

Fundamentals of Computers and Computing

CSE 1101

(Computer organization)

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The Information Processing Cycle

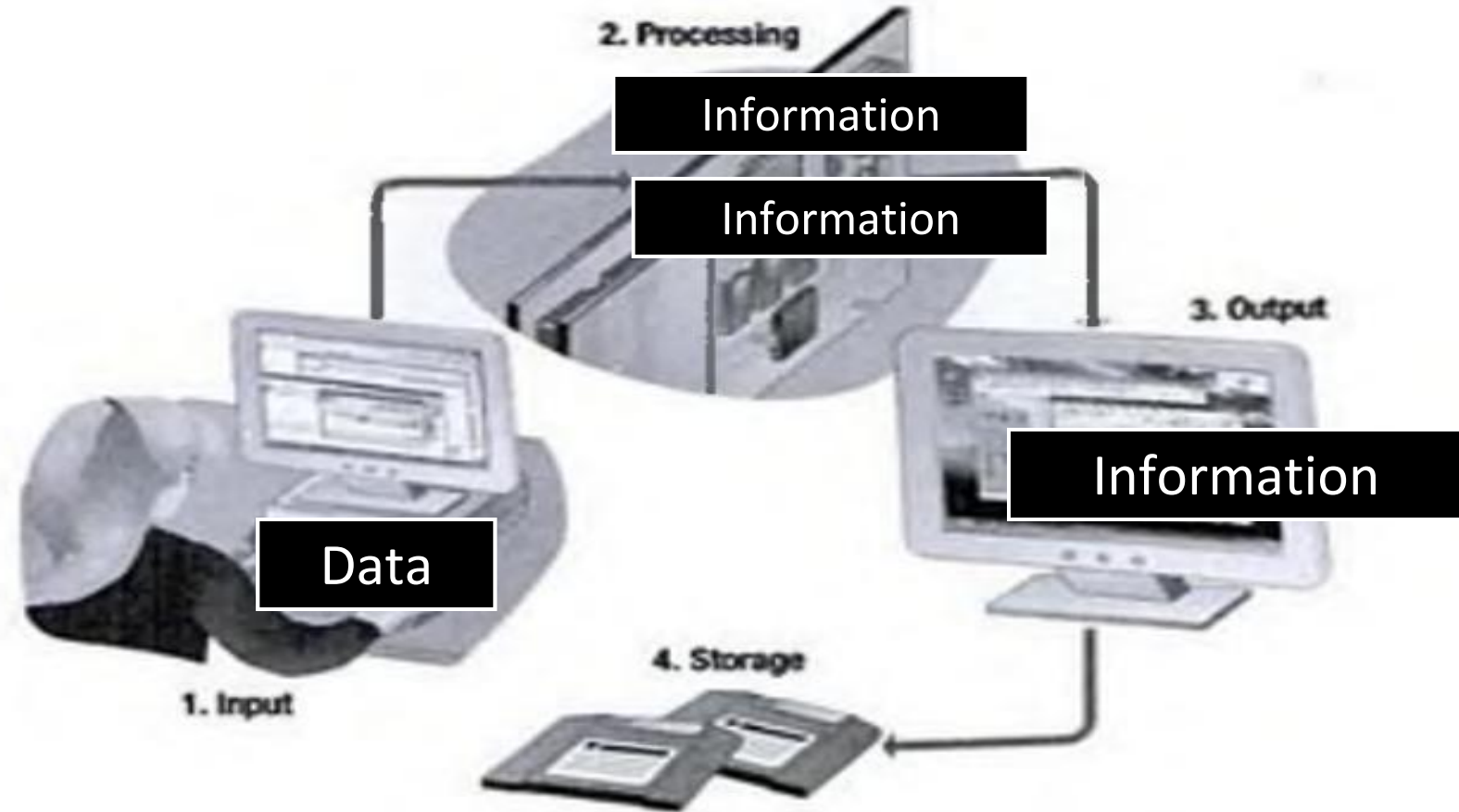
- Information processing cycle is **a set of steps** the computer follows to **receive data**, **process the data** according to **instructions from a program**, display the resulting information to the user, and store the results.

