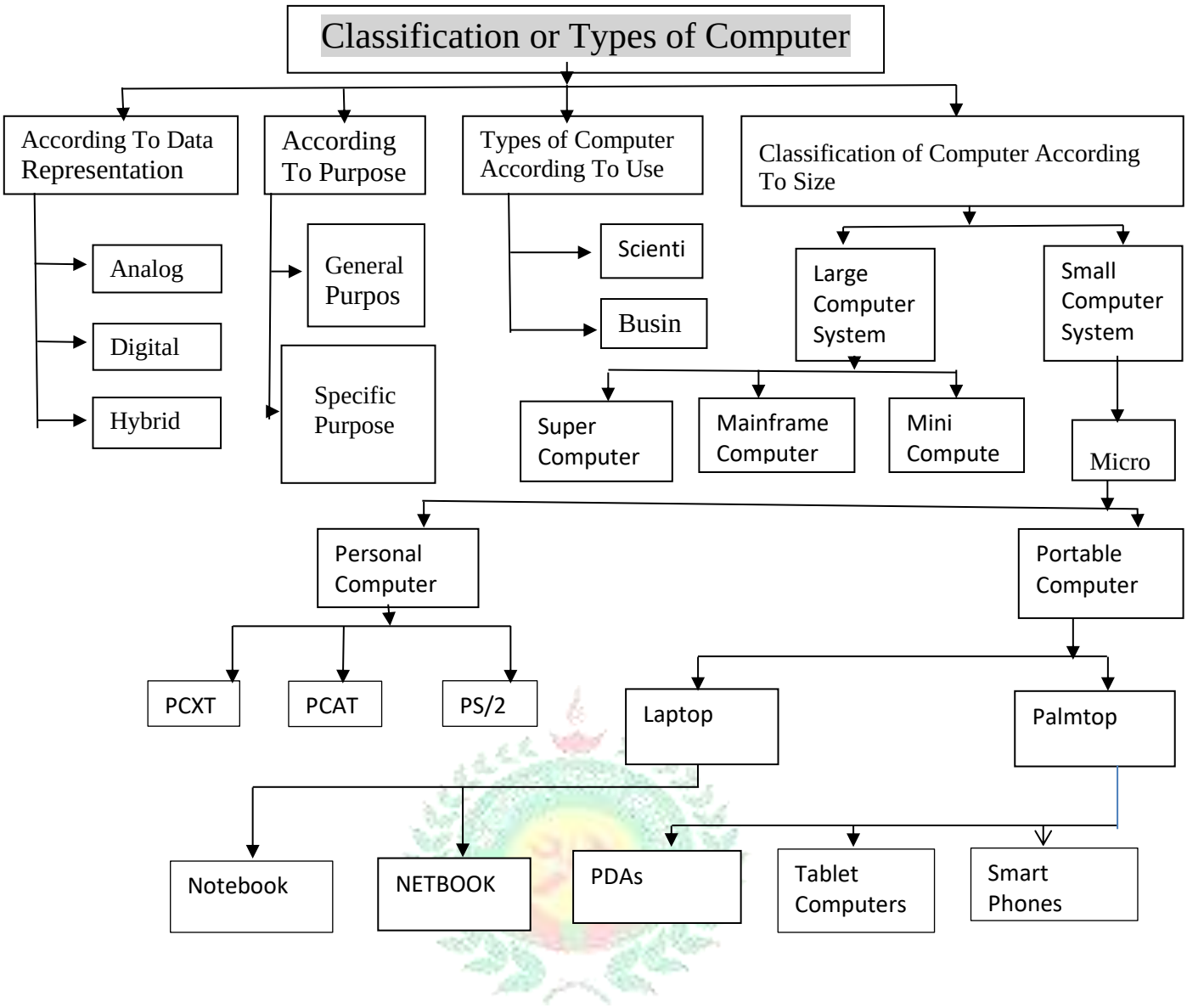

Classification or Types of Computer

According To Data Representation	1. Digital 2. Analog 3. Hybrid
According To Purpose	1. General Purpose 2. Specific Purpose
Types Of Computer According To Use	1. Scientific 2. Business
Classification Of Computer According To Size	1. Micro 2. Mini 3. Mainframe 4. Super

