



EDEN CAMPUS NEGOMBO
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Foundation Diploma in information Technology (FDiT)



Course Modules:



Fundamentals of Computing



MS Office package Ms word, MS Excel ,Ms PowerPoint



Hardware Engineering



Cyber security and Network Engineering



Multimedia technology



Web Design and Development



Internet Technology

Diploma in information Technology (DiT)



Course Modules:



Software Engineering



Python Programming



Java



Database Management System



Programming with C#

What is Computer?

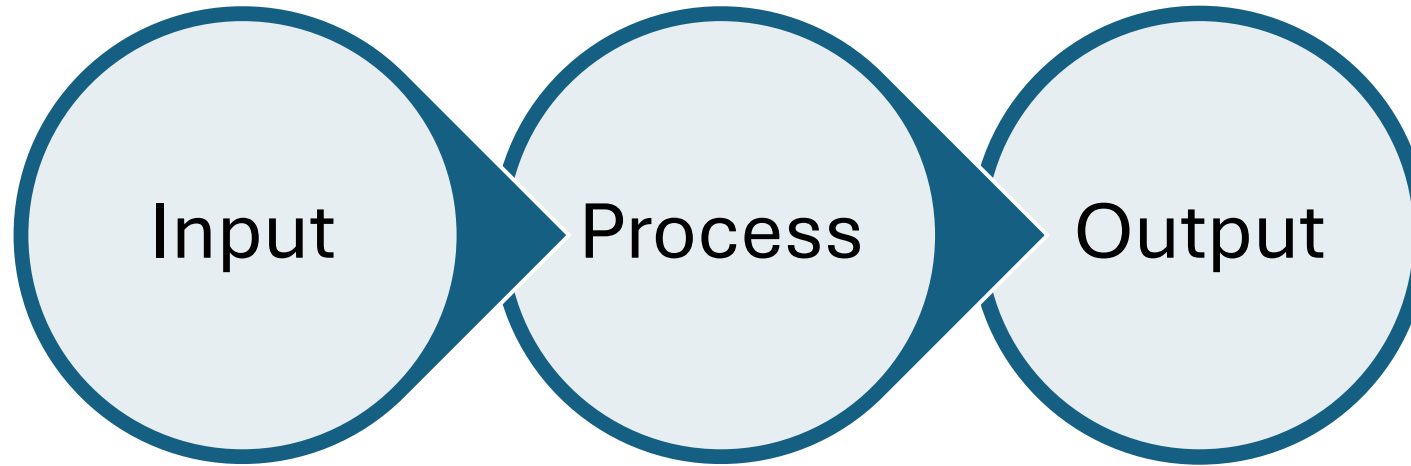
Computer is a multipurpose, programmable, digital electronic device that stores, processes, and displays information

The father of the computer is Charles Babbage

Ada Lovelace was the world's first computer programmer



Basic Functions of a Computer System



Input

- Giving data & Instructions to the computer.
- Example: Typing with a keyboard or clicking with a mouse.

Process

- Working on the data to make it useful.
- Example: A computer adds two numbers together after you type them.

Output

- Showing the result to the user.
- Example: Seeing the answer on the screen or getting a printed page from the printer.

Data

Data are unorganized and unprocessed facts and figures. They must be processed before they can be used for making decisions

