Rotaract
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INTRODUCTION TO
COMPUTERS

LESSON 01

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Introduction to Computers

Nowadays, the computer plays an essential role in our day-today activities. A computer makes our day-to-day tasks easier and faster. Computers can be seen in banks, shops, schools, hospitals, railway stations, and many more places, including our home. As they are such an essential part of our lives, we must have a basic idea about computers in the general introduction.

What is a Computer?

Simply a computer is a machine that can calculate. However, a computer is a programmable electronic machine used to store, retrieve, and process data.

Significant features of a computer

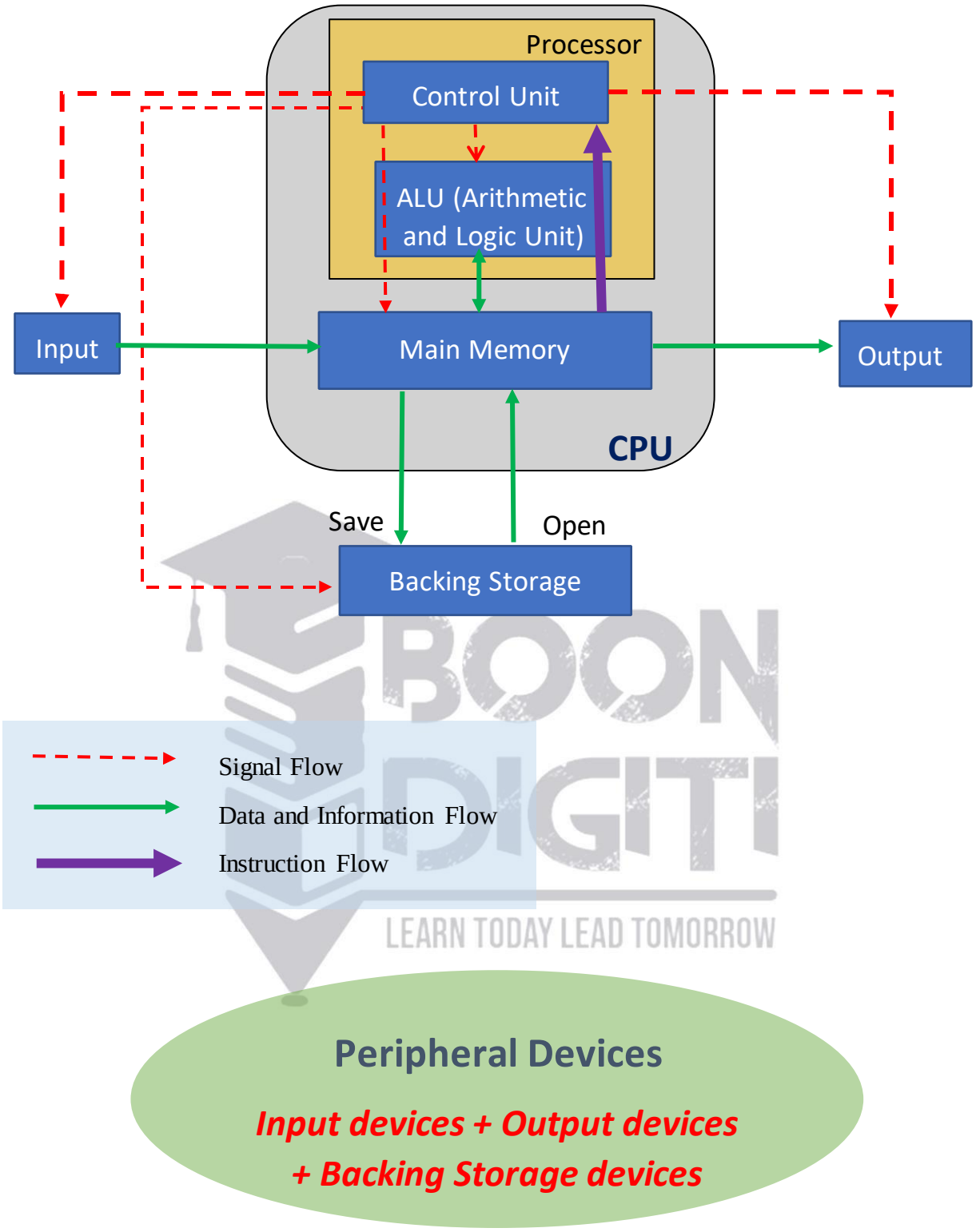
- ✞ Higher Speed
- ✞ Higher Accuracy
- ✞ Higher Efficiency
- ✞ Well informed/ Versatile
- ✞ Keep in memory
- ✞ No feelings
- ✞ No intelligence/ Artificial Intelligence

