Memory and Storage

1. **Primary Memory**
2. **Secondary Storage**

Primary Memory: it is also called the Main memory or storage. It's inside the case on the motherboard built in the computer by the manufacture. It is divided into two main types:

- **RAM (Random Access Memory):** the **CPU** can execute instructions in less than one-millionth of a second **CPU** cannot use mechanical parts to pass data continually through it. Therefore, it needs a fast memory to keep up with the processor (CPU). RAM is temporarily holds data and instructions that are needed continuously be CPU while processing. Originally it is empty. It is holds the processed information and data before it is output. **RAM** is called also temporary because everything is lost as soon as the computer is turned off or the power accidentally switched off.

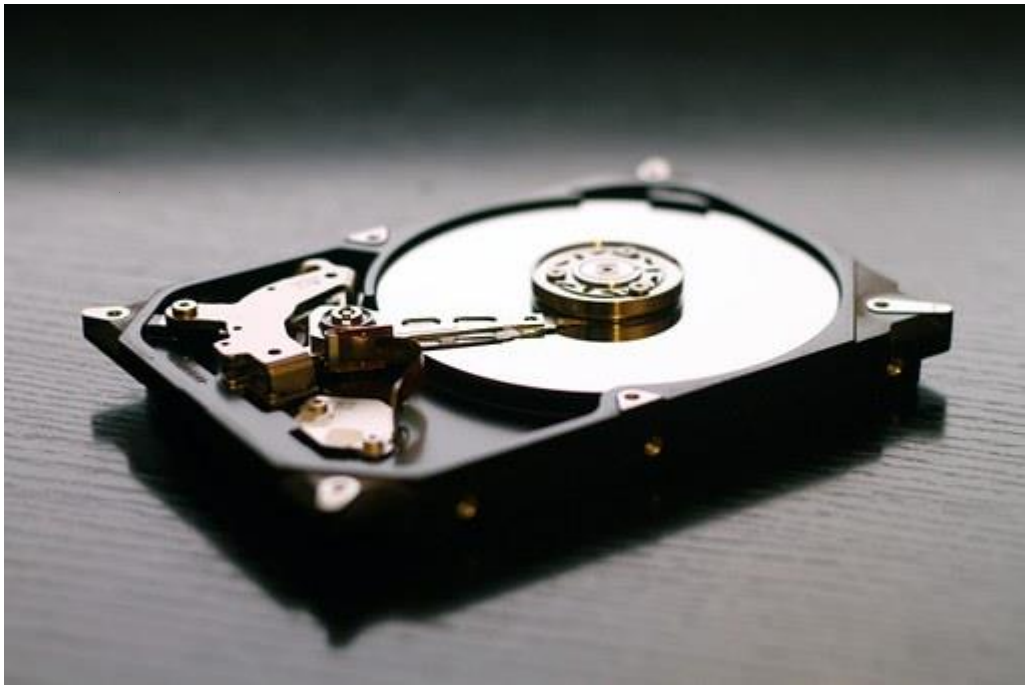
- **ROM (Read Only Memory):** has programs built into them by manufacturer. They cannot be written on or erased by computer user.
  - CMOS (Complementary Metal Oxide Semiconductor): memory used to keep the clock of computer to run up.
  - BIOS (Basic Input Output System): Refers to the software code run by a computer when first powered on. The primary function of BIOS is to prepare the machine so other software programs stored on various media (such as hard drives, floppies, and CDs) can load, execute, and assume control of the computer. This process is known as booting up.

Secondary Storage:

Some storage devices are low cost and store data in large quantities. Moreover, they provide permanent storage that allows users retaining data after the computer has been shut down. Some of these storages are located inside the case system unit of computer like

- **Hard Disks**: They are thin but rigid metal platters which are covered with a substance that allows data to be held in the form of magnetized spots.

  Hard Disks are used to store programs, operating system, applications, and large data files. They are fast, and their capacity is measured by Gigabyte (GB).



Others are portable or removable storage devices like:

- **Floppy Disk**: has a thin exterior jacket made of hard plastic to protect the flexible disk inside. The size of traditional floppy disk is 3.5 inch and its capacity is 1.44 megabytes.

- **ZIP Disk**: typically has a 100 MB, 250 MB, or 750 MB capacity. They are used to store large database files, large text and spreadsheet files. Normally, used to make backup files of work. Need ZIP Disk drive to use them.

- **Compact Disk (CD**): is an optical disk laser is been used to burning a pit or not. On surface. There are three types: CD-ROM, CD-R, and CD-RW (Rewritable). Check the differences between the three types?

- **Digital Versatile Disk (DVD)**: it's similar to CD but with high capacity (17 gigabyte). It used to store high quality films, videos. Both DVDs and CDs look alike in size and shape and are used for the same purpose. Just because they look identical and have the same usage, we cannot conclude that both CDs and DVDs are the same. The following are some of the differences between a CD and a DVD.

Video output: Most of the DVD players will have an output from where you can connect the player to your television and also play the video or audio content on the disc. A CD player does not have any output for videos, and you can listen only to audio. So you cannot use play DVDs in a CD player.

Capacity: One of the most significant differences between CDs and DVDs is its capacity. CDs can store digital data, and you can store about 700MB of data in a standard CD. With 700MB of data, you can listen to 80 minutes audio and 60 minutes of video. The Digital Versatile Disc can hold up to 4.7 GB of data. Thus you can use DVDs to store large files like movies and videos.

Dual Layer: DVDs have a laser layer which equips the drive to read double-layer DVDs. There are two layers of data which are set on each other to make space for data to fit into the disc. There might be chances of losing audio and resolution quality in the process. Most of the films are produced in this format. We all must have bought a DVD video, and we often find two discs; this is because there should not be any loss of video or audio quality. Unlike DVD players, the CD players are not designed to read information placed in multiple layers in a disc.

Playback: DVD players can play DVDs and CDs, but a CD player cannot play DVDs. Compact discs were widely used to store music albums as it stores an entire record at a lower price. DVD is more often used to for storing videos as it can hold more data than a CD.

USB Flash Drive: is compact and easy-to-use devices slip into your pocket for an ultimate portable storage. It's connected directly to USB port. USB flash drives are great to use for storing digital files and are replacing CDs & DVDs as the preferred storage media of choice.

The advantages of flash drives are that they are portable, durable, and have incredible storage capacity (ranges from 64MB to 256GB as of 2010). Furthermore, they are able to retain the memory even after the power is turned off. But does the memory last forever though? Should you use them to store important documents and files? How long do they last?

If you simply write data to a USB flash drive and put it away in a safe place for 10 years, it will work again and all the data will still be there. But if you continue to use it over and over again,

it will definitely wear out eventually.

- **Flash Memory Cards**: are solid state electronic data storage devices that are used with digital cameras, telephones, music player video games and others. It can be moved from camera and place in a card reader that is connected to computer or printer.