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Unit - 1

Computer :- Definition, Classification, Organization i.e. CPU, Register, Bus, Architecture, Instruction Set, Memory & Storage System, I/O Devices and System & Application Software. Computer Application in C - Business, Bio - Informatics, Health care, Remote Sensing & GIS, Meteorology and climatology, Computer Gaming, Multimedia and Animation etc.

Operating System :- Definition, Function, Types, Management of File, Process & Memory, Introduction to MS Word, MS Powerpoint, MS Excel.

Computer :- A computer is an electronic device that manipulates information, or data. It has the ability to store, retrieve and process data. You may already know that you can use a computer to type documents, send email, play games and browse the web. You can also use it to edit or create spreadsheets, presentations and even videos.

Let's talk about two things all computers have in common : hardware and software

* **Hardware** is any part of your computer that has a physical structure, such as the keyboard or mouse. It also includes all of the computer's internal parts, which you can see in the image below.

* **Software** is any set of instructions that tells the hardware what to do and how to do it. Examples of software include web browsers, games, and word processors.

Different types of Computers:-

① **Desktop Computers**:- Many people use desktop computers at work, home and school. Desktop computers are designed to be placed on a desk, and they are typically made up of a few different parts, including the computer case, monitor, keyboard, and mouse.

② **Laptop Computers**:- The laptops are battery-powered computers that are more portable than desktops, allowing you to use them almost anywhere.

③ Tablet Computers:- or tablets - are handheld computers that are even more portable than laptops. Instead of a keyboard and mouse, tablets use a touch-sensitive screen for typing and navigation. The iPad is an example of a tablet.

Other types of Computers:-

Many of today's electronics are basically specialized computers, though we don't always think of them that way. Here are a few common examples.

* Smartphones :- Many cell phones can do a lot of things computers can do, including browsing the internet and playing games.

* Wearables :- Wearable technology is a general term for a group of devices — including fitness trackers and smartwatches — that are designed to be worn throughout the day.

* Game Consoles :- A game console is a specialized type of computer that is used for playing video games on your TV.

a) TV :- Many TVs now include applications or apps - that let you access various type of online content. For example, you can stream video from the Internet directly onto your TV.

Classification :- The computer systems can be classified on the following basis :-

1. On the basis of size.
2. On the basis of functionality.
3. On the basis of Data Handling.

Classification on the basis of size :-

i) Super Computer :- The super computers are the most high performing system. A Supercomputer is a computer with a high level of performance compared to a general-purpose computer.

The actual performance of a supercomputer is measured in FLOPS instead of MIPS. All of the world's fastest 500 supercomputers run Linux-based operating systems.

e.g :- PARAM, jaguar, roadrunner.

2. Mainframe computers :- These are commonly called as big iron, they are usually used by big organisations for bulk data processing such as statistics, census data processing, transaction processing and are widely used as the servers (as those systems has a higher processing capability as compared to the other classes of computers) most of these mainframe architecture were established in 1960's.

Eg :- IBM z Series, System z9, System z10
Servers

3. Mini Computers :- These computers came into the market in mid 1960's and were sold at a much cheaper price than the main frames, they were actually designed for control, instrumentation, human interaction and communication switching as distinct from calculation and record keeping, later they became very popular for personal uses with evolution.

Eg :- Personal Laptop, PC etc.

Classification on the basis of functionality :-

1. Servers :- Servers are nothing but dedicated computers which are set-up to offer some services to the clients.
Ex :- security server, database server.
2. Workstation :- Those are the computers designed to primarily to be used by single user at a time. They run multi-user operating systems.
3. Information Appliances :- They are the portable devices which are designed to perform a limited set of tasks like basic calculations, playing multimedia, browsing internet etc. They are generally referred as the mobile devices.
4. Embedded computers :- They are the computing devices which are used in other machines to serve limited set of requirement. They follow instructions from the non-volatile memory and they are not required to execute reboot or reset.

Ex :- Embedded Computers are installed in Washing Machine, Microwave, Digital Camera, Calculator etc.

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Classification on the basis of data handling :-

Analog :- An analog computer is a form of computer that uses the continuously changeable aspects of physical fact such as electrical, mechanical or hydraulic quantities model the problem being solved.

Digital :- A Computer that performs calculations and logical operations with quantities presented as digits, usually in the binary numbers system of "0" and "1", Computer capable of solving problems by processing information expressed in discrete form.

Hybrid :- A Computer that processes both analog and digital data, hybrid computer is a digital computer that accepts analog signals, converts them to digital and processes them in digital form.

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Analog Number = little fineness
Digital 0 & 1 Number = 100%