

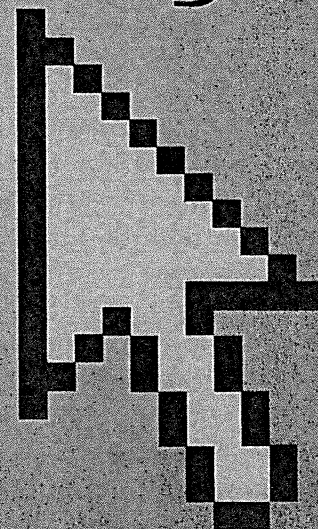


Microsoft

Computer Dictionary

Fifth Edition

- Fully updated with the latest technologies, terms, and acronyms
- Easy to read, expertly illustrated
- Definitive coverage of hardware, software, the Internet, and more!



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functional diagram, which uses special symbols to represent the elements of the system.

functional programming *n.* A style of programming in which all facilities are provided as functions (subroutines), usually without side effects. Pure functional programming languages lack a traditional assignment statement; assignment is usually implemented by copy and modify operations. Functional programming is thought to offer advantages for parallel-processing computers. *See also* side effect.

functional redundancy checking *n.* A method of preventing errors by having two processors execute the same instructions on the same data at the same time. If the results produced by the two processors do not agree, an error has occurred. The Intel Pentium and higher processors have built-in support for functional redundancy checking. *Acronym:* FRC.

functional specification *n.* A description of the scope, objectives, and types of operations that are to be considered in the development of an information-handling system.

function call *n.* A program's request for the services of a particular function. A function call is coded as the name of the function along with any parameters needed for the function to perform its task. The function itself can be a part of the program, be stored in another file and brought into the program when the program is compiled, or be a part of the operating system. *See also* function (definition 2).

function key *n.* Any of the 10 or more keys labeled F1, F2, F3, and so on, that are placed along the left side or across the top of a keyboard (or both) and are used for special tasks by different programs. The meaning of a function key is defined by a program or, in some instances, by the user. Function keys are used in application programs or the operating system to provide either a shortcut for a series of common instructions (such as calling up a program's on-screen help facility) or a feature that is not otherwise available. *See also* key (definition 1). *Compare* Command key, Control key, Escape key.

function library *n.* A collection of routines compiled together. *See also* function (definition 2), library (definition 1), toolbox.

function overloading *n.* The capability of having several routines in a program with the same name. The different functions are distinguished by their parameter types, return value types, or both; the compiler automatically

selects the correct version, based on parameter types and return types. For example, a program might have one trigonometric sine function that uses a floating-point parameter to represent an angle in radians, and another that uses an integer parameter to represent an angle in degrees. In such a program, $\sin(3.14159/2.0)$ would return the value 1.0 (because the sine of $\pi/2$ radians is 1), but $\sin(30)$ would return the value 0.5 (because the sine of 30 degrees is 0.5). *See also* operator overloading.

Function procedure *n.* A procedure that returns a value and that can be used in an expression. You declare a function with the Function statement and end it with the End Function statement.

fuse *n.* A circuit element that burns out or breaks when the current passing through it exceeds a certain level. A fuse protects a circuit from damage caused by excess current. It performs the same function as a circuit breaker, but it cannot be reset, so it must be replaced if it breaks. A fuse consists of a short length of wire of a specific composition and thickness; the thicker the wire, the more current it can pass before the wire melts and breaks the circuit.

fusible link *n.* A circuit component, often part of an integrated circuit, that is designed to break, or burn like a fuse, when a relatively high current is applied. Rather than protecting against excessive current flow, fusible links allow intentional circuit modification in the field. Fusible links were used in PROM chips, and they form the foundation of a kind of integrated circuit known as a field-programmable logic array. One can customize such a circuit "in the field," after it has been made in the factory, by selectively programming high current through certain fusible links and breaking them. *See also* field-programmable logic array, PROM.

fuzzy computing *n.* 1. A computing technique that deals with vague, incomplete, or ambiguous data in a precise mathematical way while providing solutions based on the human way of thinking. The term fuzzy relates to the type of data it processes, not to the technique itself, which is very exact. Fuzzy computing is also known as fuzzy set theory or fuzzy logic, and covers fuzzy control and fuzzy expert systems, for example. 2. A computing technology in which the computer interprets data by looking for patterns in problems while completing tasks. Using fuzzy computing, the computer is able to examine patterns in the data it receives and to make inferences based on that data, and act accordingly.

