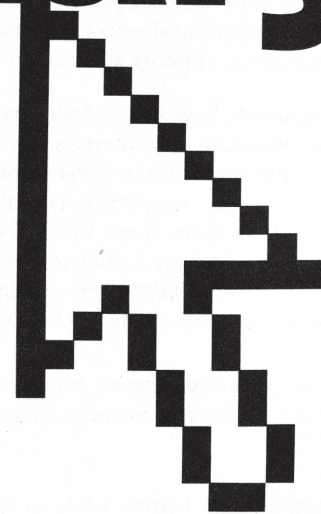


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## B

**binomial distribution** *n.* In statistics, a list or a function that describes the probabilities of the possible values of a random variable chosen by means of a Bernoulli sampling process. A Bernoulli process has three characteristics: each trial has only two possible outcomes—success or failure; each trial is independent of all other trials; and the probability of success for each trial is constant. A binomial distribution can be used to calculate the probability of getting a specified number of successes in a Bernoulli process. For example, the binomial distribution can be used to calculate the probability of getting a 7 three times in 20 rolls of a pair of dice. *Also called* Bernoulli distribution.

**biometrics** *n.* Traditionally, the science of measuring and analyzing human biological characteristics. In computer technology, biometrics relates to authentication and security techniques that rely on measurable, individual biological stamps to recognize or verify an individual's identity. For example, fingerprints, handprints, or voice-recognition might be used to enable access to a computer, to a room, or to an electronic commerce account. Security schemes are generally categorized into three levels: level 1 relies on something the person carries, such as an ID badge with a photo or a computer cardkey; level 2 relies on something the person knows, such as a password or a code number; level 3, the highest level, relies on something that is a part of the person's biological makeup or behavior, such as a fingerprint, the pattern of blood vessels in a retina, or a signature. *See also* fingerprint reader, handwriting recognition (definition 1), voice recognition.

**bionics** \bī-on'iks\ *n.* The study of living organisms, their characteristics, and the ways they function, with a view toward creating hardware that can simulate or duplicate the activities of a biological system. *See also* cybernetics.

**BIOS** \bī'ōs\ *n.* Acronym for **basic input/output system**. On PC-compatible computers, the set of essential software routines that tests hardware at startup, starts the operating system, and supports the transfer of data among hardware devices. The BIOS is stored in read-only memory (ROM) so that it can be executed when the computer is turned on. Although critical to performance, the BIOS is usually invisible to computer users. *See also* AMI BIOS, CMOS setup, Phoenix BIOS, ROM BIOS. *Compare* Toolbox.

**bipolar** *adj.* **1.** Having two opposite states, such as positive and negative. **2.** In information transfer and processing, pertaining to or characteristic of a signal in which opposite voltage polarities represent on and off, true and false, or some other pair of values. *See also* nonreturn to zero. *Compare* unipolar. **3.** In electronics, pertaining to or characteristic of a transistor having two types of charge carriers. *See also* transistor.

**BIS** *n.* *See* business information system.

**BISDN** *n.* *See* broadband ISDN.

**bistable** *adj.* Of, pertaining to, or characteristic of a system or device that has two possible states, such as on and off. *See also* flip-flop.

**bistable circuit** *n.* Any circuit that has only two stable states. The transition between them must be initiated from outside the circuit. A bistable circuit is capable of storing 1 bit of information.

**bistable multivibrator** *n.* *See* flip-flop.

**BISYNC** \bī'sēnk\ *n.* Short for **binary synchronous communications protocol**. A communications standard developed by IBM. BISYNC transmissions are encoded in either ASCII or EBCDIC. Messages can be of any length and are sent in units called frames, optionally preceded by a message header. BISYNC uses synchronous transmission, in which message elements are separated by a specific time interval, so each frame is preceded and followed by special characters that enable the sending and receiving machines to synchronize their clocks. STX and ETX are control characters that mark the beginning and end of the message text; BCC is a set of characters used to verify the accuracy of transmission. *See the illustration.* *Also called* BSC.

**bit** *n.* Short for **binary digit**. The smallest unit of information handled by a computer. One bit expresses a 1 or a 0 in a binary numeral, or a true or false logical condition, and is represented physically by an element such as a high or low voltage at one point in a circuit or a small spot on a disk magnetized one way or the other. A single bit conveys little information a human would consider meaningful. A group of 8 bits, however, makes up a byte, which can be used to represent many types of information, such as a letter of the alphabet, a decimal digit, or other character. *See also* ASCII, binary<sup>1</sup>, byte.

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