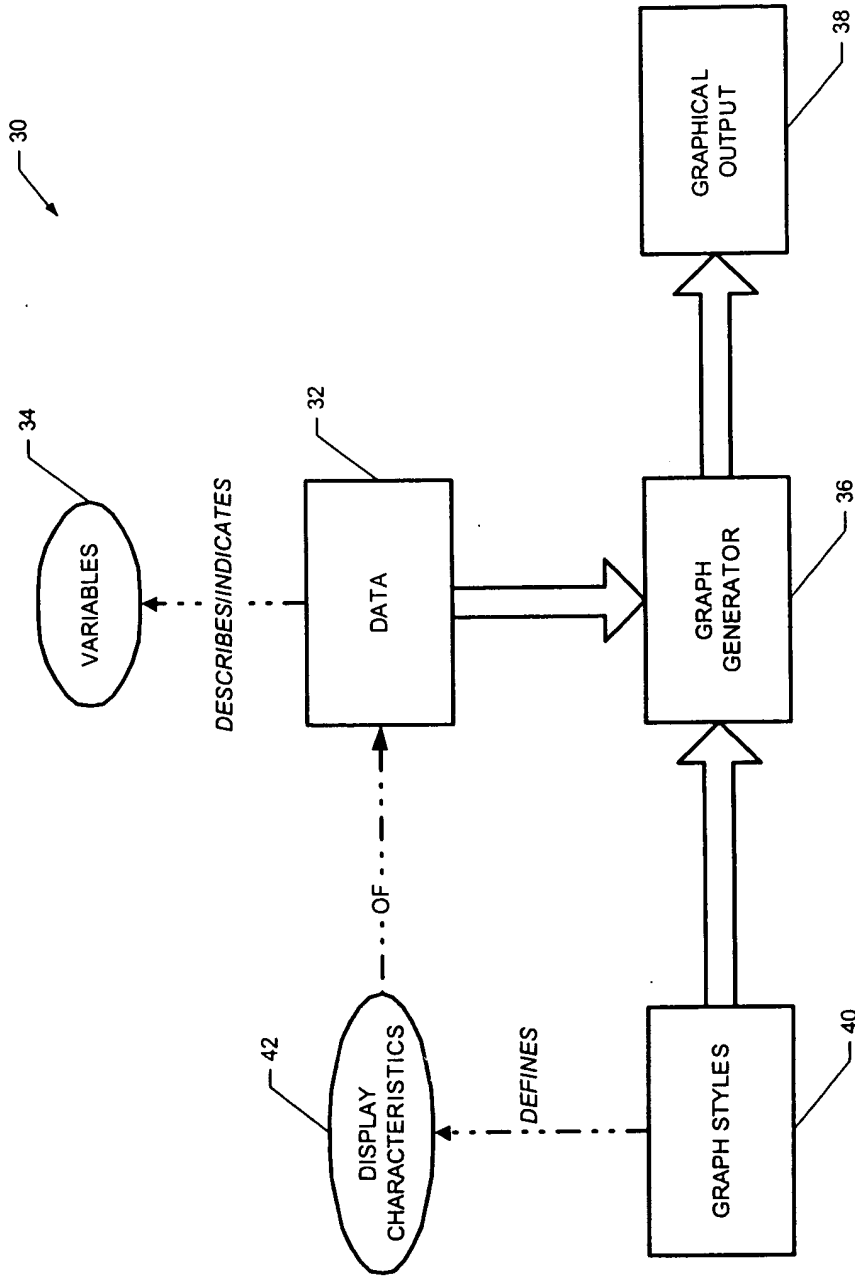


FIG. 1

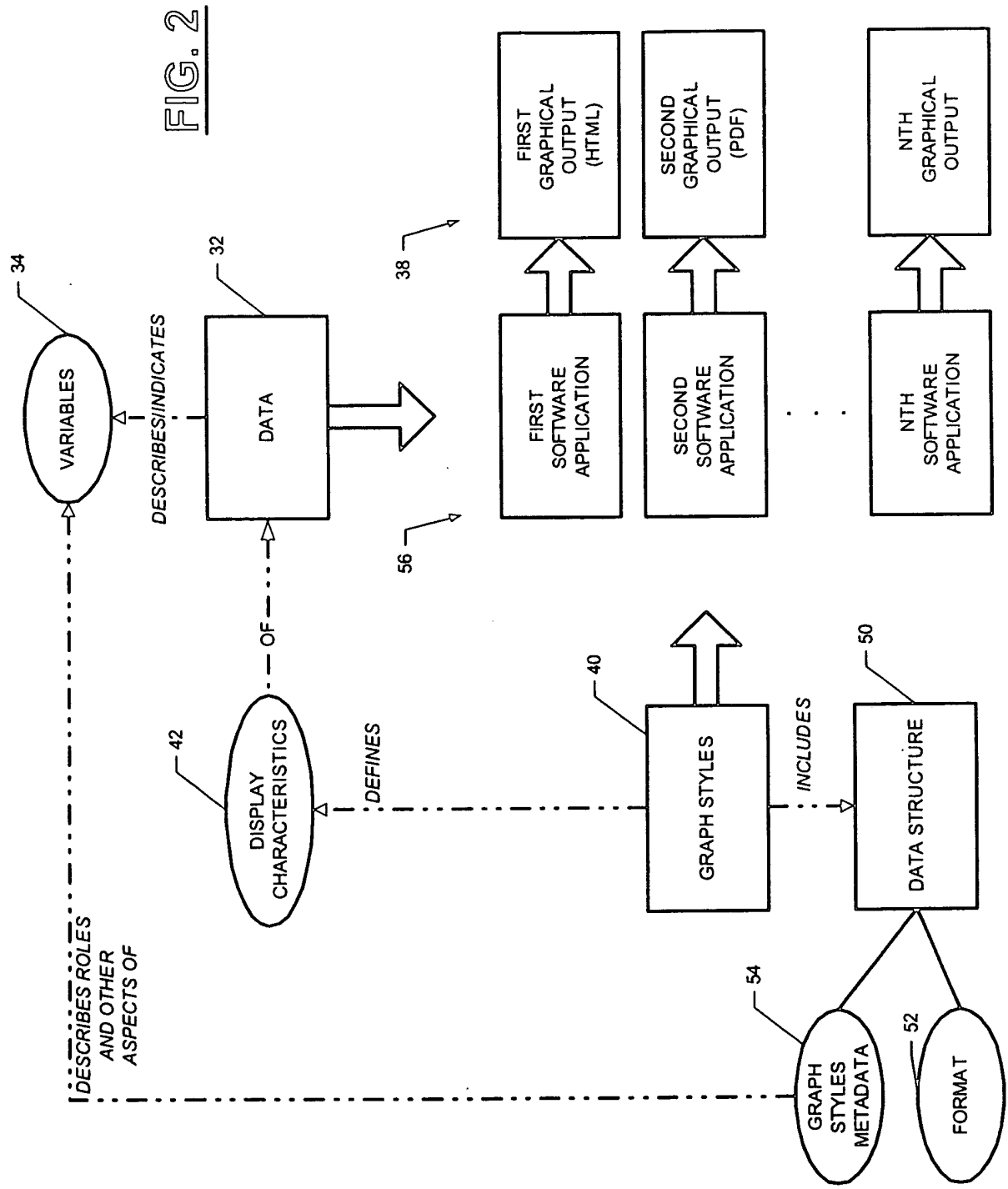


FIG. 2

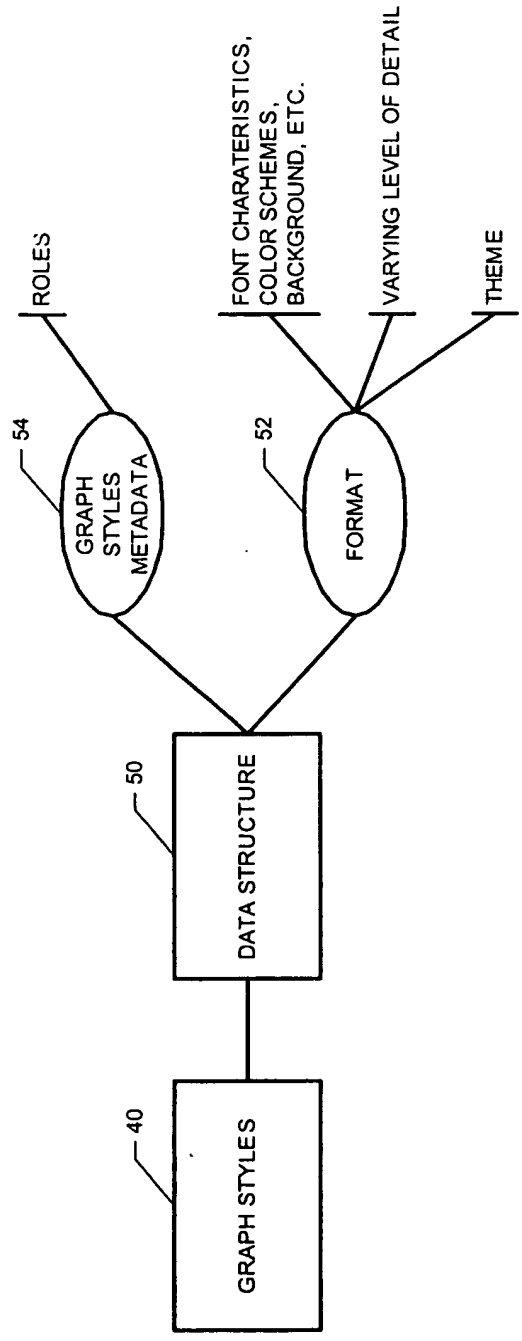


FIG. 3

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104 http://www.sas.com/reportmodel/styles">
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  <EmbeddedData>
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        ="String"/>
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100

FIG. 4A


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                  </Role>
                <Role variable="Sales9" type="Response" statistic="Sum" >
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100

FIG. 4D

100

FIG. 4E

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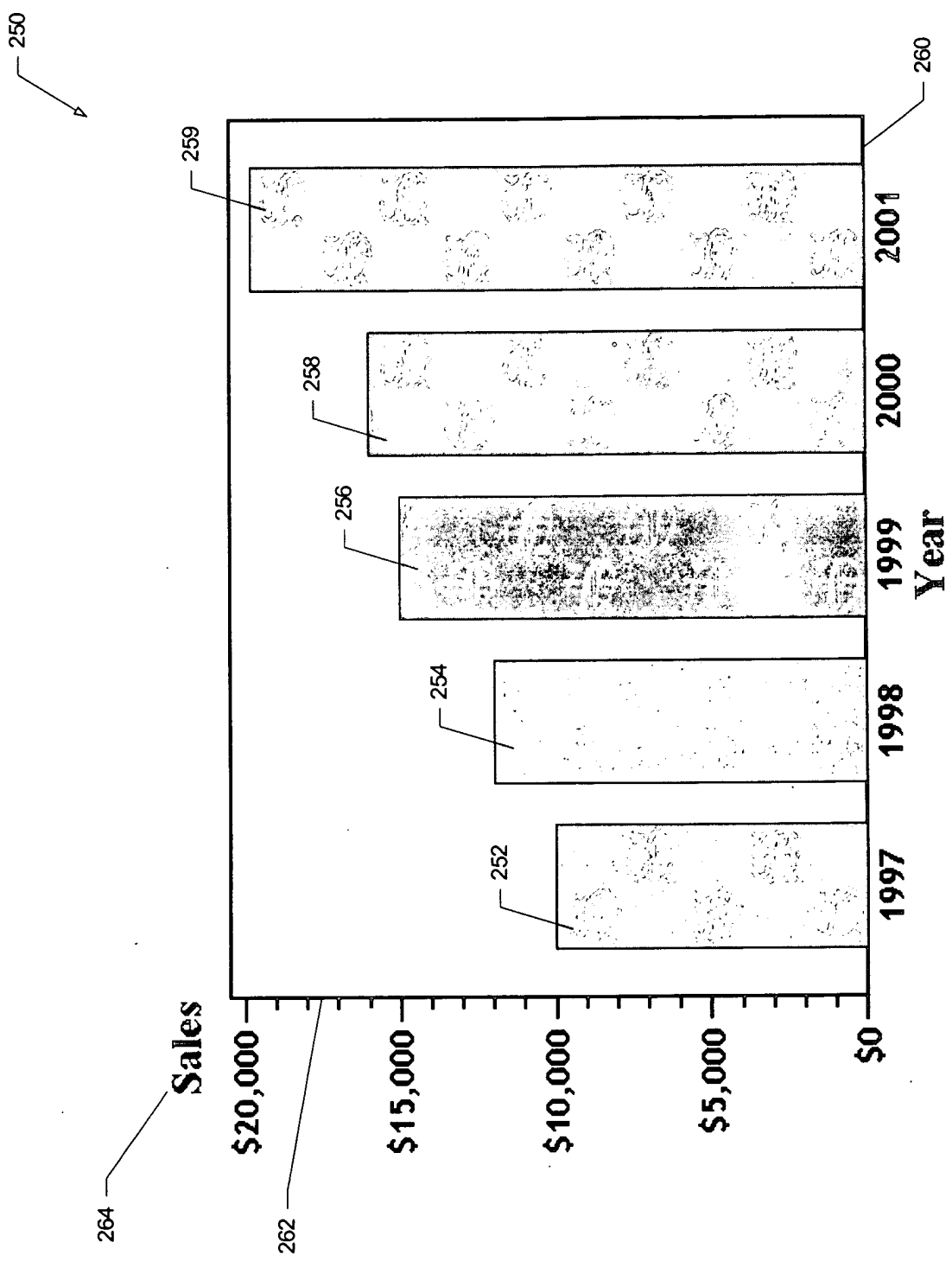
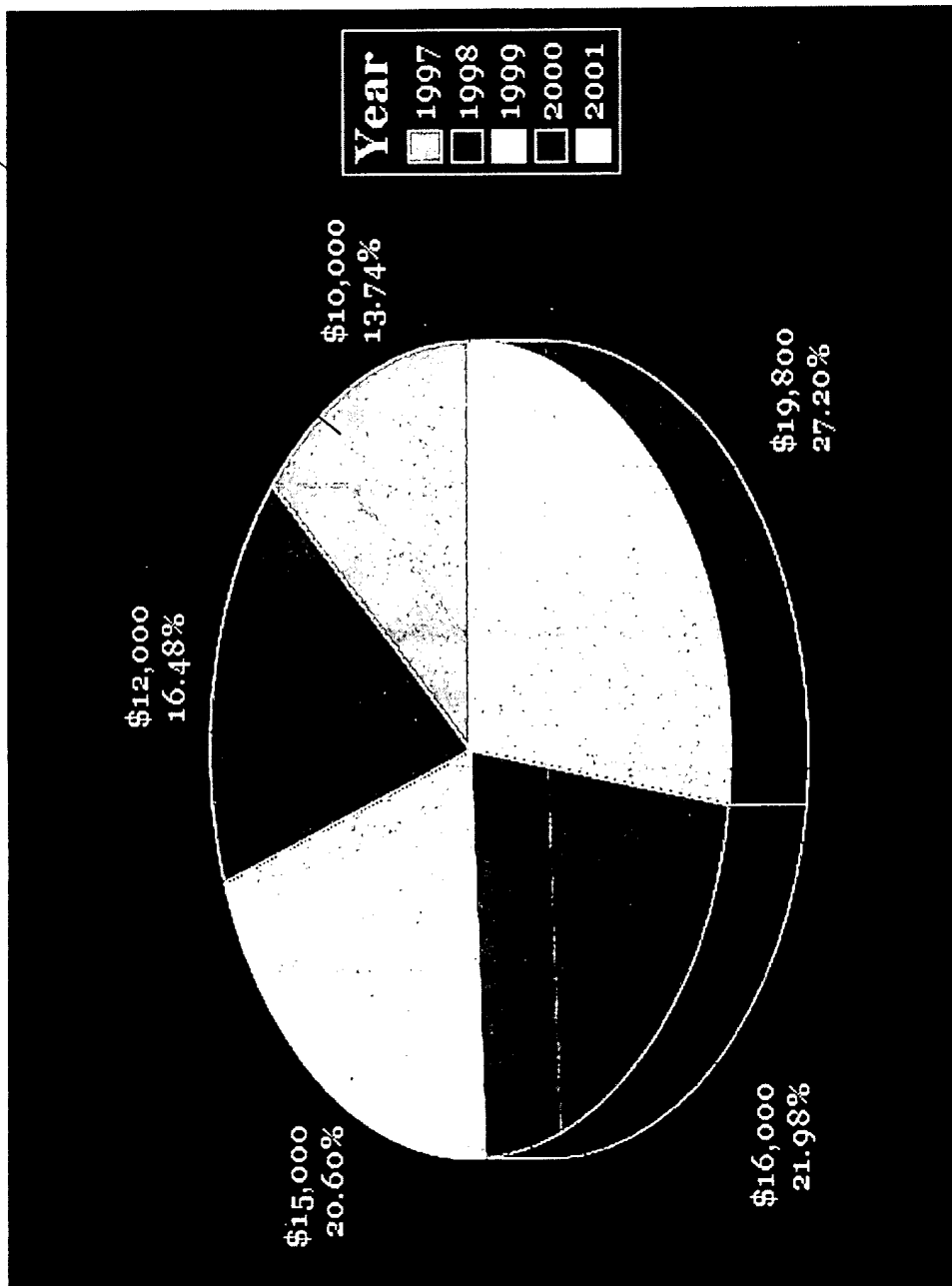