Types of Computer

On the basis of working principle/ According to the operation of computer. / Classification of computers based on application/ According to functionality/ According to data handling

a) Analog Computer:-

Quantities to model the problem being solved. An analog computer can perform several mathematical operations simultaneously) An analog computer is a form of computer that uses *continuous* physical phenomena) ঘটনা(such as electrical, mechanical, or hydraulic (একইসাথে). It uses continuous variables for mathematical operations and utilizes mechanical or electrical energy. Analog computer works by processing the continuous analog signals such as heat, pressure, speed etc. Such computers do not deal directly with the numbers. They measure continuous physical magnitudes

Type:-

An analog computer can be mechanical analog computer or electronic analog computer. (There can be a confusion that electronic computers are digital but note that there are electronic analog computers too!)

USED and Example:-

These computers are used in Hospitals, Air-crafts and so on. Mechanical analog computers have existed for thousands of years, with the oldest known example being the Antikythera. This is a Greek machine, thought to have been made around 100 BC, designed for calculating astronomical positions. A more recent and common mechanical analog computer is the slide rule. Thermometer, Speedometer, Petrol pump indicator, Multimeter

a) Digital Computer:-

A computer that performs calculations and logical operations with quantities represented as digits, usually in the binary number system. Digital computer works by processing the discrete data.
Digital computers are suitable for complex computation and have higher processing speeds. They are programmable. Digital computers are either general purpose computers or special purpose ones

b) Hybrid Computer (Analog + Digital)

A combination of computers those are capable of inputting and outputting in both digital and analog signals. A hybrid computer system setup offers a cost effective method of performing complex simulations.

USED and Example:-

Mostly used for scientific research, industrial application, airplane, medical science. An analog device measures patient's heart beat (ECG). Another example is a Modem.

Classification as per purpose of the computer

1. General purpose computers.
2. Special purpose computer.

1. General Purpose Computers:-

These computers are theoretically used for any type of applications. They have the ability to store numerous programs, but lack in speed and efficiency .These computers can be used in solving a business Problem and also used to solve mathematical equation with same accuracy and consistency. Most of the computer now are general purpose digital computers. All the P.C's, which have become household affair.

2. Special Purpose Computers :-

These digital computer are designed, made and used for any specific job. These are usually used for those purposes

which are critical and need great accuracy and response like Satellite launching, weather forecasting etc.

On the basis of Size

A) Super Computer:-

These haves extremely super-fast computing speed and large storages capacity. They have several processing units. The speed of a supercomputer is generally measured in FLOPS (Floating point Operations per Second).

Used and Example: -

weather forecasting requires a supercomputer, animated graphics, fluid dynamic calculations, nuclear energy research, and petroleum exploration. Climate research (global warming), molecular research, biological research, nuclear research and aircraft design. They are also used in major universities, military agencies and scientific research laboratories.

Some examples of supercomputers are IBM Roadrunner, IBM Blue gene and Intel ASCI red. PARAM is a series of supercomputer assembled in India by C-DAC (Center for Development of Advanced Computing), in Pune. PARAM Padma is the latest machine in this series. The peak computing power of PARAM Padma is 1 Tera FLOP (TFLOP).

PARAM is the First supercomputer made in India.

Servers:

They are computers designed to provide services to client machines in a computer network. They have larger storage capacities and powerful processors. Running on them are programs that serve client requests and allocate resources like memory and time to client machines. Usually they are very large in size, as they have large processors and many hard drives. They are designed to be fail-safe and resistant to crash.

b) Mainframe Computer:-

A very large and expensive computer capable of supporting hundreds, or even thousands, of users simultaneously. In some ways, mainframes are more powerful than supercomputers because they support more simultaneous programs. But supercomputers can execute a single program faster than a mainframe.

. It is interesting how the word 'mainframe' came into use. In fact, because the different units of computer were installed in a frame, it started to be called a computer in main frame.

