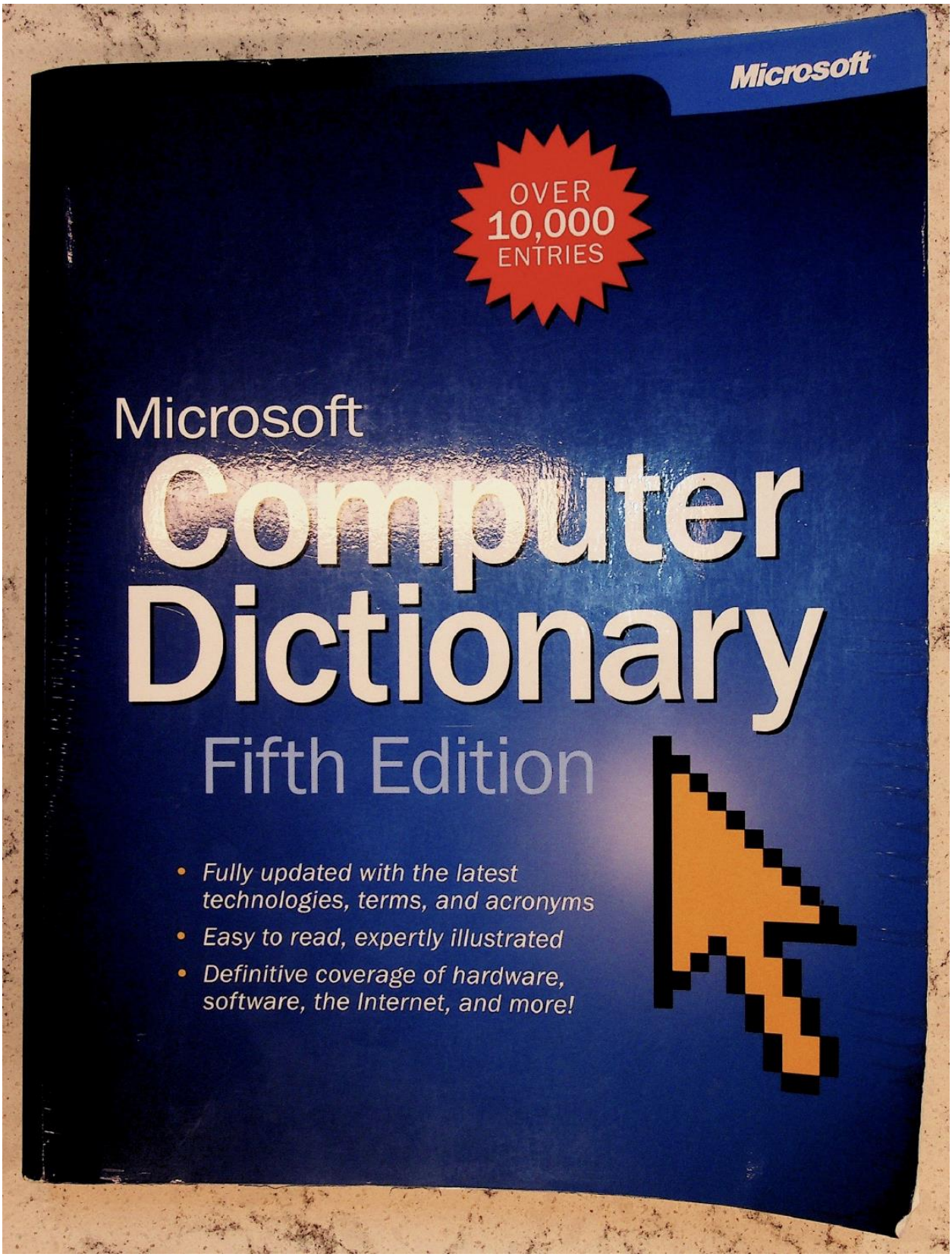

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C

Compressed SLIP *n.* Short for **C**ompressed **S**erial **L**ine **I**nternet **P**rotocol. A version of SLIP using compressed Internet address information, thereby making the protocol faster than SLIP. *Acronym:* CSLIP. *See also* SLIP.

compression *n. See* data compression.

compressor *n.* A device that limits some aspect of a transmitted signal, such as volume, in order to increase efficiency.