FIG. 5

282



280

FIG. 6

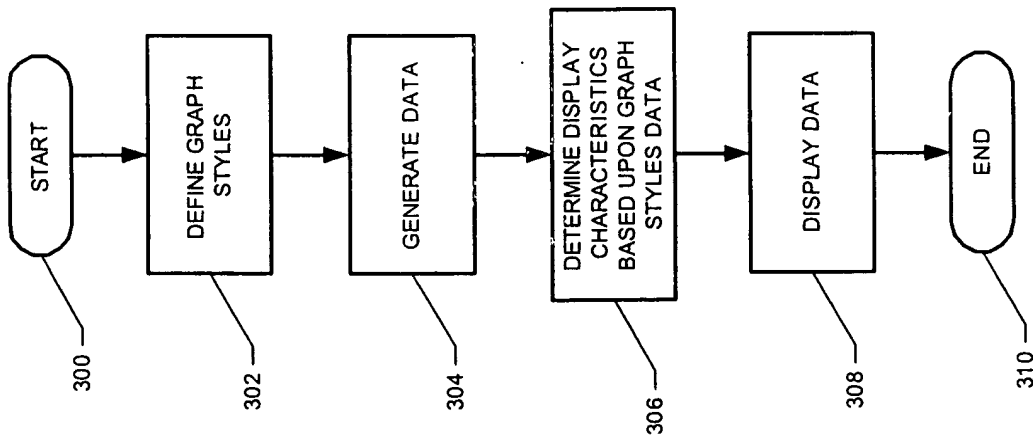


FIG. 7

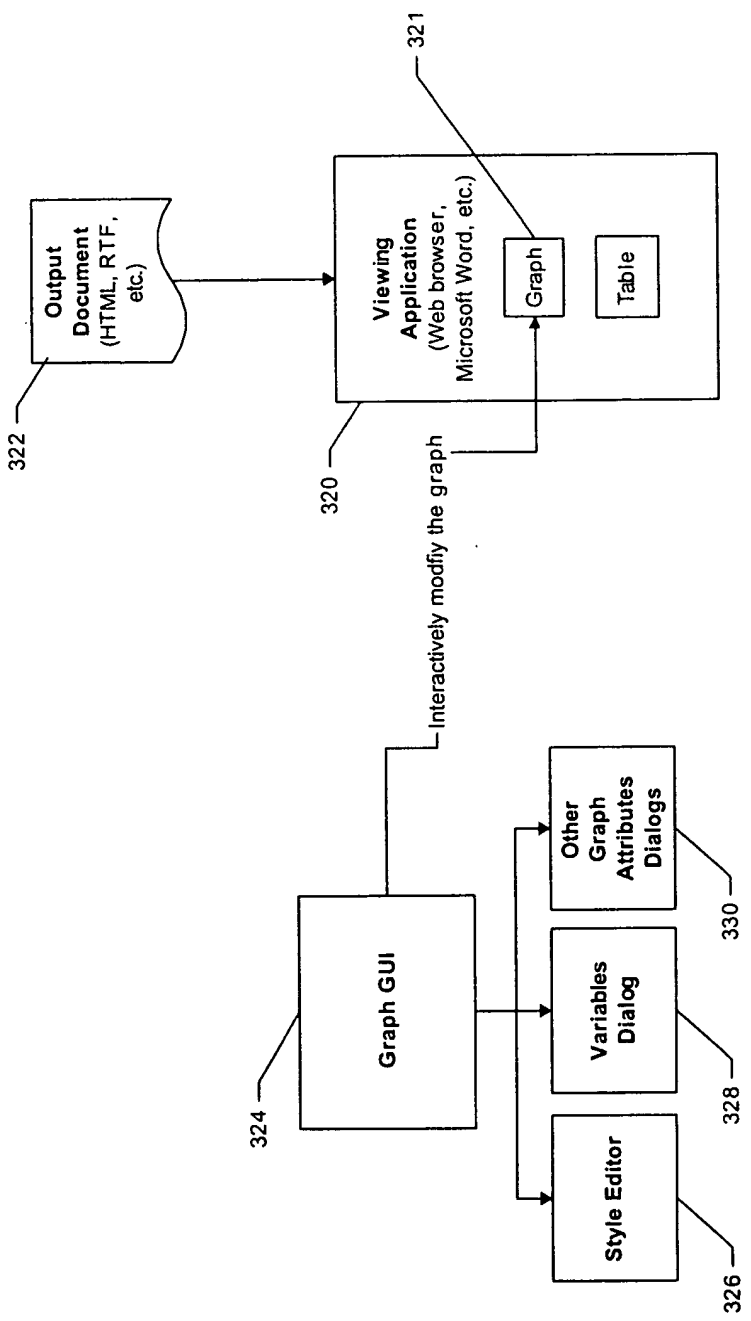


FIG. 8

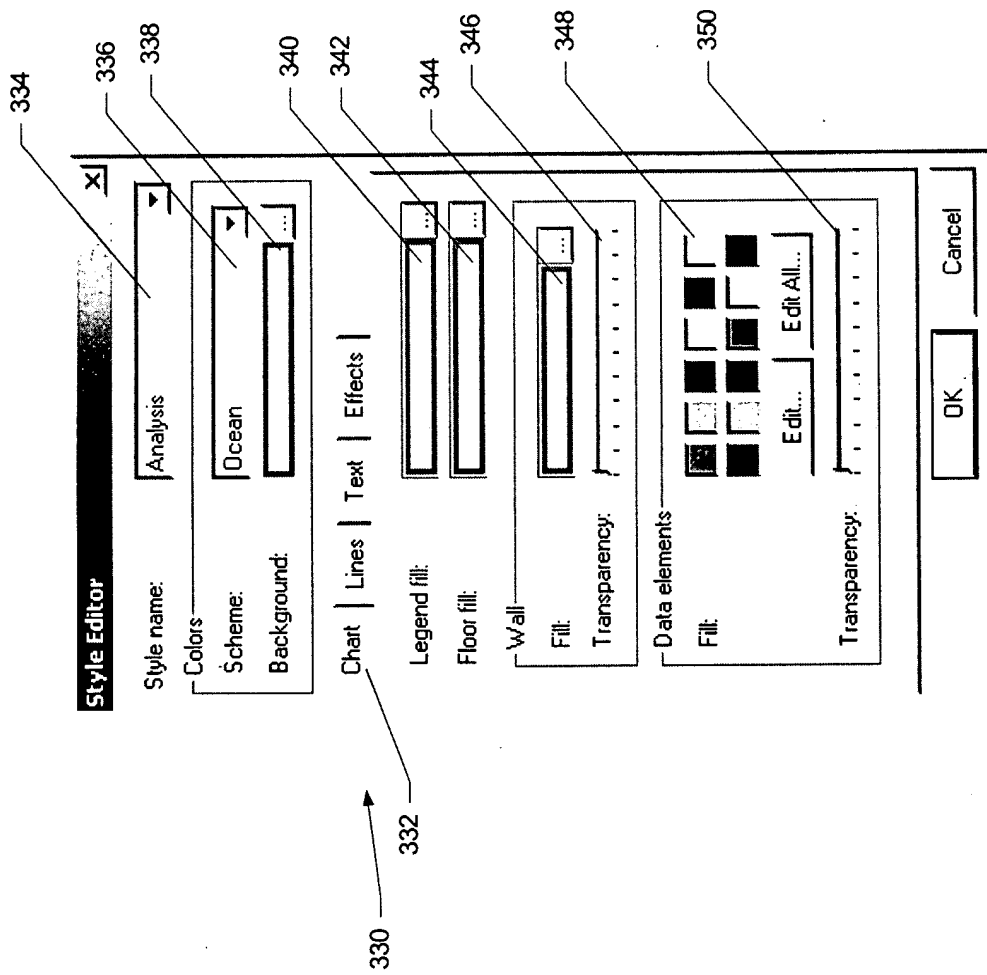


FIG. 9

334

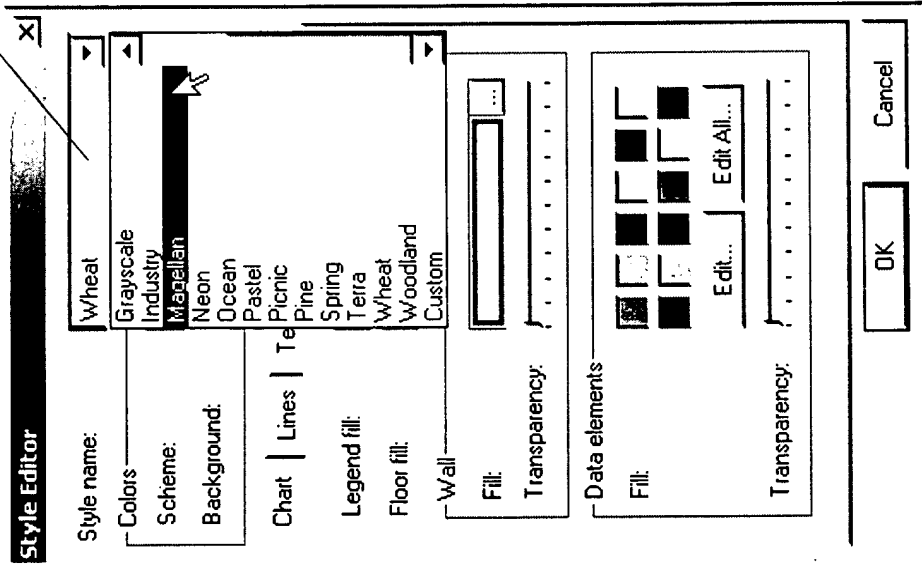


FIG. 10

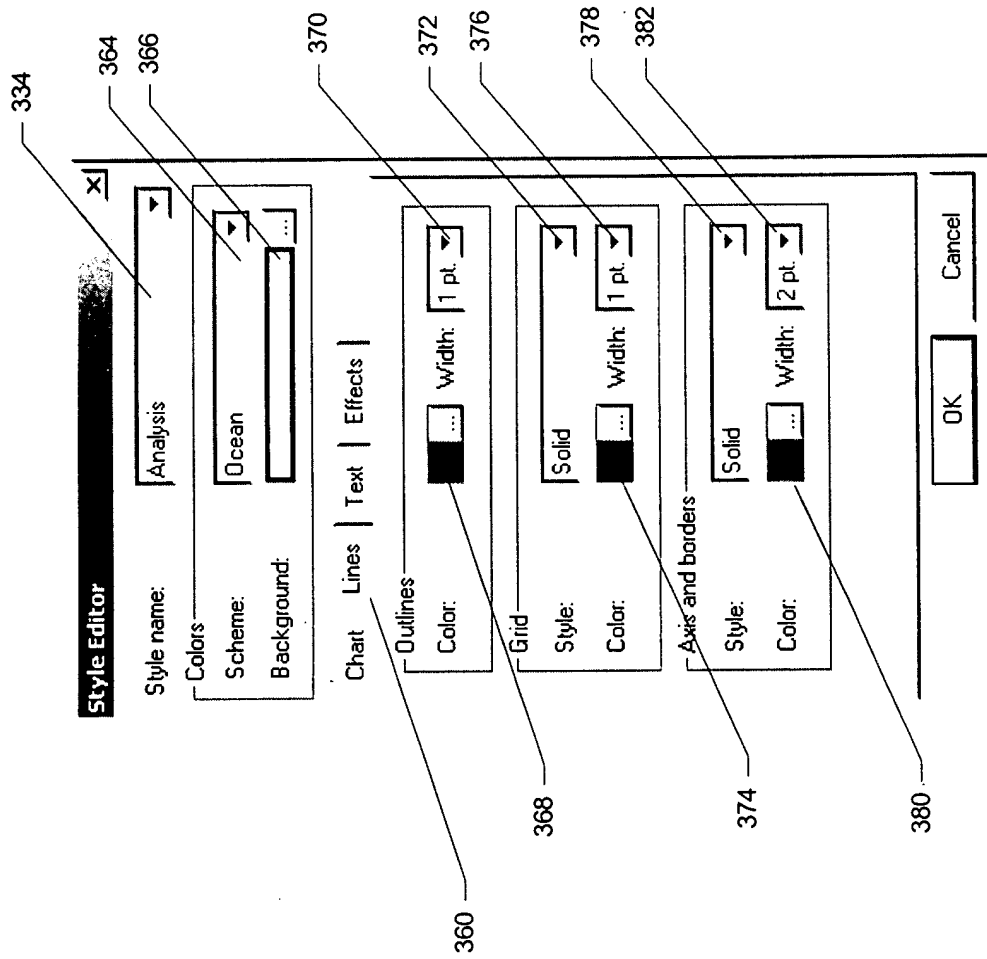


FIG. 11

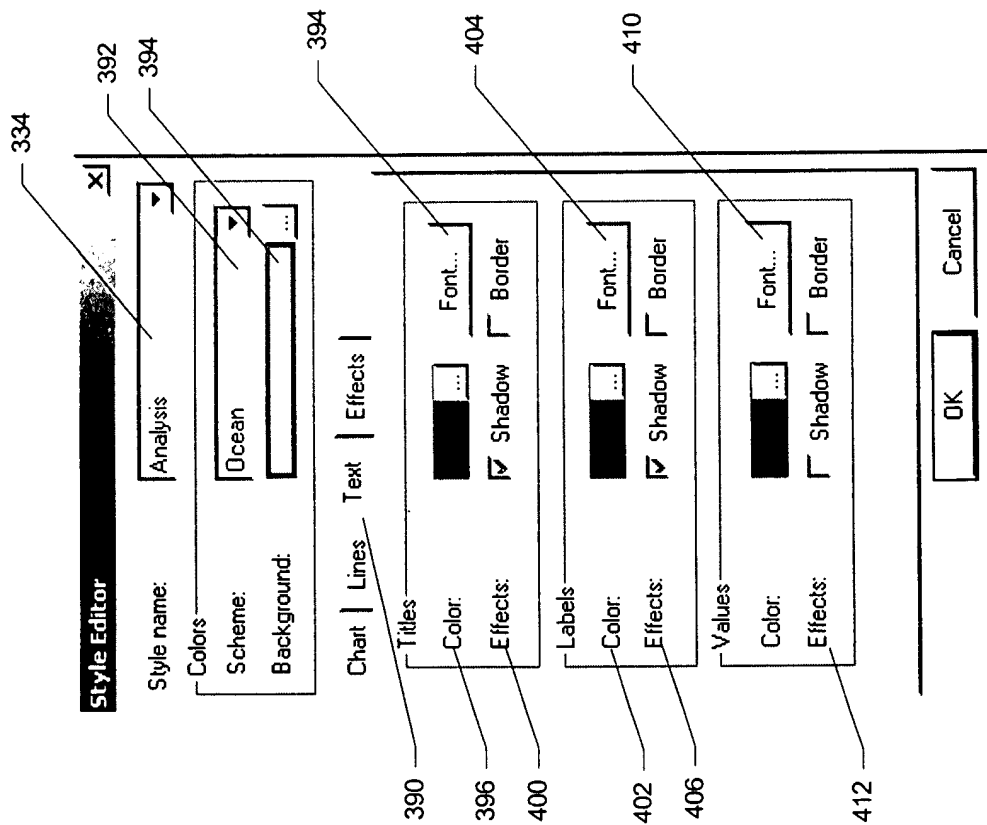


FIG. 12

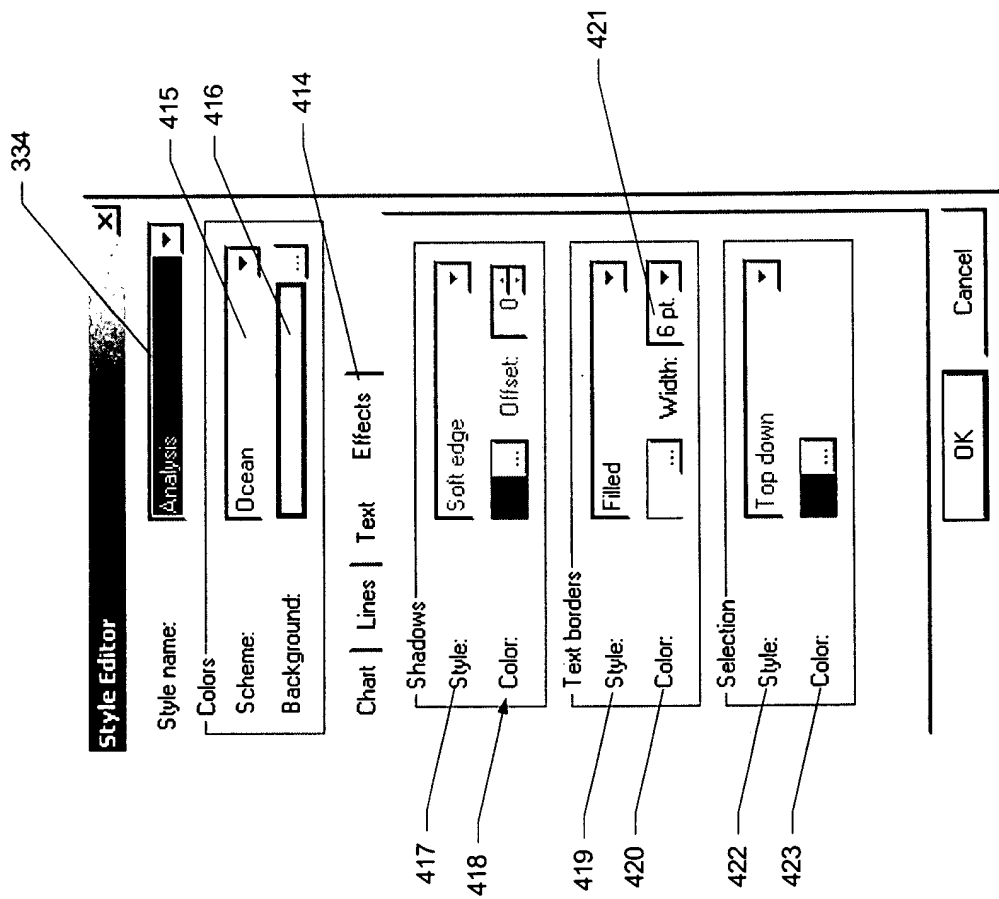


FIG. 13

425

427

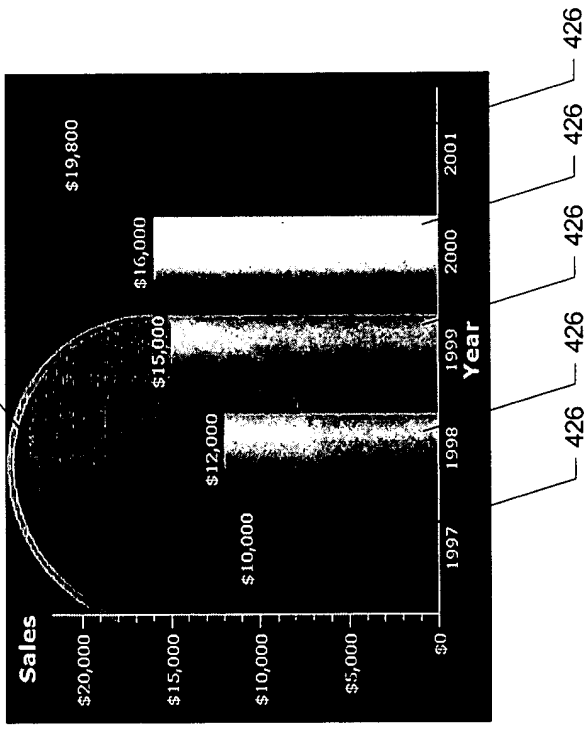


FIG. 14

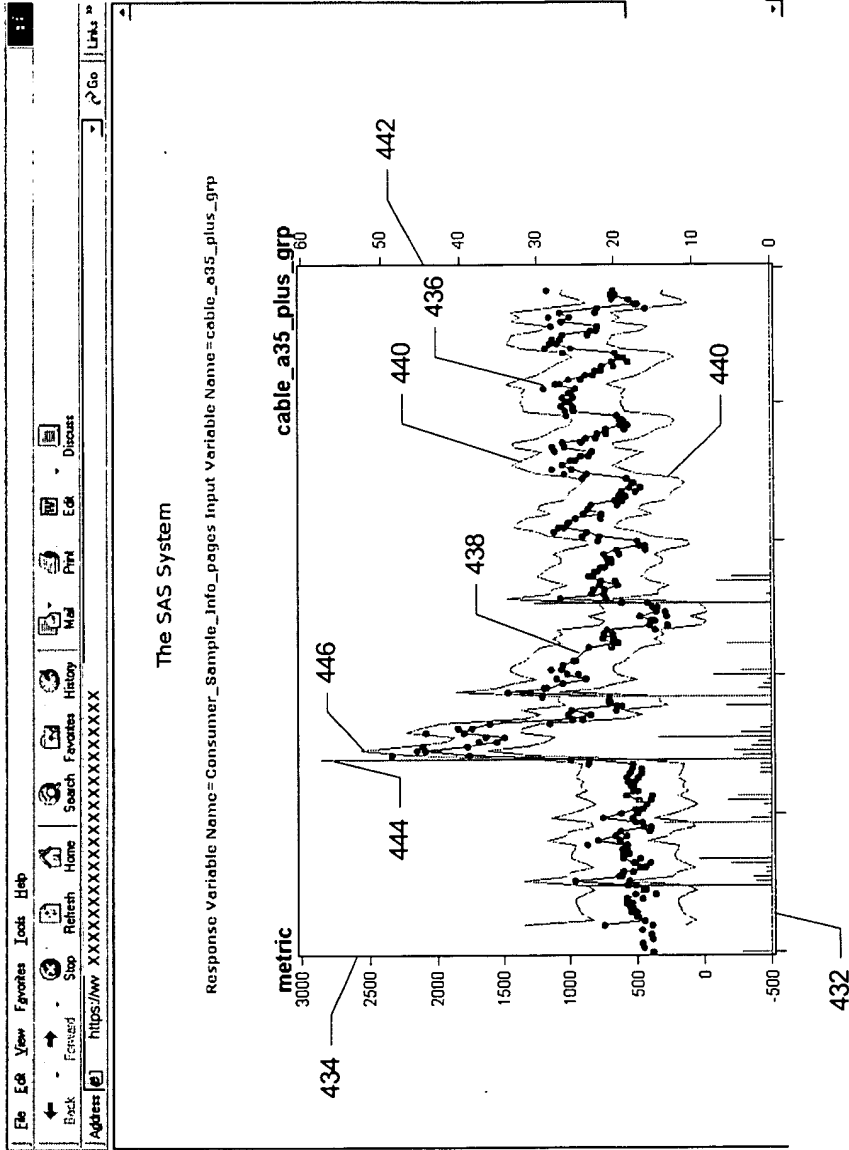


FIG. 15

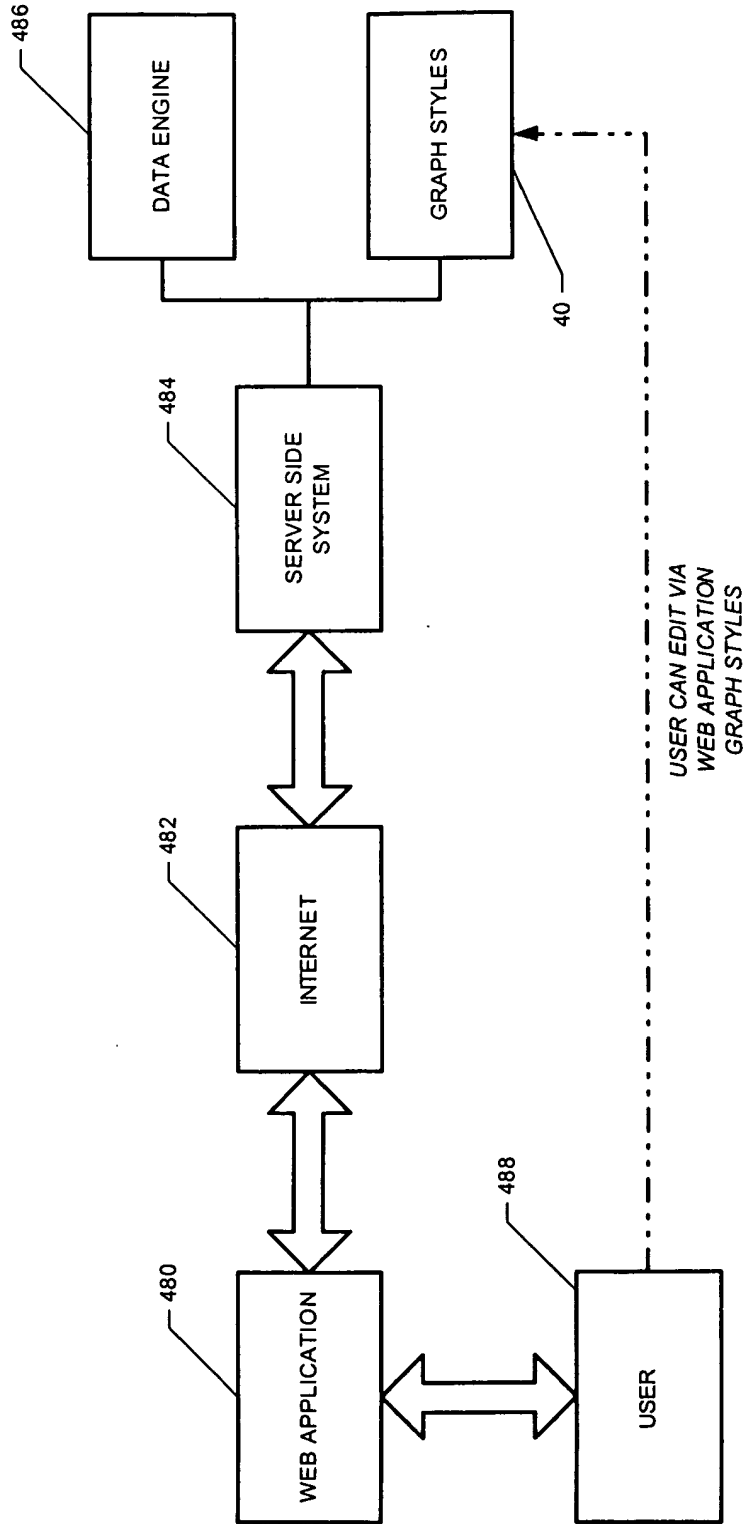


FIG. 17

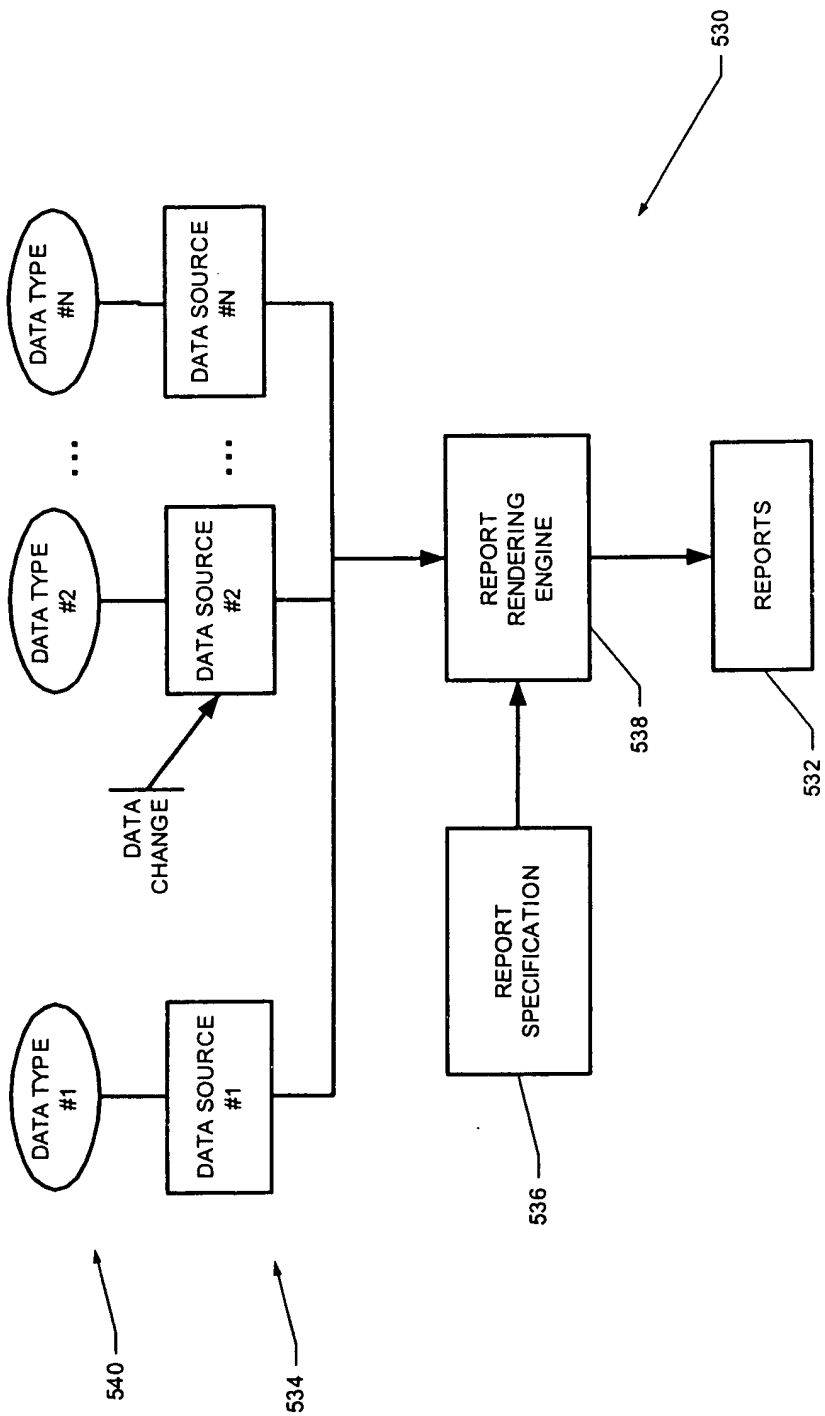


FIG. 18

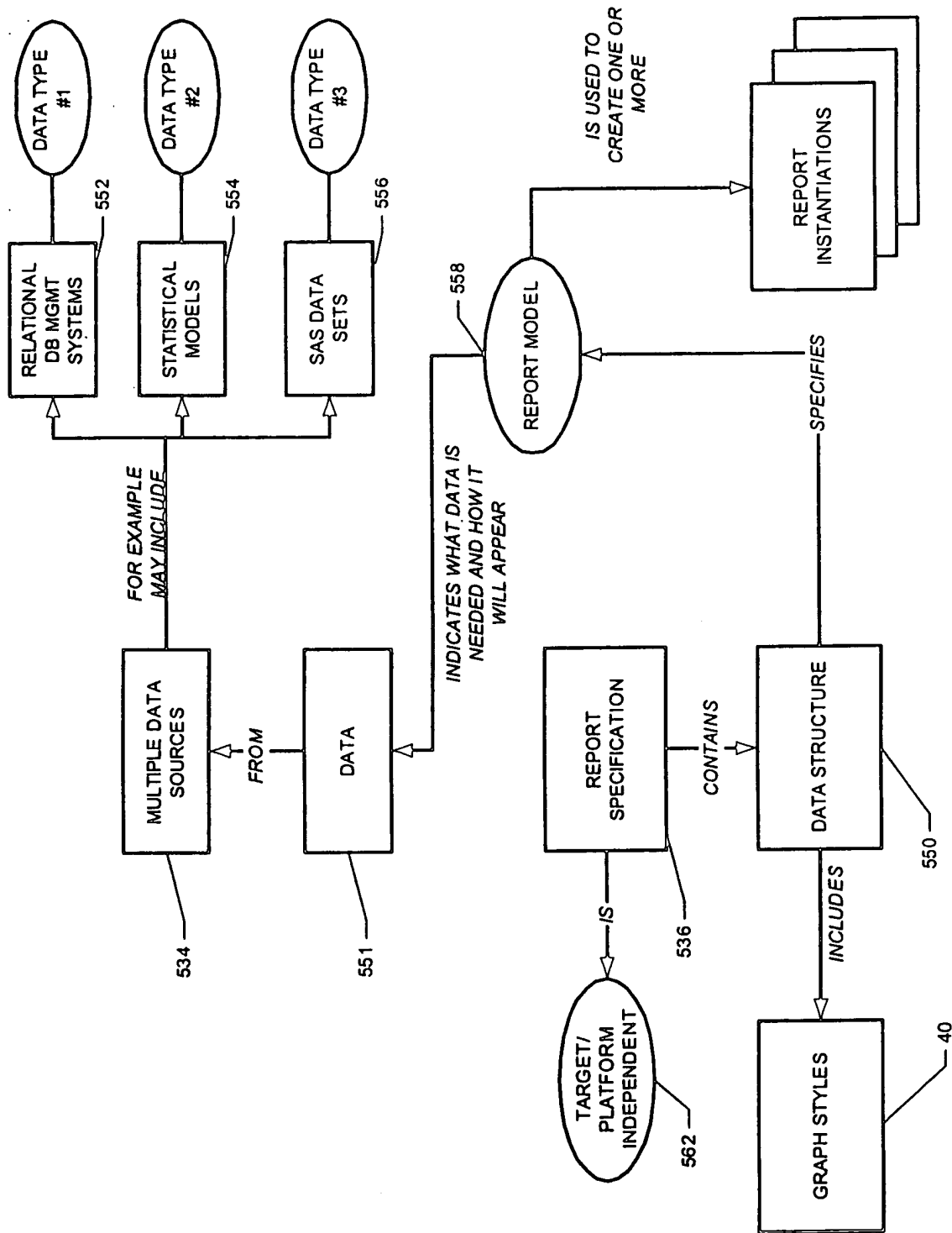


FIG. 19



UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
 UNITED STATES PATENT AND TRADEMARK OFFICE
 WASHINGTON, D.C. 20231
 www.uspto.gov

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CONFIRMATION NO. 4700

John V. Biernacki
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 North Point, 901 Lakeside Avenue
 Cleveland, OH 44114

FORMALITIES LETTER



OC00000008179600

Date Mailed: 05/23/2002

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*A copy of this notice **MUST** be returned with the reply.*

Melanie Hiber

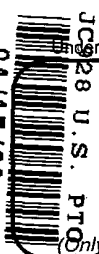
 Customer Service Center
 Initial Patent Examination Division (703) 308-1202

PART 3 - OFFICE COPY

04/16/02

A

04/15/02



UTILITY PATENT APPLICATION TRANSMITTAL

Attorney Docket No.	343355600045
First Inventor	Himesh G. Patel et al.
Title	Computer-Implemented System and Method for Generating Data Graphical Displays
Express Mail Label No.	EL647389531US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

- Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original and a duplicate for fee processing)
- Applicant claims small entity status. See 37 CFR 1.27.
- Specification [Total Pages 32]
 - Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
- Drawing(s) (35 U.S.C. 113) [Total Sheets 23]
- Oath or Declaration [Total Pages 2]
 - Newly executed (original or copy)
 - Copy from a prior application (37 CFR 1.63 (d)) (for continuation/divisional with Box 18 completed)
 - DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
- Application Data Sheet. See 37 CFR 1.76

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

- CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
- Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
 - Computer Readable Form (CRF)
 - Specification Sequence Listing on:
 - CD-ROM or CD-R (2 copies); or
 - paper
 - Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

- Assignment Papers (cover sheet & document(s))
- 37 CFR 3.73(b) Statement of Assignment Power of Attorney
- English Translation Document (if applicable)
- Information Disclosure Statement (IDS)/PTO-1449 Copies of IDS Citations
- Preliminary Amendment
- Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
- Certified Copy of Priority Document(s) (if foreign priority is claimed)
- Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
- Other:

18: If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

Continuation Divisional Continuation-in-part (CIP) of prior application No.: _____

Prior application information: Examiner: _____ Group Art Unit: _____

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

Customer Number or Bar Code Label [] or Correspondence address below

Name: John V. Biernacki

Address: Jones, Day, Reavis & Pogue
North Point, 901 Lakeside Avenue

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Name (Print/Type)	John V. Biernacki	Registration No. (Attorney/Agent)	40,511
Signature	<i>John V. Biernacki</i>	Date	04/15/2002

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FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

Complete if Known

Application Number	
Filing Date	
First Named Inventor	Himesh G. Patel et al.
Examiner Name	
Group Art Unit	
Attorney Docket No.	343355600045

TOTAL AMOUNT OF PAYMENT (\$) 1428.00

METHOD OF PAYMENT

1. The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number: 501432

Deposit Account Name: Jones, Day, Reavis & Pogue

Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

Applicant claims small entity status. See 37 CFR 1.27

2. Payment Enclosed:

Check Credit card Money Order Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
101 740	201 370	Utility filing fee	740.00
106 330	206 165	Design filing fee	
107 510	207 255	Plant filing fee	
108 740	208 370	Reissue filing fee	
114 160	214 80	Provisional filing fee	
SUBTOTAL (1)			(\$) 740.00

2. EXTRA CLAIM FEES

Total Claims	Extra Claims	Fee from below	Fee Paid
56	-20** = 36	18.00	648.00
3	-3** = 0	84.00	0.00
Multiple Dependent		0.00	0.00

Large Entity Small Entity

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
103 18	203 9	Claims in excess of 20	
102 84	202 42	Independent claims in excess of 3	
104 280	204 140	Multiple dependent claim, if not paid	
109 84	209 42	** Reissue independent claims over original patent	
110 18	210 9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)			(\$) 648.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
105 130	205 65	Surcharge - late filing fee or oath	
127 50	227 25	Surcharge - late provisional filing fee or cover sheet	
139 130	139 130	Non-English specification	
147 2,520	147 2,520	For filing a request for <i>ex parte</i> reexamination	
112 920*	112 920*	Requesting publication of SIR prior to Examiner action	
113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action	
115 110	215 55	Extension for reply within first month	
116 400	216 200	Extension for reply within second month	
117 920	217 460	Extension for reply within third month	
118 1,440	218 720	Extension for reply within fourth month	
128 1,960	228 980	Extension for reply within fifth month	
119 320	219 160	Notice of Appeal	
120 320	220 160	Filing a brief in support of an appeal	
121 280	221 140	Request for oral hearing	
138 1,510	138 1,510	Petition to institute a public use proceeding	
140 110	240 55	Petition to revive - unavoidable	
141 1,280	241 640	Petition to revive - unintentional	
142 1,280	242 640	Utility issue fee (or reissue)	
143 460	243 230	Design issue fee	
144 620	244 310	Plant issue fee	
122 130	122 130	Petitions to the Commissioner	
123 50	123 50	Processing fee under 37 CFR 1.17(q)	
126 180	126 180	Submission of Information Disclosure Stmt	
581 40	581 40	Recording each patent assignment per property (times number of properties)	40.00
146 740	246 370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149 740	249 370	For each additional invention to be examined (37 CFR § 1.129(b))	
179 740	279 370	Request for Continued Examination (RCE)	
169 900	169 900	Request for expedited examination of a design application	
Other fee (specify) _____			
SUBTOTAL (3)			(\$) 40.00

SUBMITTED BY

Name (Print/Type)	John V. Biernacki	Registration No. (Attorney/Agent)	40,511	Telephone	216-586-3939
Signature	<i>John V. Biernacki</i>	Date	04/15/2002		

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Title of the Invention

Computer-Implemented System And Method For Generating Data Graphical Displays

Inventors

Himesh G. Patel
Frank Lee Wimmer
Cleester Daniel Heath, IV
Paul W. Layne
Kevin Dale Smith

TITLE OF THE INVENTION

EL647389531US

Computer-Implemented System And Method For Generating Data Graphical Displays

RELATED APPLICATION

5 This application claims priority to U.S. provisional application Serial No. (to be assigned) entitled "COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR REPORT GENERATION" filed March 29, 2002 (with Express Mail Number EL647389580US, law firm docket number 343355600040, and inventors Shaughnessy et al.). By this reference, the full disclosure of this U.S. provisional application entitled "COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR REPORT GENERATION" is incorporated herein.

FIELD OF THE INVENTION

The present invention relates generally to computer-implemented display generation and more particularly to generating data graphical displays.

BACKGROUND AND SUMMARY

15 Graphical depictions of computer-generated data aid users in their analysis and understanding of the data. Many types of software applications can display data graphs, but the styles that define the appearance of graphical displays were traditionally tightly coupled with the software application generating the graphs. Difficulties arose during attempts to use graphical
20 styles defined in one software application in a different software application. Also, the graphical styles defined within a software application usually were limited to fairly small sets of configurable items, such as background colors.

The present invention overcomes the aforementioned difficulties by providing a computer-implemented system and method for generating data graphical displays. The data is indicative of a plurality of variables. The system and method receive data that is to be displayed in a non-textual format. Graph style data items are retrieved that contain display characteristics for displaying the data in the non-textual format. The data is displayed in accordance with the graph style data items.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram depicting software and computer components utilized in generating graphical output;

FIG. 2 is a block diagram depicting software and computer components utilizing a graph styles data structure to generate graphical output;

FIG. 3 is a data structure diagram depicting data items used by a graph styles data structure;

FIGS. 4A-4E depict an example of an XML data structure for use in generating graphical output as an example;

FIGS. 5 and 6 are graphical outputs generated from graph styles data structures;

FIG. 7 is a flowchart that depicts an operational scenario for generating graphical output;

FIG. 8 is a block diagram that depicts a graphical user interface (GUI) for modifying a graph styles data structure;

FIGS. 9-13 depict graphical user interfaces for defining or modifying styles associated with a graphs styles data structure;

FIG. 14 is a graphical output example generated using a graph styles data structure;

FIG. 15 is an example of graphical output that depicts statistical analysis of different response variables;

5 FIGS. 16 and 17 are block diagrams depicting exemplary environments that may utilize graphical outputs; and

FIGS. 18 and 19 are block diagrams depicting software and computer components utilized in rendering reports.

DETAILED DESCRIPTION

FIG. 1 depicts a computer-implemented system 30 that generates graphical output 38 based upon input data 32. The input data 32 may represent many types of variables 34, such as sales variables, statistical variables, manufacturing output variables, engineering design variables, etc. A graph generator software module 36 processes the input data 32 and generates 15 pie charts, bar charts, maps, scatter plots, or any other type of graphical output 38.

In order to determine how the graphical output 38 should appear, the graph generator 36 accesses graph styles data 40. The graph styles data 40 defines the display characteristics 42 of the data 32. For example, the graph styles data 40 may define the textual label font characteristics or the background display of the graphical output 38. The graph styles 20 data 40 uses predefined style definitions as well as metadata to determine how input data 32 should be visually depicted in the graphical output 38.

