

Functionalities of Computer

Any digital computer performs the following five operations:

- **Step 1** – Accepts data as input.
- **Step 2** – Saves the data/instructions in its memory and utilizes them as and when required.
- **Step 3** – Execute the data and convert it into useful information.
- **Step 4** – Provides the output.
- **Step 5** – Have control over all the above four steps

Computer Hardware

Hardware components are further divided into the following categories, which are:

1. Input Devices
2. Output Devices
3. Storage Devices
4. Internal Components

1. Input Devices

Input devices are those devices with the help of which the user interacts with the computer. Or, In other words, with the help of input devices, the user enters the data or information into the computer. This information or data is accepted by the input devices and converted into a computer-acceptable format, which is further sent to the computer system for processing.

Now we discuss some input devices:

- **Keyboard:** It is the most common and main input device for computers. The data is inputted by typing on the keyboard. It consists of 104 keys in total. It contains numeric keys, alphabet keys, and different function keys as well. Earlier, it was connected to the computer via cable, now as technology has advanced, you can connect a keyboard using Bluetooth.
- **Mouse:** A mouse is a kind of pointing device which is rolled over to control the cursor on the screen and it has functional keys like left, middle, and right buttons. Using these functional keys, on by the click of which an object is selected or to open a file by just a click of a mouse. It also consists of a sensor inside which notifies its speed to the computer and according to which the cursor is moved on the screen.
- **Scanner:** As the name suggests, it scans images, documents, etc., and converts them into digital form and that can be further edited and used. It works just like a Xerox machine.
- **Track Ball:** It is a device much like an upside-down mouse. It does not use much space for movement like a mouse. As the trackball remains stationary and the user moves the ball in various directions, it affects the screen movements directly.
- **Light Pen:** It is a light-sensitive device and it is touched to the CRT screen where it can detect a raster on the screen as it passes by and, with the help of this user can draw anything like lines, figures, or any objects.
- **Microphone:** It is a kind of voice input system that can be attached to a computer system to record sounds. It converts human speech or voice into electrical signals. This electrical signal is processed by the computer and the word is recognized.
- **Optical Character Reader:** It is used to detect alphanumeric characters that are written or printed on paper using a low-frequency light source. This light is absorbed by the dark areas

and reflected by the light areas, now this reflected light is received by the photocells. It is like a scanner.

- **Bar Code Reader:** It is used to read bar codes and convert them into electric pulse which will further processed by the computer. Here, the barcode is data that is coded into white and black lines(or light and dark lines).

2. Output Devices

These are the devices that are used to display the output of any task given to the computer in human-readable form.

Now we discuss some output devices:

- **Monitor:** The monitor is the main output device. It is also called VDU(visual display unit) and it looks like a TV screen. The Monitor displays the information from the computer. It is used to display text, video, images, etc.
- **Printer:** A printer is an output device that transfers data from the computer in a printed format by using text or images on paper. There are both colored and black & white printers. Further, there are also different types of printers, like Laser Printer, Dot-matrix printers, and Inkjet printers.
- **Plotter:** It is similar to a printer but plotters are large in size. A plotter is used to generate large drawings, architectural blueprints, etc. on paper and these are high-quality images and drawings and large in size.
- **Speakers:** It is a very common output device and it gives sound as an output. Speaker is generally used to play music or anything having sound.

3. Storage Devices

There are some devices that are used for storage purposes and are known as secondary storage devices. Some of them were discussed below:

1. CD (Compact disc): A CD is circular in shape and made up of thin plated glass and plastic polycarbonate material. It has a storage capacity of 600 MB to 700 MB of data. It has a standard size of 12 cm with a hole in the center of about 1.5 cm and 1.2 mm in thickness. There are basically 3 types of CDs, which are:

- **CD-ROM (CD – Read Only Memory):** Contents of this type of CD cannot be erased by the user. Only the publisher is allowed to access the data imprinted on this CD. CD-ROM is basically used for commercial purposes like for a music album or any application package by a software company.
- **CD-R (CD-Recordable):** In this, content or data can be stored once. After that, they can be read many times but the data or content cannot be rewritten or erased. (Kind of one-time use)
- **CD-RW(CD-Rewritable):** As the name suggests, this type of CD is used to rewrite the content or erase previous content and again write new content many times.

2. DVD (Digital Video/Versatile Disc): A DVD is the same as a CD but with some more features. A DVD comes in single and dual-layer formats. It has much greater storage capacity in comparison to CD. The storage capacity of a DVD with one-sided single layer is – 4.7 GB, one-sided double layer – 8.5 GB, double-sided single layer – 9.4 GB, and double-sided double layer – 17 GB.