CompuServe *n.* An online information service that is a subsidiary of America Online. CompuServe provides information and communications capabilities, including Internet access. It is primarily known for its technical support forums for commercial hardware and software products and for being one of the first large commercial online services. CompuServe also operates various private network services.

computational intelligence *n.* The study of the design of intelligent agents whose reasoning is based on computational methods. The central scientific goal of computational intelligence is to understand the principles that make intelligent behavior possible, in natural or artificial systems. An intelligent agent is flexible to changing environments and changing goals—it learns from experience, and it makes appropriate choices given perceptual limitations and finite computation. The central engineering goal of computational intelligence is to specify methods for the design of useful, intelligent artifacts. *See also* agents (definition 2), artificial intelligence, autonomous agent.

computation-bound *adj.* Of, pertaining to, or characteristic of a situation in which the performance of a computer is limited by the number of arithmetic operations the microprocessor must perform. When a system is computation-bound, the microprocessor is overloaded with calculations. *Also called:* CPU-bound.

compute *vb.* **1.** To perform calculations. **2.** To use a computer or cause it to do work.

computer *n.* Any device capable of processing information to produce a desired result. No matter how large or small they are, computers typically perform their work in three well-defined steps: (1) accepting input, (2) processing the input according to predefined rules (programs), and (3) producing output. There are several ways to categorize computers, including class (ranging from microcomputers to supercomputers), generation (first through fifth generation), and mode of processing (analog versus digital). See the table. *See also* analog, digital (definition 2), integrated circuit, large-scale integration, very-large-scale integration.

Table C.1 Ways to Categorize Computers

Class	Computers can be classified as supercomputers, mainframes, superminicomputers, minicomputers, workstations, microcomputers, or PDAs. All other things (for example, the age of the machine) being equal, such a categorization provides some indication of the computer's speed, size, cost, and abilities.
Generation	First-generation computers of historic significance, such as UNIVAC, introduced in the early 1950s, were based on vacuum tubes. Second-generation computers, appearing in the early 1960s, were those in which transistors replaced vacuum tubes. Third-generation computers, dating from the 1960s, were those in which integrated circuits replaced transistors. Fourth-generation computers, appearing in the mid-1970s, are those, such as microcomputers, in which large-scale integration (LSI) enabled thousands of circuits to be incorporated on one chip. Fifth-generation computers are expected to combine very-large-scale integration (VLSI) with sophisticated approaches to computing, including artificial intelligence and true distributed processing.
Mode of processing	Computers are either analog or digital. Analog computers, generally used in scientific pursuits, represent values by continuously variable signals that can have any of an infinite number of values within a limited range at any particular time. Digital computers, the type most people think of as computers, represent values by discrete signals—the bits representing the binary digits 0 and 1.

computer-aided design *n. See* CAD.

computer-aided design and drafting *n. See* CADD.

computer-aided design/computer-aided manufacturing *n. See* CAD/CAM.

Table E.1 Exclusive OR.

a	*b*	*a XOR b*
0	0	0
0	1	1
1	0	1
1	1	0

E

.exe *n.* In MS-DOS, a filename extension that indicates that a file is an executable program. To run an executable program, the user types the filename without the .exe extension at the prompt and presses Enter. *See also* executable program.

executable[1] *adj.* Of, pertaining to, or being a program file that can be run. Executable files have extensions such as .bat, .com, and .exe.

executable[2] *n.* A program file that can be run, such as file0.bat, file1.exe, or file2.com.

executable program *n.* A program that can be run. The term usually applies to a compiled program translated into machine code in a format that can be loaded into memory and run by a computer's processor. In interpreter languages, an executable program can be source code in the proper format. *See also* code (definition 1), compiler (definition 2), computer program, interpreter, source code.

execute *vb.* To perform an instruction. In programming, execution implies loading the machine code of the program into memory and then performing the instructions.

execute in place *n.* The process of executing code directly from ROM, rather than loading it from RAM first. Executing the code in place, instead of copying the code into RAM for execution, saves system resources. Applications in other file systems, such as on a PC Card storage device, cannot be executed in this way. *Acronym:* XIP.

execution time *n.* The time, measured in clock ticks (pulses of a computer's internal timer), required by a microprocessor to decode and carry out an instruction after it is fetched from memory. *Also called:* E-time. *See also* instruction time.

executive *n.* The set of kernel-mode components that form the base operating system for Microsoft Windows NT or later. *See also* operating system.

executive information system *n.* A set of tools designed to organize information into categories and reports. Because it emphasizes information, an executive information system differs from a decision support system (DSS), which is designed for analysis and decision making. *Acronym:* EIS. *Compare* decision support system.

exerciser *n.* A program that exercises a piece of hardware or software by running it through a large set of operations.

exit *vb.* In a program, to move from the called routine back to the calling routine. A routine can have more than one exit point, thus allowing termination based on various conditions.

expanded *adj.* A font style that sets characters farther apart than the normal spacing. *Compare* condensed.

expanded memory *n.* A type of memory, up to 8 MB, that can be added to IBM PCs. Its use is defined by the Expanded Memory Specification (EMS). Expanded memory is not accessible to programs in MS-DOS, so the Expanded Memory Manager (EMM) maps pages (blocks) of bytes from expanded memory into page frames in accessible memory areas. Expanded memory is not needed in Windows 9x, all versions of Windows NT, and Windows 2000. *See also* EEMS, EMS, Expanded Memory Manager, page frame.