Parts of the Information Processing Cycle

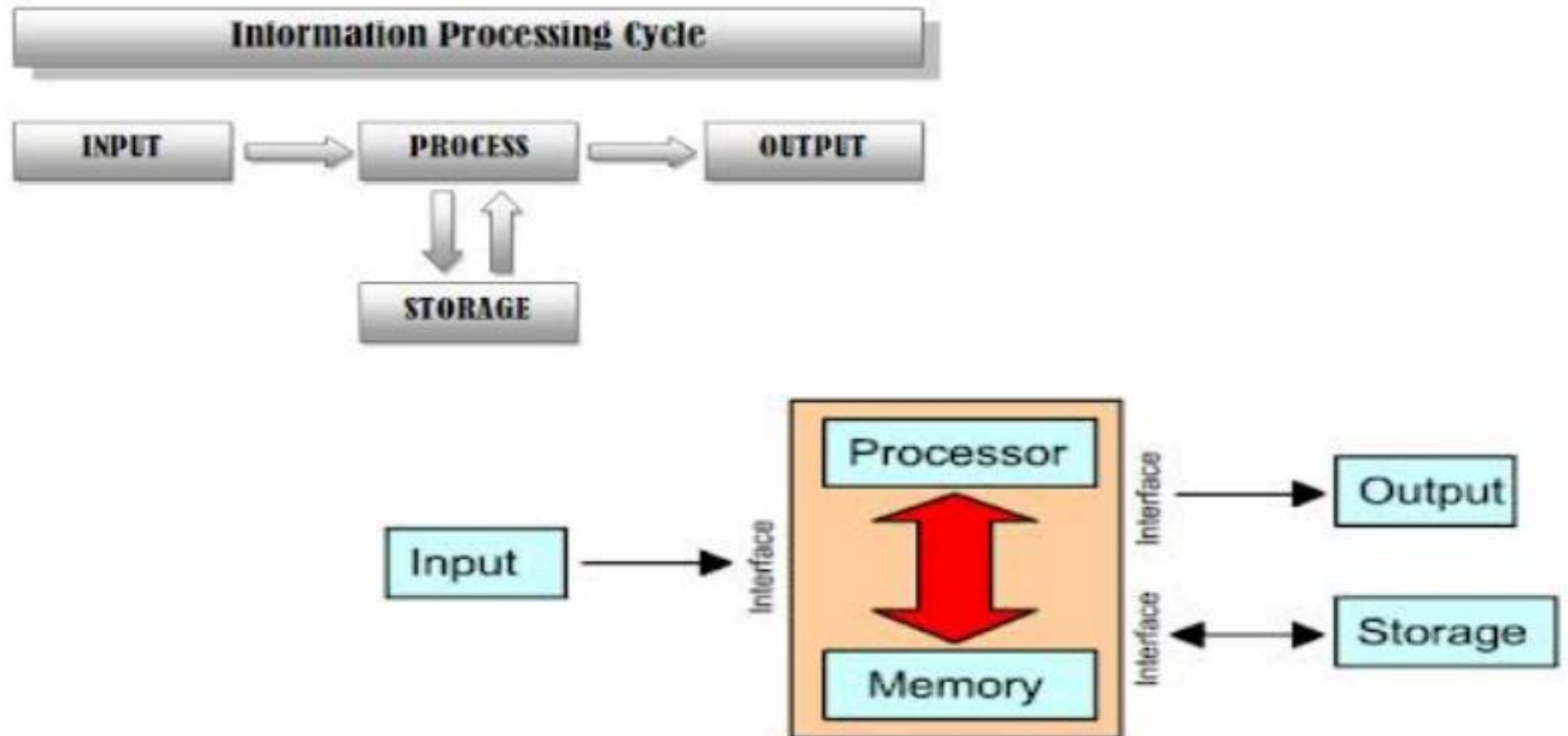
information processing Cycle Has four parts, each part involves one or more specific components of the computer

- **Input:** Computer accept data from source
- **Processing:** The computer's processing components perform actions on the data, based on instructions from the user or a program.
- **Output:** Display result
- **Storage:** Permanently store data into storage medium.