F

moderated *adj.* Subjected to review by a moderator, who may remove irrelevant or inflammatory articles or messages before redistributing them through a newsgroup, mailing list, or other messaging system.

moderated discussion *n.* Communication taking place on a mailing list, newsgroup, or other online forum that is edited by a moderator. When a user submits a message to a moderated discussion, the moderator decides if the message is relevant to the discussion topic. If so, it is forwarded to the discussion group. The content of a moderated discussion is often perceived as more valuable than that of an unmoderated one because the information has been read and approved by a "gatekeeper," who has (presumably) filtered out irrelevant submissions. Some moderators also filter submissions for obscene or pornographic material or material that is potentially offensive. *See also* mailing list, moderator, newsgroup.

moderator *n.* In some Internet newsgroups and mailing lists, a person through whom all messages are filtered before they are distributed to the members of the newsgroup or list. The moderator discards or edits any messages that are not considered appropriate. *See also* mailing list, newsgroup.

modified frequency modulation encoding *n.* An older method of storing data on disks. Modified frequency modulation encoding is based on an earlier technique called frequency modulation encoding but improves on its efficiency by reducing the need for synchronizing information and by basing the magnetic coding of each bit on the status of the previously recorded bit. This method of encoding stores more information on a disk than does frequency modulation encoding. It is not, however, as efficient a space saver as the technique known as *run-length limited encoding*, or RLL. *Abbreviation:* MFM encoding. *Compare* frequency modulation encoding, run-length limited encoding.

modifier key *n.* A key on the keyboard that, when held down while another key is pressed, changes the meaning of the keystroke. *See also* Alt key, Command key, Control key, Shift key.

modify structure *n.* An operator available in some database management systems that permits fields (columns) to be added or deleted without the need to rebuild the entire database.

MO disk *n.* *See* magneto-optic disc.

MO disk drive *n.* *See* magneto-optic disc.

Modula-2 *n.* A modular high-level language designed in 1980 by Niklaus Wirth. Derived from Pascal, Modula-2 is noted for its emphasis on modular programming, its early support for data abstraction, and its lack of standard functions and procedures. *See also* modular programming.

modular design *n.* An approach to designing hardware or software in which a project is broken into smaller units, or modules, each of which can be developed, tested, and finished independently before being combined with the others in the final product. Each unit is designed to perform a particular task or function and can thus become part of a library of modules that can often be reused in other products having similar requirements. In programming, for example, one module might consist of instructions for moving the cursor in a window on the screen. Because it is deliberately designed as a stand-alone unit that can work with other sections of the program, the same module might be able to perform the same task in another program as well, thus saving time in development and testing.

modular jack *n.* *See* phone connector.

modular programming *n.* An approach to programming in which the program is broken into several independently compiled modules. Each module exports specified elements (such as constants, data types, variables, functions, and procedures); all other elements remain private to the module. Other modules can use only the exported elements. Modules clarify and regularize the interfaces among the major parts of a program. Thus, they facilitate group programming efforts and promote reliable programming practices. Modular programming is a precursor of object-oriented programming. *See also* module (definition 1), object-oriented programming.

