

MODULE : COMPUTER FUNDAMENTALS

DEVQII

WEEK 1 : INTRODUCTION TO COMPUTING

DEVQI



Learning Objectives

By the end of this lesson, students should be able to:

1. Define what a computer is and explain its basic functions.
 2. Identify and describe the major **types** and **characteristics** of computers.
 3. Explain the **generations of computers** and their evolution.
 4. Distinguish between **hardware**, **software**, and **firmware**.
 5. Identify key components of a PC and describe their functions.
 6. Produce a short documentation report describing a computer system and its components.
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1 What is a Computer?

A **computer** is an **electronic device** that receives data (input), processes it according to a set of instructions (processing), produces information (output), and stores it for future use (storage).

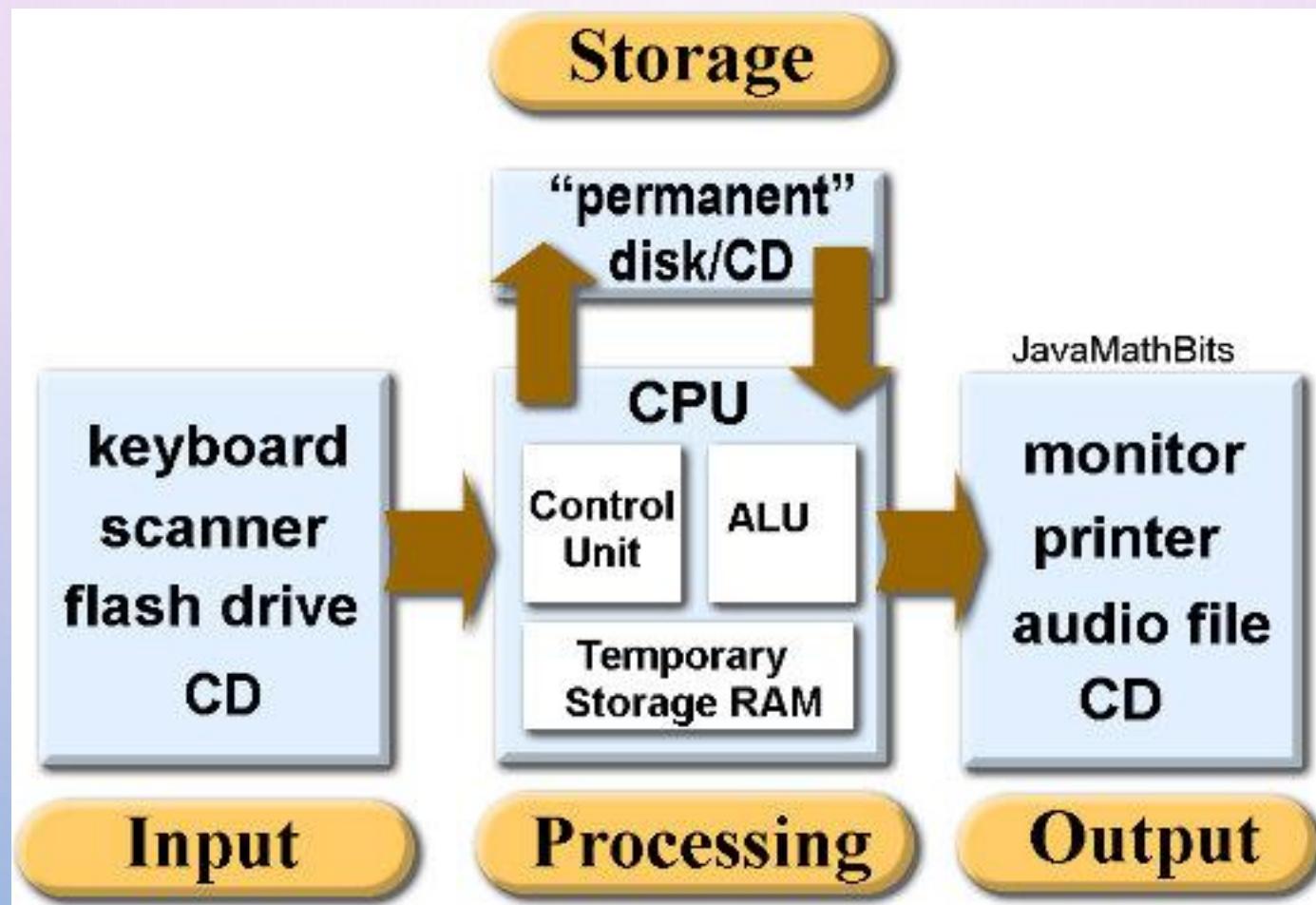
Basic Definition:

A computer is an electronic machine that accepts data as input, processes it, and produces useful information as output.

