

Computer fundamentals

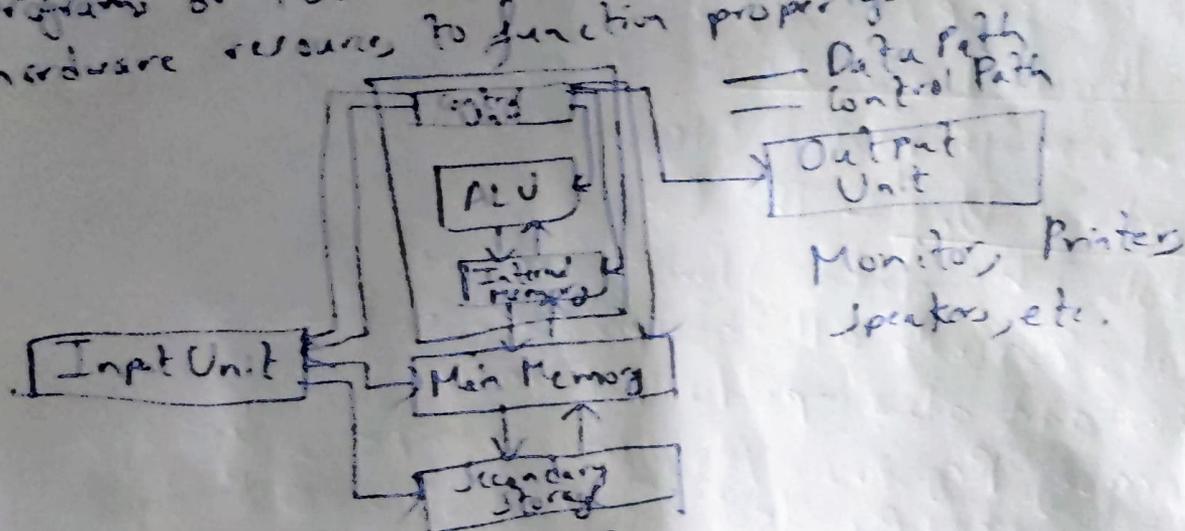
Module-1

Basic Computer Operation

Identification of different components of Computer

A computer is an electronic device that accepts data, performs operations, displays results and stores the data or results as needed. It is a combination of hardware and software resources that integrate together and provide various functionalities to the user.

Hardware is the physical component of a computer like a processor, memory device, monitor, keyboard, etc., while software is a set of programs or instructions that are required by the hardware resource to function properly.



Components of a Computer

There are basically 3 important components of a computer —

- 1) Input Unit
- 2) Central processing Unit (CPU)

3) Output Unit

What is input unit?

→ The input unit consists of input ~~device~~ devices that are attached to the computer. These devices take input and convert it into binary language that the computer understands. Some of the common input devices are keyboard, mouse, joystick, scanner etc.

What is CPU?

→ CPU is Central Processing Unit. Once the information is entered into the computer by the input device, the processor processes it. The CPU is called the brain of the computer because it is the control centre of the computer. It first fetches instructions from memory and then interprets them so as to know what is to be done. The CPU has 3 main components —

i) Arithmetic Logic Unit — The ALU, as its name suggests, performs mathematical calculations and takes logical decisions.

ii) Control Unit — The Control Unit coordinates and controls the data flow in and out of the CPU, and also controls all the operations of ALU, memory registers and also input/output units.

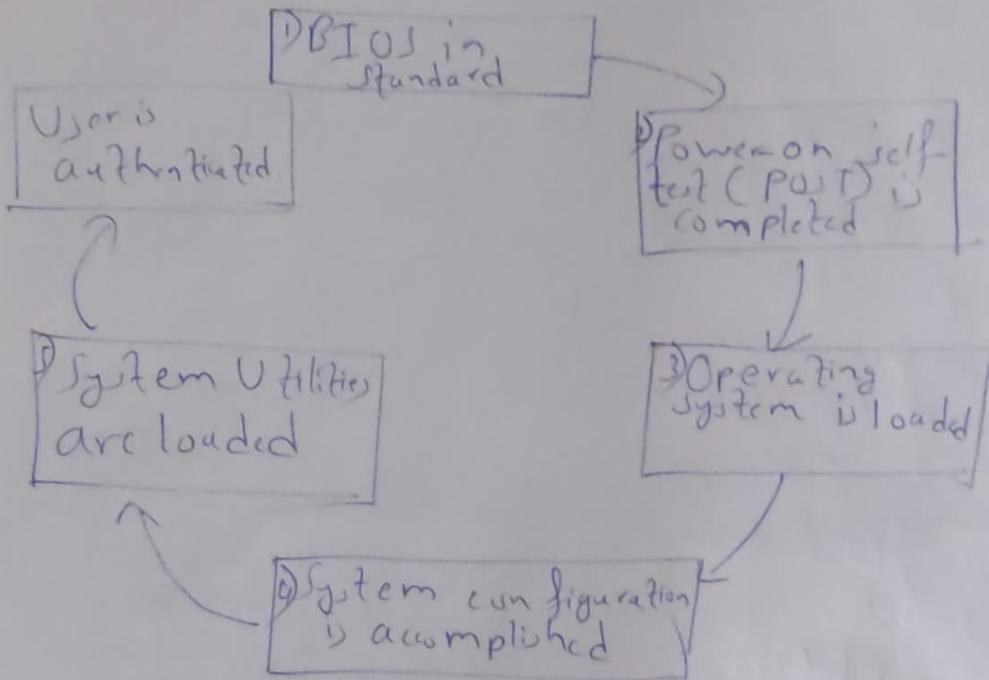
iii) Memory Registers — A register is a temporary unit of memory in the CPU. These are used to store the data which is directly used by the processor. Registers can be of different sizes (16 bit, 32 bit, 64 bit and so on).