- **DVD-ROM:** In this type, the contents of the DVD cannot be written on or erased by the user. DVD ROM is used for applications and database for distributing them in large amounts.
- **DVD-R / DVD+R:** DVD-R (DVD minus R) and DVD+R (DVD plus R) are two different kinds of discs and they are once recordable format. Also, they have no difference virtually.
- **DVD-RW / DVD+RW:** This is a kind of rewritable disc and it allows up to 1,000 rewrites.
- **DVD-RAM:** DVD RAM is accessed like a hard disk. It provides high data security and storage capacity. This is a kind of rewritable disc and it allows up to 1,00,000 rewrites.

3. Hard Disk: An hard disk is a non-volatile storage device that uses its read/write heads to store digital data on a magnetic surface of a rigid plate. It is generally 3.5 inches in size for desktops and 2.5 inches in size for laptops. A hard disk can be classified further into 3 types, which are:

- **Internal Hard Disk:** It has a common storage capacity stated as GB or TB. A system case or cabinet is the place where it is located. It can perform faster operations and its storage is fixed. It is mainly used to store large data files and programs.
- **Internal Cartridges:** The Internal hard disk can't be removed from the system cabinet easily. To resolve this problem Internal Cartridges are introduced. So, Internal cartridges are easy to remove CDs. It has a storage capacity of 2 GB to 160 GB. It is used as an alternative to an internal hard disk.
- **Hard Disk Packs:** It is used by organizations such as banks, and government sector organizations to store large amounts of data. It has a storage capacity of a range of PB(Peta Bytes).

Hardware Components

Some important hardware devices known as the internal components are discussed below:

1. CPU (Central Processing Unit)

The CPU is also known as the heart of the computer. It consists of three units, generally known as the control unit, Arithmetic Logical Unit (ALU), and the memory unit.

Input is given to the CPU through input devices. This input goes to memory and the control unit gets instructions from memory. The control unit now decides what to do with the input or instructions and transfers it to ALU. Now, ALU performs various operations like addition, subtraction, multiplication, division, logical operations, etc. After that, the final result gets stored in memory and finally passed to output devices to give the output. So, this is how the CPU works.

2. Motherboard

It is the main circuit board inside a computer and it contains most of the electronic components together. All the components of the computer are directly or indirectly connected to the motherboard. It includes RAM slots, controllers, system chipsets, etc.

3. RAM (Random Access Memory)

It is also known as temporary or volatile memory. It holds the program and data, which are currently in process or processing. All the data is erased as soon as the computer is turned off or in case of a power failure. Data stored in this memory can be changed. There are two types of RAM:-

1. **SRAM (Static RAM):** SRAM basically consists of a flip-flop using a transistor or Mosfet (MOS). It is fast and has less access time. In this refreshing circuits are not required. But it is costly and requires more space. For e.g. cache memory.
2. **DRAM (Dynamic RAM):** DRAM consists of capacitors and the data is stored in the form of capacitors. Capacitors charge when data is 1 and don't charge if data is 0. It requires refreshing circuits, as leakage of current in the capacitor can occur, so they need to be refreshed to the data. It is slower and has a higher access time. It is cheaper in comparison with SRAM. For e.g. Main memory.

4. Video Graphics Array Port

A video input commonly used on computer monitors is called a video graphics array (VGA) port. Verifying that there isn't a loose connection, a damaged cable, or a broken display is one step in troubleshooting a VGA port. Compressed air can also be sprayed inside the VGA port by a computer expert to make sure it's dust-free.

5. Power Supply

All of a computer system's parts are powered by a power source. Typically, a power cord is used to connect a computer tower to an electrical outlet. By turning off the computer, unplugging and separating the power supply cord, or trying a different cord or socket, a technician can diagnose the power supply.