The chief difference between a supercomputer and a mainframe is that a supercomputer channels all its power into executing a few programs as fast as possible, whereas a mainframe uses its power to execute many programs concurrently.

Used and Example:-

Hospitals, Universities, Bank, Government office, railway, airports
IBM4381, CRAY X-MP/48, CYBER 170.

Wearable Computers:-

A record-setting step in the evolution of computers was the creation of wearable computers. These computers can be worn on the body and are often used in the study of behavior modeling and human health. Military and health professionals have incorporated wearable computers into their daily routine, as a part of such studies. When the users' hands and sensory organs are engaged in other activities, wearable computers are of great help in tracking human actions. Wearable computers do not have to be turned on and off and remain in operation without user intervention

c) Mini Computer:-

In terms of size and processing capacity, minicomputers lie in between mainframes and microcomputers. Minicomputers are also called mid-range systems or workstations. The term began to be popularly used in the 1960s to refer to relatively smaller third generation computers. They took up the space that would be needed for a refrigerator or two and used transistor and core memory technologies. A minicomputer is a multiprocessing and multi user system capable of supporting from 4 to about 200 users simultaneously.

Used and Example:-

Mainly used in the field data processing industrial control and scientific research, CAD (Computer Aided Design) Design.

DEC VAX machine, PDP and IBM machine. The 12-bit PDP-8 minicomputer of the Digital Equipment Corporation was the first successful minicomputer generally, servers are comes in this category.

d) Micro Computer:-

A computer with a microprocessor and its central processing unit is known as a microcomputer. They do not occupy space as much as mainframes do. They are small, low-cost and single-user digital computer. They consist of CPU, input unit, output unit, storage unit and the software. Although microcomputers are stand-alone machines, they can be connected together to create a network of computers that can serve more than one user. IBM PC based on Pentium microprocessor and Apple Macintosh are some examples of microcomputers.

Personal Computer

The computers design for personal use ,such as home and school application ,telecommunications, database management, accounting, word processing etc. are called Personal Computer. Although personal computers are designed as single-user systems.

Desktops:

A microcomputer When supplemented with a keyboard and a mouse A monitor and other similar input-output devices is called **Desktop Computer** . It is a stand-alone machine that can be placed on the desk (hence the name) and used on a single location. Externally, it consists of three units—keyboard, monitor, and a system unit containing the CPU, memory, hard disk drive, etc. It is not very expensive and is suited to the needs of a single user at home, small business units, and organizations. The spare parts of a desktop computer are readily available at relatively lower costs. Power consumption is not as critical as that in laptops.

Apple, Microsoft, HP, Dell and Lenovo are some of the PC manufacturers.

There are three different models of personal computers already available – PCXT computers, PCAT computers and PS/2 computers.

1) **PCXT(personal computers With Extended Technology)**
2) **PCAT(personal computers With Advanced Technology)**
3) **PS/2 (Personal System)**

1) PCXT

The extended technology computers used 8006, 8008, 8086, 8088 processors (These are the names of Microprocessors). The period of these computers was from 1975 to 1982. These processors had 4.77 MHz clock speed (these days there are Gigahertz computers). The processors were all of 8-bit. These computers are outdated now by two reasons: first, they do not support the latest software and the second that they had low processing power as well as low storage capacity. Example -IBM PC XT (IBM 5160)

2) PCAT

With the advent of 80286 microprocessors in 1982, Advanced Technology computers were introduced. The processors were of 8-bit and 16-bit. The computers using processors like 80286, 80386, and 80486 are the examples. Advanced Technology computers' period is from 1982 to 1995. With the features of higher speed and larger memory than the XT computers, they support latest versions of available software.

AT computers may have 80286 SX or 80387 DX, 80486 SX, 80486 DX or even Pentium (80586) processors. The AT computers support Co-processor that enhances the processing speed and capability of the main processor to perform large and computations within a short period.