Instructions

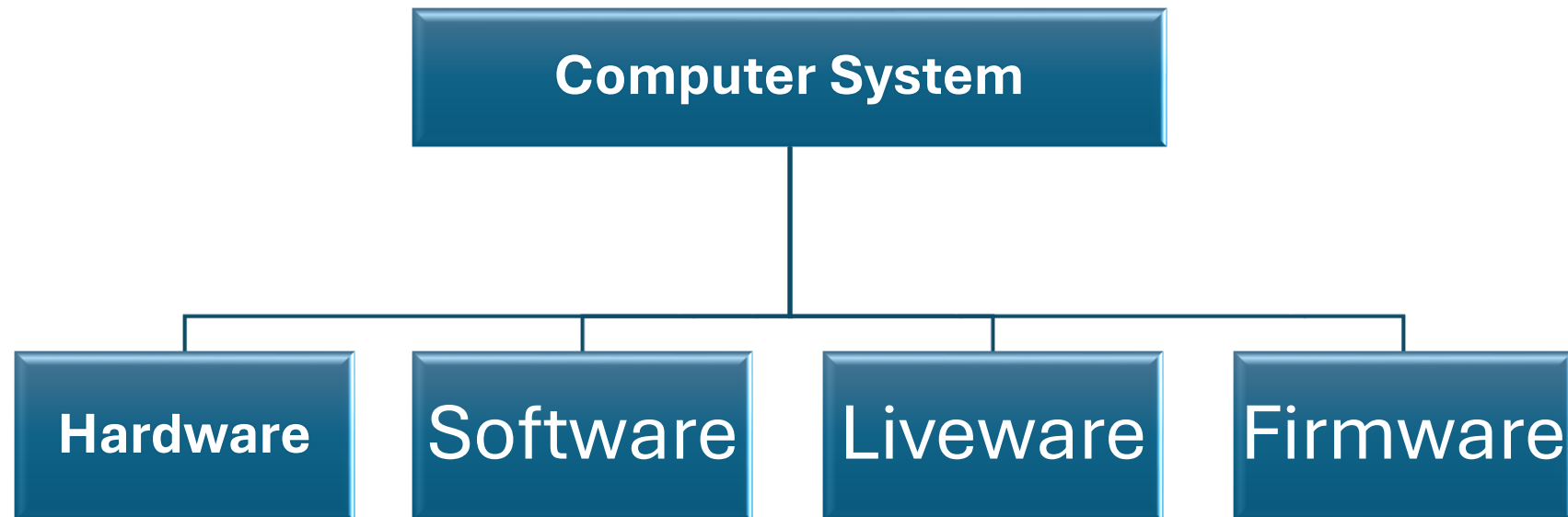
Instructions are commands given to a computer to control its processes.

Information

Information is processed, ordered, and organized data.
It is meaningful and useful for the user.
Information helps people understand facts, solve problems, and make better decisions