Main components of a computer

i. Input devices
ii. Output devices
iii. CPU (Central Processing Unit) iv. Backing storage

Whatever is given to the computer as **input** is called **'data'**, while the **output** received **after processing** is called **'information'**.

Block diagram of a Computer (Computer Architecture)



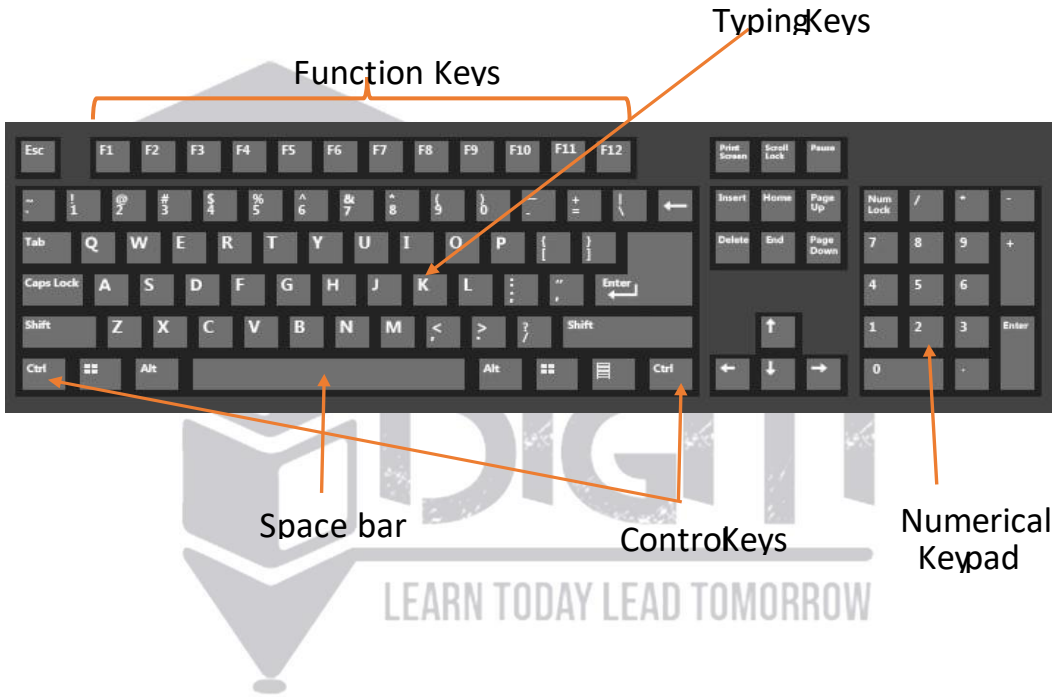
A. Input devices

Input devices are used to input data to the computer. Common input devices are the Keyboard and Mouse.