modular software *n.* A program created from multiple stand-alone software components. Modular components can work together to perform the work for which the larger program is designed while still remaining individually usable—and reusable—in other programs. Modular software is, in effect, made up of recyclable parts. Because each component is functionally autonomous and self-contained, other components can call on its services without having to "know" how it works. Thus, a programmer can change or modify the way one component performs its work without adversely affecting other components in the same program. *See also* component software, integrated software, modular design.

modulate *vb.* To change some aspect of a signal intentionally, usually for the purpose of transmitting information.

modulation *n.* **1.** The process of changing or regulating the characteristics of a carrier wave vibrating at a certain amplitude (height) and frequency (timing) so that the variations represent meaningful information. **2.** In computer communications, the means by which a modem converts digital information sent by a computer to the audio form that it sends over a telephone line.

modulation standards *n.* Protocols that determine how modems convert digital data into analog signals that can be transmitted over telephone lines. Initially, Bell created modulation standards used in the United States, and the CCITT created international recommendations. The ITU-T (formerly called the CCITT) now makes recommendations generally adopted by modem manufacturers both internationally and in the United States. The ITU-TV series recommendations (such as V.34 and V.90) define data communication over the telephone network. The suffixes -bis and -ter (for example, V.32bis) indicate later versions. *See also* V.34, V.90.

module *n.* **1.** In programming, a collection of routines and data structures that performs a particular task or implements a particular abstract data type. Modules usually consist of two parts: an interface, which lists the constants, data types, variables, and routines that can be accessed by other modules or routines; and an implementation, which is private (accessible only to the module) and which contains the source code that actually implements the routines in the module. *See also* abstract data type, information hiding, Modula-2, modular programming. **2.** In hardware, a self-contained component that can provide a complete function to a system and can be interchanged with other modules that provide similar functions. *See also* memory card, SIMM.

modulo *n.* An arithmetic operation whose result is the remainder of a division operation. For example, $17 \text{ modulo } 3 = 2$ because 17 divided by 3 yields a remainder of 2. Modulo operations are used in programming.

moiré *n.* A visible wavy distortion or flickering in an image that is displayed or printed with an inappropriate resolution. Several parameters affect moiré patterns, including the size and resolution of the image, resolution of the output device, and halftone screen angle.

molecular beam epitaxy *n.* A process used in the fabrication of semiconductor devices, such as integrated circuits. A device employing molecular beam epitaxy creates thin

layers of semiconducting material by vaporizing the material and then directing a beam of molecules at the substrate on which the layer is to be formed. This technique allows very precise and very thin layers to be created.

MOM *n.* Acronym for **messaging-oriented middleware**. A class of programs that translates data and messages between applications that use one format and communications services (such as NetBIOS and TCP/IP) that expect a different format.

monadic *adj.* *See* unary.

Money *n.* Microsoft's Windows-based financial-management software for individuals, families, and small businesses. Money includes tools for managing bank accounts and investments, budgeting, tax estimating and financial planning, and paying bills.

monitor *n.* The device on which images generated by the computer's video adapter are displayed. The term *monitor* usually refers to a video display and its housing. The monitor is attached to the video adapter by a cable. *See also* CRT.

monitoring software *n.* A program or set of programs used to oversee computer-based systems and networks for the purpose of tracking usage or identifying, reporting on, and solving problems at the earliest possible stage. Monitoring software is used in a variety of areas ranging from hardware platforms and their components to operating systems, databases, Internet/intranet access, and business applications. Typically, different tools are used to monitor individual system components, though the individual monitors might feed information to a higher-level monitor in order to encompass an entire computing environment.

monitor port *n.* *See* display port.

monochrome *adj.* Of, pertaining to, or being a monitor that displays images in only one color—black on white (as on early monochrome Macintosh screens) or amber or green on black (as on early IBM and other monochrome monitors). The term is also applied to a monitor that displays only variable levels of a single color, such as a gray-scale monitor.

monochrome adapter *n.* A video adapter capable of generating a video signal for one foreground color or sometimes for a range of intensities in a single color, as for a gray-scale monitor.