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# COMPUTER DICTIONARY

SECOND EDITION



THE COMPREHENSIVE  
STANDARD FOR  
BUSINESS, SCHOOL,  
LIBRARY, AND HOME



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ume (storage device, such as a disk) that cannot be written to. The volume can be locked either physically or through software.

**locking** The process of barring use of a file or a database record. Locking is used on networks and in other situations in which more than one person might try to use the same file or change the same database record at the same time. By locking the file or record, the system ensures that only one person at a time can affect the information. Usually, the first person to gain access is the one who can make changes. Other users, although they might be able to see the information, are barred from doing anything to it until the material is unlocked.

**lockout** The act of denying access to a given resource (file, memory location, I/O port), usually to ensure that only one program at a time uses that resource.

**lock up** A condition in which processing appears to be completely suspended and in which the program in control of the system will accept no input. *See also* crash.

**log** A record of transactions or activities that take place on a computer system, comparable to a ship captain's log; also, an abbreviation for logarithm. *See also* logarithm.

**logarithm** Abbreviated log. In mathematics, the power to which a base must be raised to equal a given number. For example, given the base 10, the logarithm of 16 is 1.2041 because  $10^{1.2041}$  equals (approximately) 16. Both natural logarithms (to the base  $e$ , which is approximately 2.71828) and common logarithms (to the base 10) are used in programming. Languages such as C and BASIC include functions for calculating natural logarithms.

**logic** In programming, the assertions, assumptions, and operations that define what a given program does. Defining the logic of a program is often the first step in developing the program's source code. *See also* formal logic.

**logical** An adjective describing an operation or other computing activity that is based on true and false alternatives as opposed to arithmetic calculation of numeric values. For example, a logical

expression is one that, when evaluated, has a single outcome, either true or false (as in "If A is true and B is true, then C is true"). *See also* Boolean algebra.

**logical decision** Any decision that can have one of two outcomes (true/false, yes/no, and so on).

**logical device** A device named by the logic of a software system, regardless of its physical relationship to the system. For example, a single floppy disk drive can simultaneously be, to the MS-DOS operating system, both logical drive A and drive B.

**logical drive** *See* logical device.

**logical error** *See* logic error.

**logical expression** *See* Boolean expression.

**logical file** A file as seen from a conceptual standpoint, without reference to and as distinct from its physical realization in memory or storage. For example, a logical file might consist of a contiguous series of records, whereas the file might be physically stored in small pieces scattered over the surface of a disk or even on several disks. A logical file might also consist of some subset of columns (fields) and rows (records) extracted from a database. In this case, the logical file (or view) is only that information required by a particular application program or user.

**logical operator** An operator that manipulates binary values at the bit level. In some programming languages, logical operators are identical to Boolean operators, which manipulate true and false values. *See also* Boolean operator, mask.

**logical record** Any unit of information that can be handled by an application program. A logical record can be a collection of distinct fields or columns from a database file or a single line in a text file. To conserve space on a disk, many logical records may be stored together in a single physical block or cluster, usually with no physical indication as to where one record ends and another begins. *See also* logical file.

**logical schema** *See* conceptual schema.

**logic analyzer** A hardware device that facilitates sophisticated low-level debugging of programs. Typical features include the ability to monitor bus signals during execution, to halt execution when a given memory location is read or written