FIG. 2 shows an example where the graph styles data 40 is stored in a data structure 50 that contains graph styles format data 52 and graph styles metadata 54. The graph

styles format data 52 may designate the format attributes for one or more regions of the graphical output 38, such as designating that a graph's axis should display major ticks and not display minor ticks. The graph styles metadata 54 may designate format attributes based upon the role(s) that a variable has within the input data.

5 The graph styles data 40 exists at least substantially independent of the application generating the data or the application generating the graphical output. Thus the same graph styles data 40 may be universally used by multiple software applications 56 to define the applications' respective graphical output appearance as well as the output type (e.g., HTML, PDF, etc.).

10 FIG. 3 depicts an example of a graph styles data structure 50. The graph styles data structure 50 contains graph styles format data 52 and graph styles metadata 54. The format data 52 may include graph font characteristics, graph backgrounds, graph color schemes, etc. The format data 52 may be at varying levels of detail. For example, the format data 52 may define styles to be used by all components on a graph, such as all bars in a bar chart. It may also
15 define styles on a per graphical component level, such as the first bar in the bar chart should have one type of style, the second bar should have another type of style, and so on. As another example of the varying level of detail, data that are grouped into sets may have its style defined based upon what set the data is in. In this way, the user may better distinguish between sets of data when viewing the graphical output.

20 The graph styles data structure 40 also contains metadata 54. The graph styles metadata 54 may designate format attributes based upon the role(s) that a variable has within the input data. For example, a variable may be designated to have as its role in the data set to be the "category" variable.

Different graphical outputs may use this metadata differently. A pie chart will display a category variable differently than a bar chart will. A pie chart will display a category variable as discrete slices of a pie whereas a bar chart will display the category variable along its horizontal axis. As another example, a different variable in the input data may have as its role to be the "response" variable. Once again different graphical outputs may use this metadata differently. The pie chart will determine the size of a pie slice based upon the response variable's data whereas the bar chart will determine the vertical extent of a bar based upon the response variable's data. It should be understood that the same variable may have one or more roles, or even have different roles depending upon the data set it is in.

An aspect of a graph may be formatted based upon a combination of graph styles data associated with a variable and the variable's role. For example, a variable's role may be designated as the dependent variable of a graph. The variable may also be designated to be displayed with a bluish color. The combination of the variable's role along with its graph styles data indicates that the color of the dependent axis be depicted with a bluish color. Also, it should be understood that a variable's role may be directly associated with graph styles data by designating that the graph's independent axis be formatted with a certain style.

The graph styles data structure 50 may also contain format data 52 to indicate a theme for the graphical output. The theme may be based upon data being analyzed in the graphical output. For example, dollar symbols may be used to designate that the data being analyzed relates to money as in a sales analysis graph. The theme may be preselected within the graph styles data structure 50 or it may be a variable that is defined based upon the metadata 54. For example, if a sales variable has as its role to be the response variable, then the a background

of dollar signs may be selected to represent the theme of the graphical output. If the number of homes sold is the response variable, then a background showing outlines of homes may be used.

It should be understood that the graph styles data may be structured in many different ways and expressed in many different formats, such as in the structure and format shown in FIGS. 4A-4E.

FIGS. 4A-4E depict an example of a graph styles data structure 100 expressed in an eXtensible Markup Language (XML) format. The XML format permits tags to show how one data item relates to another data item, such as what data item is contained within another data item in the XML hierarchy. The highest level in this example are the report tags 102. The report tags 102 contain the information needed to display graphical output. The report tags 102 enclose subordinate tags to indicate to a graphical generating program the data, styles, and visual representation of the graphical output. The data information is enclosed by data tags 104; the styles information is enclosed by style tags 106; and the visual representation information is enclosed by view tags 108.

The data tags 104 contain variables and values to be used in rendering the graphical output. In this example, the Variables tags 110 contain four variables with the respective names "Year4" (a year-based variable), "Year31" (another year-based variable), "Sales9" (a monetary sales-based variable), and "_FREQ_14" (a frequency variable). In this example, the variables represent yearly sales values (with the frequency variable representing the frequency of data observations contributing to each year).

In this example, the data to be used in rendering the graphical output is embedded within the XML data structure 100. However, it should be understood that there are many ways

to provide data to the graphical output generation system such by specifying within the XML data structure one or more external data sources.

The values for each of the four variables are shown within the ValuesList tags 112. For example, the variable Year4 has the value 1997 as shown at 114. The variable Year31 also has the value 1997 as shown at 116. The Sales9 variable has a value of 10000 as shown at 5 118. The frequency variable has a value of 1 as shown at 120. Additional data (e.g., within Values tags 150) values for the variables are contained in this example within the ValuesList tags 112.

With reference to FIGS. 4B-4C, style tags 106 enclose information to define the appearance of the graphical output. In this example, the style is named GraphScheme0 as shown at 130. Within this style scheme is another style tag 132 to denote that this style scheme is for a graph.

Within these tags 132 are different styles to format different attributes of the graph. For example, style tag 140 for GraphDataStyle1 defines the style to be used for the first set of values to be graphed. The first set of values (as shown by values tags 114, 116, 118 and 120) are to be visually depicted by the GraphDataStyle 1 attributes. For this style, the color, alternate color, fill format, and fill type information are specified within tag 140. The color value #FFA53D denotes that the color for the first set of values is to have a darkish orange color to it. The alternate color attribute value #CCCCFF denotes the color the first set of values should have in the event that the principal color specified has been already taken by another graphic component. The fill attribute designates a file to serve as the interior fill for the first response display (e.g., the first bar in a bar chart). In this example, the Bank64g.gif file contains a graphic

image file of interspersed dollar symbols. The fill type attribute indicates how the images and color should be applied to the bar.

Style tag 142 indicates the style to be used for the second set of data values contained within Values tags 150. Styles are provided for additional response variable
5 depictions (up to and including GraphDataStyle12). It should be understood that any number of styles can be used in order to best suit the situation at hand.

Additional style tags are provided to specify the format of other aspects of the graphical output. For example, the format for the graphical output's axis lines are shown at style tag 160. Within the tag 160, the axis line color and its thickness may be specified. As another
10 example, the graph's label text format is designated at style tag 162. Within tag 162, the text color, font size, font family, font weight and font style are provided. It should be understood that any aspect of the graphical output may be placed within a style tag.

The view tags 108 contain data that define what type of graphic representation should be used to display the data defined within the data tags 104. The view tags 108 also
15 contain data that defines the style to format the graphic output's appearance.

The view tags 108 specify that the style scheme "GraphScheme0" should be used in the visual depiction of the data. The view tags 108 specify that a graph is to be generated in the output. The ChartDataList tags 170 specify the data to be used (which in this situation is
20 "Data0" as specified by ChartData tag 172). Also within the ChartDataList tags 170 are Roles tags as shown at 180. The Roles tags 180 specify the role a variable has within the data set. For example, the Year31 variable has as its role within the data set to be the "category" as shown at 182. As another example, the Sales9 variable has as its role within the data set that of a "response" variable as shown at 184. The role tags may specify the sort order for a variable and

whether missing values operation should be enabled in order to modify the view of the data without modifying the original data.

The ChartAreas tags 190 contain information about how the different areas within the graphic chart should be displayed and with what data. For example, the Charts tags 192
5 specify that the chart data for the graphic output is "ChartData0", the bar shape should be a block, and the bar should be styled by the subgroup role variable which in this case is Year4 (as shown by the Role tag 186).

The axes tags 200 contain information about how the graph's axes should be displayed in the chart areas as well as indicating the variables that should be associated with the axes. For example, the axis0 tag 202 (which in this example is the horizontal axis for a bar
10 chart) specifies that the horizontal axis shall have five major ticks and shall be associated with the variable that has the category role in the data set. In this example, the variable Year31 (as shown by Role tag 182) has the category role, and accordingly is associated with the horizontal axis of the bar chart. Other formatting values for this axis may be set such as whether major or
15 minor ticks and label ticks should be visible on the graphical output. For the vertical axis of the bar chart, the variable that has the response role is associated with the vertical axis as specified by the Axis1 tags 204. In this example, the Sales9 variable is identified by Role tag 184 as the response variable.

FIG. 5 shows a bar chart that has been constructed in accordance with the XML
20 data structure 100 of FIGS. 4A-4E. The values contained within the bar chart 250 are in accordance with the data tags 104 contained in the XML data structure 100. For example, on the bar chart 250, the Year 1997 bar 252 has a value of \$10,000 as specified in tag 118.

The style of the bar chart 250 is also in accordance with the style tags 106 of the XML data structure 100. Each of the bars (252, 254, 256, 258, 259) is colored in accordance with the style specification. For example, the first bar 252 has the color denoted within the style tag 140 for GraphDataStyle1 (i.e. "#FFA53D"). The first bar 252 contains as its fill interspersed dollar symbols as provided by the graphic image file specified within the GraphDataStyle1 tag 140. Other aspects of the bar chart graphic output 250 are also displayed in accordance with the style specification. For example, the horizontal axis 260 does not show major tick or minor tick lines as specified by the Axis0 tags 202. The horizontal axis 260 also shows the display of the variable whose role is category (i.e., the Year31 variable has as its role the category and thus is displayed as the variable for the horizontal axis 260). Correspondingly, the vertical axis 262 has its format and associated variable shown in accordance with the Axis1 tags 204. Thus, the vertical axis label "sales" 264 is shown in accordance with the Axis1 tags 204. Also, the variable Sales9 is the variable associated with the vertical axis 262 in accordance with the Axis1 tags 204.

FIG. 6 depicts a pie chart depiction 280 of the data shown within the XML data structure 100 of FIGS. 4A-4E. The pie chart 280 uses the variables in the same roles set forth in the ChartDataList tags 170, but has changed the color values as well as the fill values in displaying the data values. For example, the first graphical component 282 has a bluish color whereas the first component had a dark orange color at 252 on FIG. 5.

It should be understood that the graph styles data structure uses a metadata approach whose abstraction is at a level above the particular type of graphic used to display the data. Thus, metadata (such as what role a variable has within a data set and the format style of a variable based upon its role) is used independent of the graphic type used to depict the data.

The definition and generation of graphic output via the graph styles data may be performed in many different ways. One such method is shown by the flowchart of FIG. 7. With reference to FIG. 7, start block 300 indicates that the method begins at process block 302. At process block 302, the graph styles data (as well as possibly the underlying data to be used) are defined. It should be noted that the generation of the graph styles data does not have to occur at the time that the data source is designated, but instead a large number of graph styles may be predefined so that the user at the time that the data is generated may specify the type of graph styles that should be used to depict the data. For example, such unique graph styles as the following may be predefined: an analysis style (e.g.; showing a magnifying glass in the background); an astronomy style; a banker style; a blockprint style; a convention style; a curve style; an education style; an electronics style; a gears style; a magnify style; a money style; an RSVP style; a science style; a sketch style; a statistical style; a torn style; a watercolor style; and others. These styles may allow the following display characteristics to be used with non-textual output: soft shadows around text; transparency of data primitives, legends and graphics area; texture maps on data primitives and graphics area; background images specific to industries; use of specific fonts to highlight labeling and values; color scheme to enhance the overall appearance of the graphs; gradient fills for the graphics area; linestyles to highlight data; and others.

At process block 304, the data to be graphically depicted is generated. The graphic output rendering module determines at process block 306 the display characteristics for the generated data based upon the defined graph styles data. At process block 308, the data is graphically displayed based upon the determined displayed characteristics. Unless the user wishes to perform another action, processing for this operational scenario terminates at end block 310.

FIG. 8 shows use of a graphical user interface to interactively modify styles of a graphical output. In this example, a viewing application 320 (such as a web browser, Microsoft Word, etc.) displays a graphical output 321 that has incorporated an output document 322. A user can access a graphical user interface 324 to modify the appearance of the graphical output 321. To accomplish this, the interface 324 may include a style editor 326 so as to modify one or more of the styles associated with the graph 321. The interface 324 may also include a variable dialog interface 328 so that the data shown in the graph 321 may be modified. The interface 324 may also include other graph attribute dialog interfaces in order to modify more specific characteristics of the graph's appearance.

FIGS. 9-13 show an example of a style editor 326 that may be used to modify style attributes of a graphical output. With reference to FIG. 9, the style editor 326 may contain tabs 330 to modify different style attributes contained within the graph styles data structure. FIG. 9 shows the chart tab 332 as activated. The user selects at 334 a style so that the user may view and possibly modify the style's attributes/display characteristics. The following chart attributes may be viewed and modified for a selected style when the chart tab 332 is activated: chart color scheme 336; chart color background 338; chart legend file 340; chart floor fill 342; chart wall fill 344; chart wall transparency level 346; chart data elements fill 348; and chart data elements transparency level 350.

FIG. 10 shows an exemplary modification being performed by the user. The user is modifying the style from Analysis to Magellan. By selecting a different style, the user can view the current attribute values for the selected style, and modify any style attributes to suit the user's particular needs.

FIG. 11 shows the lines tab 360 as activated. The user selects for which style the line attributes are to be viewed and possibly altered. For a selected style, the following line attributes may be viewed and modified: lines color scheme 364; lines color background 366; lines color outline 368 and width 370; grid style 372; grid color 374; grid width 376; axis and borders style 378, color 380 and width 382.

FIG. 12 shows the text tab 390 as activated. The user selects for which style the text attributes are to be viewed and possibly altered. For a selected style 334, the following text attributes may be viewed and modified: text color scheme 392; text color background 394; text title color 396 and font 398; title effects 400; label color 402 and font 404; label effects 406; values color 408 and font 410; and value effects 412.

FIG. 13 shows the effects tab 414 as activated. The user selects for which style the effects attributes are to be viewed and possibly altered. For a selected style, the following effects attributes may be viewed and modified: effects color scheme 415; effects color background 416; shadow style 417; color and offset 418 (if available); text borders style 419, color 420, and width 421; selection style 422 and color 423 (if available). It should be noted that modifications via the style editor changes the graph styles data.

FIG. 14 shows the results of a style editor modifying the graphical display format of a bar chart 425. FIG. 14 depicts at 425 a modified bar chart of FIG. 5. The style editor modified the outer contour 426 of each bar to appear as cylindrical as well as each bar's interior to be transparent. The style editor performed these modifications by adding a cylindrical contour attribute and transparency attribute to each GraphDataStyle contained within the tags 132. The wall fill 427 has also been modified to show a magnifying glass in the background. It should be

understood that any attribute of the graphical output may be modified through the style editor or by another mechanism that can effect changes to the graphic styles data.

Many different graphical outputs can be created via the graphical styles data. FIG. 15 shows a statistical graphical output 430 whose format has been dictated by the graphical styles data. The statistical graphical output 430 shows a response variable analysis graph that contains two response profiles (438 and 444). The first response profile 438 predicts the number of people who have visited a particular company's Internet web site. The second response profile 444 depicts the advertisement exposure amount for a particular age group of people. The combined response profiles 438 and 444 assist the user in determining the effect of advertising exposure upon a company's Internet web site.

Time is the dimension for the abscissa axis 432 and may be in units of days. The business metric variable "consumer_sample_info_pages" comprises the dimension for the first ordinate axis 434 and represents the number of viewings of the company's web site product information pages. The actual daily number of viewings of the company's web site product information pages is shown by data points 436. The predicted daily number of viewings of the company's web site product information pages is shown by the points on curve 438. Upper and lower confidence bands 440 bound the curve at a 95% confidence level.

On the graph 430, the input variable cable_a35_plus_grp comprises the dimension for the second ordinate axis 442 and represents (in units of 100,000) people 35 years or older that watched an advertisement on cable. Vertical line responses (e.g., response 444) show the advertisement exposure amount for this group of people. The gap between a peak in the cable_a35_plus_grp dimension (as shown for example by vertical line response 444) and a peak in the consumer_sample_info_pages target variable (as shown for example by peak 446)

represents the time delay of the effect that showing an advertisement has in drawing its viewers to the company's web site.

The graph styles data may be used to format different aspects of the graphical output. The confidence bands 440 may be shown in a different color and with a different line thickness than the response curve 438. Any actual points 436 that reside outside the confidence bands 440 may have a different style than actual points 436 within the confidence bands 440. The graph styles metadata may indicate that a certain set of points or set of curves has as its role to be the confidence bands within a graph. The graph styles metadata may also designate the role of any other data to have a statistical meaning. For example, the graph styles metadata may designate that a line is to act as the mean for the graph.

The graphical output 430 assists a user in determining time delays between an advertisement showing and its effect upon viewing the company's web pages. In this example, it is determined that there is about a one day delay between an advertisement showing and its effect upon viewing the company's web pages. The graph styles data structure may include information to highlight the delay aspects, such as providing arrows pointing to peaks in the first and second response curves (438 and 444) to illustrate the delays. It should be understood that any aspect of the graphical output 430 may have its format defined through the graph styles data structure, such as modifying the graphical appearance of points or curves on a graph based upon a the points or curves satisfying preselected conditions. For example, points that are further away from a preselected statistic (such as the mean) may have their styles modified to better distinguish them from those points closer to the statistic.

While examples have been used to disclose the invention, including the best mode, and also to enable any person skilled in the art to make and use the invention, the

patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. For example, FIG. 16 shows that graph styles data 40 may describe data generated from many different sources 460, such as a relational database management system (RDBMS) application, business application, statistical application, ActiveX control, Java applet, third party application, etc. In this example, the graph styles data 40 are expressed in an XML format. The graph generator software program 36 may use an XML parser 462 to parse the graph styles XML data for determining the styles information to be associated with the incoming data 464.

The graph styles data 40 may reference additional data 466 to be incorporated in the graphical output 38, such as digital photographs or bitmap files. A company can customize its graphical output 38 by including a digital photograph of its corporate headquarters or a bitmap file containing its logo.

The graphical output 38 may assume many different output formats, such as PDF, HTML, XML, RTF, a direct output to a printer, etc. The output format may be based upon the entity that is to receive the graphical output. For example if the business application is being operated through a web browser, then the graph styles data can indicate that certain styles are to be used when rendering graphics for a web browser as well as indicate that the output should be in an HTML format.

As another example of the wide scope of the graph styles system, FIG. 17 shows an exemplary web application 480 utilizing the graph styles data 40 through the Internet 482. The web application 480 requests that certain operations be performed by a server side computer system 484. A data engine 486 residing on the server side computer system 484 performs the requested operations. The server side computer system 484 may format its response for the web

application 480 in accordance with the graph styles data 40. A user 488 may use the web application 480 to modify the graph styles data 40, such as through a web-enabled style editor. It should be noted that in this example, the graph styles data 40 and the software 486 generating the data may exist in two different locations (such as two different files). This provides for less coupling between the two and increases the portability of the graph styles so that it is application independent.

As yet another example of the wide scope of the graph styles system, the graph styles system may be used in coordination with other report specification systems, such as the report specification system described in U.S. provisional application Serial No. (to be assigned) entitled "COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR REPORT GENERATION" filed March 29, 2002 (with Express Mail Number EL647389580US, law firm docket number 343355600040, and inventors Shaughnessy et al.). That application's full disclosure is incorporated herein and used in reference to FIGS. 18 and 19. FIG. 18 depicts a computer-implemented system 530 that renders reports 532 based upon data from different data sources 534. A report specification 536 defines a template, or description, of how the data should look based on the state of the data when a report 532 is rendered. The rendered instances 532 change as their underlying data 534 changes. Thus a rendered report 532 may be created one time and will not have to be recreated every time the data 534 changes.

Based upon the report specification 536, a report rendering engine 538 integrates different types 540 of data from different sources 534. The report specification 536 may define how the different types of data should be represented visually in a report 532 regardless of whether the data source 534 is a Microsoft Access or Oracle database, or an OLAP system or a 4GL (generation language) statistical analysis language (such as 4GL SAS language from the

SAS Institute Inc.), a spreadsheet program, or a word processing program (and regardless of whether the data is in a Microsoft Word or Excel or relational format or OLAP format or other type of format).

FIG. 19 depicts a report specification 536 to render reports. The report
5 specification 536 contains a data structure 550 to dictate what data sources 534 are involved in creating a report 532 and how the data 551 should appear in the report 532. For example, the data structure 550 may specify that data 551 is to be collected from a relational database management system 552, statistical data models 554, and data sets 556 (such as those used within a statistical package, as in the package available from SAS Institute Inc. located in North
10 Carolina).

The data structure 550 operates as a report model 558 from which one or more report instantiations 560 may be generated. If data 551 in one of the data sources (552, 554, 556) should change, the data model 558 automatically specifies where in a report instantiation 560 updates are needed. The data structure 550 may be a target and platform independent specification 562 while also allowing the report instantiations 560 to be rendered in many
15 different formats. Thus, a report instantiation 560 may be generated in HTML, PDF, XML, RTF, WAP, and other formats. The data structure 550 may use graph styles data 40 to define the display characteristics of the graphical output in accordance with the description provided above for the graph styles data 40. The graph styles data 40 may also coordinate the appearance
20 of graphical data with the other data contained within the data structure 550. For example, the color of the graphical data may be coordinated with the color scheme of the tabular data. Additional details of the data structure 550 and its uses are described in the aforementioned

application entitled "COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR REPORT GENERATION".

It is claimed:

1. A computer-implemented method for generating data graphical displays, comprising the steps of:

receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items.

2. The method of claim 1 wherein the non-textual format includes a graphic format.

3. The method of claim 2 wherein the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

4. The method of claim 1 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

5. The method of claim 1 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables, wherein the data is displayed in accordance with the graph style data items and the graph style metadata.
6. The method of claim 1 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.
7. The method of claim 6 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.
8. The method of claim 7 wherein the category role identifies the data variable to be associated with an axis for the non-textual format.
9. The method of claim 8 wherein the response role identifies the data variable to be associated with an axis for the non-textual format.
10. The method of claim 9 wherein the category role identifies the data variable to be used to determine the number of slices in a pie chart.
11. The method of claim 10 wherein the response role identifies the data variable to be used to determine the sizes of the pie chart slices.

12. The method of claim 1 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output.

13. The method of claim 12 wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

14. The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

15. The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

16. The method of claim 1 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

17. The method of claim 1 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

18. The method of claim 17 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables,

wherein the data is displayed in accordance with the graph style data items and the graph style metadata,

wherein the theme is selected based upon the roles contained within the graph style metadata.

19. The method of claim 1 wherein the graph style data is expressed in an XML format.

20. The method of claim 1 wherein a style editor is used to modify the display characteristics of the graph style data items.

21. The method of claim 1 wherein the graph style data items are used to format display of a statistical analysis graph.

22. The method of claim 21 wherein the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure.

23. The method of claim 22 wherein the response comprises a set of points.

24. The method of claim 22 wherein the response comprises a response curve.

25. The method of claim 22 wherein the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands.

26. The method of claim 22 wherein the statistical measure is a mean.

27. The method of claim 1 wherein the received data was generated by data source generating means.

28. The method of claim 1 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

29. The method of claim 1 wherein the graph data items are used within server side computer system means.

30. Computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1.

31. The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing a data source specification and a view specification, said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

32. The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing data source specification means and view specification means, said data structure indicating display characteristics for tabular data, wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure.

33. A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure.

34. The apparatus of claim 33 wherein the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps, x-y graphs, statistical analysis graphs, and combinations thereof.

35. The apparatus of claim 33 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

36. The apparatus of claim 33 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

37. The apparatus of claim 36 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, statistical analysis graphs, and x-y graphs.

38. The apparatus of claim 37 wherein the category role identifies the data variable to be associated with an axis for the non-textual format, wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

39. The apparatus of claim 33 wherein different types of software applications access the graph style data items in order to display non-textual formatted output.

40. The apparatus of claim 33 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output, wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

41. The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

42. The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

43. The apparatus of claim 33 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

44. The apparatus of claim 33 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

45. The apparatus of claim 44 wherein the theme is selected based upon the roles contained within the graph style metadata.

46. The apparatus of claim 33 wherein the graph styles data structure is expressed in an XML format.

47. The apparatus of claim 33 wherein a style editor is used to modify the display characteristics of the graph style data items.

48. The apparatus of claim 33 wherein the received data was generated by data source generating means.

49. The apparatus of claim 33 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

50. The apparatus of claim 33 further comprising:

a server-side computer system that contains the graph styles data structure,

said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,

said generated graphic outputs having display characteristics that are based upon the graph styles data structure.

51. The apparatus of claim 33 wherein the graph styles data structure is located in a first computer-based non-volatile storage medium location, and the graph generator module is located in a second computer-based non-volatile storage medium location.

52. The apparatus of claim 51 wherein the data is received by the graph generator module from a third computer-based non-volatile storage medium location.

53. The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

54. The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing data source specification means and a view specification means.

55. The apparatus of claim 33 wherein the graph style data structure contains graph style data items for formatting display of a statistical analysis graph.

56. A computer-implemented apparatus for generating data graphical displays, comprising:

means for receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

means for retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

means for accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items.

Computer-Implemented System And Method For Generating Data Graphical Displays

ABSTRACT

A computer-implemented system and method for generating data graphical displays. The data is indicative of a plurality of variables. The system and method receive data that is to be displayed in a non-textual format. Graph style data items are retrieved that contain display characteristics for displaying the data in the non-textual format. The data is displayed in
5 accordance with the graph style data items.