1) Keyboard

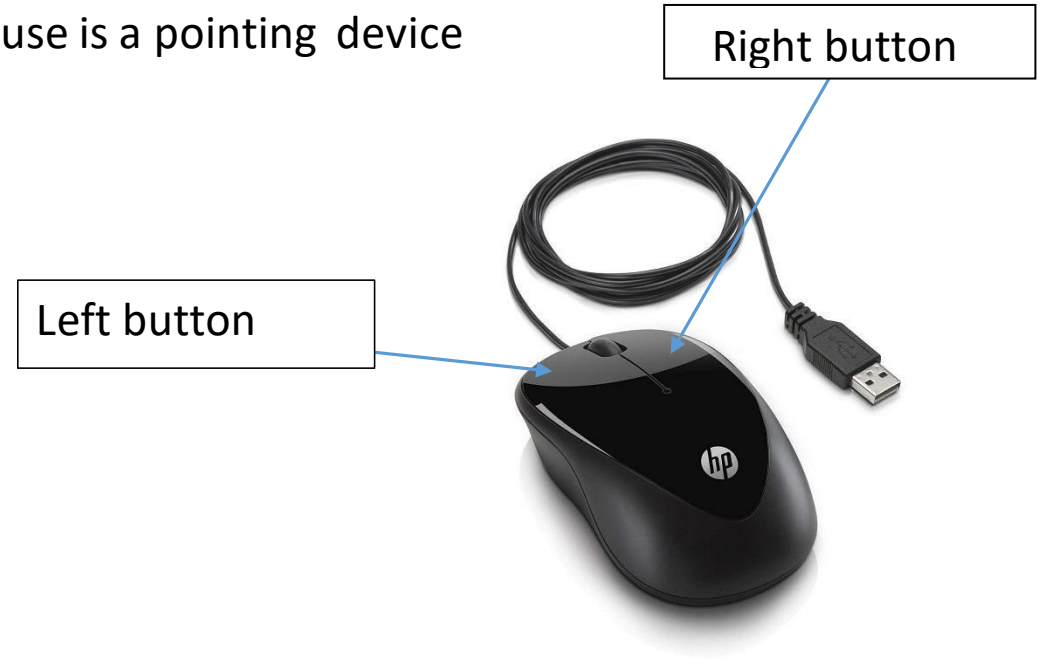
The typing keys layout is known as “QWERTY” for the first six letters in the layout.

Common control keys are : **Home, End, Insert, Delete PgUp, PgDn, Ctrl, Alt, Esc.**



2) Mouse

The mouse is a pointing device



3) Trackball

4) Light pen pointing device

5) Joystick

6) Microphone

7) Digital camera

8) Scanner

9) Barcode Reader

B. Output devices

Output devices are used to obtain outputs from a computer.

1) Monitor

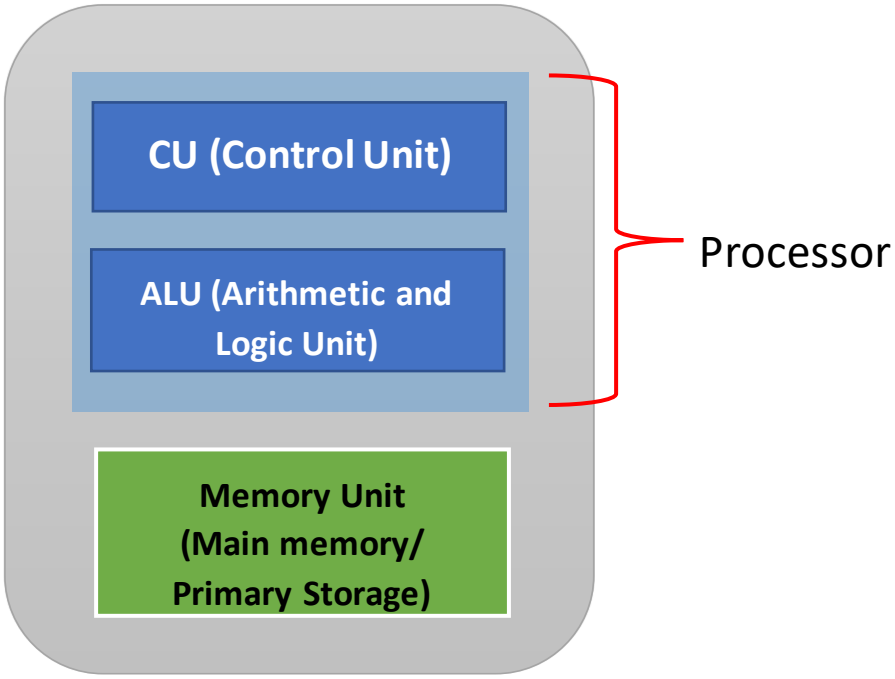
The most common type of monitors.