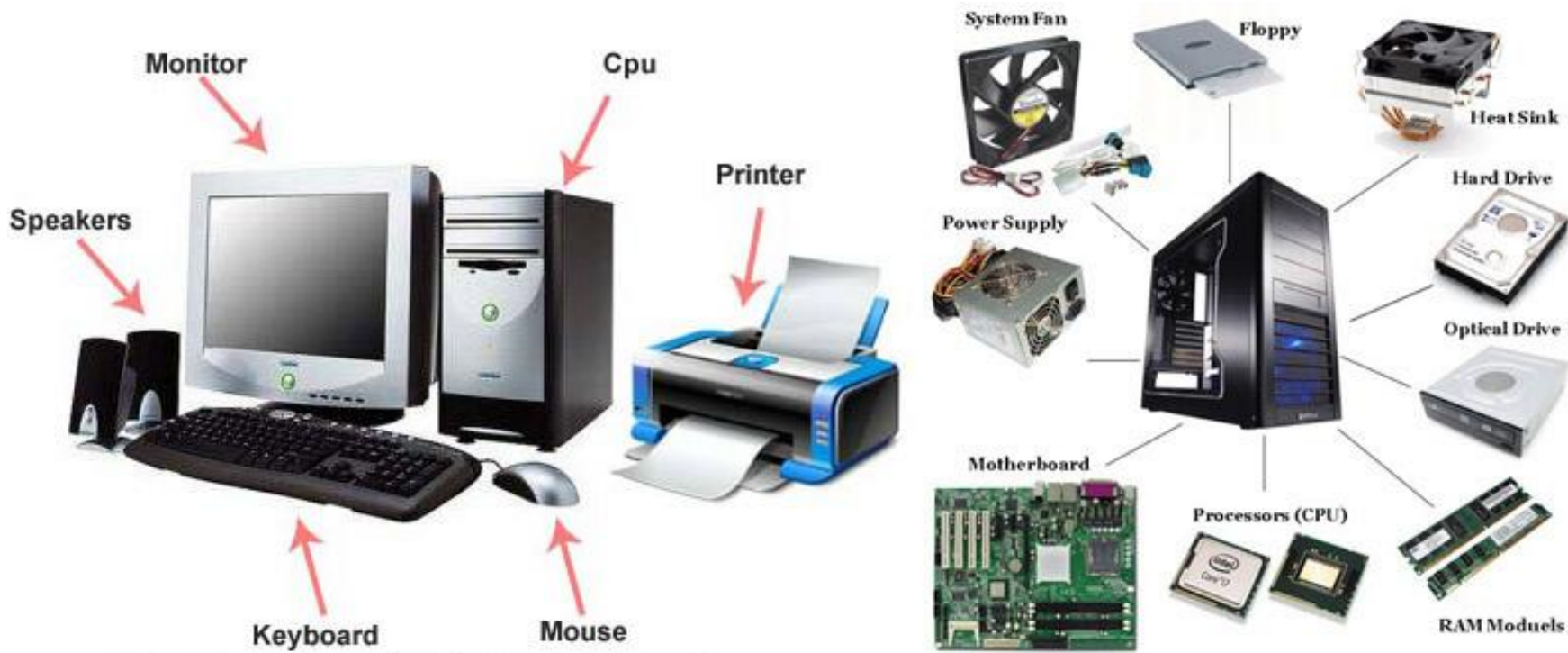
Computer System

A computer system is a collection of different parts (elements) that work together to achieve a common goal — processing and managing information



Computer Hardware

Computer hardware refers to the **physical components** of a computer system. These parts can be touched and seen



Types of Hardware

- **Input Devices:** Devices that allow users to enter data into the computer.
Example: Keyboard, Mouse, Microphone.
- **Output Devices:** Devices that display or give the result of the computer's work.
Example: Monitor, Printer, Speakers.
- **Storage Devices:** Devices that store data for long or short periods.
Example: Hard Drive, SSD, USB Flash Drive, CD/DVD.
- **Processing Devices:** Devices responsible for processing data.
Example: CPU (Central Processing Unit)

Computer Software

Software is a collection of programs and instructions that tell the hardware how to work. Without software, hardware cannot perform any useful task

There are 2 types of Software

1. System Software
2. Application Software

Examples of Operating Software



Android



iOS



Linux



Microsoft Windows



Computer Liveware

Liveware refers to the **human users** who operate and interact with the computer system. They input commands and interpret the results of the computer's processing

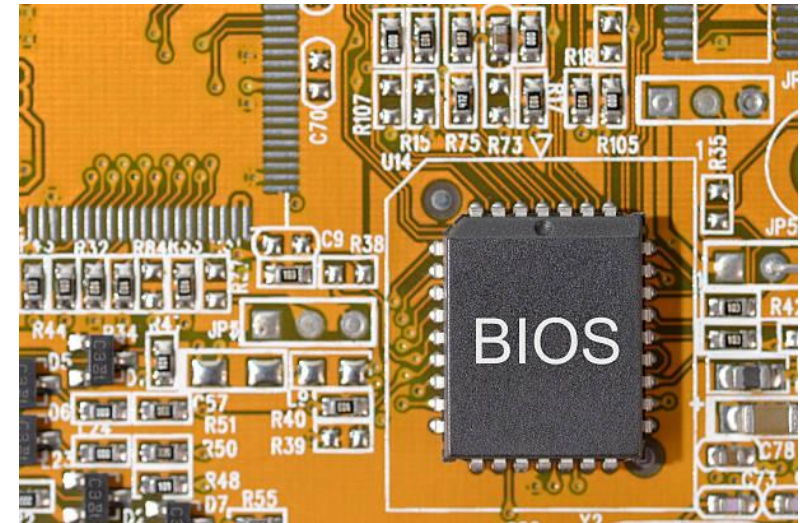
- System Administrators
- Software Developers
- Technicians
- Graphic Designers