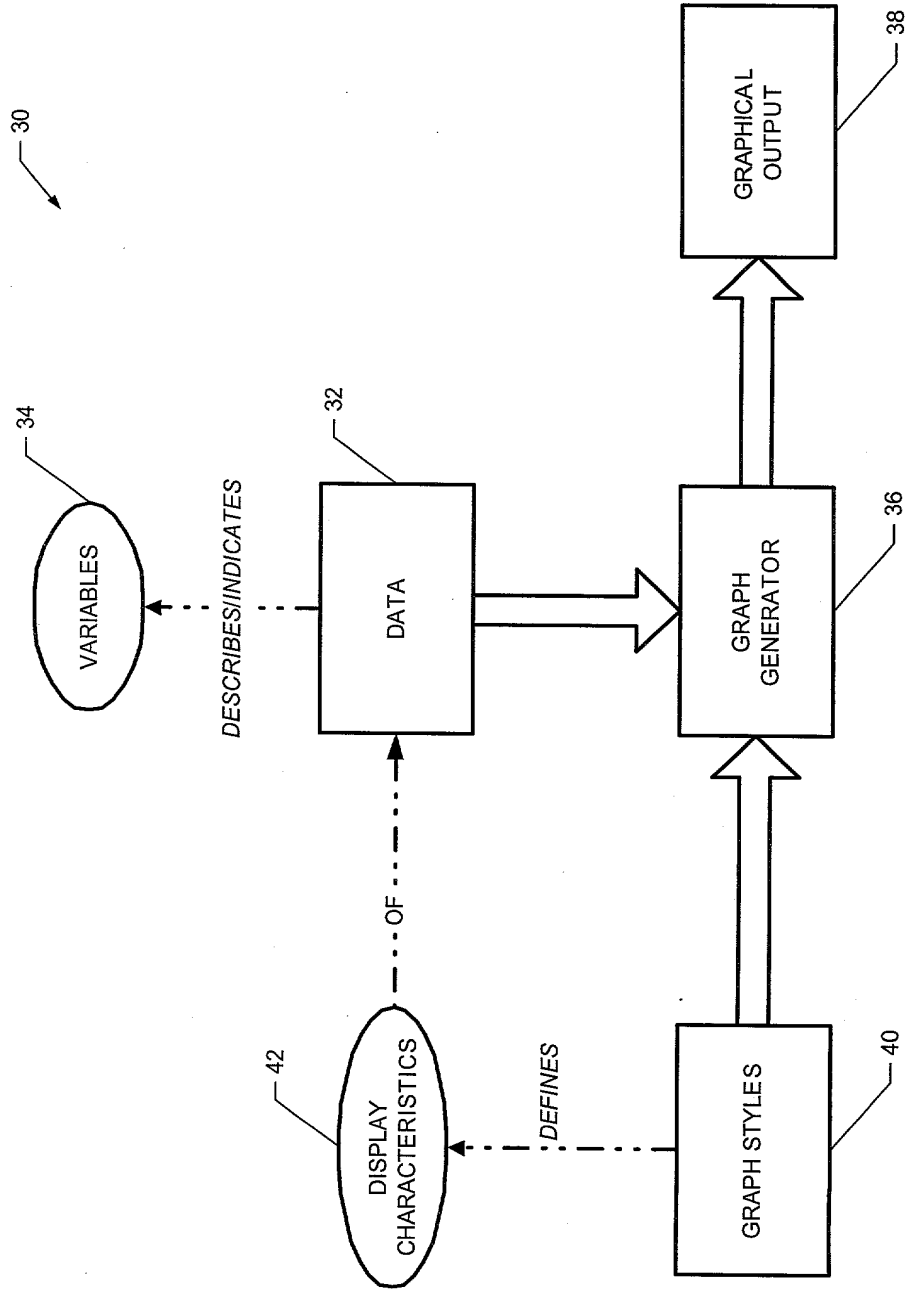


FIG. 1

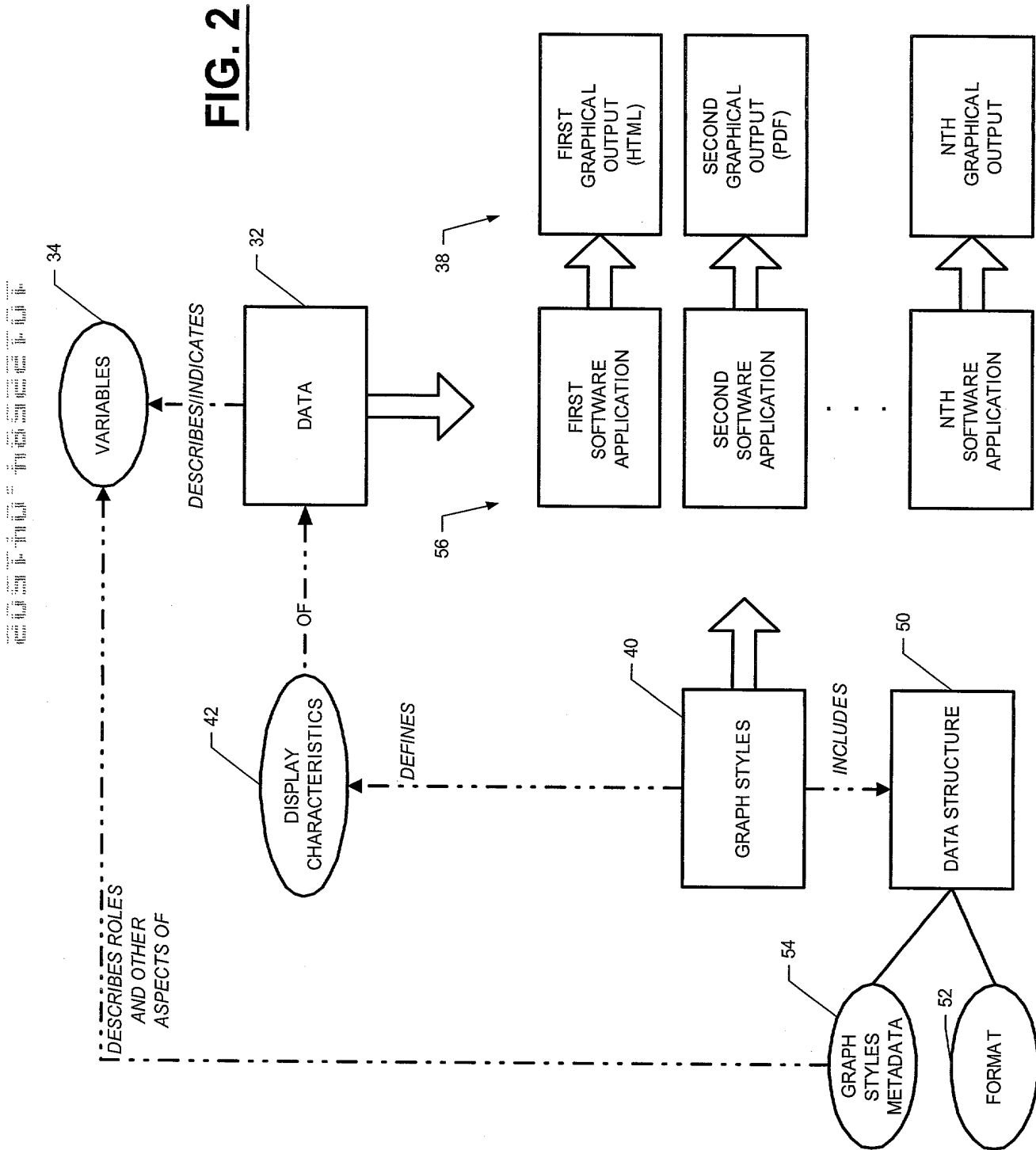


FIG. 2

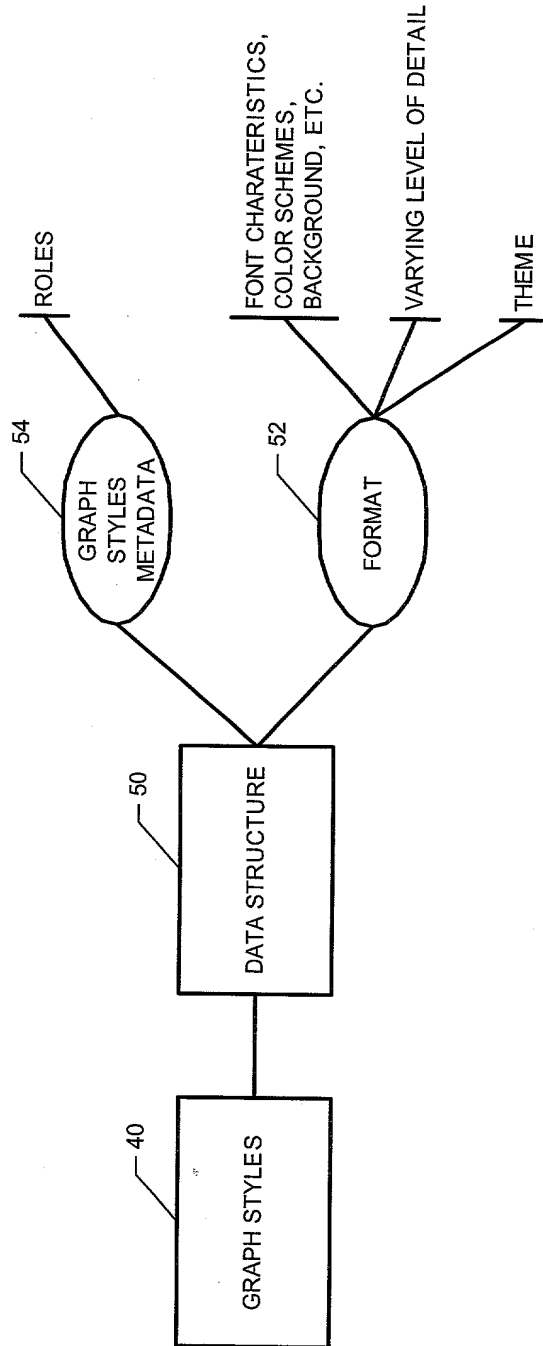


FIG. 3

102 <Report version="1.0" xmlns:style="

104 http://www.sas.com/reportmodel/styles">

110 <Data type="ZDEmbedded" name="Data0">

100

```

<EmbeddedData>
  <Variables>
    <Variable name="Year4" varName="Year" label="Year" type
    ="String"/>
    <Variable name="Year31" varName="Year3" label="Year" type
    ="String"/>
    <Variable sasFormat="DOLLAR10.0" encoding="Text" name="Sales9"
    varName="Sales" label="Sales" type="Numeric"/>
    <Variable encoding="Text" name="___FREQ__14" varName="___FREQ__"
    label="Frequency" type="Numeric"/>
  </Variables>
  <ValuesList>
    <Values>
      114 <Value>1997</Value>
      116 <Value>1997</Value>
      118 <Value>10000</Value>
      120 <Value>1</Value>
    </Values>
    <Values>
      150 <Value>1998</Value>
      <Value>1998</Value>
      <Value>12000</Value>
      <Value>1</Value>
    </Values>
    <Values>
      150 <Value>1999</Value>
      <Value>1999</Value>
      <Value>15000</Value>
      <Value>1</Value>
    </Values>
    <Values>
      <Value>2000</Value>
      <Value>2000</Value>
      <Value>16000</Value>
      <Value>1</Value>
    </Values>
  </ValuesList>
</EmbeddedData>
</Data>

```

FIG. 4A

```

<Values>
<Value>2001</Value>
<Value>2001</Value>
<Value>19800</Value>
<Value>1</Value>
</Values>
</ValuesList>
</EmbeddedData>
</IQData>
</Data>
<style:Scheme name="Graph">
  <style:Style name="Graph">
    <style:Style context="GraphDataStyle1" color="#FFA53D" altColor="#CCCCFF" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle2" color="#F7DF54" altColor="#99FFCC" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle3" color="#EF6B48" altColor="#FFCC99" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle4" color="#61A6E7" altColor="#99CCFF" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle5" color="#CB79C8" altColor="#FFCCFF" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle6" color="#85CE79" altColor="#99CCCC" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle7" color="#967CD0" altColor="#FFFFCC" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle8" color="#DD6475" altColor="#CCFFFF" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle9" color="#9DAA2D" altColor="#FFCCCC" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>
    <style:Style context="GraphDataStyle10" color="#6C69D9" altColor="#CCFFCC" fillFile="\dntsrc\sas\m900\ods\misc\Bank64g.gif" fillType="ImageColorBlend"/>

```

112

104

106

130

132

140

142

FIG. 4B

```

="ImageColorBlend" />
  <style:Style context="GraphDataStyle11" color="#2EA64A" altColor=#
#CCCCCC" fillFile="\dots\misc\Bank64g.gif" fillType
="ImageColorBlend" />
  <style:Style context="GraphDataStyle12" color="#C17D35" altColor=#
#CCCC66" fillFile="\dots\misc\Bank64g.gif" fillType
="ImageColorBlend" />
  <style:Style context="TwoColorRamp" fillGradientStartColor=#
#FFFFFF" fillGradientEndColor=#967CD0"/>
  <style:Style context="TwoColorAltRamp" fillGradientStartColor=#
#FFFFFF" fillGradientEndColor=#99CCFF"/>
  <style:Style context="BackFill" fillGradientStartColor=#C4E4B8"
fillGradientEndColor=#FFFFCD" fillGradientType="YAxis" fillType
="Gradient"/>
  <style:Style context="AxisLines" lineColor="#000000" lineThickness
="2px"/>
  <style:Style context="GridLines" lineColor="#000000"/>
  <style:Style context="Outlines" lineColor="#000000"/>
  <style:Style context="BorderLines" lineColor="#000000"
lineThickness="2px"/>
  <style:Style context="LabelText" textColor="#003366" fontSize
="16pt" fontFamily="Times New Roman" fontWeight="bold" fontStyle="normal"/>
  <style:Style context="ValueText" textColor="#000000" fontSize
="12pt" fontFamily="Trebuchet MS" fontWeight="normal" fontStyle="normal"/>
  <style:Style context="WallFill" fillColor=#FFFFCD" fillType
="Pattern"/>
  <style:Style context="FloorFill" fillColor=#FFFFCD" fillType
="Pattern"/>
  <style:Style context="LegendFill" fillColor=#FFFFCD" fillType
="Pattern"/>
  <style:Style context="DropShadow" shadowColor=#142A3E" xOffset
="5%" yOffset="5%"/>
</style:Style>
</style:Scheme>

```

FIG. 4C

```

108 <View style:scheme="GraphScheme0">
    <Section>
    <Body>
    <Graph name="Graph_1541253545554510" style:height="480px"
    style:width="640px" view2D="true">
    <ChartDataList>
    <ChartData name="ChartData0" data="Data0">
    <Roles>
    <Role variable="Year4" type="Subgroup" sortOrder
    ="Ascending" missingEnabled="true">
    </Role>
    <Role variable="Year31" type="Category" sortOrder
    ="Ascending">
    </Role>
    <Role variable="Sales9" type="Response" statistic="Sum">
    </Role>
    <Role variable="__FREQ__14" type="Frequency">
    </Role>
    </Roles>
    </ChartData>
    </ChartDataList>
    <ChartAreas>
    <ChartArea>
    <Walls>
    <Walls>
    <ChartBorderLine lineVisible="true">
    <Charts>
    <Bar name="Chart0" chartData="ChartData0" styleBy
    ="Subgroup" barShape="Block">
    </Bar>
    </Charts>
    </Axes>
    <Axis name="Axis0" role="Category" majorTickCount="5"
    minorTickCount="0">
    <MajorTick lineVisible="false">
    <MinorTick lineVisible="false">
    <Label textVisible="true">
    <AxisValues textVisible="true">
    </Axis>
    <Axis name="Axis1" role="Response">
    <Label textVisible="true">
    <AxisValues textVisible="true">
    </Axis>

```

100

FIG. 4D

100

```

190  </Axes>
      </ChartArea>
      </ChartAreas>
      <Legends>
      <Legend chart="Chart0" isVisible="false">
      </Legend>
      </Legends>
      </Graph>
      </Body>
      </Section>
108  </View>
102  </Report>

```

FIG. 4E

250

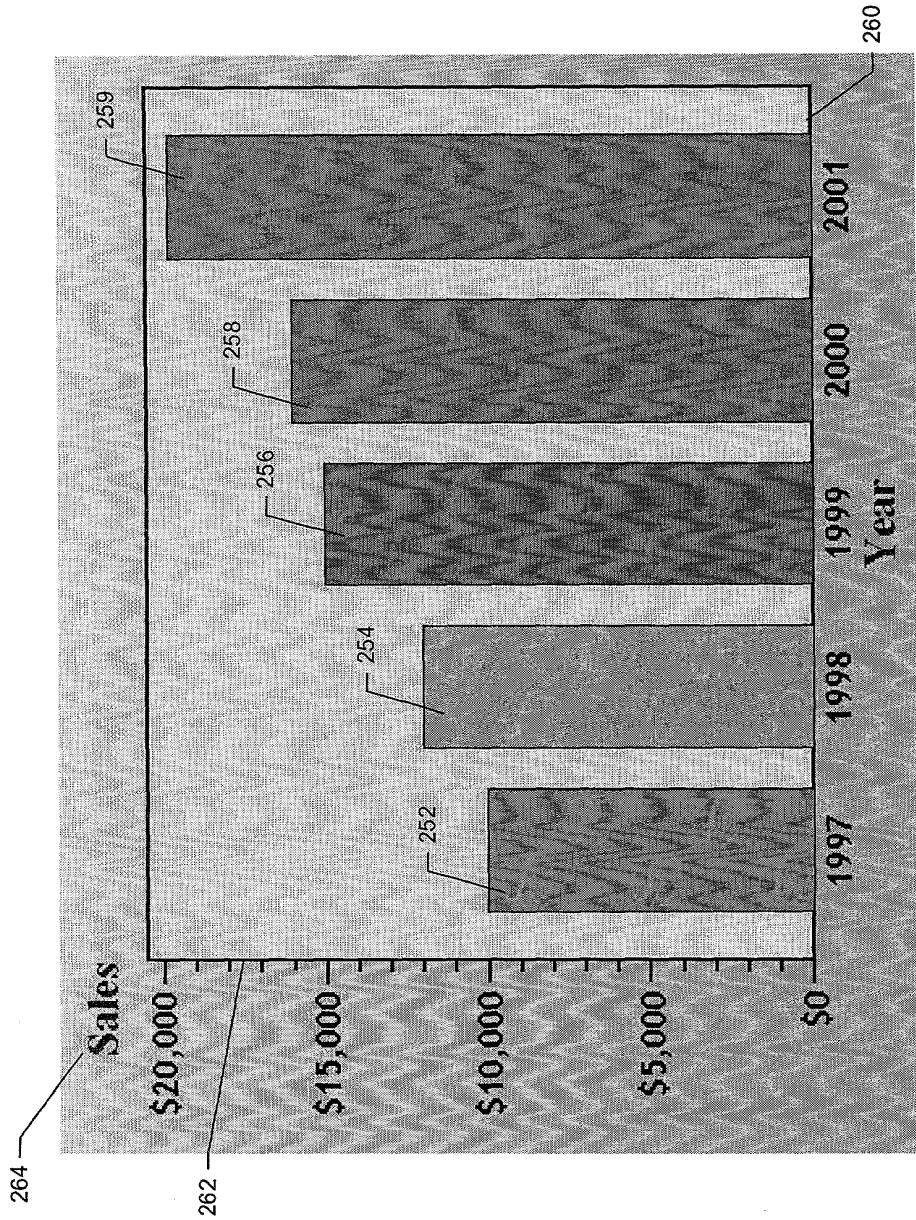


FIG. 5

280 →

← 282

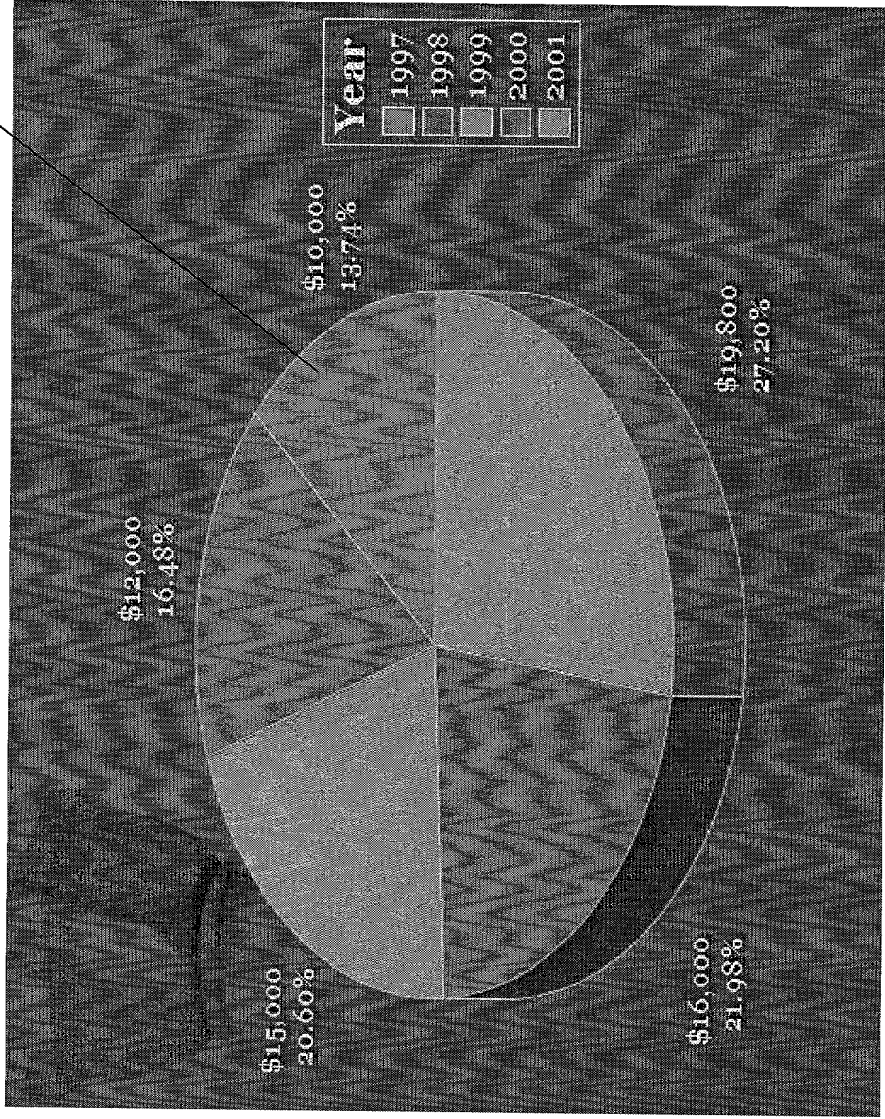


FIG. 6

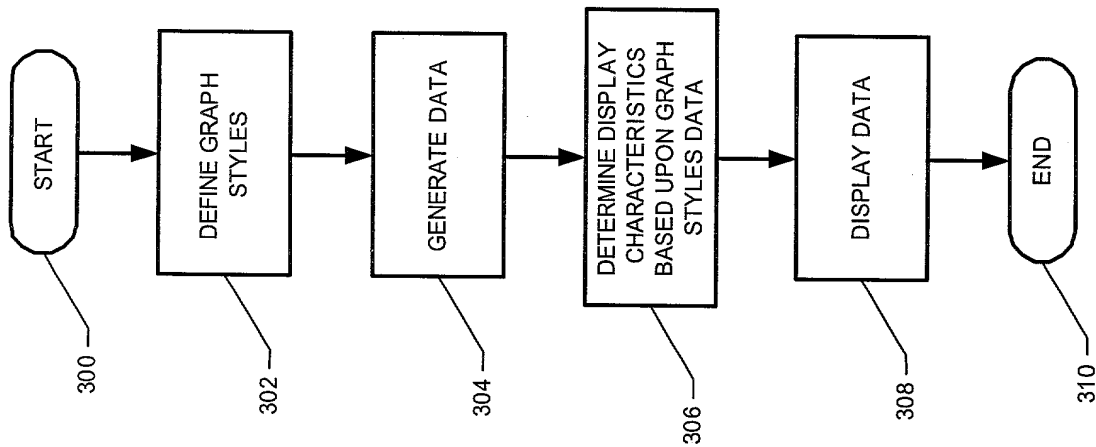


FIG. 7

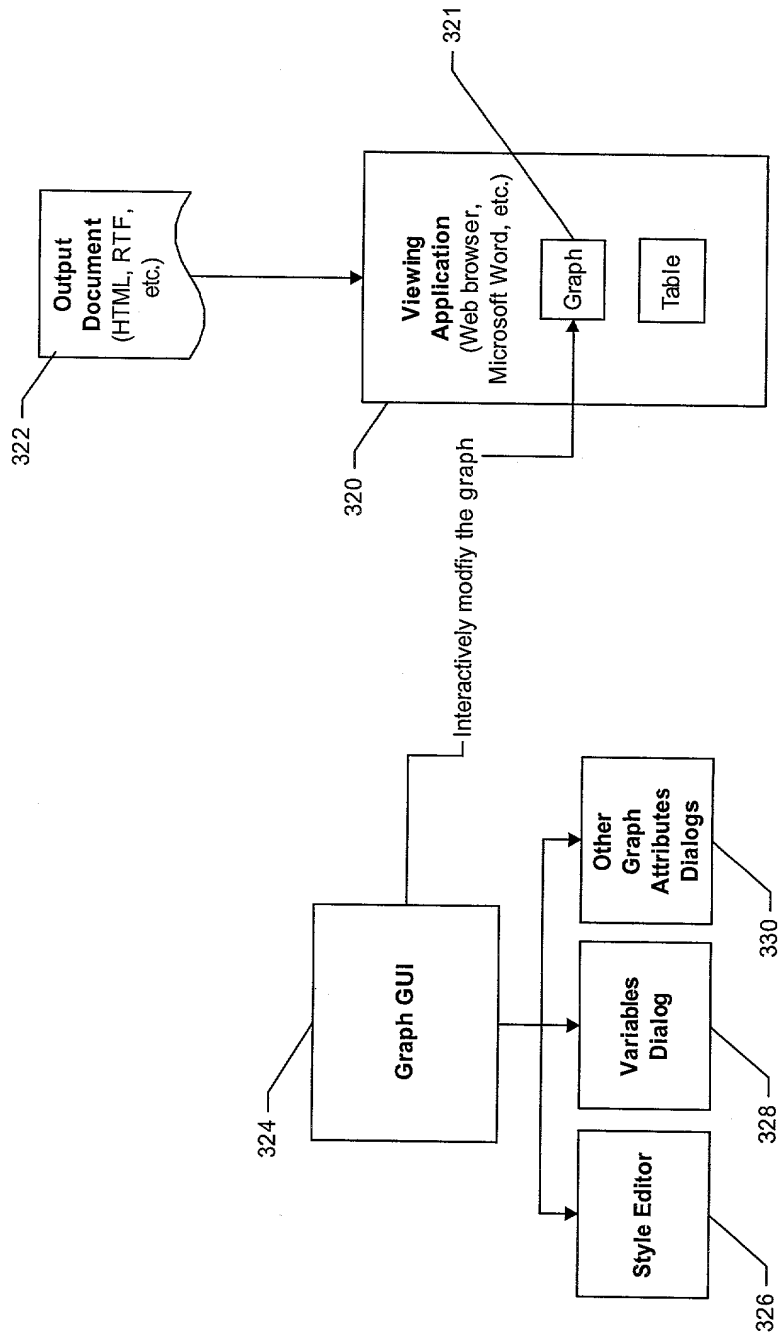


FIG. 8

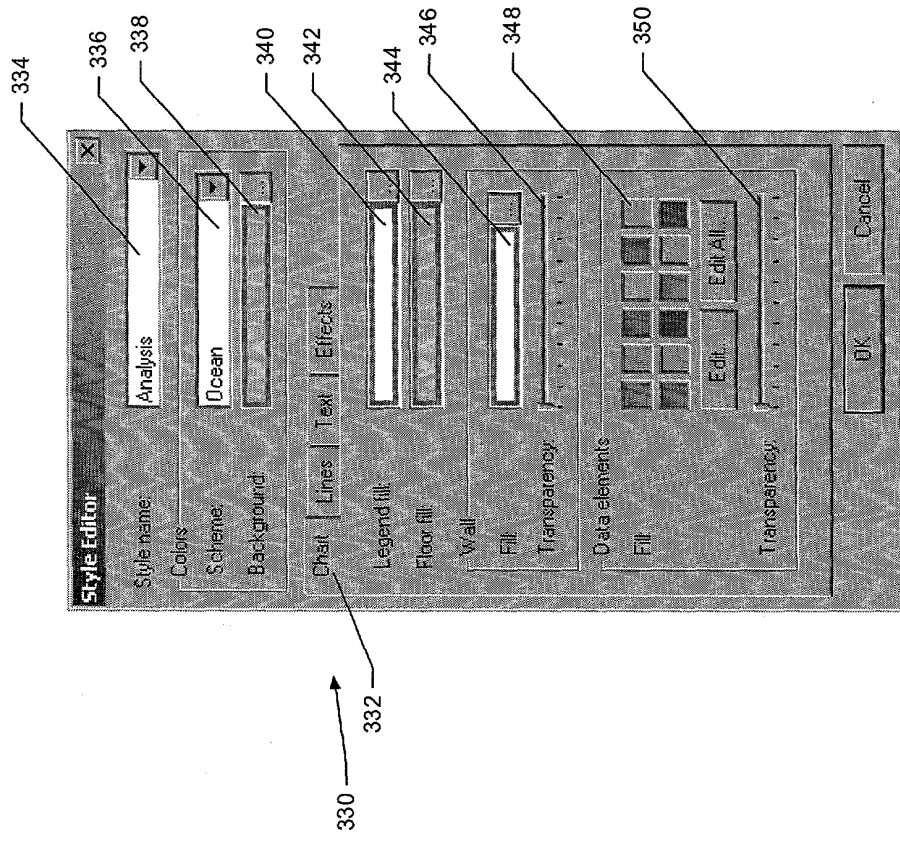


FIG. 9

334

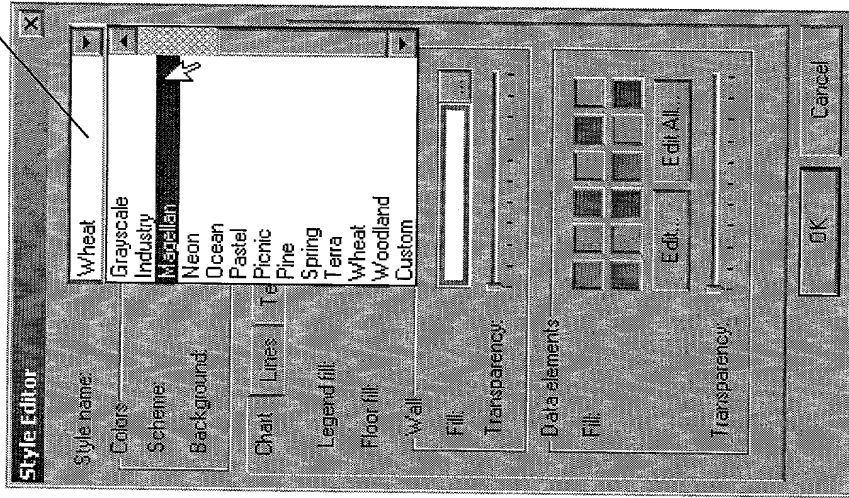


FIG. 10

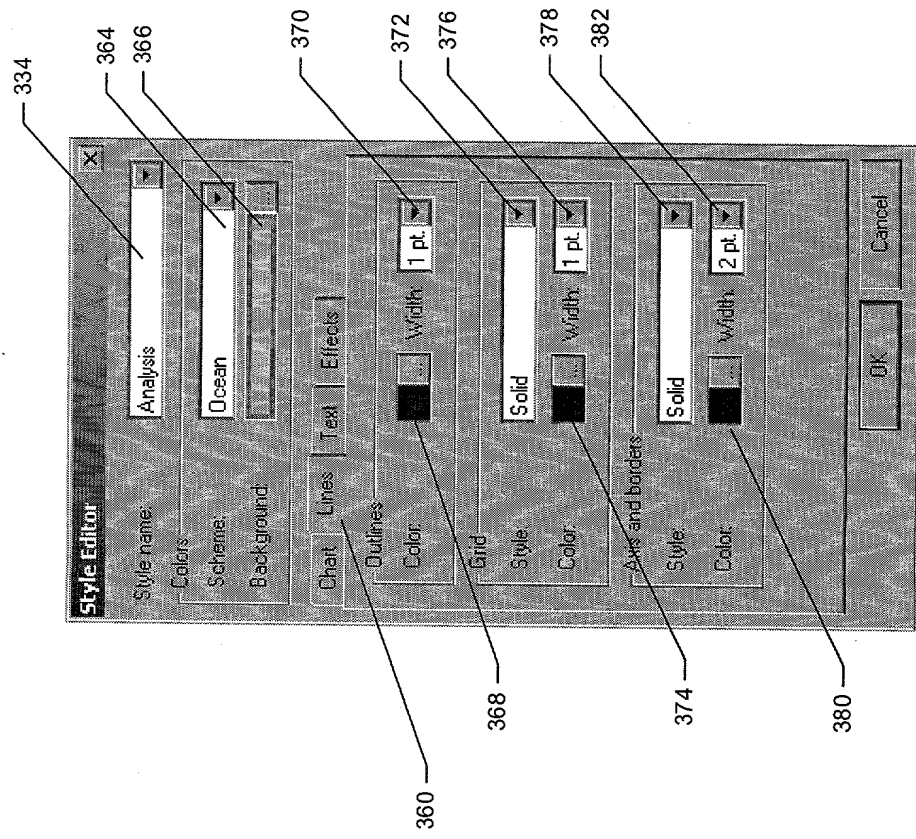


FIG. 11

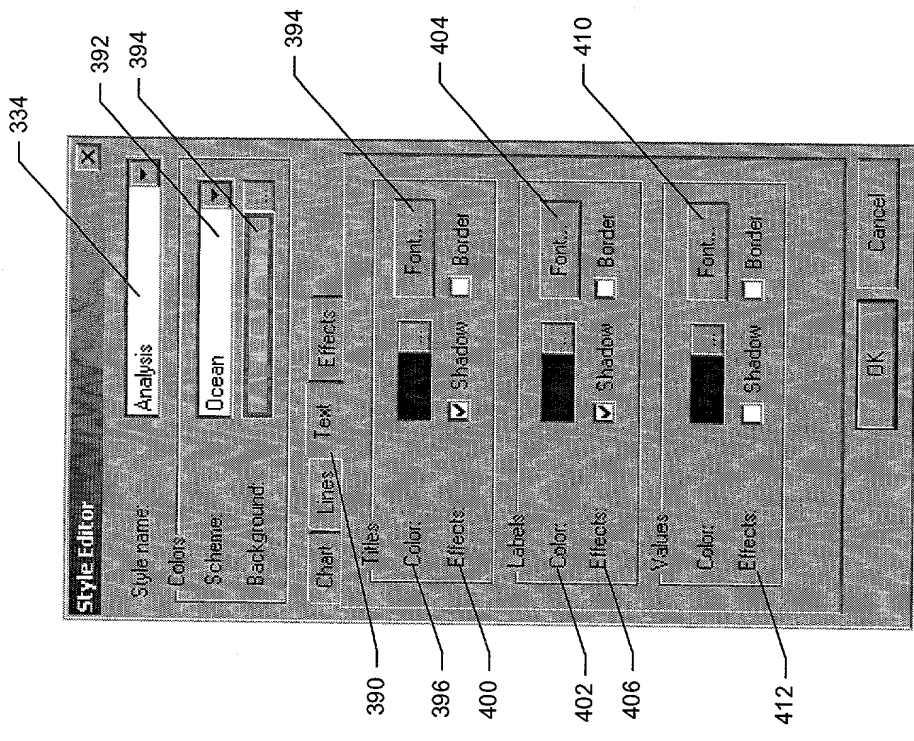


FIG. 12

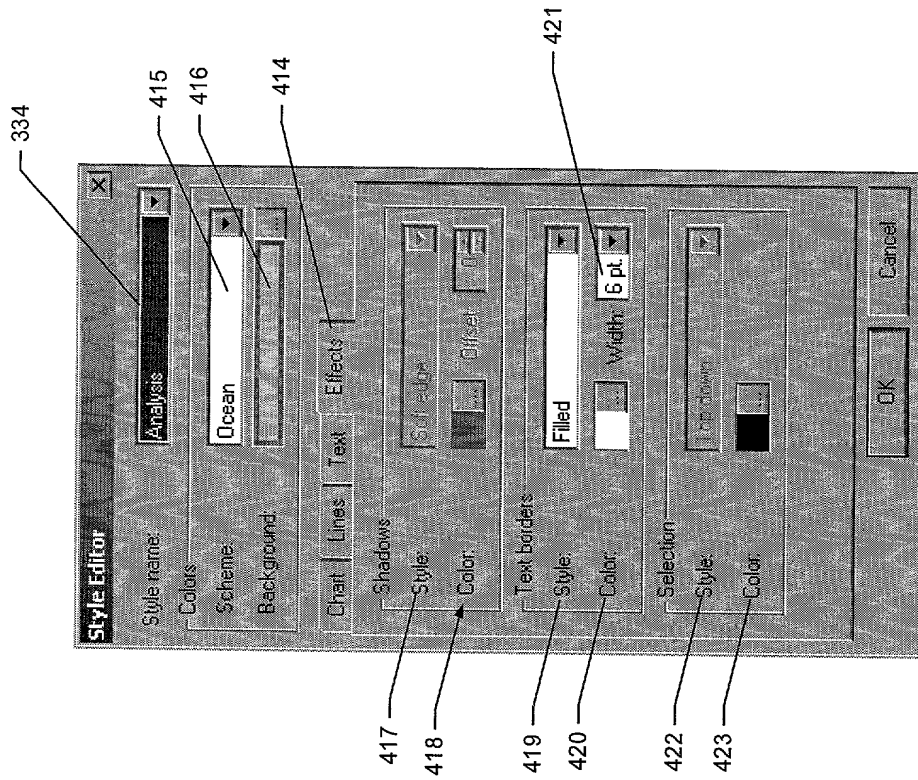


FIG. 13

FIG. 14 is a line graph showing sales from 1997 to 2001.

