Session 5

Introduction to Computer Hardware: Classification of Computer

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Classification of Computer

- In general computers are classified into major categories based on.

(a) According to the purpose of the computer.
(b) According to the operation of computer.
(c) According to the size of computer.

Classification of Computer

(a)According to the purpose of the computer.

1. General purpose computers:
   - These computers are theoretically used for any type of applications. 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.
2. Special purpose computer:
   - 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.

Classification of Computer

(b) According to the operation of computer.

1. **Analog computers:**
   - Analog computer is that computer, which is use to process continuously varying data.
   - Everything we see and hear is change continuously. This changeable continuous stream of data is called **analog data**.
   - Analog computer that performs arithmetical operation by measurable quantities, such as mechanical movement, the rotation of gears rather than by number.
   - In Analog computers, data is transmitted for its operation in the form of continuous signals, while in digital computers in the form discrete signals (or discontinuous signal).

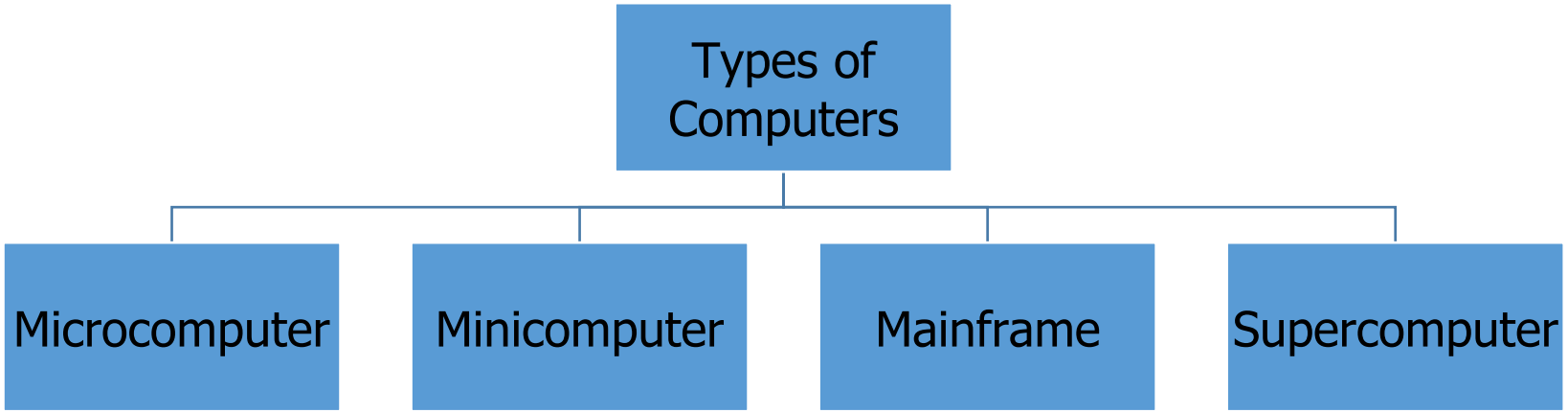
Classification of Computer

(b) According to the operation of computer.

2. **Digital computers:**
   - They use digital circuits and are designed to operate on two states, namely bits 0 and 1. They are analogous to states ON and OFF.
   - Data on these computers is represented as a series of 0s and 1s.
   - Digital computers are suitable for complex computation and have higher processing speeds.
   - Digital computers are programmable.

Classification of Computer

(C) According to the size of computer.



Classification of Computer

1. Microcomputer

- A microcomputer uses a microprocessor as its central Processing Unit. Microcomputers are tiny computers that can vary in size from a single chip to the size of a desktop model

- They are designed to be used by only one person at a time

Classification of Computer

Microcomputer Examples

Laptop

Notebook

Subnotebook

Palmtop

Classification of Computer

Use of Microcomputer

- Home entertainment
- Home banking
- Printing
- Surfing the internet
- Etc..

Classification of Computer

2. Minicomputer

- Medium sized computer
- Also called the minis
- Computing power lies between microcomputer and mainframe computer
- Midsize multi-processing system capable of supporting up to 250 users simultaneously.
- Perform better than micros
- Large in size and costlier than micros

Classification of Computer

2. Minicomputer characteristics

- Bigger size than PCs
- Expensive than PCs
- Supports Multi-User
- More computing power than PCs
- Used by medium sized business organizations, colleges, libraries and banks.
- e.g. IBM36, HP9000.

Classification of Computer

Use of Minicomputer

- These computers are used when the volume of processing is large for e.g. Data processing for a medium sized organization
- Used to control and monitor production processes
- Small bank accounting and customer details tracking
- To analyze results of experiments in laboratories
- used as servers in LANs (Local Area Networks)

Classification of Computer

3. Mainframe Computer

- Bigger in size than minicomputers
- Very expensive
- Support a few hundred users simultaneously (Multi-Users)
- Difficult to use
- More computing power than minicomputers
- Have to be kept in a special air-conditioned room
- Used in big business organizations and government departments
- Example: IBM 3000 series.

Classification of Computer

Use of Mainframe computer

- Used to process large amount of data at very high speed such as in the case of Banks/ Insurance Companies/ Hospitals/ Railways…which need online processing of large number of transactions and requires massive data storage and processing capabilities
- Space Vehicle control
- Weather forecasting
- Used as controlling nodes in WANs (Wide Area Networks)
- Used to manage large centralized databases

Classification of Computer

4. Super Computer

- Supercomputer is a broad term for one of the fastest computers currently available.
- Fastest and expensive
- Used by applications for molecular chemistry, nuclear research, weather reports, and advanced physics
- Consists of several computers that work in parallel as a single system
- The highly calculation-intensive tasks can be effectively performed by means of supercomputers.
- Example. PARAM developed in India.

Classification of Computer

4. Super Computer characteristics

- Most powerful Computer system - needs a large room
- CPU speed: 100 MIPS
- Equivalent to 4000 computers
- High cost: 4 – 5 millions
- Able to handle large amount of data
- High power consumption
- Large and fast memory (Primary and Secondary)
- Uses multiprocessing and parallel processing
- Supports multiprogramming