Computer Firmware

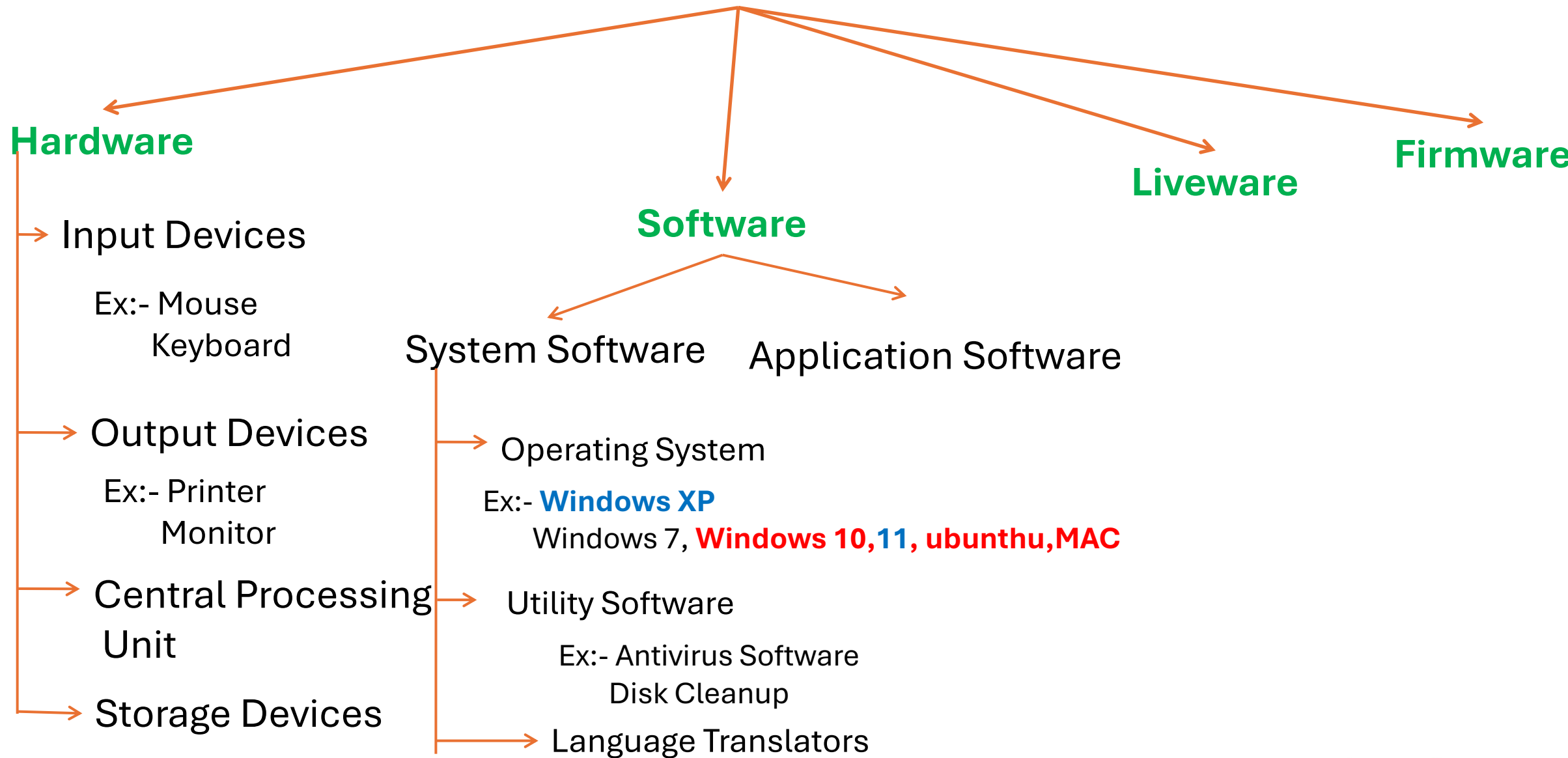
Firmware is **specialized software** stored permanently inside hardware devices. It is stored in read-only memory (ROM) or flash memory and controls the basic functions of the hardware.

Examples of Firmware:

- ✓ BIOS (Basic Input Output System): A type of firmware that allows the computer to boot up and perform basic functions before loading the operating system.
- ✓ Router Firmware: The software that controls how a router operates.
- ✓ Printer Firmware: Software that allows printers to communicate with computers



Total Computer System



Input Devices

Input devices are hardware devices that allow users to enter data or give commands to a computer. They help the computer receive information from the outside world. Here are some common input devices:

Keyboard

Purpose: Used to type text and commands into a computer.

Example: Typing an email or entering a password.



Mouse

Purpose: A pointing device used to move the cursor on the screen and click on icons or buttons.

Example: Clicking on links, selecting text, or dragging files.



Touchpad

Purpose: Used to type text and commands into a computer.

Example: Typing an email or entering a password.



Scanner

Purpose: A pointing device used to move the cursor on the screen and click on icons or buttons.

Example: Clicking on links, selecting text, or dragging files.



Microphone

Purpose: Used to type text and commands into a computer.

Example: Typing an email or entering a password.



