- **Types of computer:**
  1. Analog Computer:
     This type of computers are used to process analog data. Analog data are continuous type of data that have not any discrete value. For example: Temperature, Rotation of earth, Energy from the sun, Pressure, etc.
     Analog computers are used for scientific and industrial applications. They are widely used even after advent of digital computers. They became obsolete in 1950s.
     Example: Operational Amplifier.
  2. Digital Computer:
     Digital computers are used to process discrete types of data. Now a days, digital computers are used in all fields of life.
     Example: Desktop, laptop, etc.
  3. Hybrid Computer:
     These computers have features of both- Analog and digital computers.
     Digital component are used for logical and arithmetical operations while analog component are used to solve differential equation and complex mathematical problems.
     Example: HYCOMP 250, HYDAC 2400.

- **Difference between Analog and Digital Computer:**

Basis	Analog Computer	Digital Computer
Type of data	Continuous data is processed.	Discrete type of data is processed
Accuracy	Less accurate	High accurate
Processing speed	Slower	Faster
Power consumption	High	Low
Reliability	Not/Less reliable	More reliable
Architecture	Complex	Simple
Memory	Low memory	High memory
Components	Network of capacitors, inductors, etc.	Large number of logic gates, microprocessor, etc.
Application	It is used for scientific and industrial application.	In every field of life.

- **General purpose computer:**
  A general-purpose computer is one that, given the application and required time, should be able to perform the most common computing tasks. Desktops, notebooks, smartphones and tablets, are all examples of general-purpose computers.

A general-purpose computer is made up of a central processing unit, memory, input/output devices and a bus connecting these components.

The term is used to differentiate general-purpose computers from other types, in particular the specialized embedded computers used in intelligent systems.

- **Turn-Key system:**
  A computer system that has been customized for a particular application. The term derives from the idea that the end user can just turn a key and the system is ready to go. Turnkey systems include all the hardware and software necessary for the particular application. They are usually developed by OEMs (original equipment manufacturers) who buy a computer from another company and then add software and devices themselves.

- **Microcomputer (Personal Computer):**
  Microcomputer, an electronic device with a microprocessor as its central processing unit (CPU). Microcomputer was formerly a commonly used term for personal computers, particularly any of a class of small digital computers whose CPU is contained on a single integrated semiconductor chip. Thus, a microcomputer uses a single microprocessor for its CPU, which performs all logic and arithmetic operations. The system also

contains a number of associated semiconductor chips that serve as the main memory for storing program instructions and data and as interfaces for exchanging data of this sort with peripheral devices (e.g., keyboard, video display, and printer) and auxiliary storage units. The earliest microcomputers marketed in the mid-1970s contained a single chip on which all CPU, memory, and interface circuits were integrated.

As large-scale integration and then very-large-scale integration progressively increased the number of transistors that could be placed on one semiconductor chip, so the processing capacity of microcomputers using such single chips grew commensurately. During the 1980s microcomputers came to be used widely in other applications besides electronic game systems and other relatively simple computer-based recreations. Increasingly powerful microcomputers began to be used in personal computer systems and workstations, for instance. High-performance microcomputer systems began to be used widely in business, in engineering, in "smart" or intelligent machines employed in the factory and office, and in military electronics systems.

- **Mini Computer:**
  Minicomputer is a medium size multiprocessing computer. In this type of computer, there are two or more processors, and it supports 4 to 200 users at one time. Minicomputers are used in places like institutes or

departments for different work like billing, accounting, inventory management etc. It is smaller than a mainframe computer but larger in comparison to the microcomputer.

Characteristics of minicomputer:

- Its weight is low.
- Because of its low weight, it is easy to carry anywhere.
- Less expensive than a mainframe computer.
- It is fast.

- **Mainframe computer:**
  Mainframe computers are designed in such a way that it can support hundreds or thousands of users at the same time. It also supports multiple programs simultaneously. So, they can execute different processes simultaneously. All these features make the mainframe computer ideal for big organizations like banking, telecom sectors, etc., which process a high volume of data in general.

  Characteristics of mainframe computers:

  - It is also an expensive or costly computer.
  - It has high storage capacity and great performance.
  - It can process a huge amount of data (like data involved in the banking sector) very quickly.
  - It runs smoothly for a long time and has a long life.

- **Super Computer:**
  When we talk about speed, then the first name that comes to mind when thinking of computers is supercomputers. They are the biggest and fastest computers (in terms of speed of processing data). Supercomputers are designed such that they can process a huge amount of data, like processing trillions of instructions or data just in a second. This is because of the thousands of interconnected processors in supercomputers. It is basically used in scientific and engineering applications such as weather forecasting, scientific simulations, and nuclear energy research. It was first developed by Roger Cray in 1976.

  <u>Characteristics of supercomputers</u>:

  - Supercomputers are the computers which are the fastest and they are also very expensive.
  - It can calculate up to ten trillion individual calculations per second, this is also the reason which makes it even faster.
  - It is used in the stock market or big organizations for managing the online currency world such as bitcoin etc.
  - It is used in scientific research areas for analyzing data obtained from exploring the solar system, satellites, etc.