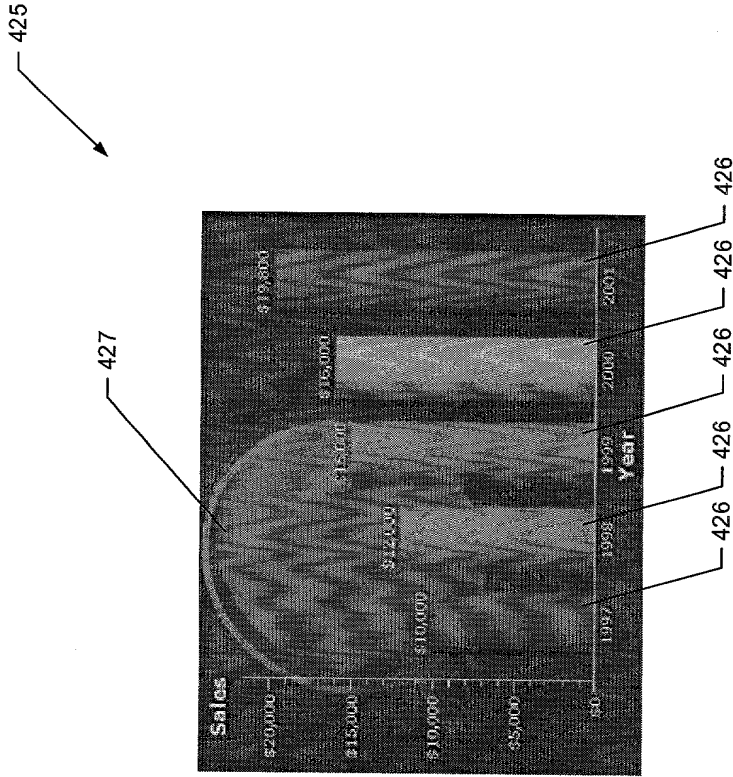


FIG. 14

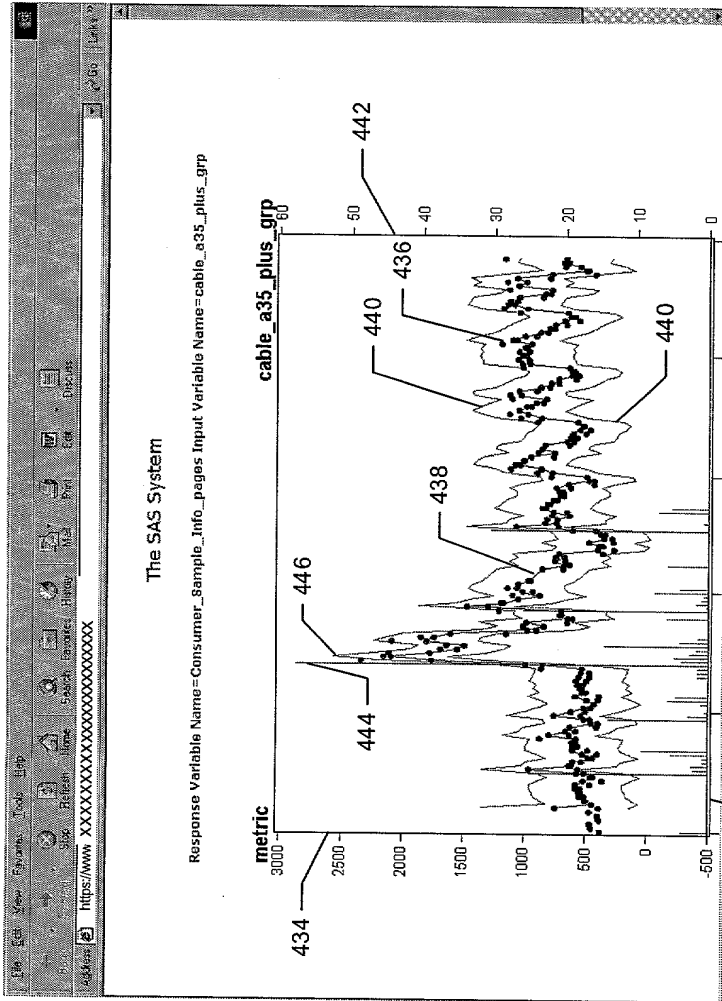


FIG. 15

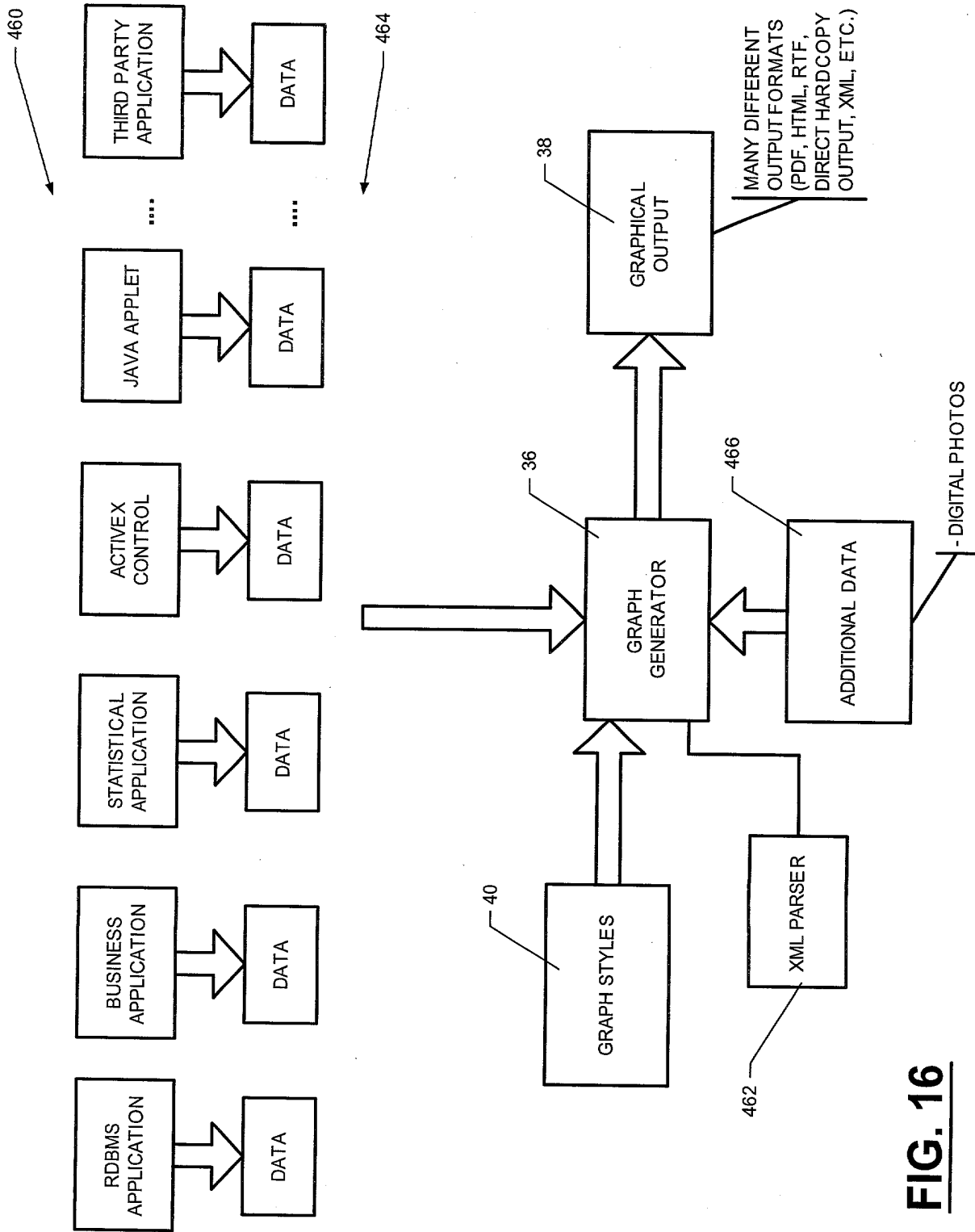


FIG. 16

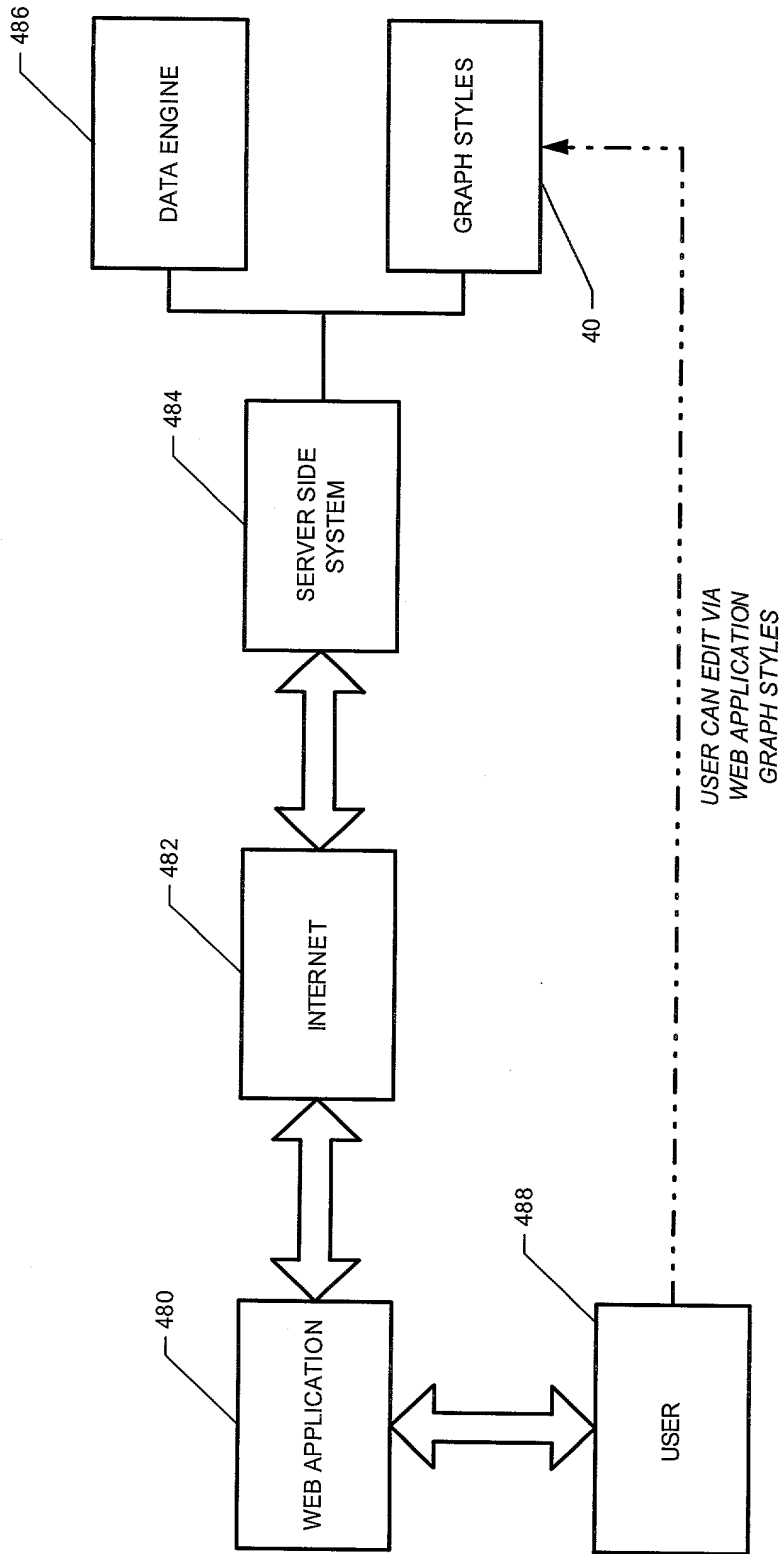


FIG. 17

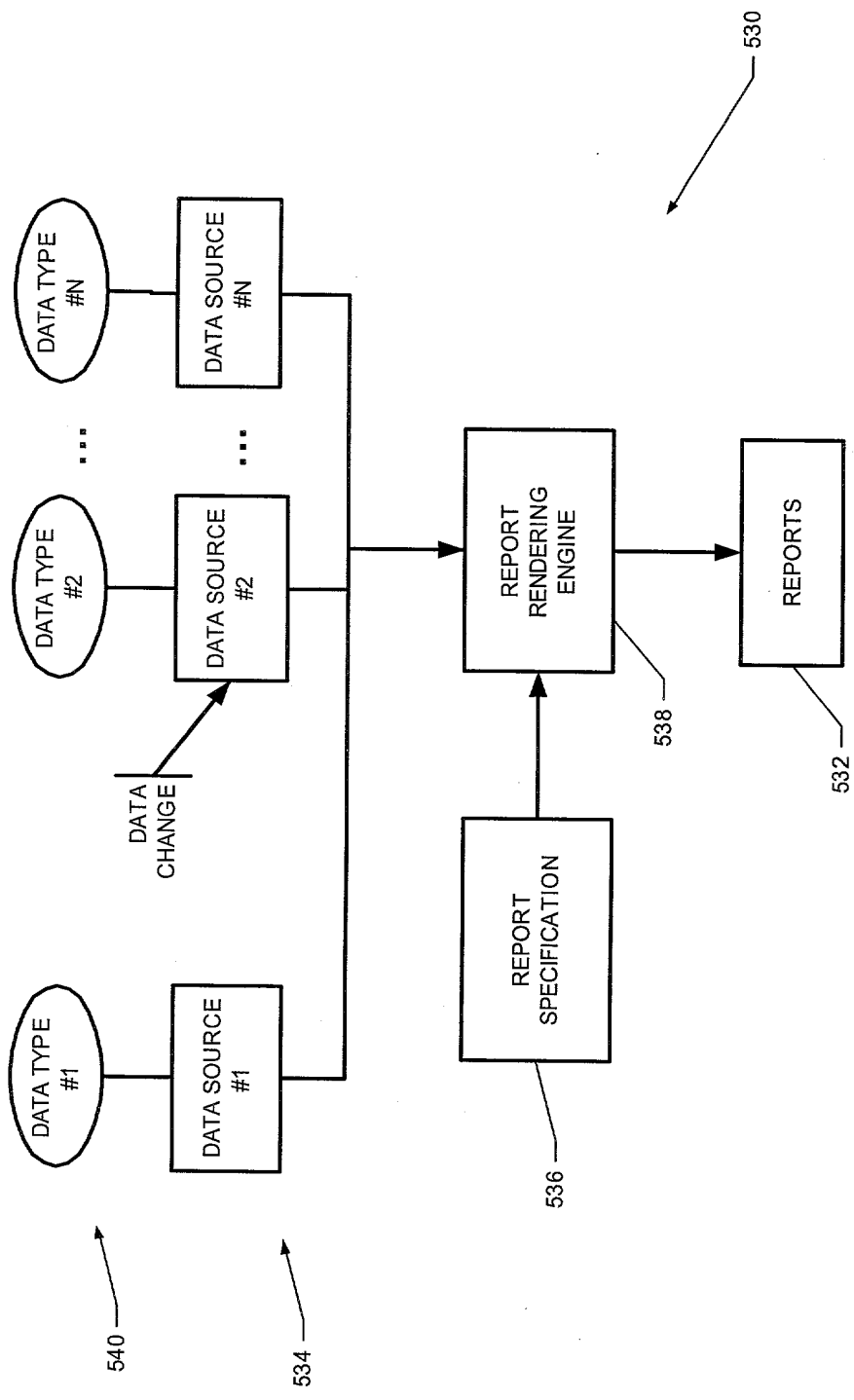


FIG. 18

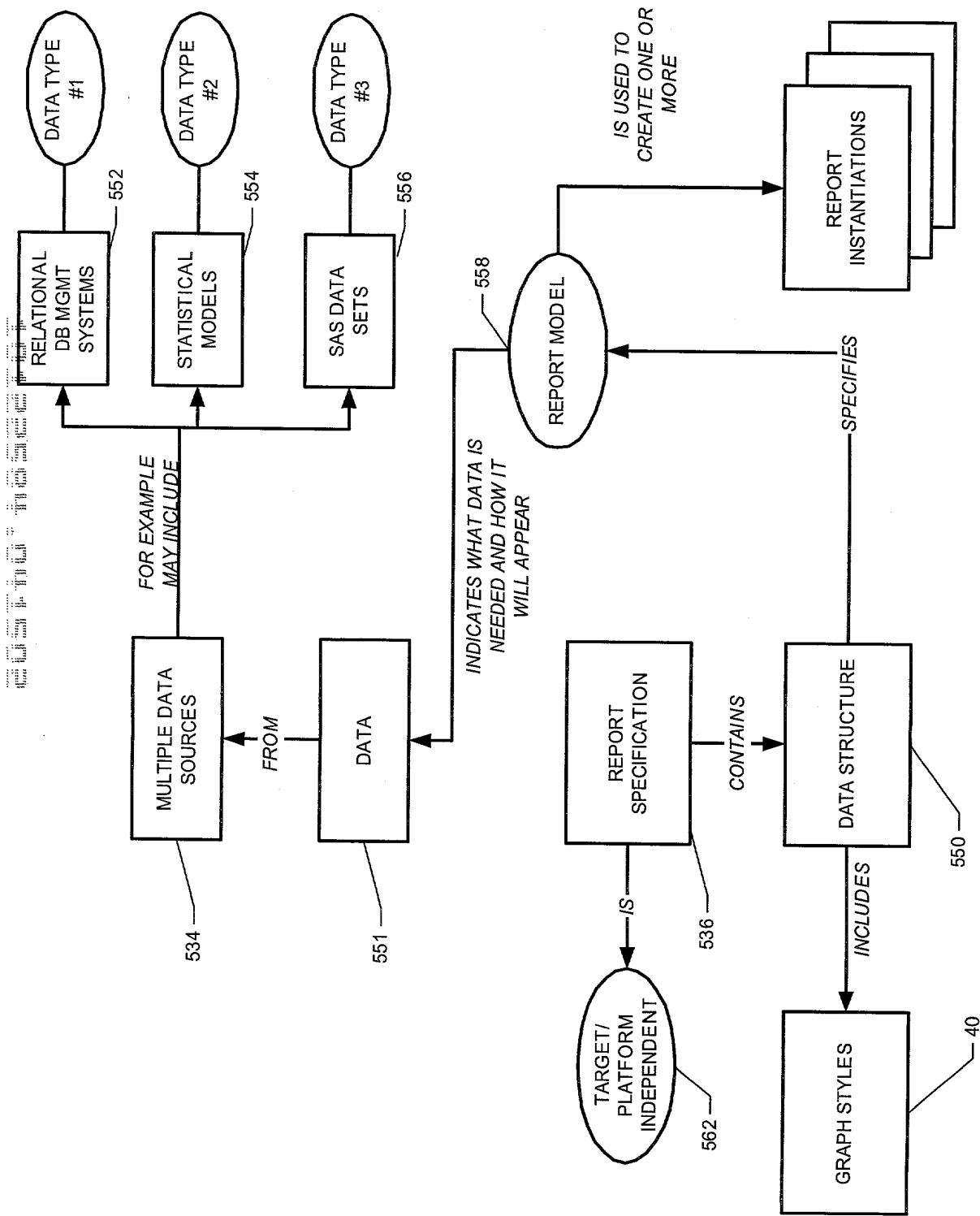


FIG. 19

DECLARATION AND POWER OF ATTORNEY

(Joint Inventors)

We, Himesh G. Patel; Frank Lee Wimmer; Cleester Daniel Heath, IV; Paul W. Layne; and Kevin Dale Smith, hereby declare that we are, respectively,

a citizen of the United States of America, residing at 2501 Maxton Crest Drive, Apex, North Carolina 27502;

a citizen of the United States of America, residing at 9107 Brompton Court, Raleigh, North Carolina 27615;

a citizen of the United States of America, residing at 124 Smith's Creek Drive, Clayton, North Carolina 27520;

a citizen of the United States of America, residing at 105 Javelin Court, Cary, North Carolina 27513;

a citizen of the United States of America, residing at 2344 Champion Court, Raleigh, North Carolina 27606;

that we have reviewed and understand the content of the attached specification, including the claims (Jones, Day, Reavis & Pogue Docket No. 343355-600045), and we believe that we are the original, first, and joint inventors of the subject matter which is claimed therein and for which a patent is sought on the invention or discovery entitled

COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR GENERATING DATA GRAPHICAL DISPLAYS

and that we acknowledge our duty to disclose information of which we are aware which is material to the examination or patentability of this application, in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

We hereby designate the following as our mailing address and telephone number:

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Jones Day, Reavis & Pogue
North Point
901 Lakeside Avenue
Cleveland, Ohio 44114
(216) 586-3939

and appoint each of the following as our attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Kenneth R. Adamo, Registration No. 27,299; Barbara Arndt, Registration No. 37,768; John V. Biernacki, Registration No. 40,511; David B. Cochran, Registration No. 39,142; Regan J. Fay, Registration No. 26,878; F. Drexel Feeling; Registration No. 40,602; Calvin P. Griffith, Registration No. 34,831; Warren M. Haines, Registration No. 40,632; David M. Maiorana, Registration No. 41,449; Shawn A. McClintic, Registration No. 45, 856; Timothy J. O'Hearn, Registration No. 31,552; Stephen D. Scanlon, Registration No. 32,755; Jenny L. Sheaffer, Registration No. 45,099; H. Duane Switzer, Registration No. 22,431; Michael W. Vary, Registration No. 30,811; and James L. Wamsley, III, Registration No. 31,578; Paul E. Franz, Registration No. 45,910

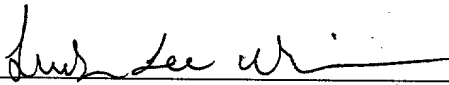
all having the above-designated address.

We further declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.




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Post Office Address: 9107 Brompton Court
Raleigh, North Carolina 27615




CLEESTER DANIEL HEATH, IV Date 4/12/02

Post Office Address: 124 Smith's Creek Drive
Clayton, North Carolina 27520



PAUL W. LAYNE Date 4/12/02

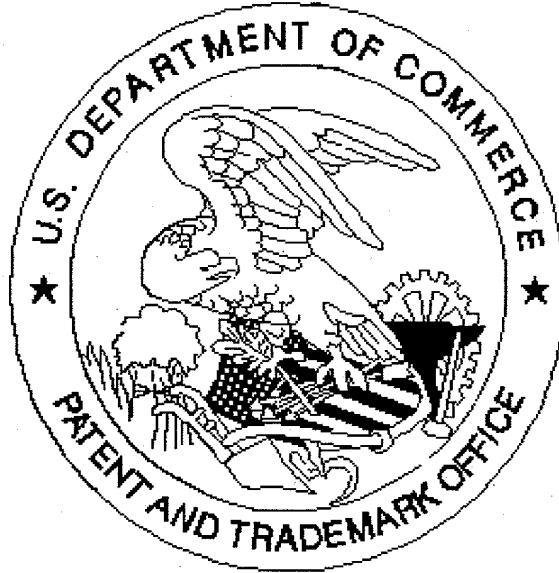
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Cary, North Carolina 27513



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Raleigh, North Carolina 27606

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12, 13, 14, are very-dark

J1046 U.S. PTO
10/122584
04/15/2002

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PATENT NUMBER and
ISSUE DATE

U.S. UTILITY Patent Application

351107

APPL NUM 10122584	FILING DATE 04/15/2002	CLASS 345	SUBCLASS 345	GAU 2673	EXAMINER Harrison
** APPLICANTS: Patel Himesh; Wimmer Frank; Heath Cleester; Layne Paul; Smith Kevin; 440 2672					
** CONTINUING DATA VERIFIED:					
** FOREIGN APPLICATIONS VERIFIED:					
PG-PUB <input type="checkbox"/>		DO NOT PUBLISH <input type="checkbox"/>		RESCIND <input type="checkbox"/>	
Foreign priority claimed <input type="checkbox"/> yes <input type="checkbox"/> no			ATTORNEY DOCKET NO		
35 USC 119 conditions met <input type="checkbox"/> yes <input type="checkbox"/> no			343355600045		
Verified and Acknowledged Examiners's initials TITLE : Computer implemented system and method for generating data graphical displays <small>U.S. DEPT. OF COMM./PAT. & TM-PTO-436L (Rev. 12-94)</small>					

NOTICE OF ALLOWANCE MAILED		CLAIMS ALLOWED	
		Total Claims	Print Claim for O.G.
ISSUE FEE		DRAWING	
Amount Due	Date Paid	Sheets Drwg.	Figs. Drwg.
		Print Fig.	
		Application Examiner	
<input type="checkbox"/> TERMINAL DISCLAIMER		PREPARED FOR ISSUE	
WARNING: The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code Title 35, Sections 122, 181 and 368, Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.			

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(Attached in pocket on right inside flap)

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SEARCH

Class	Sub.	Date	Exmr.
345	440 643	3/11/04	CAA
707	102		

SEARCH NOTES

(List databases searched. Attach search strategy inside.)

	Date	Exmr.
East text & image search	3/11/04	CAA

INTERFERENCE SEARCHED

Class	Sub.	Date	Exmr.

ISSUE SLIP STAPLE AREA (for additional cross-references)

ORIGINAL		CROSS REFERENCE(S)					
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
INTERNATIONAL CLASSIFICATION							
	/						
	/						
	/						
	/						
	/						

^ Continued on Issue Slip Inside File Jacket

INDEX OF CLAIMS

Rejected - (Through numeral) ... Canceled N Non-elected A Appeal
 Allowed + Restricted I Interference O Objected

Claim	Date	Claim	Date	Claim	Date
Final		Final		Final	
Original		Original		Original	
1	3/1/04	51		101	
2		52		102	
3		53		103	
4		54		104	
5		55		105	
6		56		106	
7		57		107	
8		58		108	
9		59		109	
10		60		110	
11		61		111	
12		62		112	
13		63		113	
14		64		114	
15		65		115	
16		66		116	
17		67		117	
18		68		118	
19		69		119	
20		70		120	
21		71		121	
22		72		122	
23		73		123	
24		74		124	
25		75		125	
26		76		126	
27		77		127	
28		78		128	
29		79		129	
30		80		130	
31		81		131	
32		82		132	
33		83		133	
34		84		134	
35		85		135	
36		86		136	
37		87		137	
38		88		138	
39		89		139	
40		90		140	
41		91		141	
42		92		142	
43		93		143	
44		94		144	
45		95		145	
46		96		146	
47		97		147	
48		98		148	
49		99		149	
50		100		150	

If more than 150 claims or 9 actions staple additional sheet here

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730
R25 CC 1114
07-01-02
05-02-02

04/15/02

A

04/15/02
JCS 28 U.S. PAT.