Webcam

Purpose: A pointing device used to move the cursor on the screen and click on icons or buttons.

Example: Clicking on links, selecting text, or dragging files.



Digital Camera

Purpose: Used to type text and commands into a computer.

Example: Typing an email or entering a password.



Joystick/Game Controller

Purpose: A pointing device used to move the cursor on the screen and click on icons or buttons.

Example: Clicking on links, selecting text, or dragging files.



Barcode Reader

Purpose: Used to type text and commands into a computer.

Example: Typing an email or entering a password.



Graphics Tablet

Purpose: A pointing device used to move the cursor on the screen and click on icons or buttons.

Example: Clicking on links, selecting text, or dragging files.



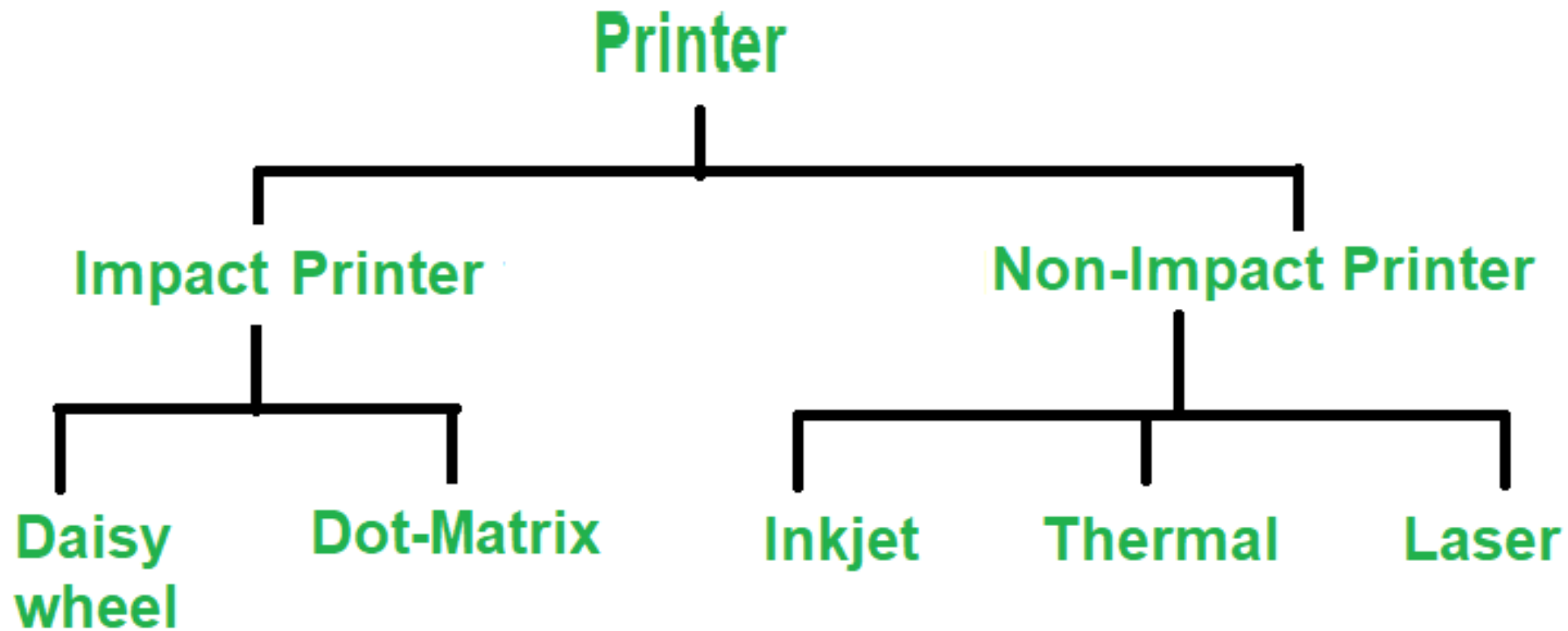
Output Devices

Output devices are hardware components used to display or present the information that a computer processes. They allow the user to receive the results of the computer's operations.

- **Monitor** – Displays text, images, and videos on the screen.
- **Printer** – Produces a paper copy (hard copy) of digital documents or images.
- **Speakers** – Output sound such as music, voice, or alerts.
- **Projector** – Projects computer screen content onto a large surface like a wall or screen.