6. Cooling Fan

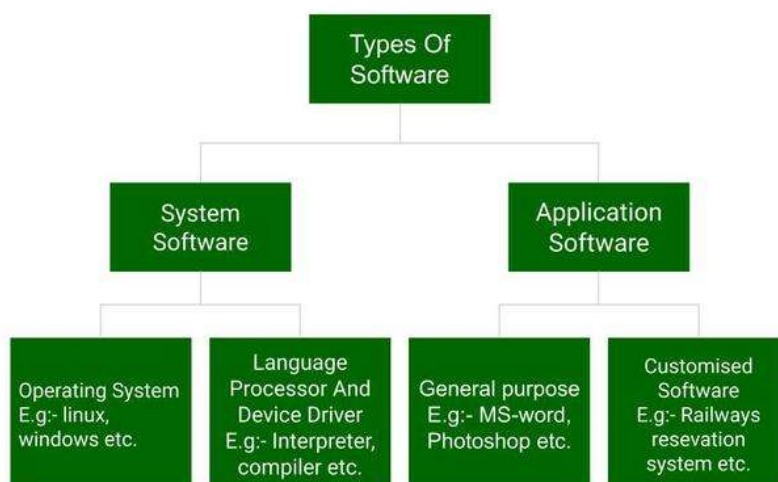
A computer's system to prevent overheating uses cooling fans. To aid customers who use their computers intensively, such as when streaming video or playing games, many computers contain more than one cooling fan. If a user detects their computer overheating, a computer expert might need to repair the cooling fan. The blades may be examined for any damage and cleared of any foreign objects. A technician's standard method of troubleshooting may involve replacing computer fans.

7. Hard Drive

On a computer system, files, programs, and other types of information are stored on hard drives, which are data storage devices. They utilise hard drives, which are magnetically coated discs used to store digital versions of information. A computer technician can suspect a corrupt hard disk when a hard drive dies.

Types of Software

It is a collection of data that is given to the computer to complete a particular task. The chart below describes the types of software:



What is an Operating System?

Operating System lies in the category of system software. It basically manages all the resources of the computer. An operating system acts as an interface between the software and different parts of the computer or the computer hardware. The operating system is designed in such a way that it can manage the overall resources and operations of the computer.

Operating System is a fully integrated set of specialized programs that handle all the operations of the computer. It controls and monitors the execution of all other programs that reside in the computer, which also includes application programs and other system software of the computer. Examples of Operating Systems are Windows, Linux, Mac OS, etc.

An Operating System (OS) is a collection of software that manages computer hardware resources and provides common services for computer programs. The operating system is the most important type of system software in a computer system.

Examples of Operating Systems

- **Windows** (GUI-based, PC)
- **GNU/Linux** (Personal, Workstations, ISP, File, and print server, Three-tier client/Server)
- **macOS** (Macintosh), used for Apple's personal computers and workstations (MacBook, iMac).
- **Android** (Google's Operating System for smartphones/tablets/smartwatches)
- **iOS** (Apple's OS for iPhone, iPad, and iPod Touch)

What is Computer Networking?

A computer network is a system that connects numerous independent computers in order to share information (data) and resources. The integration of computers and other different devices allows users to communicate more easily.

A computer network is a collection of two or more computer systems that are linked together. A network connection can be established using either cable or wireless media. Hardware and software are used to connect computers and tools in any network.

A computer network consists of various kinds of nodes. Servers, networking hardware, personal computers, and other specialized or general-purpose hosts can all be nodes in a computer network. Host names and network addresses are used to identify them.

How Does a Computer Network Work?

Computer Networks simply work using nodes and links. Data communication equipment is simply termed as Nodes. For example, Modems, Hubs, Switches, etc. whereas links in Computer networks can be referred to as a connection between two nodes. We have several types of links like cable wires, optical fibers, etc.

Types of Enterprise Computer Networks

There are three main types of Enterprise Computer Networks which are mentioned below.

- 1. Local Area Network (LAN):** Local Area Networks are small-scale networks used in small companies or as test networks. It has a limited size.
- 2. Wide Area Networks (WAN):** Wide Area Networks are networks that are used for a larger area than local area networks and are used for long-distance communication.
- 3. Service Provider Networks:** Service Provider Networks are the networks that help in wireless communication, high-speed internet access, etc.

Networking Devices

Basic hardware interconnecting network nodes, such as Network Interface Cards (NICs), Bridges, Hubs, Switches, and Routers, are used in all networks. In addition, a mechanism for connecting these building parts is necessary, which is usually galvanic cable and optical cable are less popular (“optical fiber”)The following are the network devices :