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	343355600045
First Inventor	Himesh G. Patel et al.
Title	Computer-Implemented System and Method for Generating Data Graphical Displays
Express Mail Label No.	EL647389531US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

- Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
 - Applicant claims small entity status.
See 37 CFR 1.27.
 - Specification [Total Pages *(preferred arrangement set forth below)*
 - Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
 - Drawing(s) (35 U.S.C. 113) [Total Sheets - Oath or Declaration [Total Pages - Newly executed (original or copy)
 - Copy from a prior application (37 CFR 1.63 (d))
(for continuation/divisional with Box 18 completed)
 - DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
- Application Data Sheet. See 37 CFR 1.76

- CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
- Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
 - Computer Readable Form (CRF)
 - Specification Sequence Listing on:
 - CD-ROM or CD-R (2 copies); or
 - paper
 - Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

- Assignment Papers (cover sheet & document(s))
- 37 CFR 3.73(b) Statement (when there is an assignee) Power of Attorney
- English Translation Document (if applicable)
- Information Disclosure Statement (IDS)/PTO-1449 Copies of IDS Citations
- Preliminary Amendment
- Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
- Certified Copy of Priority Document(s) (if foreign priority is claimed)
- Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
- Other:

18: If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

Continuation Divisional Continuation-in-part (CIP) of prior application No.: _____

Prior application information: Examiner: _____ Group Art Unit: _____

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

Customer Number or Bar Code Label Correspondence address below

Name	John V. Biernacki				
Address	Jones, Day, Reavis & Pogue North Point, 901 Lakeside Avenue				
City	Cleveland	State	OH	Zip Code	44114
Country	US	Telephone	216-586-3939	Fax	216-579-0212

Name (Print/Type)	John V. Biernacki	Registration No. (Attorney/Agent)	40,511
Signature	<i>John V. Biernacki</i>	Date	04/15/2002

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J1046 U.S. PAT.
10/122584
04/15/02

04/15/02
 JC928 U.S. PTO

FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

Complete if Known

Application Number	
Filing Date	
First Named Inventor	Himesh G. Patel et al.
Examiner Name	
Group Art Unit	
Attorney Docket No.	343355600045

TOTAL AMOUNT OF PAYMENT (\$) 1428.00

METHOD OF PAYMENT

1. The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number: 501432
 Deposit Account Name: Jones, Day, Reavis & Pogue

Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17
 Applicant claims small entity status. See 37 CFR 1.27

2. Payment Enclosed:
 Check Credit card Money Order Other

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Fee Code	Large Entity (\$)	Small Entity (\$)	Fee Description	Fee Paid	
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for <i>ex parte</i> reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	40.00
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	
Other fee (specify)					
SUBTOTAL (3)				(\$)	40.00

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid		
101	740	201	370	Utility filing fee	740.00
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	
SUBTOTAL (1)			(\$)	740.00	

2. EXTRA CLAIM FEES

Total Claims	56	-20** =	36	X	Fee from below	18.00	=	648.00
Independent Claims	3	-3** =	0	X	84.00	=	0.00	
Multiple Dependent				X	0.00	=	0.00	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid		
103	18	203	9	Claims in excess of 20	
102	84	202	42	Independent claims in excess of 3	
104	280	204	140	Multiple dependent claim, if not paid	
109	84	209	42	** Reissue independent claims over original patent	
110	18	210	9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)			(\$)	648.00	

**or number previously paid, if greater; For Reissues, see above

*Reduced by Basic Filing Fee Paid

SUBMITTED BY

Name (Print/Type)	John V. Biernacki	Registration No. (Attorney/Agent)	40,511	Complete (if applicable)	Telephone	216-586-3939
Signature	<i>John V. Biernacki</i>	Date	04/15/2002			

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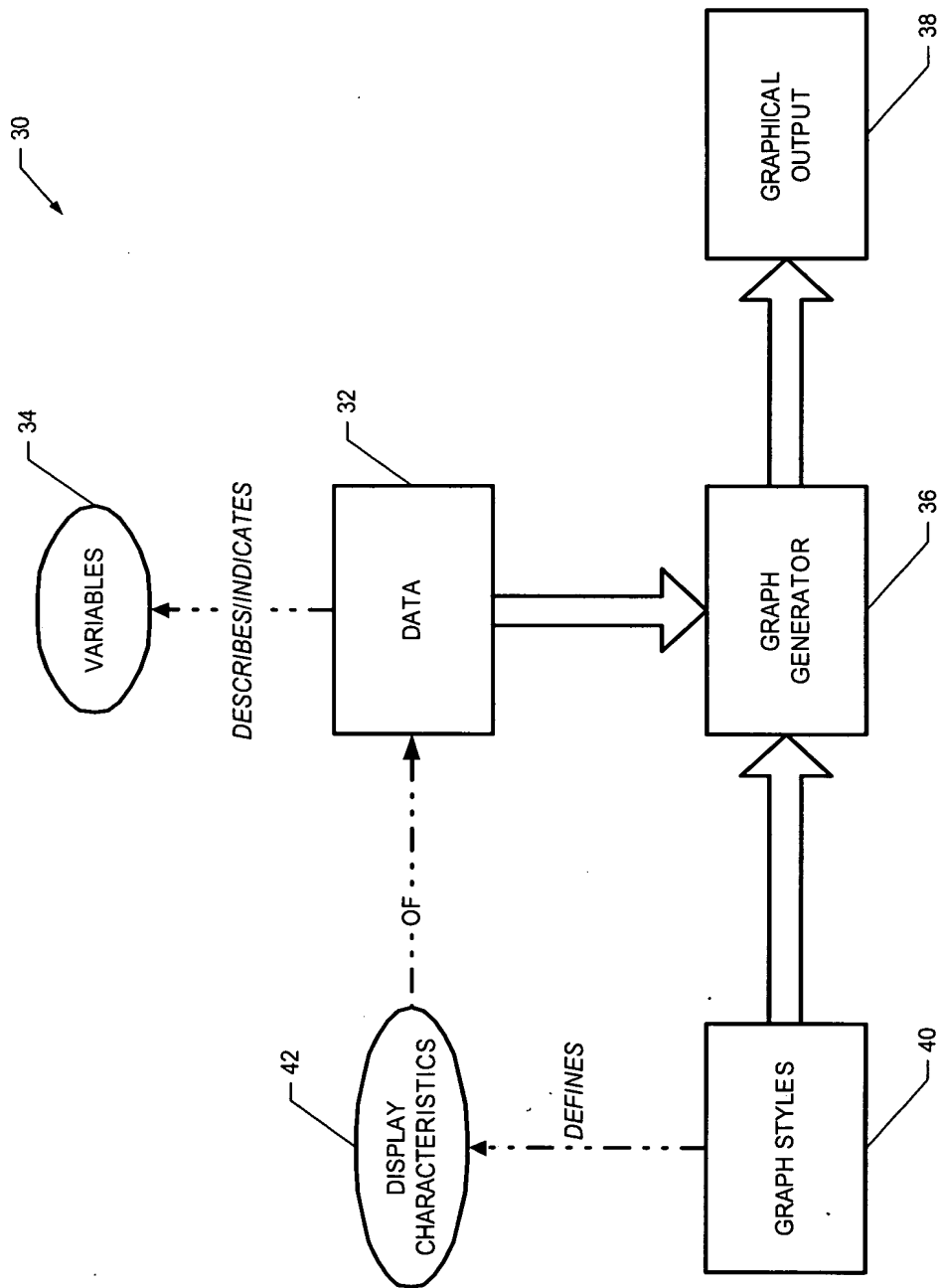


FIG. 1

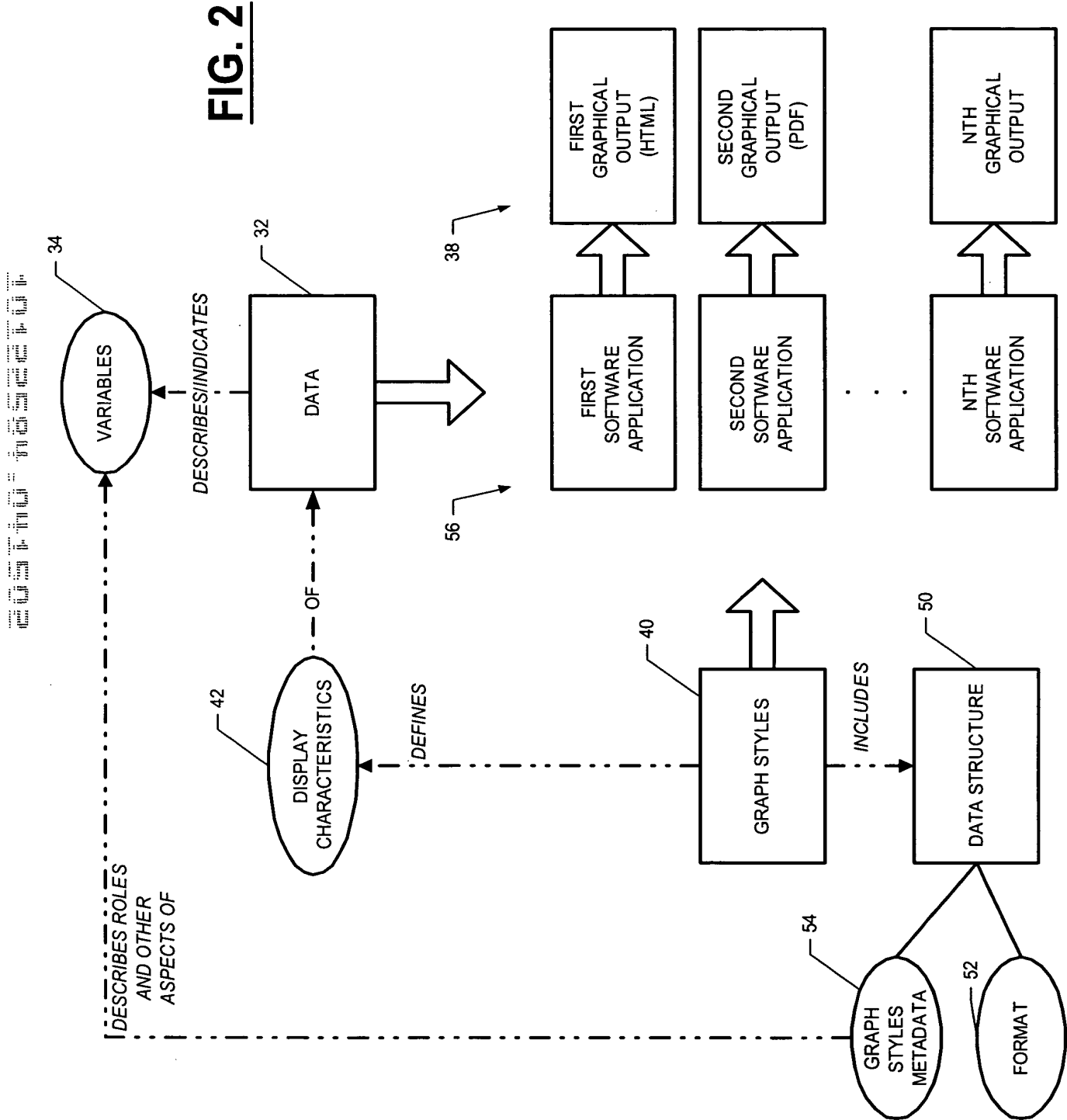


FIG. 2


```

102 <Report version="1.0" xmlns:style="
104 http://www.sas.com/reportmodel/styles">
110 <Data type="2DEmbedded" name="Data0">
    <EmbeddedData>
    <Variables>
    <Variable name="Year4" varName="Year" label="Year" type
    ="String"/>
    <Variable name="Year31" varName="Year3" label="Year" type
    ="String"/>
    <Variable sasFormat="DOLLAR10.0" encoding="Text" name="Sales9"
    varName="Sales" label="Sales" type="Numeric"/>
    <Variable encoding="Text" name="__FREQ__14" varName="__FREQ__"
    label="Frequency" type="Numeric"/>
110 </Variables>
112 <ValuesList>
    <Values>
114 <Value>1997</Value>
116 <Value>1997</Value>
118 <Value>10000</Value>
120 <Value>1</Value>
    </Values>
150 <Values>
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    <Value>15000</Value>
    <Value>1</Value>
    </Values>
    <Value>2000</Value>
    <Value>2000</Value>
    <Value>16000</Value>
    <Value>1</Value>
    </Values>

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100

FIG. 4A

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<Values>
<Value>2001</Value>
<Value>2001</Value>
<Value>1980</Value>
<Value>1</Value>
</Values>
</ValuesList>
</EmbeddedData>
</IQData>
</Data>
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140 #CCCCFF" fillFile="\dots\misc\Bank64g.gif" fillType
    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle2" color="#F7DF54" altColor="
142 #99FFCC" fillFile="\dots\misc\Bank64g.gif" fillType
    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle3" color="#EF6B48" altColor="
    #FFCC99" fillFile="\dots\misc\Bank64g.gif" fillType
    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle4" color="#61A6E7" altColor="
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    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle5" color="#CB79C8" altColor="
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    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle6" color="#85CE79" altColor="
    #99CCCC" fillFile="\dots\misc\Bank64g.gif" fillType
    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle7" color="#967CD0" altColor="
    #FFFFCC" fillFile="\dots\misc\Bank64g.gif" fillType
    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle8" color="#DD6475" altColor="
    #CCFFFF" fillFile="\dots\misc\Bank64g.gif" fillType
    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle9" color="#9DAA2D" altColor="
    #FFCCCC" fillFile="\dots\misc\Bank64g.gif" fillType
    ="ImageColorBlend"/>
    <style:Style context="GraphDataStyle10" color="#6C69D9" altColor="
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100

FIG. 4B

```

="ImageColorBlend"/>
<style:Style context="GraphDataStyle11" color="#2EA64A" altColor=
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="ImageColorBlend"/>
<style:Style context="GraphDataStyle12" color="#C17D35" altColor=
#CCCC66" fillFile="\dntrc\sas\m900\ods\misc\Bank64g.gif" fillType
="ImageColorBlend"/>
<style:Style context="TwoColorRamp" fillGradientStartColor="
#FFFFFF" fillGradientEndColor="#967CD0"/>
<style:Style context="TwoColorAltRamp" fillGradientStartColor="
#FFFFFF" fillGradientEndColor="#99CCFF"/>
<style:Style context="BackFill" fillGradientStartColor="#C4E4B8"
fillGradientEndColor="#FFFFFFCD" fillGradientType="YAxis" fillType
="Gradient"/>
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="2px"/>
<style:Style context="GridLines" lineColor="#000000"/>
<style:Style context="Outlines" lineColor="#000000"/>
<style:Style context="BorderLines" lineColor="#000000"
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="12pt" fontFamily="Trebuchet MS" fontWeight="normal" fontStyle="normal"/>
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="Pattern"/>
<style:Style context="FloorFill" fillColor="#FFFFFFCD" fillType
="Pattern"/>
<style:Style context="LegendFill" fillColor="#FFFFFFCD" fillType
="Pattern"/>
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="5%" yOffsetset="5%"/>
</style:Style>
</style:Scheme>

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FIG. 4C

160

162

106

```

108 <View style:scheme="GraphScheme0">
    <Section>
    <Body>
        <Graph name="Graph_1541253545554510" style:height="480px"
            style:width="640px" view2D="true">
            <ChartDataList>
170 <ChartData name="ChartData0" data="Data0">
172 <Roles>
180 <Role variable="Year4" type="Subgroup" sortOrder
    ="Ascending" missingEnabled="true">
182 </Role>
    <Role variable="Year31" type="Category" sortOrder
    ="Ascending">
184 </Role>
    <Role variable="Sales9" type="Response" statistic="Sum">
</Role>
    <Role variable="__FREQ__14" type="Frequency">
</Role>
</Roles>
</ChartData>
170 </ChartDataList>
190 <ChartAreas>
    <ChartArea>
    <Walls>
    <Walls>
    <ChartBorderLine lineVisible="true">
    <Charts>
192 <Bar name="Chart0" chartData="ChartData0" styleBy
    ="Subgroup" barShape="Block">
    </Bar>
    </Charts>
200 </Charts>
202 <Axes>
    <Axis name="Axis0" role="Category" majorTickCount=5"
    minorTickCount=0">
    <MajorTick lineVisible="false">
    <MinorTick lineVisible="false">
    <Label textVisible="true">
202 <AxisValues textVisible="true">
204 </Axis>
    <Axis name="Axis1" role="Response">
    <Label textVisible="true">
    <AxisValues textVisible="true">
204 </Axis>
    </Axis>
    </Axes>
    </ChartArea>
    </ChartAreas>
    </ChartDataList>
    </ChartData>
    </Body>
    </Section>
    </View>
    
```

100

FIG. 4D

100

```
</Axes>  
190 — </ChartArea>  
      </ChartAreas>  
      <Legends>  
        <Legend chart="Chart0" isVisible="false">  
          </Legend>  
        </Legends>  
      </Graph>  
    </Body>  
  </Section>  
108 — </View>  
102 — </Report>
```

