COMPREHENSIVE COVERAGE FOR ALL COMPUTER USERS

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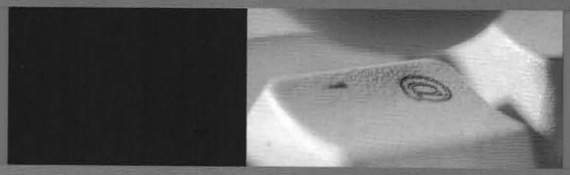
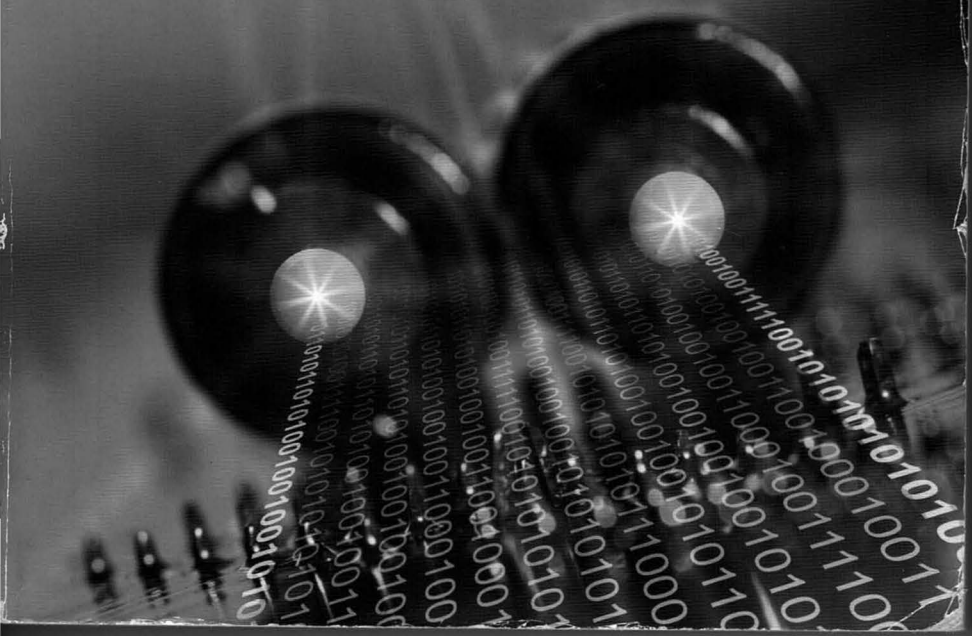


DICTIONARY OF

Computing



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in recent years and some inkjet printers can produce prints of photographic quality, though there are still concerns about the long-term stability of the dyes used.

in-line function A short function whose code is inserted by the compiler at the point of call, thereby avoiding the overhead of a normal function call.

inner code *See* CONCATENATED CODING SYSTEM.

inoculation A technique for virus prevention in which a *vaccine*, the *signature (but not the harmful code) of a virus, is deliberately added to a program. This is effective only against those specific viruses that are programmed to avoid reinfecting code by detecting the presence of their own signature.

inorder traversal *Another name for* symmetric order traversal.

input 1. The process of entering data into a processing system or a peripheral device, or the data that is entered.
2. A signal that is applied to an electrical circuit, such as a logic circuit.
3. To enter data or apply a signal.

input area The area of main memory that is currently allocated to hold incoming data. The processing system will usually retrieve data from the input area and transfer it to a working area or register before it is processed. The result of the processing may be written to an *output area. Subroutines are usually organized so as to replenish the input area from a source such as an input peripheral or communication line and clear the output area by transfer to backing store.

input device Any device that transfers data, programs, or signals into a processor system. Such devices provide the human-computer interface, the *keyboard being the most common example. Early computers also used punched paper tape and cards but these are now obsolete. Current devices include *pointing devices, *data collection terminals, *speech recognition units, magnetic *card readers, and *document scanners. *See also* LOGICAL INPUT DEVICE.

speed of execution is limited by the rate at which input data is available or obtained.

input/output (I/O) The passing of information into or out of the central processing unit of a computer system, or the part of the system primarily dedicated to this activity. An important function of most I/O equipment is the translation between the host processor's signals and the sounds, actions, or symbols that are understood or generated by people. In some cases it may be translation between two types of machine-readable signals, as when a *bar-code scanner reads the data-encoded package and translates it into an ASCII code.

inquiry station *Obsolete* A terminal from which information can be retrieved from a *database. Generally the terminal has a display and a keyboard, but there may also be ancillary devices such as a *badge reader. The user makes the inquiry via the keyboard either in the form of a question in plain text or by indicating a selection from a menu on the display. The display will show a series of possible selections that successively narrow the field of search. An inquiry station may also update information as the result of an action arising from an inquiry. An airline booking terminal is an example of an inquiry station. *See also* INTERROGATION.

insert 1. One of the basic actions performed on *sets that, when applied in the form

insert(*el*, *S*)

adds the element *el* to the set *S*. If *el* is already in *S* the operation has no effect on the membership of *S*. *See also* OPERATIONS ON SETS.
2. One of the basic actions performed on *lists, that places a new element into a list, not necessarily at one end or the other.

install 1. To take software from the distribution files, which can be on floppy disks, CD-ROM, tapes, or on a remote networked computer, and place it in its permanent location from where it will be executed. The installation process is not just a straight copy as it involves unpacking compressed [illegible] installer to choose how much of the software to install. A typical installation program will offer choices of minimum, custom, or full installations.
2. To fit new hardware features to a computer.

instance *See* INSTANTIATION, UNIFICATION. *See also* OBJECT-ORIENTED PROGRAMMING.

instantaneously decodable *See* PREFIX CODES.

instantiation 1. The creation of a particular instance of an object class, generic unit, or template.
2. The application of a parameterized abstract data type to a particular set of parameters.

instruction The description of an operation that is to be performed by a computer. It consists of a statement of an operation to be performed and some method of specifying the operands (or their locations) and the disposition of the result of the operation. Instructions are often divided into classes such as *arithmetic instructions, *program control instructions, *logic instructions, and *I/O instructions. They may or may not be of fixed length. The *operation code or order code of an instruction specifies one of the set of operations available in a particular computer. *See also* INSTRUCTION FORMAT.

instruction counter (program counter) A counting *register that normally increments in each instruction cycle to obtain the program sequence (i.e. the sequence of instructions) from the memory locations. This counter will have its contents changed by branch instructions to obtain the next instruction from the branch target. The instruction counter forms part of the *processor status word; this enables subsequent restarting of an interrupted program.

instruction cycle *Another name for* fetch-execute cycle. *See* CONTROL UNIT.

instruction format An instruction is normally made up of a combination of an *operation code and some way of specifying an *operand, most commonly by its location or *address in memory though *nonmemory reference instructions can