A memory is just like a human brain. It is used to store data and instruction. Computer memory is the storage space in computer where data is to be processed and instructions required for processing are stored.

The memory is divided into large number of small parts. Each part is called cell. Each location or cell has a unique address which varies from zero to memory size minus one.

For example if computer has 64k words, then this memory unit has 64 * 1024=65536 memory location. The address of these locations varies from 0 to 65535.

Memory is primarily of three types

- Cache Memory

- Primary Memory/Main Memory

- Secondary Memory

# Cache Memory

Cache memory is a very high speed semiconductor memory which can speed up CPU. It acts as a buffer between the CPU and main memory.

It is used to hold those parts of data and program which are most frequently used by CPU. The parts of data and programs are transferred from disk to cache memory by operating system, from where CPU can access them.

## ADVANTAGE

- Cache memory is faster than main memory.

- It consumes less access time as compared to main memory.

- It stores the program that can be executed within a short period of time.

- It stores data for temporary use.

## DISADVANTAGE:

- Cache memory has limited capacity.

- It is very expensive.

# Primary Memory (Main Memory)

Primary memory holds only those data and instructions on which computer is currently working. It has limited capacity and data get lost when power is switched off.

It is generally made up of semiconductor device. These memories are not as fast as registers. The data and instruction required to be processed earlier reside in main memory. It is divided into two subcategories RAM and ROM.

Characteristic of Main Memory

- These are semiconductor memories.

- It known as main memory.

- Usually volatile memory.

- Data is lost in case power is switch off.

- It is working memory of the computer.

- Faster than secondary memories.

- A computer cannot run without primary memory.

# Secondary Memory

This type of memory is also known as external memory or non-volatile. It is slower than main memory. These are used for storing Data/Information permanently.

CPU directly does not access these memories instead they are accessed via input-output routines. Contents of secondary memories are first transferred to main memory, and then CPU can access it.For example: disk, CD-ROM,DVD etc.

Characteristic of Secondary Memory

- These are magnetic and optical memories.

- It is known as backup memory.

- It is non-volatile memory.

- Data is permanently stored even if power is switched off.

- It is used for storage of the data in the computer.

- Computer may run without secondary memory.

- Slower than primary memories.