3) Output Unit — The output unit consists of output devices that are attached to the computer. It converts the binary data coming from the CPU to human understandable form.

Switch on and Booting Process

Steps in the Booting Process

Booting is a process of switching on the computer and starting the operating system. The steps of the booting process are BIOS and Setup Program, the Power-On-Self-Test (POST), the Operating System Loads, System Configuration, System Utility Loads and User Authentication.



Step-1 - BIOS and Set up Program.

- 1) ROM (Read-Only Memory) - It is permanent and unchanging memory also.
- 2) BIOS (Basic Input/Output System) - The part of the system software that include the instructions that the computer use to accept input and output include the instructions that the computer use to accept input and output.

3) Load - To transfer from a storage device to memory. The ROM loads BIOS into the computer's memory.

4) Set Up Program - A special program containing settings to control hardware. Furthermore, the program can only be accessed while the BIOS information is visible.

Step 2. The Power-On-Self-Test (POST)

1) POST (Power-On-Self-Test) - A series of tests conducted on the computer's main memory, input/output devices, disk drives, and the hard disk.

2) BIOS conducts Power-On-Self-Test to check the input/output system for operability.

3) The computer will produce a beeping sound if any problem occurs. An error message will also appear on the monitor.

Step 3 - The Operating System (OS) Loads

1) BIOS searches for the operating system.

2) Setting in CMOS: Complementary metal oxide semiconductor determines where to look for the operating system.

3) In this step, the operating system's kernel is also loaded into the computer's memory.

4) The operating system takes control of the computer and begins loading system configuration information.

Step 4 - System Configuration

1) Registry: A database to store information about peripherals and software.

Peripheral - A device connected to a computer.

3) Drive - A utility program that make peripheral devices function properly.

4) The operating system's registry configure the system.

5) In this step, drivers are also loaded into memory.

Step 5 - System Utility Load

1) System utilities are loaded into memory.

2) Volume control

3) Antivirus software

4) PC card unplugging utility

Step 6 - Users Authentication

1) Authentication or user login occurs

2) Username.

3) Password.

4) After all this process, the user interface starts, enabling user interaction with the computer and its programs also.

Shut down ; Restart of Computer

Restart - To safely restart a Windows computer, open the start menu and choose the Restart option.

Open To shutdown

1) Open the Power User Menu by pressing the Win (Windows) key and X.

2) Go to Shut down or sign out

Module 2

Operating System

Basic DOS Commands (CL, DIR, DATE, TIME, VER, MD, CD, RD, DEL, COPY, REN, USE OF WILD CARD, PATH)

1) CL - Clear the screen or console window of commands and any output generated by them.

2) DIR - Displays directory of files and directories stored on disk

3) DATE - This displays the current date in task bar

4) TIME - This displays the current time in task bar

5) VER - At the C-prompt, type in the command ver, then hit enter. The version and type of DOS that you are running should now appear on your screen. Note a note of the both, and then type the word exit at the C-prompt.

6) MD - (create a directory if one does not already exist on that path with that name)

7) CD - The cd command can be used to change the working directory of the working drive or another lettered drive.

8) RD - Deletes a directory.

9) DEL - Delete (erase) files from disk

10) COPY - Copies or appends files. File can be copied with the same name or with a new name.

11) REN - Changes the filename under which a file is stored

USE OF WILD CARDS - A wild card is a symbol that takes the place of an unknown character or set of characters. Commonly used wild cards are the asterisk (*) and the question mark (?). These symbols are used to simplify your search.