3) PS/2

With the advancement of Processors having high clock speed as well as high storage capacity, IBM developed the second generation of personal computers in early 1990s, which used new refined architecture making the computers faster and more powerful than AT computers. The PS/2 processors used VLSI (Very Large Scale Integration) for chip fabrication and their clock speed range from 85 MHz to 1GHz. Generally, PS/2 Computers use 3.5 inch floppy disks and OS/2 operating System. PS/2 computers are widely used in general purpose computation such as word processing, Database Arrangement, Controlling accounts etc.

Portable computer

The computers designed to be easily transported and relocated one place to another place while working are called Portable computer

A) Laptop Computer:

A portable computer enabled with an inbuilt keyboard, touch pad acting as a mouse and a liquid crystal display. It has all the features of a desktop computer, but smaller in size than a desktop and larger than a notebook computer. It has a battery backup and can be placed on the lap while working (hence the name).

1) Notebooks:

They fall in the category of laptops, but are inexpensive and relatively smaller in size. They had a smaller feature set and lesser capacities in comparison to regular laptops.

2) **Netbook:**

These are smaller than notebooks optimized for low weight and low cost, and are designed for accessing web-based applications.. Netbooks deliver the performance needed to enjoy popular activities like streaming videos or music, emailing, Web surfing or instant messaging. The word *netbook* was created as a blend of Internet and note*book*.

B) Palmtop Computer:

a hand-sized computer. Palmtops have no keyboard but the screen serves both as an input and output device.

1) Personal Digital Assistants (PDAs):

It is a handheld computer that can be held on the top of the palm (hence the name) and popularly known as a palmtop. Instead of the keyboard, PDA uses a pen or a stylus for input. PDAs do not have a disk drive. It has a touch screen and a memory card for storage of data. PDAs can also be used as portable audio players, web browsers and smart phones. Most of them can access the Internet by means of Bluetooth or Wi-Fi communication. Over the last few years, PDAs have merged into mobile phones to create smart phones.

2)Tablet Computers:

Tablet Computer has features of the notebook computer but it can accept input from a stylus or a digital pen instead of the onscreen keyboard or mouse. They use the touch screen technology. Apple's iPad redefined the class of tablet computers.

3)Smart Phones:

Smart Phones are cellular phones that function both as a phone and as a small PC. They may use a stylus or a pen, or may have a small keyboard. They can be connected to the Internet wirelessly. They are used to access the electronic-mail, download music, play games, etc. Blackberry, Apple, HTC, Nokia and LG are some of the manufacturers of smart phones.

Workstations

A terminal or desktop computer in a network. In this context, workstation is just a generic term for a user's machine (client machine) in contrast to a "server" or "mainframe. "Workstation is a computer used for engineering applications (CAD/CAM), desktoppublishing, software development, and other such types of applications which require a moderate amount of computing power and relatively high quality graphics capabilities. Workstations generally come with a large, high-resolution graphics screen, large amount of RAM, inbuilt network support, and a graphical user interface. Most workstations also have mass storage device such as a disk drive, but a special type of workstation, called diskless workstation, comes without a disk drive. Common operating systems for workstations are UNIX and Windows NT. Like PC, workstations are also single-user computers like PC but are typically linked together to form a

local-area network, although they can also be used as stand-alone systems.

Workstation:

- Workstations are used by professionals.
- Workstations are used to carry out specific highly advanced work.
- Workstations are much more expensive than the usual computers.
- Workstations have far more advanced hardware.

Examples:

- ***Engineering****: Rendering, CAD, Architecture, Construction*
- *Scientific Work: Artificial Intelligence, Floating point operations, Complex mathematical operations****.***
- ***Media:*** *Music production houses, 3D animation studios*
- ***Enterprises:*** *Essential for keeping databases like patient records in a hospital etc. The ECC RAM ensures that no information is lost.*

What is Parallel Computer?

A computer with multiple processors that can all be run simultaneously on parts of the same problem to reduce the solution time. The term is nowadays mostly reserved for those MASSIVELY PARALLEL computers with hundreds or thousands of processors that are used in science and engineering to tackle enormous computational problems.