- CRT (Cathode Ray Tube)
- LCD (Liquide Crystal Display)

2) Printer

3) Speakers

C. CPU



ALU (Arithmetic and Logic Unit)

ALU performs operations such as additions, subtractions, multiplications, divisions on data.
It also performs logical operations which involve comparison of data.

CU (Control Unit)

CU controls and directs the operations of the entire computer system.
It obtains instructions from the program stored in the main memory.

Processor

Processor = ALU + CU

Types of processors:
Intel, AMD, IBM,
Motorola, Cyrix

Memory

a) Main Memory

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

b) Cache memory

(1) RAM (Random Access Memory)

RAM (main memory) is the computer's short-term memory that **temporarily** holds data and instructions which will be needed shortly by the CPU.
RAM is volatile, which means that it loses its data when the computer turns off.
RAM capacities: 64MB, 128MB, 256MB,512MB, 1GB, 2GB, …
There are two types of RAMs.

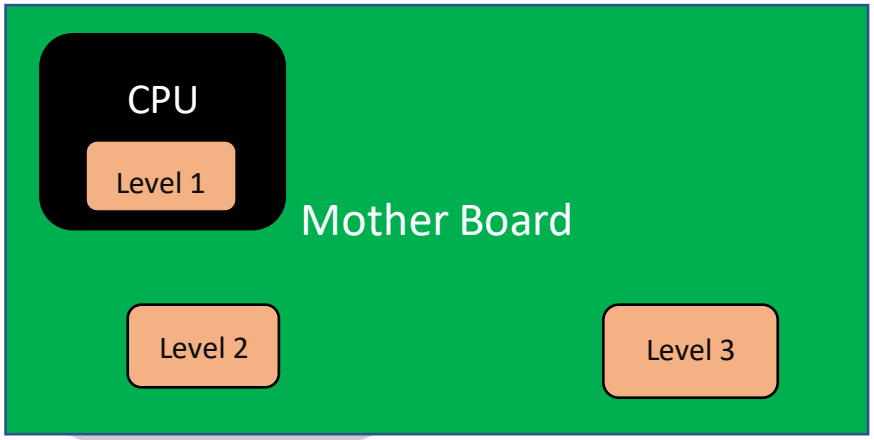
i. SRAM (Static RAM)
ii. DRAM (Dynamic RAM)

(2) <u>ROM (Read Only Memory)</u>

A type of data storage device which is manufactured with fixed contents.
ROM is a firmware.
ROM is nonvolatile storage and contains critical programs such as the program that boots the computer.
There are three types of ROMs.

i. PROM (Programmable Read-Only Memory)
ii. EPROM (Erasable Programmable Read-Only Memory)
iii. EEPROM (Electrically Erasable Programmable Read-only Memory)

(3) Cache Memory



Cache memory is a computer's short-term memory that temporally holds data and instructions which will be needed shortly by the CPU.
Data and instruction can be retrieved from cache memory very speedily.

i. Primary cache memory (Level 1/ L1)
ii. Secondary cache memory (Level 2/ L2)
iii. Tertiary cache memory (Level 3/ L3)

Primary cache memory	Secondary cache memory
Situated on CPU	Situated on motherboard
Low capacity	High capacity
Read first	Read secondly
High speed	Low speed

(4) Secondary Memory

Other names for the secondary storage:

i. Backing storage
ii. External storage
iii. Auxiliary storage

Use to store a large volume of information permanently. They can use as input and output devices.

- ✦ Hard Disk Drive (HDD)
- ✦ Floppy Disk
- ✦ Zip Disk and Jazz Disk
- ✦ Pen drive/ Flash disk
- ✦ Optical Storage Devices
- ✦ Magnetic Tapes

Ports

Male port
(Pins)

Female port
(Holes)