Expanded Memory Manager *n.* A driver that implements the software portion of the Expanded Memory Specification (EMS) to make expanded memory in IBM and compatible PCs accessible. *Acronym:* EMM. *See also* EMS, expanded memory, extended memory.

Expanded Memory Specification *n.* *See* EMS.

expansion *n.* A way of increasing a computer's capabilities by adding hardware that performs tasks that are not part of the basic system. Expansion is usually achieved by plugging printed circuit boards (expansion boards) into openings (expansion slots) inside the computer. *See also* expansion board, expansion slot, open architecture (definition 2), PC Card, PCMCIA slot.

expansion board *n.* A circuit board that is plugged into a computer's bus (main data transfer path) to add extra functions or resources to the computer. Typical expansion boards add memory, disk drive controllers, video support, parallel and serial ports, and internal modems. For laptops and other portable computers, expansion boards come in credit card-sized devices called PC Cards that plug into a slot in the side or back of the computer. *Also called:* expansion board, extender board. *See also* expansion slot, PC Card, PCMCIA slot.

expansion bus *n.* A group of control lines that provide a buffered interface to devices. These devices can be located

nications. The addition of SBC's Internet customer base made Prodigy the third largest ISP in the United States.

Prodigy Information Service *n.* An online information service founded by IBM and Sears. Like its competitors America Online and CompuServe, Prodigy offers access to databases and file libraries, online chat, special interest groups, e-mail, and Internet connectivity. *Also called:* Prodigy.

product *n.* **1.** An operator in the relational algebra used in database management that, when applied to two existing relations (tables), results in the creation of a new table containing all possible ordered concatenations (combinations) of tuples (rows) from the first relation with tuples from the second. The number of rows in the resulting relation is the product of the number of rows in the two source relations. *Also called:* Cartesian product. *Compare* inner join. **2.** In mathematics, the result of multiplying two or more numbers. **3.** In the most general sense, an entity conceived and developed for the purpose of competing in a commercial market. Although computers are products, the term is more commonly applied to software, peripherals, and accessories in the computing arena.

production system *n.* In expert systems, an approach to problem solving based on an "IF this, THEN that" approach that uses a set of rules, a database of information, and a "rule interpreter" to match premises with facts and form a conclusion. Production systems are also known as rule-based systems or inference systems. *See also* expert system.

P

Professional Graphics Adapter *n.* A video adapter introduced by IBM, primarily for CAD applications. The Professional Graphics Adapter is capable of displaying 256 colors, with a horizontal resolution of 640 pixels and a vertical resolution of 480 pixels. *Acronym:* PGA.

Professional Graphics Display *n.* An analog display introduced by IBM, intended for use with their Professional Graphics Adapter. *See also* Professional Graphics Adapter.

profile[1] *n.* *See* user profile.

profile[2] *vb.* To analyze a program to determine how much time is spent in different parts of the program during execution.

profiler *n.* A diagnostic tool for analyzing the run-time behavior of programs.

Profiles for Open Systems Internetworking Technology *n.* *See* POSIT.

program[1] *n.* A sequence of instructions that can be executed by a computer. The term can refer to the original source code or to the executable (machine language) version. *Also called:* software. *See also* program creation, routine, statement.

program[2] *vb.* To create a computer program, a set of instructions that a computer or other device executes to perform a series of actions or a particular type of work.

program button *n.* On a handheld device, a navigation control that is pressed to launch an application. *Also called:* application button.

program card *n.* *See* PC Card, ROM card.

program cartridge *n.* *See* ROM cartridge.

program comprehension tool *n.* A software engineering tool that facilitates the process of understanding the structure and/or functionality of computer applications. *Acronym:* PCT. *Also called:* software exploration tool.

program counter *n.* A register (small, high-speed memory circuit within a microprocessor) that contains the address (location) of the instruction to be executed next in the program sequence.

program creation *n.* The process of producing an executable file. Traditionally, program creation comprises three steps: (1) compiling the high-level source code into assembly language source code; (2) assembling the assembly language source code into machine-code object files; and (3) linking the machine-code object files with various data files, run-time files, and library files into an executable file. Some compilers go directly from high-level source to machine-code object, and some integrated development environments compress all three steps into a single command. *See also* assembler, compiler (definition 2), linker, program.

program encapsulation *n.* A method of dealing with programs with Year 2000 problems that entailed modifying the data with which a program worked. The input data is modified to reflect a parallel date in the past that the program can handle. When output is generated, that data is changed again, to reflect the correct date. The program itself remains unchanged.

program file *n.* A disk file that contains the executable portions of a computer program. Depending on its size and

no application or transport semantics, which makes it highly modular and extensible.