Printer

A **printer** is an output device that produces a **hard copy** (physical copy) of documents, images, or other digital content from a computer.



Printer- Dot Matrix Printer

- Prints by striking pins against an ink ribbon.
- Noisy and lower quality, but useful for multipart forms (like receipts).
- Used for: Industrial or billing environments.



Printer- Laser Printer

- Uses laser and toner to print.
- Fast and cost-effective for high-volume printing.
- Used for: Offices and schools.



Printer- Inkjet Printer

- Sprays tiny drops of ink onto paper.
- Good for high-quality photo printing.
- Used for: Home or small office use.



Comparison of Printer Types

Feature	Inkjet Printer	Laser Printer	Dot Matrix Printer	Thermal Printer
Print Quality	High (especially color)	Very high (text)	Low	Medium
Speed	Moderate	Fast	Slow	Very Fast
Cost	Low initial cost	Higher initial cost	Low	Medium
Noise Level	Quiet	Quiet	Noisy	Quiet
Best For	Photos, home use	Office documents	Invoices, forms	Receipts, labels

Monitor

A monitor is an important output device that displays text, images, videos, and other information processed by the computer. It is also called a Visual Display Unit (VDU).

- CRT Monitor (Cathode Ray Tube)
- LCD Monitor (Liquid Crystal Display)
- LED Monitor (Light Emitting Diodes)



Simple Comparison Table

Feature	CRT Monitor	LCD Monitor	LED Monitor
Size	Bulky, Heavy	Slim, Lightweight	Slimmest, Lightweight
Power Consumption	High	Medium	Low
Image Quality	Good	Better (sharp)	Best (bright and vivid)
Usage Today	Very rare	Common	Very common

Central Processing Unit (CPU)

The CPU is known as the "brain" of the computer. It controls all operations and processes inside a computer.

It performs calculations, runs programs, and manages data flow between the computer's hardware and software.



Main Components of the CPU

- Arithmetic and Logic Unit (ALU)
- Control Unit (CU)
- Cache Memory
- Memory Registers

Main Components of the CPU

Arithmetic and Logic Unit (ALU)

- Performs all mathematical operations like addition, subtraction, etc.
- Also performs logical operations such as comparing numbers.

Control Unit (CU)

- Controls and manages how the computer's parts work together.
- Tells other components what to do based on the instructions.

Main Components of the CPU

Cache Memory

- A high-speed memory between the CPU and RAM.
- It helps to quickly transfer data and instructions from RAM to the CPU.

•Memory Registers

Small storage areas inside the CPU.

- Temporarily hold data or instructions while the CPU is working.
- Help speed up the processing tasks.

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Storage Devices

Storage devices are used to **store data, instructions, and information** in a computer system. They allow the computer to save and retrieve content when needed.

Primary Storage (Also called **Main Memory** or **Internal Memory**)

- This is the computer's main memory used during processing.
- It holds data and instructions temporarily while the CPU works.
- It is faster but has limited storage.

Examples:

- **RAM (Random Access Memory)**
- **ROM (Read Only Memory)**

RAM (Random Access Memory)

- RAM stores all the currently running programs, software, and data that the computer is using.
- It is a volatile memory, which means it loses all data when the computer is turned off.
- RAM is a temporary memory, used only while the computer is running.
- It is much faster than secondary storage devices like hard drives or USBs.



Read-Only Memory (ROM)

- ROM is a type of memory that is pre-recorded by the computer manufacturer.
- The data in ROM cannot be changed or erased easily — it can only be read.
- ROM is a non-volatile memory, which means it keeps the data even when the computer is turned off.
- It is used to store permanent instructions, such as the programs needed to start (boot) the computer.

Secondary Storage Devices

Hard Disk Drive (HDD)

- Main storage device in most computers.
- Large capacity and affordable.
- Uses magnetic storage.



CD (Compact Disc)

- Optical storage medium.
- Can store up to 700MB of data.
- Used for music, software, or documents.



DVD (Digital Versatile Disc)

Similar to CD but with more storage (4.7GB to 8.5GB).
Used for videos, games, and software.

Secondary Storage Devices

Pen Drive (Flash Drive)

- Easy to use and carry.
- Stores from 2GB to 1TB or more
- Small, portable USB device.



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- Can store up to 700MB of data.
- Used for music, software, or documents.



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