Lec 3: COMPUTER FUNDAMENTALS- Part2
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Storage Devices

Storage devices are called secondary memory. They are non-volatile and persistent and are not directly accessed by a computer/processor. It allows a user to store data/information for a long time.

1. **Hard Disk Drive (HDD) -** Hard disks are the main, large data storage area within your computer. Hard disks are used to store your operating system, your application programs, and your data. The data is written on the platters by moving a magnetic head over the platters as they spin. The storage capacity of the hard disk ranges from gigabytes (GBs) to terabytes (TBs).

2. **Solid State Drive (SDD):** SSDs use nonvolatile flash memory chips to store data. This means that they are faster than magnetic HDDs. Their storage capacity also ranges from GBs to TBs. SSDs have no moving parts and therefore make no noise, are more energy efficient, and produce less heat than HDDs.

3. **Tape drive** - a device that reads and writes data on a magnetic tape, used for long-term storage and backups. It could store up to 100 TB of data.

4. **Compact Disc (CD)** - the most common type of removable media, suitable for music and data. It has a memory size of 700 MB.

5. **Digital Versatile Disc (DVD)** - a popular type of removable media that has the same dimensions as a CD but stores more information. It is the most common way of transferring digital video and is popular for data storage. A single-layer DVD can store up to (4.7 GB), but a dual-layer DVD can store up to (8.5 GB).

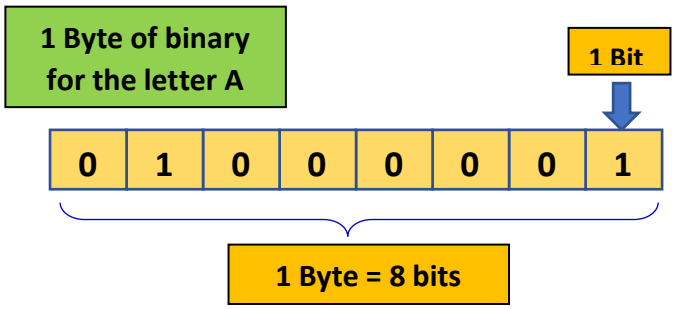
6. **Blu-ray Disc (BD) Drive:** is a digital optical disc data storage media that has Single-layered and Dual-layered disc with a memory size of 25 GB and 50 GB respectively. It is capable of storing hours of video in High-Definition and Ultra High-Definition resolution.

7. **Universal Serial Bus (USB) Flash Drive** –a flash memory data storage device integrated with a USB connector, typically small, lightweight, removable, and rewritable. Capacities vary, from hundreds of megabytes to tens of gigabytes.

8. **External Hard Disk -** External hard disk drives typically connect via USB; which has slower data transfer rates when compared to internally mounted hard disk. The available capacities for external hard disk drives ranged from 500 GB to 10 TB.

❖ Units used to measure the memory capacity:

The smallest unit of data in a computer is a bit. A bit can hold a single binary value, either 0 or 1. Eight bits equal to one byte, which is an 8-digit number.

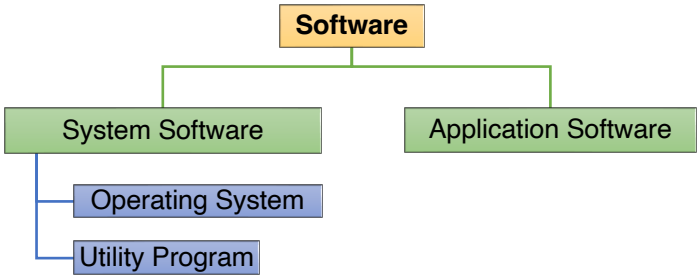


The following table lists the various units of memory.

1 Bit	0 (or) 1
1 Byte	8 Bits
1 Kilobyte (KB)	1,024 Bytes
1 Megabyte (MB)	1,024 KB
1 Gigabyte (GB)	1,024 MB
1 Terabyte (TB)	1,024 GB

❖ SOFTWARE

The software is the instructions (programs) that makes the computer work. Software is held either on your computer's hard disk, CD-ROM, DVD or on a USB flash memory, and is loaded (i.e. copied) from the disk into the computers RAM (Random Access Memory) when needed.



After a software installed on a computer, it is important to be updated regularly. Software updating is important to fix problems and to enhance features of the software. Auto update option is available for most software, but for software doesn't update automatically make sure to update them manually.

❖ TYPES OF SOFTWARE

1. Systems Software

The system software is a special type of programs that load automatically when you start your computer. They control or maintain the operations of the computer and its devices.

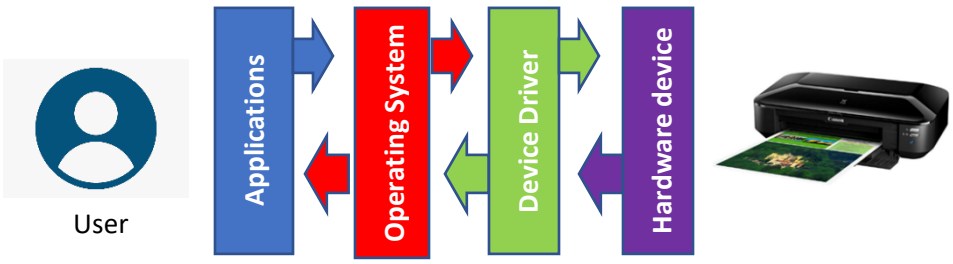
- **Operating system**: is a system software that allows a user to run other applications on a

computing device. In addition, it communicates with hardware devices and manage the files storages.

Examples of operating systems are: MS-DOS, Windows 10 (Home, Pro, Mobile, Enterprise), Linux, and Mac OS for computers. Also, they include Android and IOS for mobile phones.

- **Utilities software:** a type of system software that adds functionality to your computer or helps your computer perform better. They include *antivirus, backup, disk repair, file management, file compression*, and many more. Some of them are built-in with operating systems and others are installed independently.

- **Device driver:** a type of system software that is designed to enable interaction between the hardware device and the operating system or programs that use it. Without the device driver, the corresponding hardware device fails to work. Many hardware devices need drives such as printers, graphic cards, sound cards, network cards, and modems



2. Application Software

It is software designed to make users more productive and assist them with their tasks.

The following are some examples of application programs:

1. Microsoft Word
2. Calculator
3. Microsoft Excel
4. Web browser
5. Microsoft Access
6. Adobe Photoshop
7. Microsoft PowerPoint
8. Games

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