SOC *n.* Acronym for system on a chip. A chip integrating computer, microprocessors, and all necessary support components in a single unit. SOC technology is used in firewalls, gateways, specialized servers, and interactive devices like Web pads and vending machines.

social engineering *n.* The practice of penetrating system security by tricking individuals into divulging passwords and information about network vulnerabilities. Often done by calling the individual on phone and pretending to be another employee of company with a computer-related question.

Society for Information Management *n.* A professional society based in Chicago for information systems executives, formerly the Society for Management Information Systems. *Acronym:* SIM.

Society for Management Information Systems *n. See* Society for Information Management.

socket *n.* **1.** An identifier for a particular service on a particular node on a network. The socket consists of a node address and a port number, which identifies the service. For example, port 80 on an Internet node indicates a Web server. *See also* port number, sockets API. **2.** The receptacle part of a connector, which receives a plug. *See also* female connector. **3.** A receptacle on a PC motherboard into which a microprocessor is plugged. A socket-mounted microprocessor, such as the Pentium, connects to the motherboard through numerous pins on the underside. Newer Intel microprocessors, such as the Pentium II and later, plug into the motherboard through an edge connector along the side of the chip. *See also* socket 4, socket 5, socket 7, socket 8. *Compare* Slot 1, Slot 2.

socket 4 *n.* A 5-volt mounting socket on a PC motherboard designed to hold a Pentium microprocessor operating at 60 MHz or 66 MHz. Socket 4 includes openings for 273 pins. *See also* Pentium, socket (definition 3). *Compare* Slot 1, Slot 2, socket 5, socket 7, socket 8.

socket 5 *n.* A 3.3-volt mounting socket on a PC motherboard designed to hold a Pentium microprocessor operating at the following speeds: 75, 90, 100, 120, 133, 150, 166, 180, and 200 MHz. Socket 5 includes openings for 320 pins. It has been superceded by socket 7, socket 8, slot 1, and slot 2. *See also* Pentium, socket (definition 3). *Compare* Slot 1, Slot 2, socket 4, socket 7, socket 8.

socket 7 *n.* A mounting socket on a PC motherboard designed to hold a microprocessor operating at the following speeds: 150, 166, 180, 200, 210, and 233 MHz. Socket 7 includes openings for 321 pins and operates at two voltages, 2.5 volts at the core and 3.3 volts input/output. It is used with the Pentium MMX chip and competitive microprocessor chips from other manufacturers, such as AMD and Cyrix. *See also* MMX, Pentium, socket (definition 3). *Compare* Slot 1, Slot 2, socket 4, socket 5, socket 8.

socket 8 *n.* A 2.5-volt mounting socket on a PC motherboard designed to hold a Pentium Pro microprocessor. Socket 8 has openings for 387 pins. *See also* Pentium, socket (definition 3). *Compare* Slot 1, Slot 2, socket 4, socket 5, socket 7.

sockets API *n.* An application programming interface implemented to create and use sockets in client/server networking. The most common sockets API is the University of California at Berkeley UNIX/BSD implementation (Berkeley Sockets API), which is the basis for Winsock. *See also* socket (definition 1).

soc. newsgroups *n.* Usenet newsgroups that are part of the soc. hierarchy and have the prefix soc. These newsgroups are devoted to discussions of current events and social issues. Soc. newsgroups are one of the seven original Usenet newsgroup hierarchies. The other six are comp., misc., news., rec., sci., and talk. *See also* newsgroup, traditional newsgroup hierarchy, Usenet.

soft *adj.* **1.** In computing, temporary or changeable. For example, a soft error is a problem from which the system can recover, and a soft patch is a temporary program fix that holds only while the program is running. *Compare* hard (definition 1). **2.** In electronics, characterized by magnetic materials that do not retain their magnetism when a magnetic field is removed. *Compare* hard (definition 2).

soft boot *n. See* warm boot.

soft copy *n.* The temporary images presented on a computer display screen. *Compare* hard copy.

soft error *n.* An error from which a program or operating system is able to recover. *Compare* hard error.

soft font *n. See* downloadable font.

soft hyphen *n. See* hyphen.

soft link *n. See* symbolic link.

softmodem *n. See* software-based modem.