FIG. 4E

250

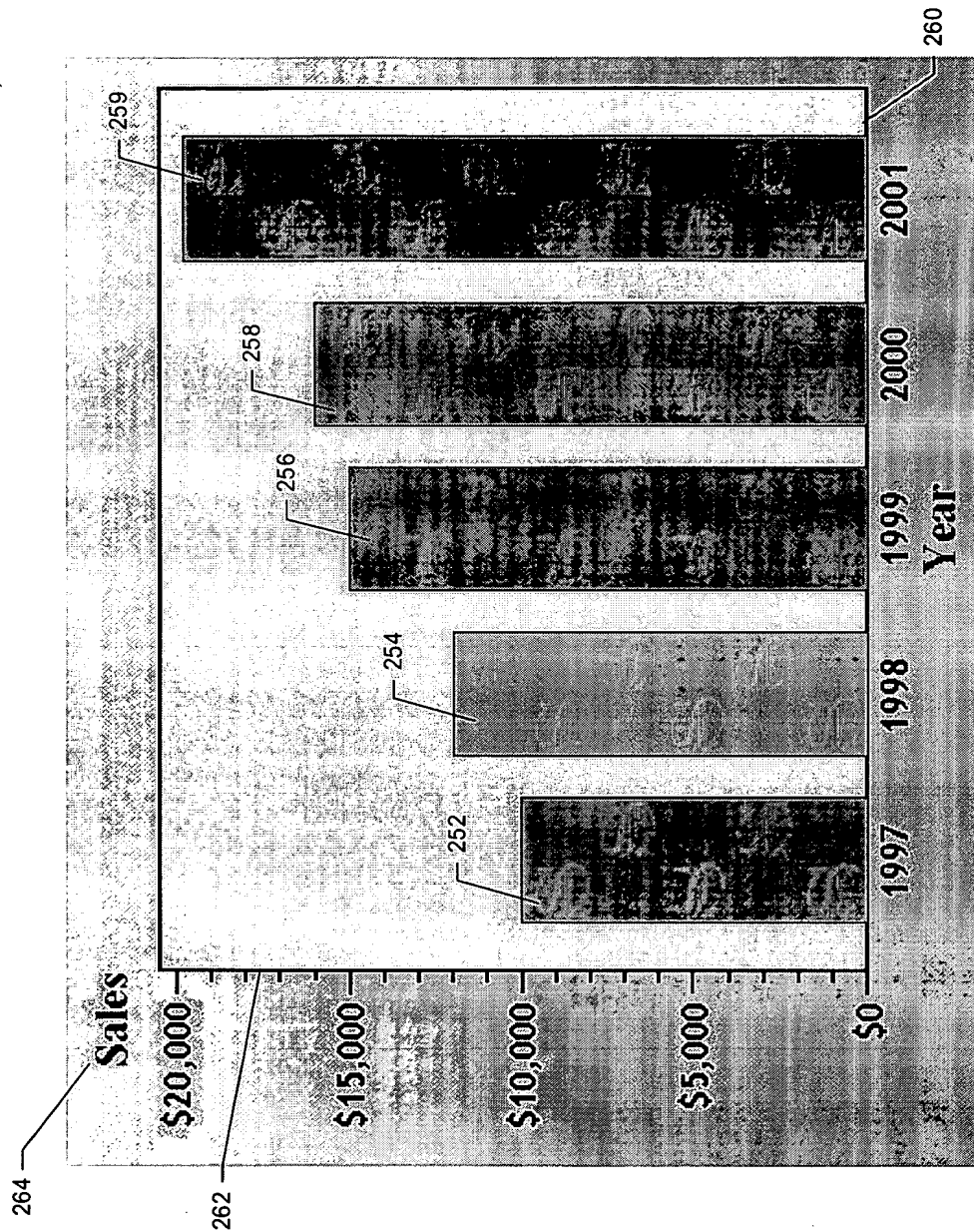


FIG. 5

280 →

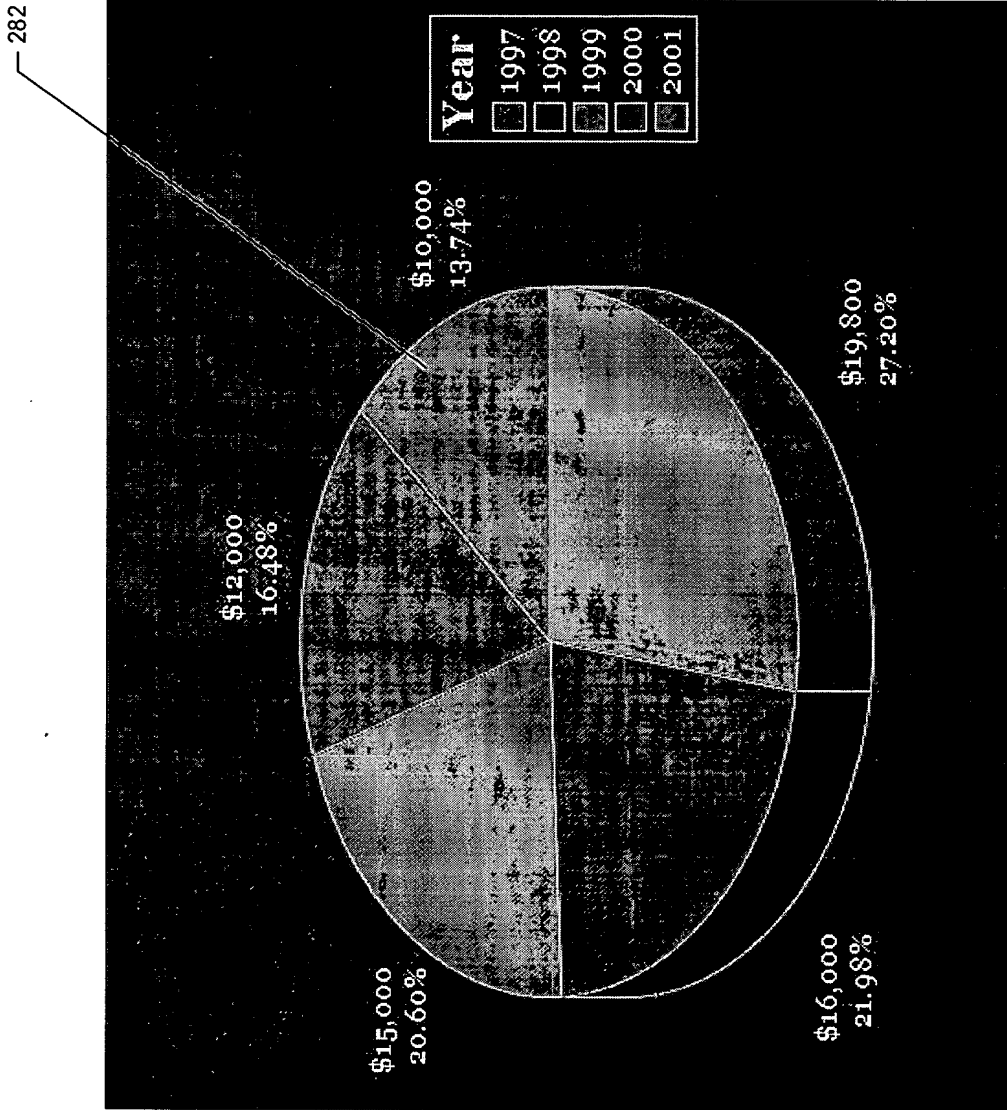


FIG. 6

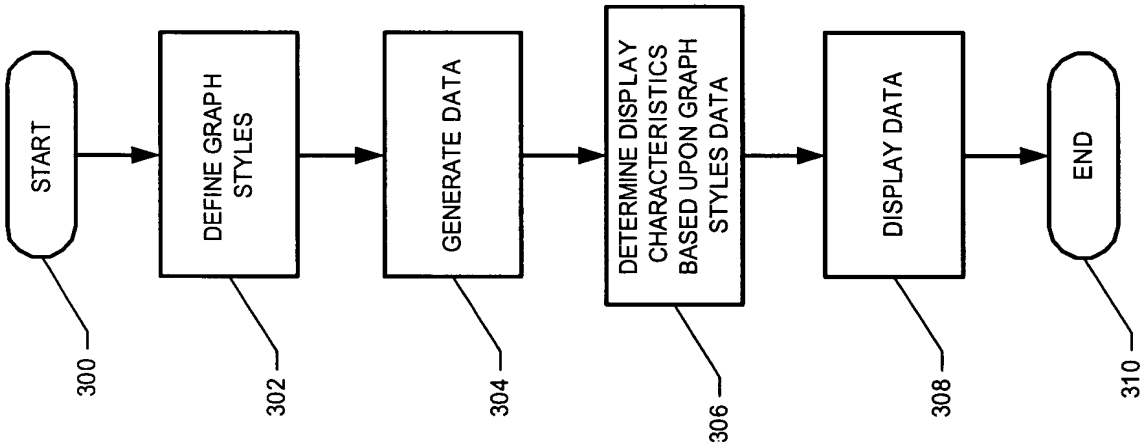


FIG. 7

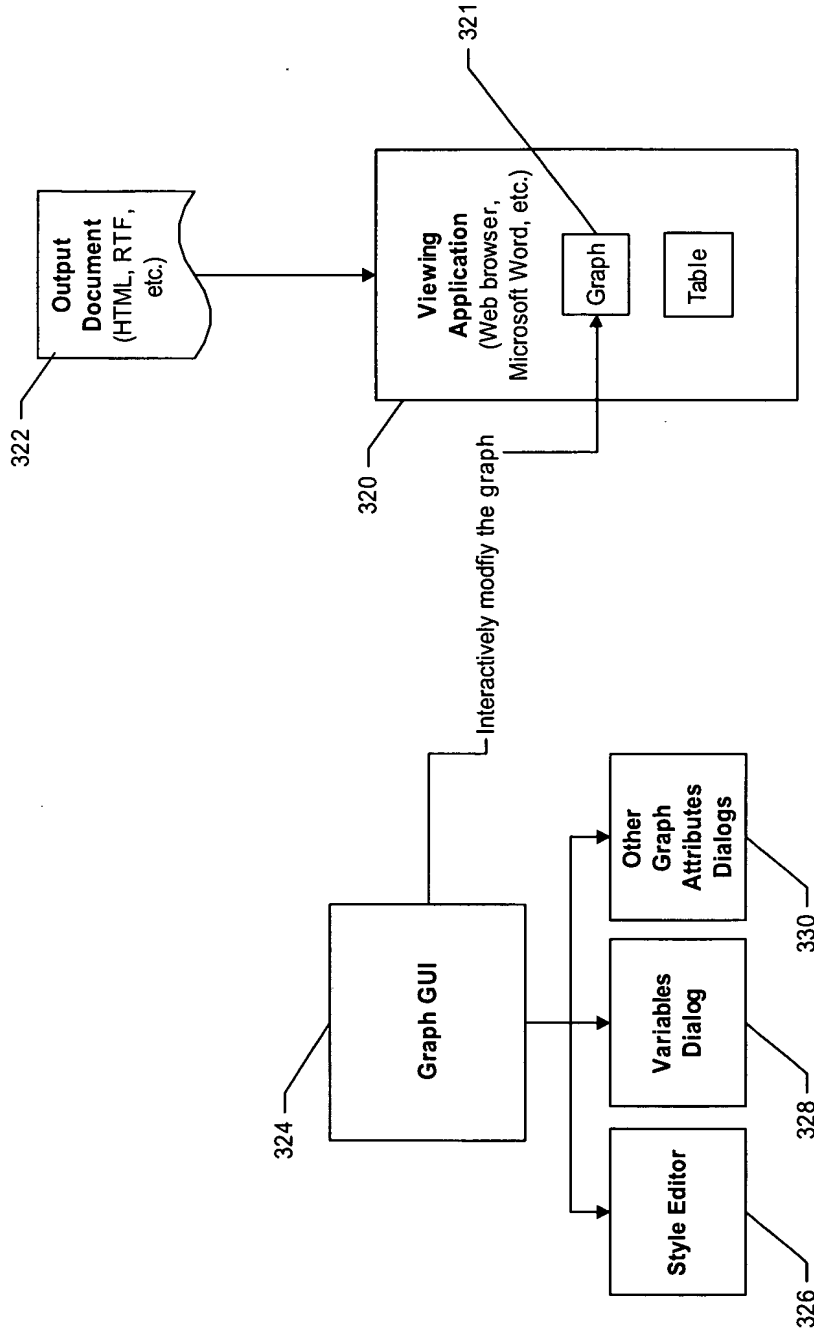


FIG. 8

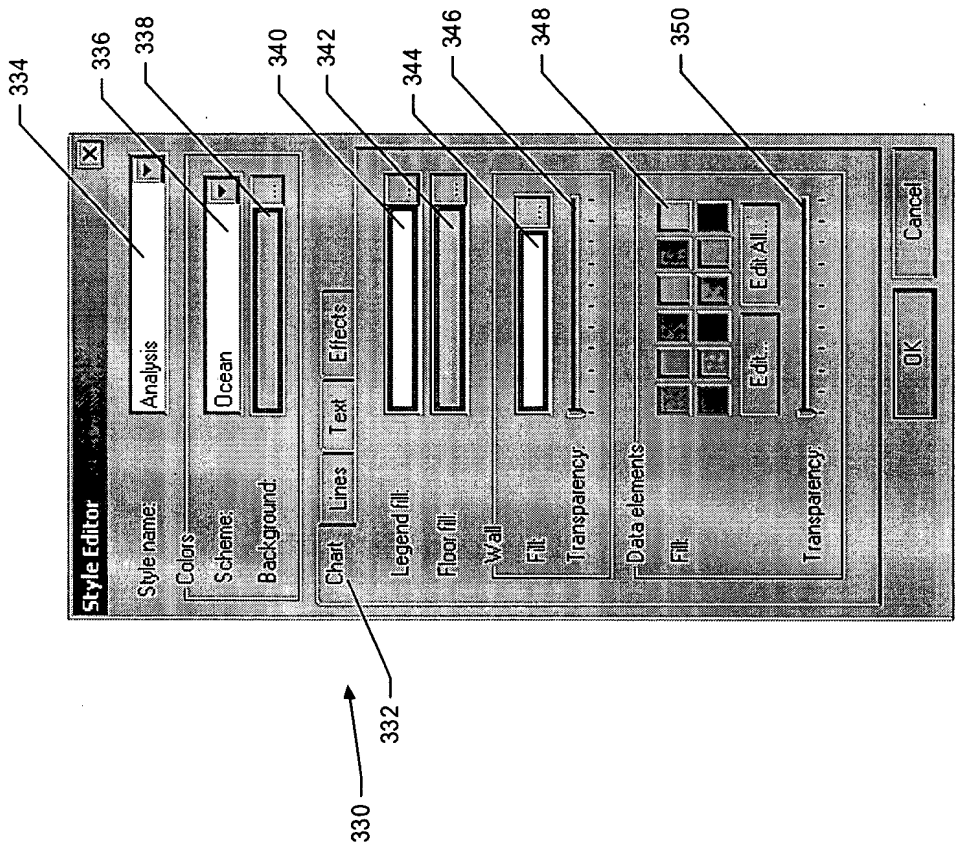


FIG. 9

334

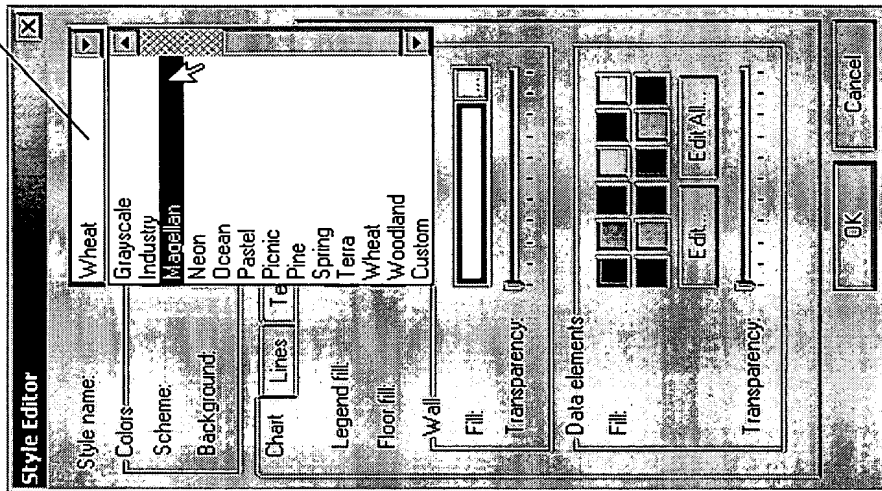


FIG. 10

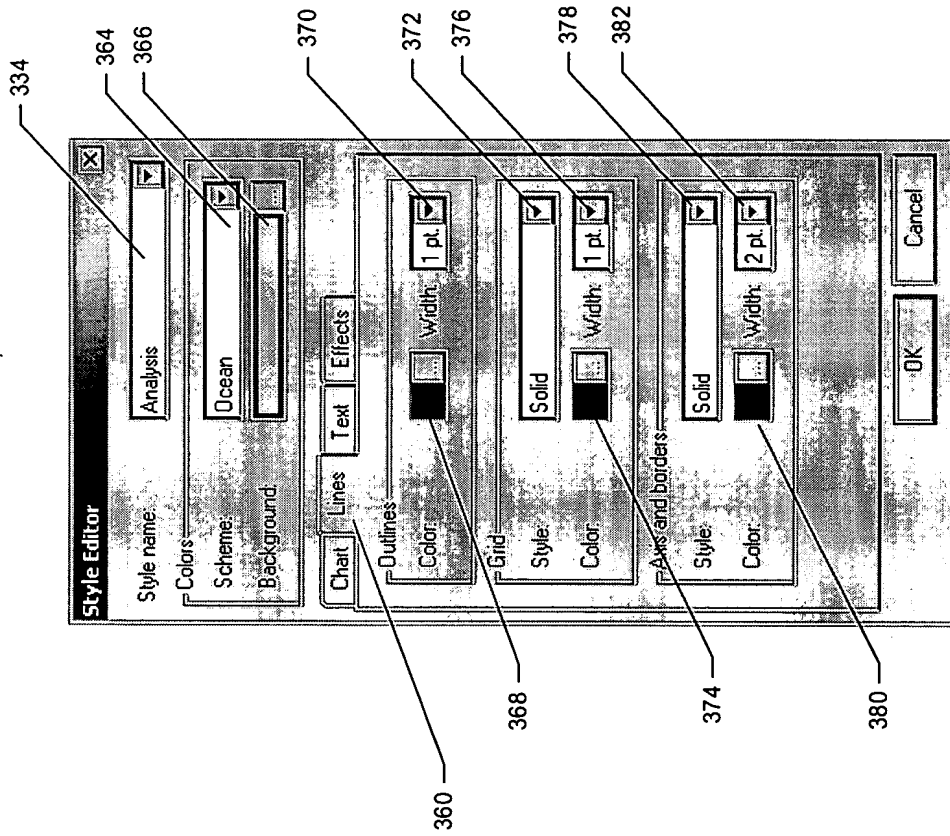


FIG. 11

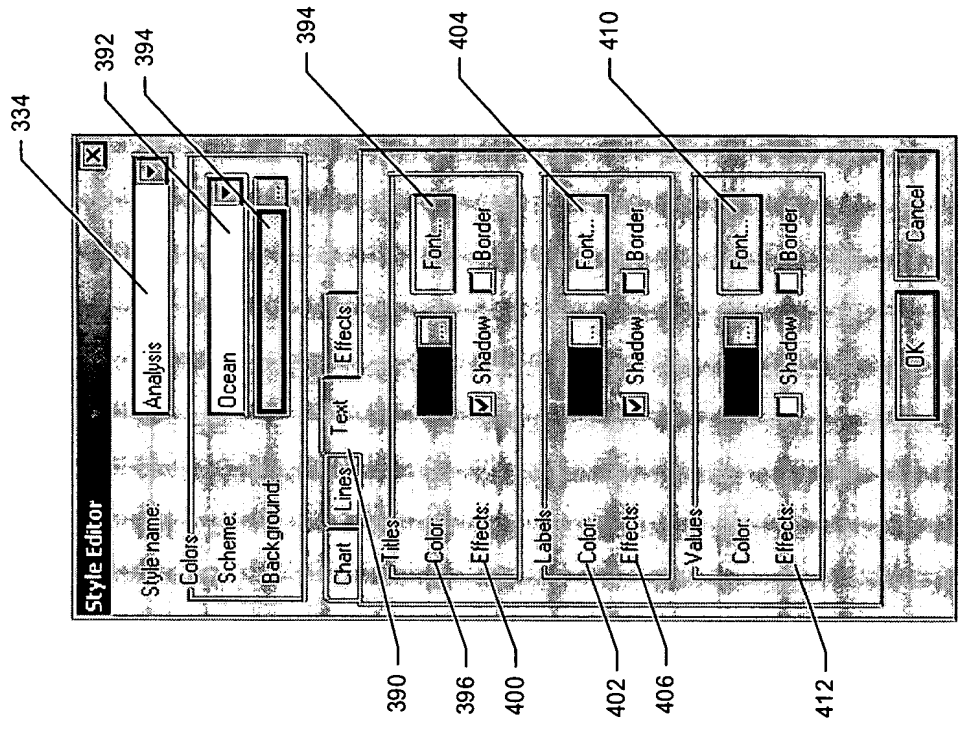


FIG. 12

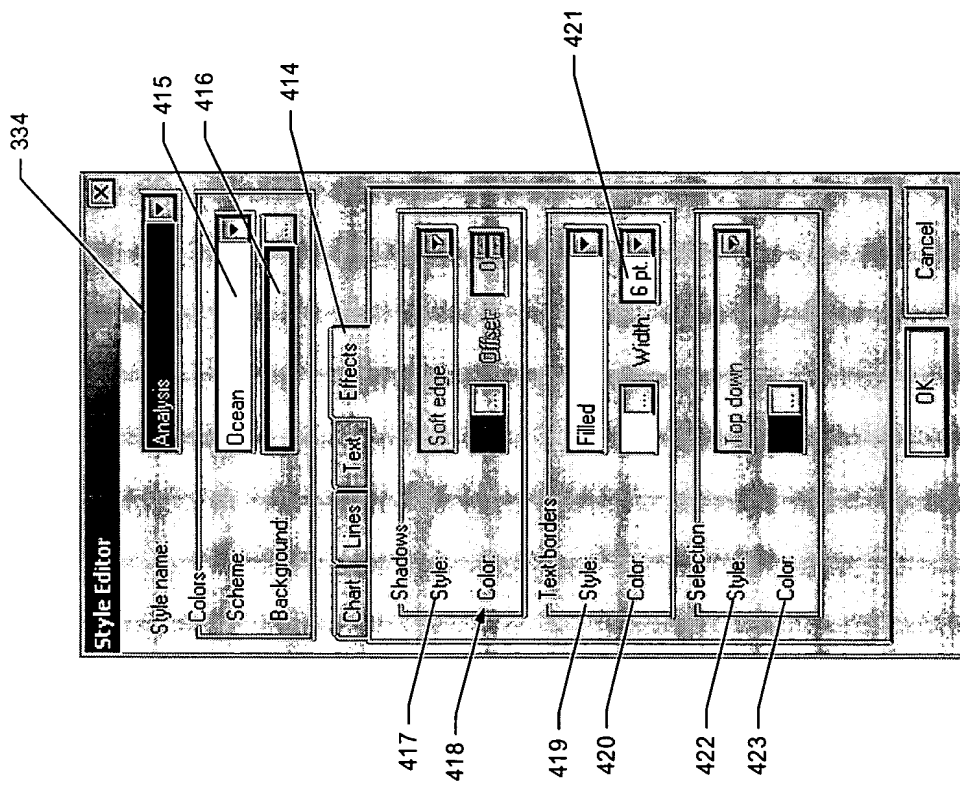
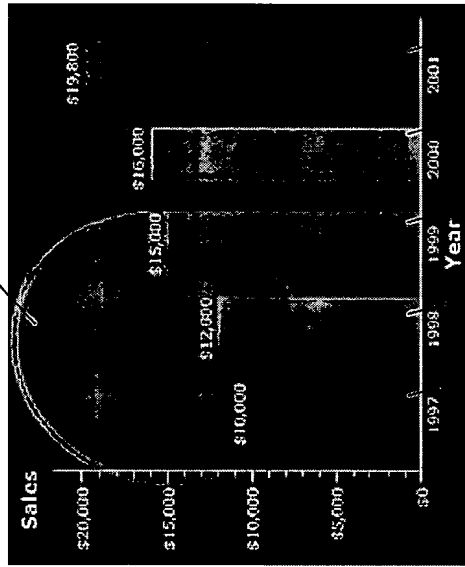


FIG. 13

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FIG. 14

FIG. 15

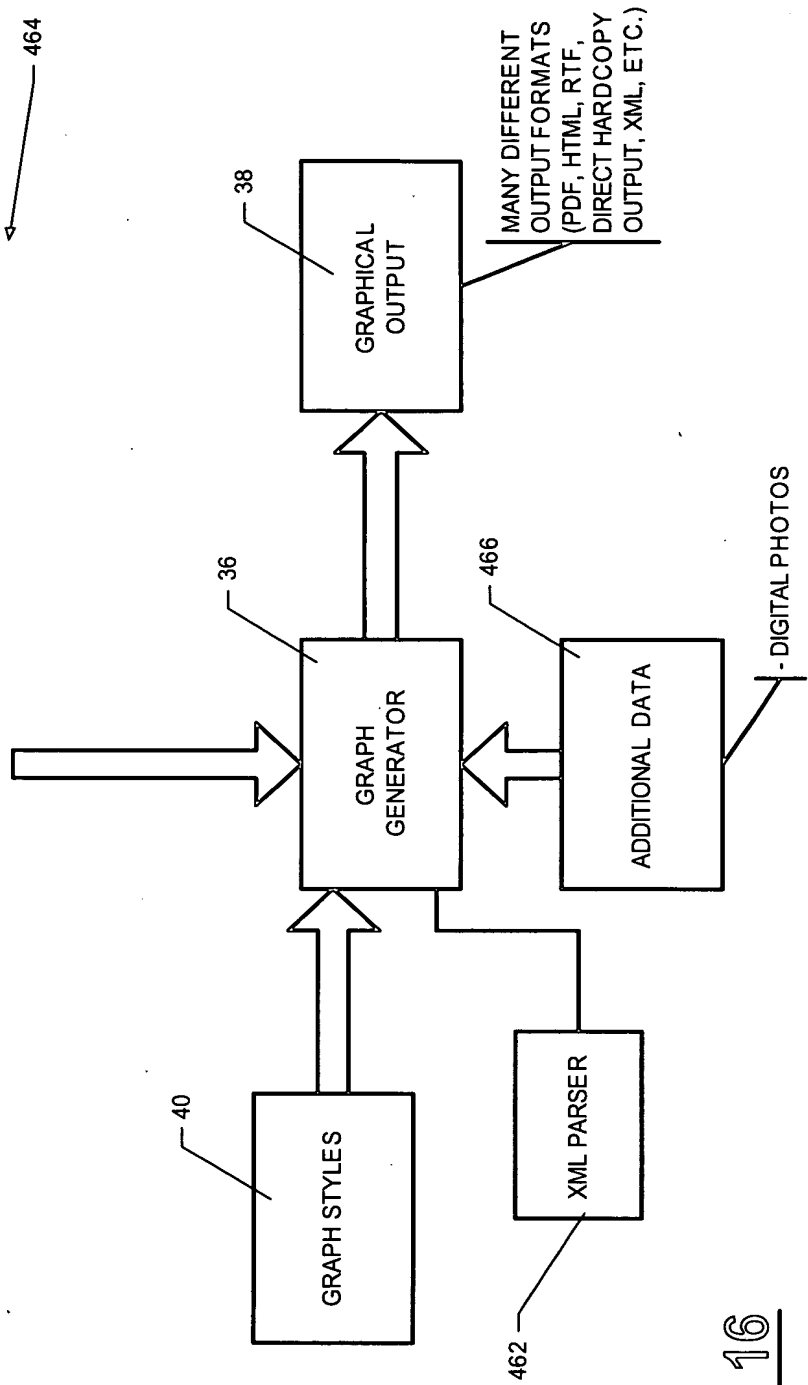
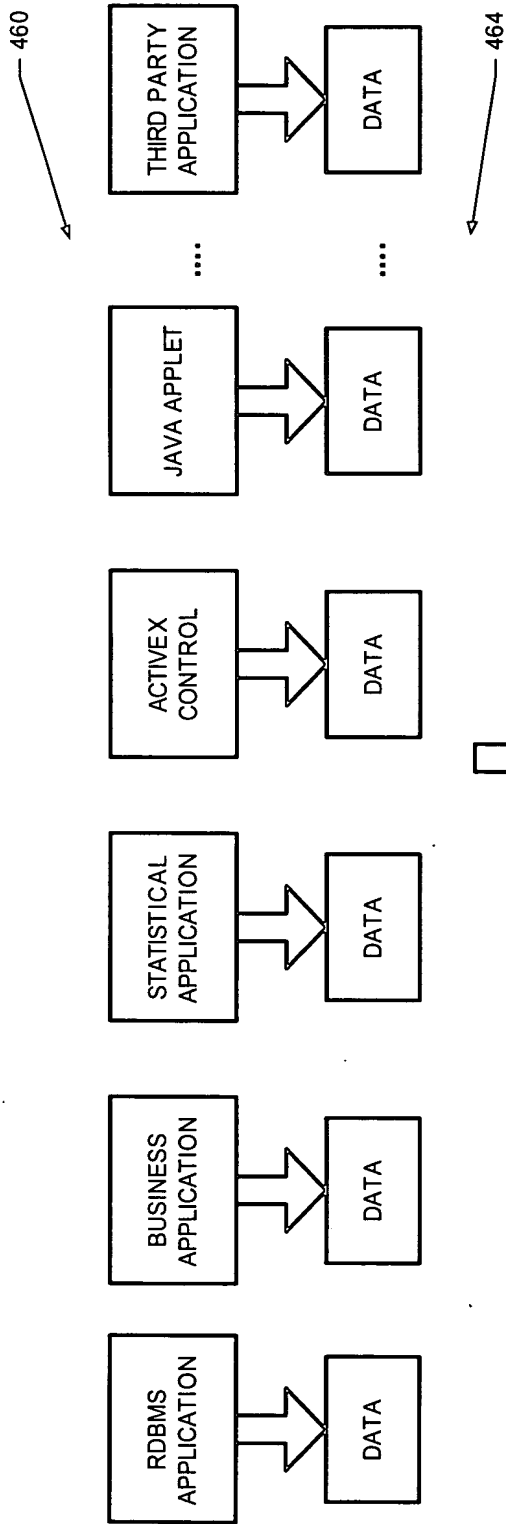


FIG. 16

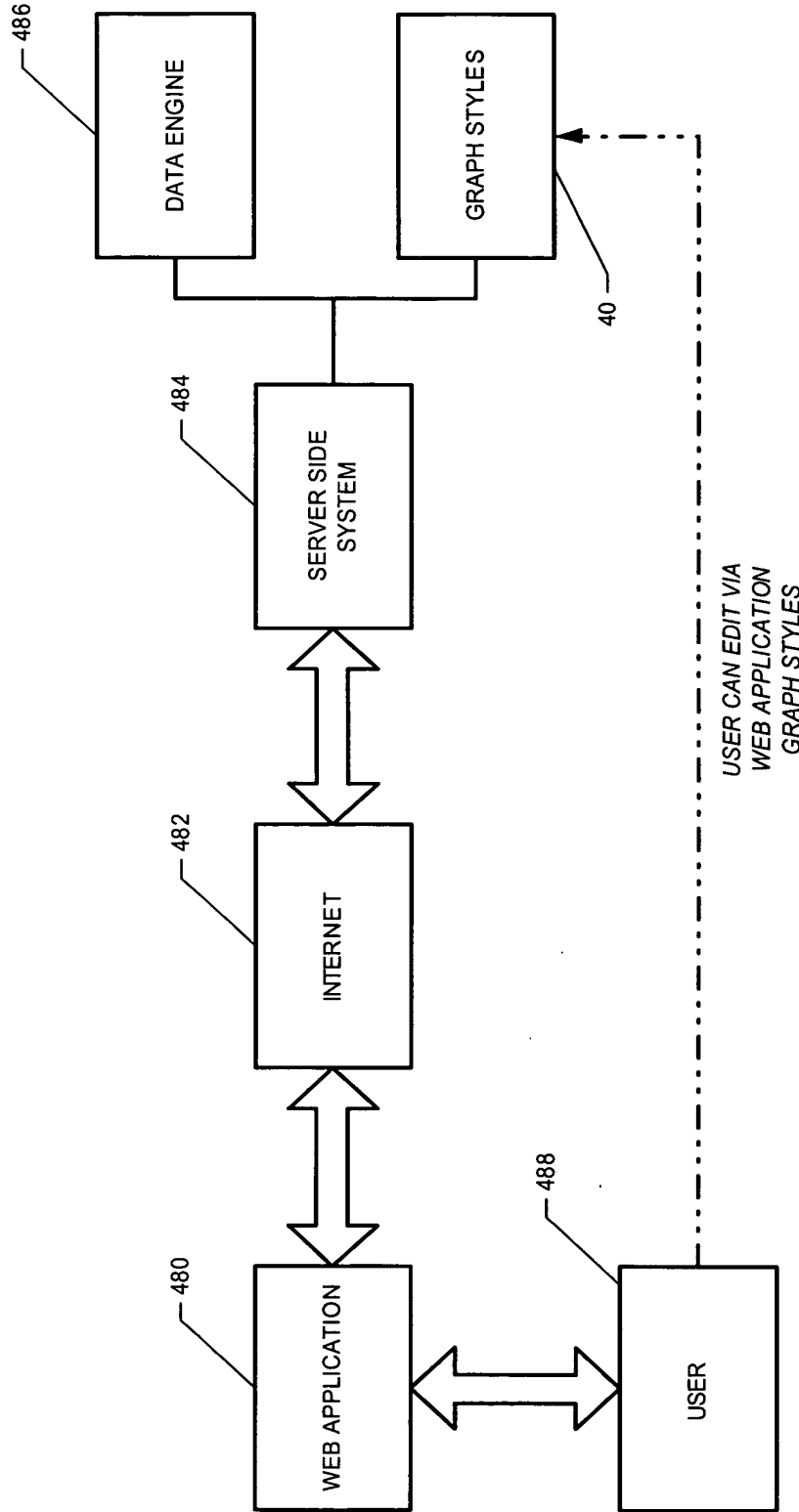


FIG. 17

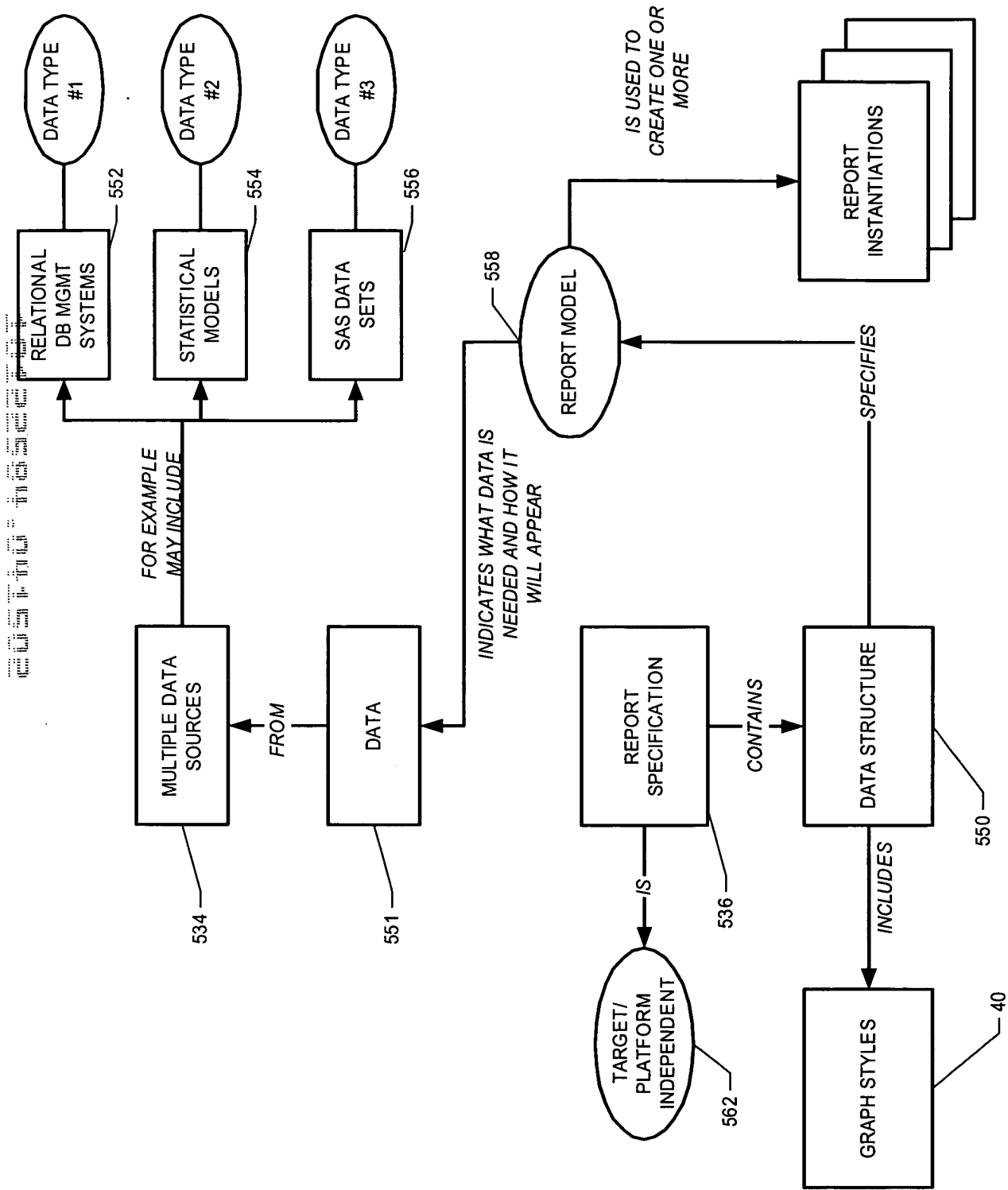


FIG. 19

TITLE OF THE INVENTION

EL647389531US

Computer-Implemented System And Method For Generating Data Graphical Displays

RELATED APPLICATION

5 This application claims priority to U.S. provisional application Serial No. (to be assigned) entitled "COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR REPORT GENERATION" filed March 29, 2002 (with Express Mail Number EL647389580US, law firm docket number 343355600040, and inventors Shaughnessy et al.). By this reference, the full disclosure of this U.S. provisional application entitled "COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR REPORT GENERATION" is incorporated herein.

FIELD OF THE INVENTION

The present invention relates generally to computer-implemented display generation and more particularly to generating data graphical displays.

BACKGROUND AND SUMMARY

15 Graphical depictions of computer-generated data aid users in their analysis and understanding of the data. Many types of software applications can display data graphs, but the styles that define the appearance of graphical displays were traditionally tightly coupled with the software application generating the graphs. Difficulties arose during attempts to use graphical styles defined in one software application in a different software application. Also, the graphical styles defined within a software application usually were limited to fairly small sets of configurable items, such as background colors.

The present invention overcomes the aforementioned difficulties by providing a computer-implemented system and method for generating data graphical displays. The data is indicative of a plurality of variables. The system and method receive data that is to be displayed in a non-textual format. Graph style data items are retrieved that contain display characteristics for displaying the data in the non-textual format. The data is displayed in accordance with the graph style data items.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram depicting software and computer components utilized in generating graphical output;

FIG. 2 is a block diagram depicting software and computer components utilizing a graph styles data structure to generate graphical output;

FIG. 3 is a data structure diagram depicting data items used by a graph styles data structure;

FIGS. 4A-4E depict an example of an XML data structure for use in generating graphical output as an example;

FIGS. 5 and 6 are graphical outputs generated from graph styles data structures;

FIG. 7 is a flowchart that depicts an operational scenario for generating graphical output;

FIG. 8 is a block diagram that depicts a graphical user interface (GUI) for modifying a graph styles data structure;

FIGS. 9-13 depict graphical user interfaces for defining or modifying styles associated with a graphs styles data structure;

FIG. 14 is a graphical output example generated using a graph styles data structure;

FIG. 15 is an example of graphical output that depicts statistical analysis of different response variables;

5 FIGS. 16 and 17 are block diagrams depicting exemplary environments that may utilize graphical outputs; and

FIGS. 18 and 19 are block diagrams depicting software and computer components utilized in rendering reports.

DETAILED DESCRIPTION

FIG. 1 depicts a computer-implemented system 30 that generates graphical output 38 based upon input data 32. The input data 32 may represent many types of variables 34, such as sales variables, statistical variables, manufacturing output variables, engineering design variables, etc. A graph generator software module 36 processes the input data 32 and generates 15 pie charts, bar charts, maps, scatter plots, or any other type of graphical output 38.

In order to determine how the graphical output 38 should appear, the graph generator 36 accesses graph styles data 40. The graph styles data 40 defines the display characteristics 42 of the data 32. For example, the graph styles data 40 may define the textual label font characteristics or the background display of the graphical output 38. The graph styles 20 data 40 uses predefined style definitions as well as metadata to determine how input data 32 should be visually depicted in the graphical output 38.

FIG. 2 shows an example where the graph styles data 40 is stored in a data structure 50 that contains graph styles format data 52 and graph styles metadata 54. The graph

styles format data 52 may designate the format attributes for one or more regions of the graphical output 38, such as designating that a graph's axis should display major ticks and not display minor ticks. The graph styles metadata 54 may designate format attributes based upon the role(s) that a variable has within the input data.

5 The graph styles data 40 exists at least substantially independent of the application generating the data or the application generating the graphical output. Thus the same graph styles data 40 may be universally used by multiple software applications 56 to define the applications' respective graphical output appearance as well as the output type (e.g., HTML, PDF, etc.).

FIG. 3 depicts an example of a graph styles data structure 50. The graph styles data structure 50 contains graph styles format data 52 and graph styles metadata 54. The format data 52 may include graph font characteristics, graph backgrounds, graph color schemes, etc. The format data 52 may be at varying levels of detail. For example, the format data 52 may define styles to be used by all components on a graph, such as all bars in a bar chart. It may also define styles on a per graphical component level, such as the first bar in the bar chart should have one type of style, the second bar should have another type of style, and so on. As another example of the varying level of detail, data that are grouped into sets may have its style defined based upon what set the data is in. In this way, the user may better distinguish between sets of data when viewing the graphical output.

