

Computer Science

Key Words and definitions

Application: An application is a set of codes designed to allow specific tasks to happen. Microsoft Windows and Internet Explorer are common examples.

Application Server: Application Server is a specialized server that is based on client/server architecture. Its sole responsibility is to run specific applications within the network.

Array: An array is similar data saved on a computer system in a sequential form.

BIOS: BIOS stands for Basic Input/Output System. It gives the computer a platform to run the software using a floppy disk or a hard disk. BIOS is responsible for booting a PC.

Bit: Bit is Binary Digit. It refers to a digit number, either a 0 or a 1. The binary digit is used to represent computerized data.

Boolean: An expression, the value of which is either true or false.

Byte: Eight bits is equal to 1 byte.

Client: A client is a program that asks for information from other processes or programs. Outlook Express is a great example of a client.

Data: Data refers to the information that is saved on a computer.

DOS: DOS is an acronym for Disc Operating System. It is a command line operating system launched by Bill Gates.

DTP: Desk Top Publisher (ing) is a term that describes a program that enables users to create, design, and print items such as business cards, birthday cards, letterheads, calendars, invitations, and so on.

Environment: Environment refers to the interaction among all factors external to a physical platform. An environment is made of specific software, hardware, and network protocols that allow communication with the system.

Fault: Hardware or software failure.

Front End: It is an interface through which a program can be accessed by common users.

Hardware: Hardware is a set of physical objects such as monitor, keyboard, mouse, and so on.

Icon: Icon is a small visual display of an application which can be activated by clicking on it.

Instance: It is an object described by its class.

Internet: Internet is a network that accommodates several computers to facilitate exchange and transfer of data.

Kernel: It is a program called when a computer system is started. Kernel is responsible for setting up system calls in order to manage hardware and system services, and allocate resources to applications.

LAN: LAN is an acronym for Local Area Network that spans a small area. A LAN can be connected to another LAN to accommodate more computers.

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Memory: Memory is the internal storage location where data and information is stored on a computer.

Network: A Network is a group of computers connected to each other in order to send and receive data.

Operating System: An Operating System provides the software platform required for various applications to run on. Its responsibility is to manage memory storage and security of Data.

Packet: Sections in which message or data are divided to transfer it over a network.

Process: It's a series of commands that changes data values.

Protocol: Protocol refers to a set of rules that are followed by two devices while interacting with each other.

Query: Query is a request made by a computer from a database residing in the same system or a remotely located system.

RAM: RAM is an acronym for Random Access Memory. It is a configuration of storage cells that hold data so that it can be processed by the central processing unit. RAM is a temporary storage location.

ROM: ROM is an acronym for Read-Only Memory. It is a semiconductor-based storage system that saves information permanently.

Software: Software is a program (coding) that the computer reads. The system then carries out functions as directed by the code. Adobe Photoshop is software.

URL: URL stands for Universal Resource Locator. It's a way of accessing the Internet.

Virtual Memory: Virtual Memory is the unused memory on the hard disk used when certain applications require more RAM than is available on the machine.

Virus: Virus is a program that is loaded onto your computer without you knowing about it and it runs to hinder the normal functioning of the computer.

WWW: WWW stands for World Wide Web. It's a term used to define the Internet.

WAN: WAN is an acronym for Wide Area Network. Such a network spans over an area larger than a LAN.

Useful websites

<https://codecombat.com/>

<https://hourofcode.com/uk>

<https://www.bbc.co.uk/bitesize/topics/zkcqn39/articles/zxgdwmn>

<https://www.codecademy.com/learn/learn-python>

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The rules of binary addition

Work Right to Left and apply these simple rules:

1. $0 + 0 = 0$
2. $0 + 1 = 1$
3. $1 + 0 = 1$
4. $1 + 1 = 0$ *Carry 1*
5. $1 + 1 + 1 = 1$ *Carry 1*

$$\begin{array}{r} 11 \\ + 1110 \\ \hline 11010 \end{array}$$

Carry Bit Rule 5 Rule 4 Rule 2 or 3 Rule 1

Hexadecimal

- Hexadecimal (or hex) is a number system which uses base 16
- As we only have 10 digits, it uses 0-9 and then letters A to F

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
0 1 2 3 4 5 6 7 8 9 A B C D E F

Hex to denary conversion

- You will only need to translate one- or two-digit hexadecimal numbers

$$\begin{array}{cc} 16\text{s} & \text{Units} \\ 2 & A \\ 2 \times 16 & + 10 = 42 \text{ in denary} \end{array}$$