

Competitive Exams Short Notes On Computers

Hardware (Disambiguation)

Hardware is a general term that refers to the physical artifacts of a technology. It may also mean the physical components of a computer system, in the form of computer hardware.

Hardware historically meant the metal parts and fittings that were used to make wooden products stronger, more functional, longer lasting and easier to fabricate or assemble. In modern usage it includes equipment such as keys, locks, hinges, latches, corners, handles, wire, chains, plumbing supplies, tools, utensils, cutlery and machine parts, especially when they are made of metal. In the United States, this type of hardware has been traditionally sold in hardware stores, a term also used to a lesser extent in the UK.

System Software

System software is any computer software which manages and controls computer hardware so that application software can perform a task. Operating systems, such as Microsoft Windows, Mac OS X or Linux, are prominent examples of system software. System software contrasts with application software, which are programs that enable the end-user to perform specific, productive tasks, such as word processing or image manipulation.

System software performs tasks like transferring data from memory to disk, or rendering text onto a display device. Specific kinds of system software include loading programs, Operating systems, device drivers, programming tools, compilers, assemblers, linkers, and utility software.

Software libraries that perform generic functions also tend to be regarded as system software, although the dividing line is fuzzy; while a C runtime library is generally agreed to be part of the system, an OpenGL or database library is less obviously so.

If system software is stored on non-volatile memory such as integrated circuits, it is usually termed firmware.

Computer Software

Computer software is a general term used to describe a collection of computer programs, procedures and documentation that perform some tasks on a computer system. The term includes application software such as word processors which perform productive tasks for users, system software such as operating systems, which interface with hardware to provide the necessary services for application software, and middleware which controls and co-ordinates distributed systems.

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“Software” is sometimes used in a broader context to mean anything which is not hardware but which is used with hardware, such as film, tapes and records.

Relationship to Computer Hardware

Computer software is so called to distinguish it from computer hardware, which encompasses the physical interconnections and devices required to store and execute (or run) the software. In computers, software is loaded into RAM and executed in the central processing unit. At the lowest level, software consists of a machine language specific to an individual processor. A machine language consists of groups of binary values signifying processor instructions which change the state of the computer from its preceding state. Software is an ordered sequence of instructions for changing the state of the computer hardware in a particular sequence. It is usually written in high-level programming languages that are easier and more efficient for humans to use (closer to natural language) than machine language. High-level languages are compiled or interpreted into machine language object code. Software may also be written in an assembly language, essentially, a mnemonic representation of a machine language using a natural language alphabet. Assembly language must be assembled into object code via an assembler.

The term “software” was first used in this sense by John W. Tukey in 1958. In computer science and software engineering, computer software is all computer programs. The theory that is the basis for most modern software was first proposed by Alan Turing in his 1935 essay Computable numbers with an application to the Entscheidungs problem.