20 The graph styles data structure 40 also contains metadata 54. The graph styles metadata 54 may designate format attributes based upon the role(s) that a variable has within the input data. For example, a variable may be designated to have as its role in the data set to be the "category" variable.

Different graphical outputs may use this metadata differently. A pie chart will display a category variable differently than a bar chart will. A pie chart will display a category variable as discrete slices of a pie whereas a bar chart will display the category variable along its horizontal axis. As another example, a different variable in the input data may have as its role to be the "response" variable. Once again different graphical outputs may use this metadata differently. The pie chart will determine the size of a pie slice based upon the response variable's data whereas the bar chart will determine the vertical extent of a bar based upon the response variable's data. It should be understood that the same variable may have one or more roles, or even have different roles depending upon the data set it is in.

An aspect of a graph may be formatted based upon a combination of graph styles data associated with a variable and the variable's role. For example, a variable's role may be designated as the dependent variable of a graph. The variable may also be designated to be displayed with a bluish color. The combination of the variable's role along with its graph styles data indicates that the color of the dependent axis be depicted with a bluish color. Also, it should be understood that a variable's role may be directly associated with graph styles data by designating that the graph's independent axis be formatted with a certain style.

The graph styles data structure 50 may also contain format data 52 to indicate a theme for the graphical output. The theme may be based upon data being analyzed in the graphical output. For example, dollar symbols may be used to designate that the data being analyzed relates to money as in a sales analysis graph. The theme may be preselected within the graph styles data structure 50 or it may be a variable that is defined based upon the metadata 54. For example, if a sales variable has as its role to be the response variable, then the a background

of dollar signs may be selected to represent the theme of the graphical output. If the number of homes sold is the response variable, then a background showing outlines of homes may be used.

5 It should be understood that the graph styles data may be structured in many different ways and expressed in many different formats, such as in the structure and format shown in FIGS. 4A-4E.

FIGS. 4A-4E depict an example of a graph styles data structure 100 expressed in an eXtensible Markup Language (XML) format. The XML format permits tags to show how one data item relates to another data item, such as what data item is contained within another data item in the XML hierarchy. The highest level in this example are the report tags 102. The report tags 102 contain the information needed to display graphical output. The report tags 102 enclose subordinate tags to indicate to a graphical generating program the data, styles, and visual representation of the graphical output. The data information is enclosed by data tags 104; the styles information is enclosed by style tags 106; and the visual representation information is enclosed by view tags 108.

10 15 20 The data tags 104 contain variables and values to be used in rendering the graphical output. In this example, the Variables tags 110 contain four variables with the respective names "Year4" (a year-based variable), "Year31" (another year-based variable), "Sales9" (a monetary sales-based variable), and "_FREQ_14" (a frequency variable). In this example, the variables represent yearly sales values (with the frequency variable representing the frequency of data observations contributing to each year).

In this example, the data to be used in rendering the graphical output is embedded within the XML data structure 100. However, it should be understood that there are many ways

to provide data to the graphical output generation system such by specifying within the XML data structure one or more external data sources.

The values for each of the four variables are shown within the ValuesList tags 112. For example, the variable Year4 has the value 1997 as shown at 114. The variable Year31 also has the value 1997 as shown at 116. The Sales9 variable has a value of 10000 as shown at 118. The frequency variable has a value of 1 as shown at 120. Additional data (e.g., within Values tags 150) values for the variables are contained in this example within the ValuesList tags 112.

With reference to FIGS. 4B-4C, style tags 106 enclose information to define the appearance of the graphical output. In this example, the style is named GraphScheme0 as shown at 130. Within this style scheme is another style tag 132 to denote that this style scheme is for a graph.

Within these tags 132 are different styles to format different attributes of the graph. For example, style tag 140 for GraphDataStyle1 defines the style to be used for the first set of values to be graphed. The first set of values (as shown by values tags 114, 116, 118 and 120) are to be visually depicted by the GraphDataStyle 1 attributes. For this style, the color, alternate color, fill format, and fill type information are specified within tag 140. The color value #FFA53D denotes that the color for the first set of values is to have a darkish orange color to it. The alternate color attribute value #CCCCFF denotes the color the first set of values should have in the event that the principal color specified has been already taken by another graphic component. The fill attribute designates a file to serve as the interior fill for the first response display (e.g., the first bar in a bar chart). In this example, the Bank64g.gif file contains a graphic

whether missing values operation should be enabled in order to modify the view of the data without modifying the original data.

The ChartAreas tags 190 contain information about how the different areas within the graphic chart should be displayed and with what data. For example, the Charts tags 192 specify that the chart data for the graphic output is "ChartData0", the bar shape should be a block, and the bar should be styled by the subgroup role variable which in this case is Year4 (as shown by the Role tag 186).

The axes tags 200 contain information about how the graph's axes should be displayed in the chart areas as well as indicating the variables that should be associated with the axes. For example, the axis0 tag 202 (which in this example is the horizontal axis for a bar chart) specifies that the horizontal axis shall have five major ticks and shall be associated with the variable that has the category role in the data set. In this example, the variable Year31 (as shown by Role tag 182) has the category role, and accordingly is associated with the horizontal axis of the bar chart. Other formatting values for this axis may be set such as whether major or minor ticks and label ticks should be visible on the graphical output. For the vertical axis of the bar chart, the variable that has the response role is associated with the vertical axis as specified by the Axis1 tags 204. In this example, the Sales9 variable is identified by Role tag 184 as the response variable.

FIG. 5 shows a bar chart that has been constructed in accordance with the XML data structure 100 of FIGS. 4A-4E. The values contained within the bar chart 250 are in accordance with the data tags 104 contained in the XML data structure 100. For example, on the bar chart 250, the Year 1997 bar 252 has a value of \$10,000 as specified in tag 118.

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The style of the bar chart 250 is also in accordance with the style tags 106 of the XML data structure 100. Each of the bars (252, 254, 256, 258, 259) is colored in accordance with the style specification. For example, the first bar 252 has the color denoted within the style tag 140 for GraphDataStyle1 (i.e. "#FFA53D"). The first bar 252 contains as its fill interspersed dollar symbols as provided by the graphic image file specified within the GraphDataStyle1 tag 140. Other aspects of the bar chart graphic output 250 are also displayed in accordance with the style specification. For example, the horizontal axis 260 does not show major tick or minor tick lines as specified by the Axis0 tags 202. The horizontal axis 260 also shows the display of the variable whose role is category (i.e., the Year31 variable has as its role the category and thus is displayed as the variable for the horizontal axis 260). Correspondingly, the vertical axis 262 has its format and associated variable shown in accordance with the Axis1 tags 204. Thus, the vertical axis label "sales" 264 is shown in accordance with the Axis1 tags 204. Also, the variable Sales9 is the variable associated with the vertical axis 262 in accordance with the Axis1 tags 204.

FIG. 6 depicts a pie chart depiction 280 of the data shown within the XML data structure 100 of FIGS. 4A-4E. The pie chart 280 uses the variables in the same roles set forth in the ChartDataList tags 170, but has changed the color values as well as the fill values in displaying the data values. For example, the first graphical component 282 has a bluish color whereas the first component had a dark orange color at 252 on FIG. 5.

It should be understood that the graph styles data structure uses a metadata approach whose abstraction is at a level above the particular type of graphic used to display the data. Thus, metadata (such as what role a variable has within a data set and the format style of a variable based upon its role) is used independent of the graphic type used to depict the data.

The definition and generation of graphic output via the graph styles data may be performed in many different ways. One such method is shown by the flowchart of FIG. 7. With reference to FIG. 7, start block 300 indicates that the method begins at process block 302. At process block 302, the graph styles data (as well as possibly the underlying data to be used) are defined. It should be noted that the generation of the graph styles data does not have to occur at the time that the data source is designated, but instead a large number of graph styles may be predefined so that the user at the time that the data is generated may specify the type of graph styles that should be used to depict the data. For example, such unique graph styles as the following may be predefined: an analysis style (e.g.; showing a magnifying glass in the background); an astronomy style; a banker style; a blockprint style; a convention style; a curve style; an education style; an electronics style; a gears style; a magnify style; a money style; an RSVP style; a science style; a sketch style; a statistical style; a torn style; a watercolor style; and others. These styles may allow the following display characteristics to be used with non-textual output: soft shadows around text; transparency of data primitives, legends and graphics area; texture maps on data primitives and graphics area; background images specific to industries; use of specific fonts to highlight labeling and values; color scheme to enhance the overall appearance of the graphs; gradient fills for the graphics area; linestyle to highlight data; and others.

At process block 304, the data to be graphically depicted is generated. The graphic output rendering module determines at process block 306 the display characteristics for the generated data based upon the defined graph styles data. At process block 308, the data is graphically displayed based upon the determined displayed characteristics. Unless the user wishes to perform another action, processing for this operational scenario terminates at end block 310.

FIG. 8 shows use of a graphical user interface to interactively modify styles of a graphical output. In this example, a viewing application 320 (such as a web browser, Microsoft Word, etc.) displays a graphical output 321 that has incorporated an output document 322. A user can access a graphical user interface 324 to modify the appearance of the graphical output 5 321. To accomplish this, the interface 324 may include a style editor 326 so as to modify one or more of the styles associated with the graph 321. The interface 324 may also include a variable dialog interface 328 so that the data shown in the graph 321 may be modified. The interface 324 may also include other graph attribute dialog interfaces in order to modify more specific characteristics of the graph's appearance.

FIGS. 9-13 show an example of a style editor 326 that may be used to modify style attributes of a graphical output. With reference to FIG. 9, the style editor 326 may contain tabs 330 to modify different style attributes contained within the graph styles data structure. FIG. 9 shows the chart tab 332 as activated. The user selects at 334 a style so that the user may view and possibly modify the style's attributes/display characteristics. The following chart attributes may be viewed and modified for a selected style when the chart tab 332 is activated: 10 chart color scheme 336; chart color background 338; chart legend file 340; chart floor fill 342; chart wall fill 344; chart wall transparency level 346; chart data elements fill 348; and chart data elements transparency level 350.

FIG. 10 shows an exemplary modification being performed by the user. The user 20 is modifying the style from Analysis to Magellan. By selecting a different style, the user can view the current attribute values for the selected style, and modify any style attributes to suit the user's particular needs.

FIG. 11 shows the lines tab 360 as activated. The user selects for which style the line attributes are to be viewed and possibly altered. For a selected style, the following line attributes may be viewed and modified: lines color scheme 364; lines color background 366; lines color outline 368 and width 370; grid style 372; grid color 374; grid width 376; axis and borders style 378, color 380 and width 382.

FIG. 12 shows the text tab 390 as activated. The user selects for which style the text attributes are to be viewed and possibly altered. For a selected style 334, the following text attributes may be viewed and modified: text color scheme 392; text color background 394; text title color 396 and font 398; title effects 400; label color 402 and font 404; label effects 406; values color 408 and font 410; and value effects 412.

FIG. 13 shows the effects tab 414 as activated. The user selects for which style the effects attributes are to be viewed and possibly altered. For a selected style, the following effects attributes may be viewed and modified: effects color scheme 415; effects color background 416; shadow style 417; color and offset 418 (if available); text borders style 419, color 420, and width 421; selection style 422 and color 423 (if available). It should be noted that modifications via the style editor changes the graph styles data.

FIG. 14 shows the results of a style editor modifying the graphical display format of a bar chart 425. FIG. 14 depicts at 425 a modified bar chart of FIG. 5. The style editor modified the outer contour 426 of each bar to appear as cylindrical as well as each bar's interior to be transparent. The style editor performed these modifications by adding a cylindrical contour attribute and transparency attribute to each GraphDataStyle contained within the tags 132. The wall fill 427 has also been modified to show a magnifying glass in the background. It should be

understood that any attribute of the graphical output may be modified through the style editor or by another mechanism that can effect changes to the graphic styles data.

Many different graphical outputs can be created via the graphical styles data. FIG. 15 shows a statistical graphical output 430 whose format has been dictated by the graphical styles data. The statistical graphical output 430 shows a response variable analysis graph that contains two response profiles (438 and 444). The first response profile 438 predicts the number of people who have visited a particular company's Internet web site. The second response profile 444 depicts the advertisement exposure amount for a particular age group of people. The combined response profiles 438 and 444 assist the user in determining the effect of advertising exposure upon a company's Internet web site.

Time is the dimension for the abscissa axis 432 and may be in units of days. The business metric variable "consumer_sample_info_pages" comprises the dimension for the first ordinate axis 434 and represents the number of viewings of the company's web site product information pages. The actual daily number of viewings of the company's web site product information pages is shown by data points 436. The predicted daily number of viewings of the company's web site product information pages is shown by the points on curve 438. Upper and lower confidence bands 440 bound the curve at a 95% confidence level.

On the graph 430, the input variable cable_a35_plus_grp comprises the dimension for the second ordinate axis 442 and represents (in units of 100,000) people 35 years or older that watched an advertisement on cable. Vertical line responses (e.g., response 444) show the advertisement exposure amount for this group of people. The gap between a peak in the cable_a35_plus_grp dimension (as shown for example by vertical line response 444) and a peak in the consumer_sample_info_pages target variable (as shown for example by peak 446)

represents the time delay of the effect that showing an advertisement has in drawing its viewers to the company's web site.

The graph styles data may be used to format different aspects of the graphical output. The confidence bands 440 may be shown in a different color and with a different line thickness than the response curve 438. Any actual points 436 that reside outside the confidence bands 440 may have a different style than actual points 436 within the confidence bands 440. The graph styles metadata may indicate that a certain set of points or set of curves has as its role to be the confidence bands within a graph. The graph styles metadata may also designate the role of any other data to have a statistical meaning. For example, the graph styles metadata may designate that a line is to act as the mean for the graph.

The graphical output 430 assists a user in determining time delays between an advertisement showing and its effect upon viewing the company's web pages. In this example, it is determined that there is about a one day delay between an advertisement showing and its effect upon viewing the company's web pages. The graph styles data structure may include information to highlight the delay aspects, such as providing arrows pointing to peaks in the first and second response curves (438 and 444) to illustrate the delays. It should be understood that any aspect of the graphical output 430 may have its format defined through the graph styles data structure, such as modifying the graphical appearance of points or curves on a graph based upon a the points or curves satisfying preselected conditions. For example, points that are further away from a preselected statistic (such as the mean) may have their styles modified to better distinguish them from those points closer to the statistic.

While examples have been used to disclose the invention, including the best mode, and also to enable any person skilled in the art to make and use the invention, the

patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. For example, FIG. 16 shows that graph styles data 40 may describe data generated from many different sources 460, such as a relational database management system (RDBMS) application, business application, statistical application, ActiveX control, Java applet, third party application, etc. In this example, the graph styles data 40 are expressed in an XML format. The graph generator software program 36 may use an XML parser 462 to parse the graph styles XML data for determining the styles information to be associated with the incoming data 464.

The graph styles data 40 may reference additional data 466 to be incorporated in the graphical output 38, such as digital photographs or bitmap files. A company can customize its graphical output 38 by including a digital photograph of its corporate headquarters or a bitmap file containing its logo.

The graphical output 38 may assume many different output formats, such as PDF, HTML, XML, RTF, a direct output to a printer, etc. The output format may be based upon the entity that is to receive the graphical output. For example if the business application is being operated through a web browser, then the graph styles data can indicate that certain styles are to be used when rendering graphics for a web browser as well as indicate that the output should be in an HTML format.

As another example of the wide scope of the graph styles system, FIG. 17 shows an exemplary web application 480 utilizing the graph styles data 40 through the Internet 482. The web application 480 requests that certain operations be performed by a server side computer system 484. A data engine 486 residing on the server side computer system 484 performs the requested operations. The server side computer system 484 may format its response for the web

application 480 in accordance with the graph styles data 40. A user 488 may use the web application 480 to modify the graph styles data 40, such as through a web-enabled style editor. It should be noted that in this example, the graph styles data 40 and the software 486 generating the data may exist in two different locations (such as two different files). This provides for less coupling between the two and increases the portability of the graph styles so that it is application independent.

As yet another example of the wide scope of the graph styles system, the graph styles system may be used in coordination with other report specification systems, such as the report specification system described in U.S. provisional application Serial No. (to be assigned) entitled "COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR REPORT GENERATION" filed March 29, 2002 (with Express Mail Number EL647389580US, law firm docket number 343355600040, and inventors Shaughnessy et al.). That application's full disclosure is incorporated herein and used in reference to FIGS. 18 and 19. FIG. 18 depicts a computer-implemented system 530 that renders reports 532 based upon data from different data sources 534. A report specification 536 defines a template, or description, of how the data should look based on the state of the data when a report 532 is rendered. The rendered instances 532 change as their underlying data 534 changes. Thus a rendered report 532 may be created one time and will not have to be recreated every time the data 534 changes.

Based upon the report specification 536, a report rendering engine 538 integrates different types 540 of data from different sources 534. The report specification 536 may define how the different types of data should be represented visually in a report 532 regardless of whether the data source 534 is a Microsoft Access or Oracle database, or an OLAP system or a 4GL (generation language) statistical analysis language (such as 4GL SAS language from the

SAS Institute Inc.), a spreadsheet program, or a word processing program (and regardless of whether the data is in a Microsoft Word or Excel or relational format or OLAP format or other type of format).

FIG. 19 depicts a report specification 536 to render reports. The report specification 536 contains a data structure 550 to dictate what data sources 534 are involved in creating a report 532 and how the data 551 should appear in the report 532. For example, the data structure 550 may specify that data 551 is to be collected from a relational database management system 552, statistical data models 554, and data sets 556 (such as those used within a statistical package, as in the package available from SAS Institute Inc. located in North Carolina).

The data structure 550 operates as a report model 558 from which one or more report instantiations 560 may be generated. If data 551 in one of the data sources (552, 554, 556) should change, the data model 558 automatically specifies where in a report instantiation 560 updates are needed. The data structure 550 may be a target and platform independent specification 562 while also allowing the report instantiations 560 to be rendered in many different formats. Thus, a report instantiation 560 may be generated in HTML, PDF, XML, RTF, WAP, and other formats. The data structure 550 may use graph styles data 40 to define the display characteristics of the graphical output in accordance with the description provided above for the graph styles data 40. The graph styles data 40 may also coordinate the appearance of graphical data with the other data contained within the data structure 550. For example, the color of the graphical data may be coordinated with the color scheme of the tabular data. Additional details of the data structure 550 and its uses are described in the aforementioned

application entitled "COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR REPORT GENERATION".

WORLD PROGRAMMING LIMITED

It is claimed:

1. A computer-implemented method for generating data graphical displays, comprising the steps of:

receiving data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

retrieving graph style data items from a data file,

said graph style data items containing display characteristics to be used in displaying the data in a non-textual format; and

accessing of the graph style data items by different types of software applications in order to display through the different types of software applications non-textual formatted output based upon the graph style data items.

2. The method of claim 1 wherein the non-textual format includes a graphic format.

3. The method of claim 2 wherein the graphic format includes formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

4. The method of claim 1 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

- 5. The method of claim 1 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables, wherein the data is displayed in accordance with the graph style data items and the graph style metadata.

- 6. The method of claim 1 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

- 7. The method of claim 6 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, and x-y graphs.

- 8. The method of claim 7 wherein the category role identifies the data variable to be associated with an axis for the non-textual format.

- 9. The method of claim 8 wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

- 10. The method of claim 9 wherein the category role identifies the data variable to be used to determine the number of slices in a pie chart.

- 11. The method of claim 10 wherein the response role identifies the data variable to be used to determine the sizes of the pie chart slices.

12. The method of claim 1 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output.

13. The method of claim 12 wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

14. The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

15. The method of claim 1 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

16. The method of claim 1 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

17. The method of claim 1 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

18. The method of claim 17 wherein said graph style data items contain graph style metadata that describes display characteristics for data based upon roles of the data's variables,

wherein the data is displayed in accordance with the graph style data items and the graph style metadata,

wherein the theme is selected based upon the roles contained within the graph style metadata.

19. The method of claim 1 wherein the graph style data is expressed in an XML format.

20. The method of claim 1 wherein a style editor is used to modify the display characteristics of the graph style data items.

21. The method of claim 1 wherein the graph style data items are used to format display of a statistical analysis graph.

22. The method of claim 21 wherein the graph style data items are used to format display a response based upon the response's departure from a preselected statistical measure.

23. The method of claim 22 wherein the response comprises a set of points.

24. The method of claim 22 wherein the response comprises a response curve.

25. The method of claim 22 wherein the statistical measure comprises confidence bands, said graph style data items being used to format display of the response that is outside the confidence bands differently than the portion of the response contained within the confidence bands.
26. The method of claim 22 wherein the statistical measure is a mean.
27. The method of claim 1 wherein the received data was generated by data source generating means.
28. The method of claim 1 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.
29. The method of claim 1 wherein the graph data items are used within server side computer system means.
30. Computer software stored on a computer readable media, the computer software comprising program code for carrying out a method according to claim 1.
31. The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing a data source specification and a view specification, said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

32. The method of claim 1 wherein the graph style data items are contained within a data structure, said data structure also containing data source specification means and view specification means, said data structure indicating display characteristics for tabular data,

wherein the display characteristics of graphical data contained within the graph style data items are coordinated with the display characteristics of the tabular data contained within the data structure.

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33. A computer-implemented apparatus for generating data graphical displays based upon data, comprising:

a graph generator module that receives data to be displayed in a non-textual format, said received data being indicative of a plurality of variables;

graph styles data structure that defines display characteristics to be used in displaying the data in a non-textual format,

said graph style data structure containing graph style metadata that describes display characteristics for data through the metadata associating at least one of the variables with a role;

said graph generator module having data access to the graph style data structure,

said graph generator module generating at least one graphical output based upon the received data, said graphical output being generated in accordance with the defined data characteristics of the graph styles data structure.

34. The apparatus of claim 33 wherein the graphical output includes formats selected from the group consisting of pie charts, bar charts, maps, x-y graphs, statistical analysis graphs, and combinations thereof.

35. The apparatus of claim 33 wherein the display characteristics include characteristics selected from the group consisting of font characteristics, color characteristics, border characteristics, and combinations thereof.

36. The apparatus of claim 33 wherein the graph style metadata identifies a data variable as having a category role and identifies another data variable as having a response role, said category role and said response role being used by in different output non-textual formats.

37. The apparatus of claim 36 wherein the different output non-textual formats include formats selected from the group consisting of pie charts, bar charts, maps, statistical analysis graphs, and x-y graphs.

38. The apparatus of claim 37 wherein the category role identifies the data variable to be associated with an axis for the non-textual format, wherein the response role identifies the data variable to be associated with an axis for the non-textual format.

39. The apparatus of claim 33 wherein different types of software applications access the graph style data items in order to display non-textual formatted output.

40. The apparatus of claim 33 wherein the graph style data items specify different output formats based upon the type of software application that is to display the non-textual formatted output, wherein the output formats include formats selected from the group consisting of HTML, XML, PDF, and text.

41. The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying display attributes for all of the graphical display components.

42. The apparatus of claim 33 wherein non-textual formatted output includes graphical display components to indicate values of the received data, said graph style data items specifying different display attributes for each of the graphical display components.

43. The apparatus of claim 33 wherein non-textual formatted output includes a first and second set of graphical display components that indicate values of the received data, said graph style data items specifying first display attributes for the first set of graphical display components, said graph style data items specifying second display attributes for the second set of graphical display components.

44. The apparatus of claim 33 wherein the graph style data items contain theme information that is to be displayed within the non-textual formatted output.

45. The apparatus of claim 44 wherein the theme is selected based upon the roles contained within the graph style metadata.

46. The apparatus of claim 33 wherein the graph styles data structure is expressed in an XML format.

47. The apparatus of claim 33 wherein a style editor is used to modify the display characteristics of the graph style data items.

48. The apparatus of claim 33 wherein the received data was generated by data source generating means.

49. The apparatus of claim 33 wherein the graph style data items contain data to additional data means to format the non-textual formatted output.

50. The apparatus of claim 33 further comprising:

a server-side computer system that contains the graph styles data structure,
said server-side computer system generating graphic outputs based upon requests received through an internet network from a client web application,
said generated graphic outputs having display characteristics that are based upon the graph styles data structure.

51. The apparatus of claim 33 wherein the graph styles data structure is located in a first computer-based non-volatile storage medium location, and the graph generator module is located in a second computer-based non-volatile storage medium location.

52. The apparatus of claim 51 wherein the data is received by the graph generator module from a third computer-based non-volatile storage medium location.

53. The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing a data source specification and a view specification,

said data source specification indicating the data to be extracted from data sources so that a report may be generated based upon the extracted data,

said view specification indicating how tabular data is to be visually represented within the report, said view specification utilizing the graph style data items in order to determine how to display data in a non-textual format.

54. The apparatus of claim 33 wherein the graph style data structure is contained within a report model data structure, said report model data structure also containing data source specification means and a view specification means.

55. The apparatus of claim 33 wherein the graph style data structure contains graph style data items for formatting display of a statistical analysis graph.

Computer-Implemented System And Method For Generating Data Graphical Displays

ABSTRACT

A computer-implemented system and method for generating data graphical displays. The data is indicative of a plurality of variables. The system and method receive data that is to be displayed in a non-textual format. Graph style data items are retrieved that contain display characteristics for displaying the data in the non-textual format. The data is displayed in accordance with the graph style data items.

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WORLD PROGRAMMING LIMITED

DECLARATION AND POWER OF ATTORNEY

(Joint Inventors)

We, Himesh G. Patel; Frank Lee Wimmer; Cleester Daniel Heath, IV; Paul W. Layne; and Kevin Dale Smith, hereby declare that we are, respectively,

a citizen of the United States of America, residing at 2501 Maxton Crest Drive, Apex, North Carolina 27502;

a citizen of the United States of America, residing at 9107 Brompton Court, Raleigh, North Carolina 27615;

a citizen of the United States of America, residing at 124 Smith's Creek Drive, Clayton, North Carolina 27520;

a citizen of the United States of America, residing at 105 Javelin Court, Cary, North Carolina 27513;

a citizen of the United States of America, residing at 2344 Champion Court, Raleigh, North Carolina 27606;

that we have reviewed and understand the content of the attached specification, including the claims (Jones, Day, Reavis & Pogue Docket No. 343355-600045), and we believe that we are the original, first, and joint inventors of the subject matter which is claimed therein and for which a patent is sought on the invention or discovery entitled

**COMPUTER-IMPLEMENTED SYSTEM AND METHOD
FOR GENERATING DATA GRAPHICAL DISPLAYS**

and that we acknowledge our duty to disclose information of which we are aware which is material to the examination or patentability of this application, in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

We hereby designate the following as our mailing address and telephone number:

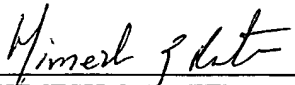
John V. Biernacki
Jones Day, Reavis & Pogue
North Point
901 Lakeside Avenue
Cleveland, Ohio 44114
(216) 586-3939

and appoint each of the following as our attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

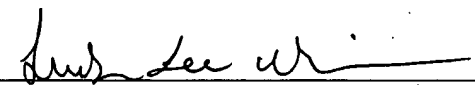
Kenneth R. Adamo, Registration No. 27,299; Barbara Arndt, Registration No. 37,768; John V. Biernacki, Registration No. 40,511; David B. Cochran, Registration No. 39,142; Regan J. Fay, Registration No. 26,878; F. Drexel Feeling; Registration No. 40,602; Calvin P. Griffith, Registration No. 34,831; Warren M. Haines, Registration No. 40,632; David M. Maiorana, Registration No. 41,449; Shawn A. McClintic, Registration No. 45, 856; Timothy J. O'Hearn, Registration No. 31,552; Stephen D. Scanlon, Registration No. 32,755; Jenny L. Sheaffer, Registration No. 45,099; H. Duane Switzer, Registration No. 22,431; Michael W. Vary, Registration No. 30,811; and James L. Wamsley, III, Registration No. 31,578; Paul E. Franz, Registration No. 45,910

all having the above-designated address.


We further declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.


_____ Date 4/12/02
HIMESH G. PATEL

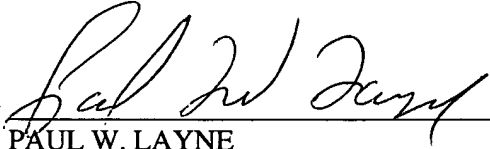
Post Office Address: 2501 Maxton Crest Drive
Apex, North Carolina 27502


_____ Date 4/12/02
FRANK LEE WIMMER

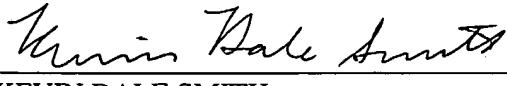
Post Office Address: 9107 Brompton Court
Raleigh, North Carolina 27615


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Cary, North Carolina 27513


_____ Date 4/12/02
KEVIN DALE SMITH

Post Office Address: 2344 Champion Court
Raleigh, North Carolina 27606

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number
34335560045

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	56	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	56 minus 20 =	* 36
INDEPENDENT CLAIMS	3 minus 3 =	* 0
MULTIPLE DEPENDENT CLAIM PRESENT <input type="checkbox"/>		

SMALL ENTITY TYPE <input type="checkbox"/>		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL		OR	TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total *	Minus **	=
	Independent *	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total *	Minus **	=
	Independent *	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
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	Independent *	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

04/18/2002 MBIZUMES 00000009 501432 10122584

01 FC:101	740.00 CH
02 FC:103	648.00 CH

PTO-1556
(5/87)

CLAIMS ONLY

SERIAL NO. 1012 2584 FILING DATE

APPLICANT(S)

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT		☆		☆		☆	
	IND.	DEP.	IND.	DEP.	IND.	DEP.	IND.	DEP.	IND.	DEP.	IND.	DEP.
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TOTAL DEP.	53	←		←		←		←		←		←
TOTAL CLAIMS	56											

* MAY BE USED FOR ADDITIONAL CLAIMS OR ADMMENDMENTS