1) PATH - This tells DOS which directories should be searched for external commands after DOS searches your working directory.

Basic Windows OS operation

1) DESKTOP - This is the onscreen work area provided by Microsoft Windows, analogous to a physical desktop.

2) ICONS - The icons which are available on desktop by default while installing Windows OS are called standard icons. The standard icons available in all Windows OS are My Computer, Documents and Recycle Bin.

3) Start Button - It can be found on the bottom left part of the computer screen. Clicking the start button opens up what is called the Start Menu. The Start menu is used to access your programs, settings, printers, and more.

4) Task Bar - The taskbar is the access point for programs displayed on the desktop, even if the program is minimized. Such programs are said to have desktop presence. With the taskbar users can view the open primary windows and certain secondary windows on the desktop, and can quickly switch between them.

Mouse Operations

- 1) Single Click - A single click will select or highlight the thing being clicked upon.
- 2) Double Click - A double click is most often employed to open the selected item.
- 3) Drag - Drag and drop is a method of moving computer files or images from one place to another by clicking on them with the mouse and moving them across the screen.
- 4) MAXIMIZE - Open the command prompt and press Alt + Enter to make it full-screen. To maximize the screen.
- 5) MINIMIZE - To minimize the screen.
- 6) RESTORE Windows Explorer - To get the full screen of computer files and folders.
- 7) My Computer - It is an icon in desktop to store some drive like Local Disk, Local Disk, etc. Also in this icon we can store game, movie, album, can create our own file and save that file and folder also.
- 8) Copy - It is used to copy or append files. Files can be copied with the same name or with a new name (Ctrl+C)
- 9) Cut - Ctrl+X. It is used to remove the selected data from its original position.
- 10) Paste - Ctrl+V. It is used to paste or add a particular file to the drive.

Utilities

- 1) Word - It enables users to do write-ups, create documents, resumes, contracts, etc.
- 2) Notepad - It is a text editor, i.e., an app specialized in editing plain text. It can edit text files (having the ".txt" file name extension) and compatible formats such as batch files, INI files, and log files.
- 3) Paint - It is used to colour, draw and edit pictures.
- 4) Calculator - It is used to calculate some problems.

Module-3

Working with MS-Office

- 1) Basic Operation of Word Processing Package (MS-Word) - It is used to start a document, open a document, save a document, read documents, track changes, print your document.

~~2) Basic Operation of Electronic Spread Sheet Package (MS-Excel) -~~

Create a document - To create a basic document, choose a template from the list provided or start with a blank document. Use the File tab to open, save and start documents, and the Insert tab to add any images, symbols, or other media to your document. Highlight your text and play around with formatting option in the "Home" tab.

- ~~1) Basic Operation of Electronic Spread Sheet (MS-Excel)~~
- 2) Basic Operation of Electronic Spread Sheet (MS-Excel) - Automatically perform numerical calculations. We can edit by adding some rows and columns in the column to it.
- 3) Basic Operation of Presentation Package (MS Powerpoint)

It is used to move a slide, delete a slide, add new slide and duplicate the slide.

Module - 4

Working with Internet

1) ~~Getting~~ Getting acquainted with Internet connection - We have to start the internet by switching on the machine so that we can access all the information. The machine is modem (Modulator - Demodulator).

2) ~~Browser~~ Getting acquainted with Browser - As discussed above to get the full internet connection we have to start our modem (Modulator - Demodulator).

3) A browser takes you anywhere on the internet. It retrieves information from other parts of the web and displays it on your desktop or mobile device.

4) Getting acquainted with Website - URL - To get acquainted with URL we have to give the proper website information to access the information.

5) Getting acquainted with https - We have to write https ~~to~~ to get the secured website.

6) Getting acquainted with WWW - We have to write www that means World-Wide-Web to ~~use~~ access that particular webpage.

7) Getting acquainted with net browsing - Net browsing means to surf the internet. We have to use https to get secured website.

Creating Email Id

We have to give our secured email address which have not get been by anyone across the world then we have to give a unique password after that we ~~can~~ have

create. The password is ~~20~~ of 8 characters with special characters also. Then we have to fill the details then we get a confirmation from our phone number which we used to fill the detail of email id.

Sending and Receiving Email - We have to send an email by giving mail address and then in subject we add subject and in there we discuss something after that we send the email to the user where we want to send the email. Similarly when we receive an email from any user we get ~~about~~ information in our device (e.g. phone, laptop, computer, etc.) so we open our gmail account a boldness ~~is~~ appears and there ~~is~~ When we open the mail then that boldness disappears.

Chatting - We can start to send and receive any emails from our desired user. and this is known as chatting.