The Basic Functions of a Computer

Function	Description	Example
Input	Receiving data and instructions	Keyboard, Mouse
Processing	Performing operations on the data	CPU operations
Output	Displaying the result of processing	Monitor, Printer
Storage	Saving data and results	Hard disk, Flash drive

Diagram



2 Types of Computers

Computers can be classified by **size, purpose, or data processing method.**

(A) By Size/Performance

Type	Description	Example
Supercomputers	Fastest and most powerful; used for complex computations	NASA systems
Mainframe Computers	Used in large organizations for bulk data	Banks, Airlines
Minicomputers	Mid-range computers for small organizations	Industrial control
Microcomputers (PCs)	Personal use, general purpose	Laptops, Desktops
Embedded Systems	Built into other devices	ATMs, Cars, Smart TVs

Based on Size



Supercomputers



Mainframe Computers



Minicomputers
(Mid-range Computers)



Microcomputers
(Personal Computers)



Embedded Computers

(B) By Purpose

- 1. General Purpose Computers** – Handle various tasks (e.g., Word processing, gaming).
- 2. Special Purpose Computers** – Designed for one specific job (e.g., ATM, car control unit).



3 Characteristics of Computers

Characteristic	Description
Speed	Performs millions of operations per second
Accuracy	Very precise if properly programmed
Automation	Can perform tasks automatically
Storage Capacity	Stores vast amounts of data
Versatility	Can perform different types of tasks
Diligence	Never gets tired or bored
Connectivity	Connects with other computers and devices easily

4 Overview of Computer Generations

Computers have evolved over time in terms of **technology, speed, and size**.

Generation	Period	Technology Used	Example
1st Generation	1940–1956	Vacuum Tubes	ENIAC, UNIVAC
2nd Generation	1956–1963	Transistors	IBM 7094
3rd Generation	1964–1971	Integrated Circuits (ICs)	IBM 360
4th Generation	1971–Present	Microprocessors	Personal Computers
5th Generation	Present and Future	Artificial Intelligence, Quantum Computing	AI systems



Note: Each generation brought smaller, faster, and more reliable computers.



Vacuum Tube



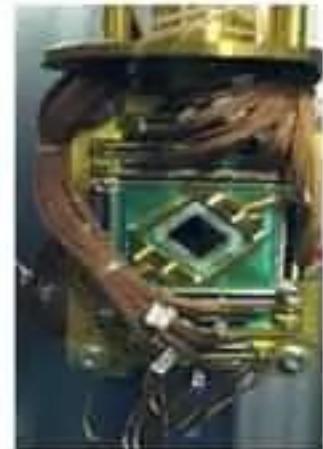
Transistors



Integrated Circuit



Microprocessor



Quantum Computer



1st Generation
Computer



2nd Generation
Computer



3rd Generation
Computer



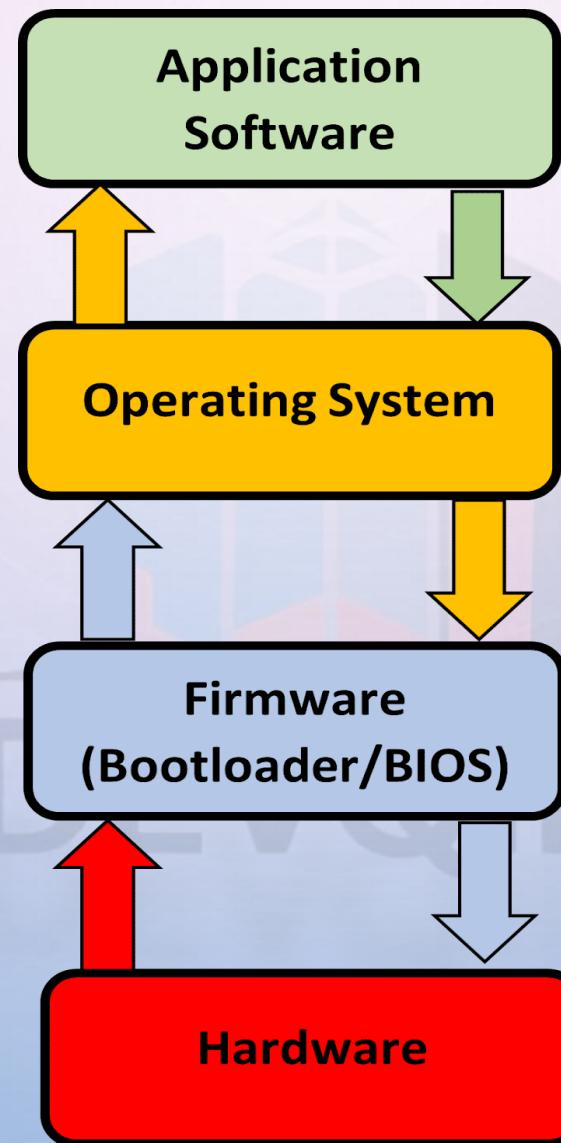
4th Generation
Computer



5th Generation
Computer

5 Hardware vs Software vs Firmware

Component	Description	Examples
Hardware	The physical parts of a computer that you can touch	CPU, Monitor, Mouse
Software	The set of instructions that tell the hardware what to do	Windows, MS Word
Firmware	Software that is embedded into hardware and controls its functions	BIOS, router OS



END OF WEEK ONE

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