- **NIC (Network Interface Card):** A network card, often known as a network adapter or NIC (network interface card), is computer hardware that enables computers to communicate via a network. It offers physical access to networking media and, in many cases, MAC addresses serve as a low-level addressing scheme. Each network interface card has a distinct identifier. This is stored on a chip that is attached to the card.
- **Repeater:** A repeater is an electrical device that receives a signal, cleans it of unwanted noise, regenerates it, and retransmits it at a higher power level or to the opposite side of an obstruction, allowing the signal to travel greater distances without degradation. In the majority of twisted pair Ethernet networks, Repeaters are necessary for cable lengths longer than 100 meters in some systems. Repeaters are based on physics.
- **Hub:** A hub is a device that joins together many twisted pairs or fiber optic Ethernet devices to give the illusion of a formation of a single network segment. The device can be visualized as a multiport repeater. A network hub is a relatively simple broadcast device. Any packet entering any port is regenerated and broadcast out on all other ports, and hubs do not control any of the traffic that passes through them. Packet collisions occur as a result of every packet being sent out through all other ports, substantially impeding the smooth flow of communication.
- **Bridges:** Bridges broadcast data to all the ports but not to the one that received the transmission. Bridges, on the other hand, learn which MAC addresses are reachable through specific ports rather than copying messages to all ports as hubs do. Once a port and an address are associated, the bridge will only transport traffic from that address to that port.

- **Switches:** A switch differs from a hub in that it only forwards frames to the ports that are participating in the communication, rather than all of the ports that are connected. The collision domain is broken by a switch, yet the switch depicts itself as a broadcast domain. Frame-forwarding decisions are made by switches based on MAC addresses.
- **Routers:** Routers are networking devices that use headers and forwarding tables to find the optimal way to forward data packets between networks. A router is a computer networking device that links two or more computer networks and selectively exchanges data packets between them. A router can use address information in each data packet to determine if the source and destination are on the same network or if the data packet has to be transported between networks. When numerous routers are deployed in a wide collection of interconnected networks, the routers share target system addresses so that each router can develop a table displaying the preferred pathways between any two systems on the associated networks.
- **Gateways:** To provide system compatibility, a gateway may contain devices such as protocol translators, impedance-matching devices, rate converters, fault isolators, or signal translators. It also necessitates the development of administrative procedures that are acceptable to both networks. By completing the necessary protocol conversions, a protocol translation/mapping gateway joins networks that use distinct network protocol technologies.

Internet

The Internet is a larger network that allows computer networks controlled by enterprises, governments, colleges, and other organizations all over the world to communicate with one another. As a result, there is a tangle of cables, computers, data centers, routers, servers, repeaters, satellites, and Wi-Fi towers that allow digital data to go around the world.

What is the full form of www?

The full form of www is World Wide Web. It is the world's most dominant software and is commonly known as the web.

URL: Uniform Resource Locator

URL stands for Uniform Resource Locator. It is the address of a resource, which can be a specific webpage or a file, on the internet. It is also *known as web address* when it is used with http. It was created in 1994 by Tim Berners-Lee. URL is a specific character string that is used to access data from the World Wide Web. It is a type of URI (Uniform Resource Identifier).

Every URL contains the following information:

- The scheme name or protocol.
- A colon, two slashes.
- A host, normally called a domain name but sometimes as a literal IP address.
- A colon followed by a port number.
- Full path of the resource.

The URL of a web page is displayed above on the page in the address bar. A typical URL looks like this:

<http://www.supplycokerala.com>

MS Office keyboard shortcuts

Let us start off with the basics, here are the top 15 keyboard shortcuts that you can use across all of the different applications in the Office Suite.

- **CTRL + C** - copy selection
- **CTRL + V** - paste selection
- **CTRL + X** - cut selection
- **CTRL + Z** - undo action
- **CTRL + Y** - repeat action
- **CTRL + B** - bold text
- **CTRL + I** - italicize text
- **CTRL + U** - underline text
- **CTRL + HOME** - navigate to beginning of the document/sheet
- **CTRL + END** - navigate to end of the document/sheet
- **CTRL + F** - find text
- **CTRL + H** - find and replace text
- **CTRL + K** - add hyperlink to selection
- **CTRL + P** - print document/sheet
- **CTRL + S** - save document/sheet

Password Policies/ Password Creation Rules

Password creation rules, also known as password policies, vary depending on the organization or platform, but here are some common rules:

1. Length: Minimum of 8-12 characters, some may require up to 16 characters.
2. Complexity: Must contain a mix of uppercase and lowercase letters, numbers, and special characters.
3. Uniqueness: Passwords must be unique and not used for multiple accounts.
4. Exclusions: May not contain common words, phrases, or personal information like name, birthdate, or common patterns like "qwerty".
5. Rotation: Passwords may need to be changed every 60-90 days.

Refer OMS/DMS/ERP User Manuals /Supplyco Portal for operations relating to software using in supplyco.