

The Facts On File
DICTIONARY
of
COMPUTER SCIENCE

Revised Edition

Edited by
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Edmund Wright

**The Facts On File Dictionary of Computer Science
Revised Edition**

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concerned with specifying the meaning of various constructs – STATEMENTS, CONTROL STRUCTURES, etc. These constructs must conform to the SYNTAX, or grammar, of the language; if they do not then they are meaningless. Most programming languages have their semantics defined by descriptions in English or some other natural language. Because natural language is imprecise and hence ambiguous, different interpretations of the semantics are possible in the early stages of development of a language.

semiconductor memory /sem-ee-kōn-duk-ter/ (solid-state memory) Any of various types of compact memory composed of one or more INTEGRATED CIRCUITS fabricated in semiconductor material, usually silicon. The integrated circuit is composed of an array of microscopic electronic devices, each of which can store one bit of data – either a binary 1 or a binary 0. There may be millions of these storage locations within a single integrated circuit measuring only a few square millimeters in area. Data can be accessed extremely rapidly from these locations.

The categories of semiconductor memory include RAM (which is read/write memory), ROM (read-only memory), PROM (programmable ROM), and EPROM (erasable PROM). There is RANDOM ACCESS to all these types of semiconductor memory. Semiconductor RAM has been used to build the MAIN STORE in computers since the early 1970s.

sentinel See flag.

separator A symbol that separates STATEMENTS in a program. The symbol used depends on the programming language. A semicolon is the separator in several languages, including Pascal:

begin read (x); y := x*x; write (x,y) **end**
Note that the final statement needs no semicolon. *Compare* terminator.

sequential access /si-kwen-shāl/ See serial access; file.

sequential file See file.

sequential flow See control structure.

serial access (sequential access) A method of retrieval or storage of data that must be used for example with magnetic tape. Blocks of data are read from the storage medium in the actual order in which they occur until the required item or storage location is found. The ACCESS TIME thus depends on the location of the item. *Compare* random access.

Serial ATA (SATA; S-ATA) A development of and the successor to the ATA disk INTERFACE standard. Developed in the early 2000s and a formal specification since 2003, it offers greater data-transfer speeds by using a serial rather than a parallel BUS and is now used in most new PCs.

serial port An interface used for SERIAL TRANSMISSION. When used of microcomputers, the term denotes an RS232C INTERFACE, not a USB interface.

serial printer A printer that connects to a SERIAL PORT on a computer. Formerly standard on Macintoshes and sometimes used on PCs, they are being superseded by printers that connect to a USB port.

serial transmission A method of sending data between devices, typically a computer and its peripherals, in which the individual BITS making up a unit of data (e.g. a character) are transmitted one after another along the same path. For example, if two devices wish to communicate an 8-bit unit of data, the sending device will transmit the 8 bits in sequence (perhaps with a *start bit* preceding them and a *stop bit* following to aid synchronization). The receiving device can then reassemble the stream of bits into the original 8-bit unit. See also parallel transmission; handshake.

server A program that provides services to other programs, called *clients*. Usually a server and its clients run on different computers attached to a network. There are many types of server. For example, a *file server* – the original type of server – allows

clients to access its computer's hard disks and read or store files; a *database server* runs a DBMS and handles requests from clients to query the database, update its contents, etc.; a *mail server* implements an e-mail system for the network, usually with an external connection to the Internet; and so on. The computer running a server program is often *dedicated*, i.e. it does nothing else. It is called the *host*, the *server computer*, or, simply, the *server*.

server-based application An application program that is installed on a server and is shared over a network.

server-side scripting A technology that allows the content of WEB PAGES to be varied each time they are accessed. It operates on the Web server rather than the user's machine (*compare* dynamic HTML). A normal (or *static*) Web page is written in HTML and must be edited to change its content or appearance. Server-side scripting embeds fragments of program written in a SCRIPTING LANGUAGE in the Web page; when processed by the Web server, this program produces HTML that varies in response to choices made by the user or to changing external data. Such pages are known as *dynamic Web pages* and are widely used for any purpose that requires either up-to-date information (e.g. current

stock market prices) and/or user selection of content (e.g. online shopping). *See also* ASP; PHP.

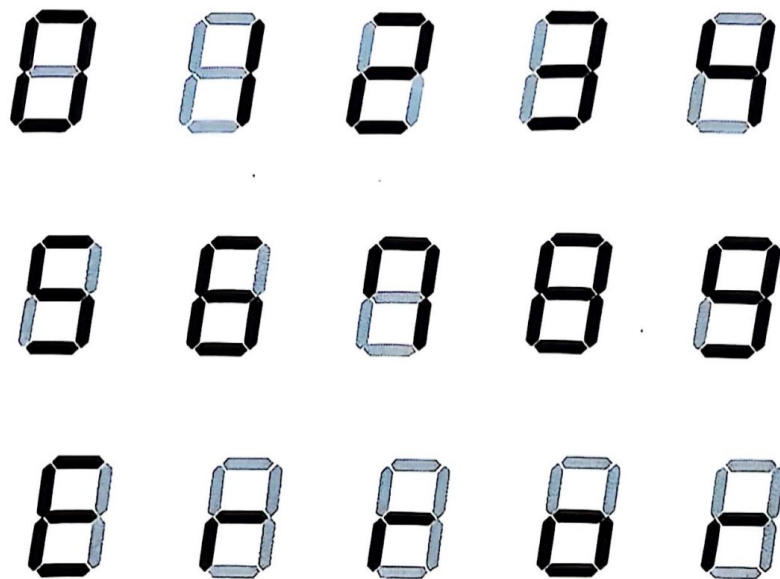
session A recording made on a CD-R or CD-RW at a particular time. The session has lead-in and lead-out information on the CD. Multisession recordings can be made on a single CD at different times, one session following on from another.

Session Initiation Protocol *See* SIP.

set-top box *See* Web TV.

seven-segment display A simple display in which the numbers 0–9 and some letters can be formed from a group of seven segments (see diagram). The segments can be individually darkened or illuminated to form the different characters. The figure eight for instance uses all seven segments; the figure one uses only two segments. *See also* LCD; LED display.

SGML (standard generalized markup language) A METALANGUAGE used to define MARKUP LANGUAGES adopted by the International Organization for Standardization (ISO) in 1986 that allows documents to be independent of any particular application. The text in such a document has 'tags' defining the type of information. For ex-



Characters in a seven-segment display