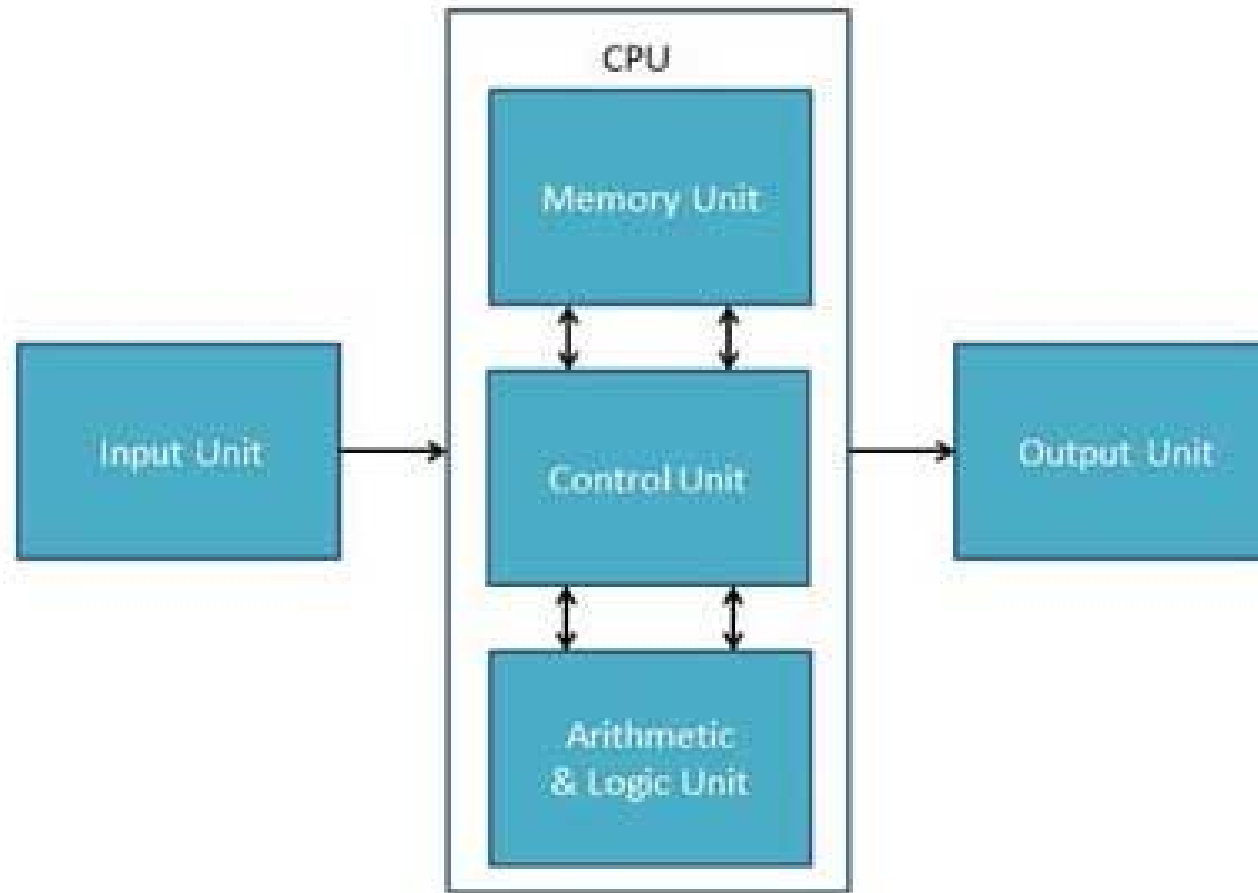
The Information Processing Cycle



The Information Processing Cycle



Basic structure of computer



1. Input unit

- This unit contains devices with the help of which we enter data into computer. This unit makes link between user and computer. The input devices translate the information into the form understandable by computer.
- Example: Keyboard, Mouse, Joy Stick, Light pen, Track Ball, Scanner, Graphic Tablet, Microphone, Magnetic Ink Card Reader(MICR), Optical Character Reader(OCR), Bar Code Reader, Optical Mark Reader(OMR)

Input devices

Input Devices of Computer



Touch screen

Camera



Scanner



Joystick



Microphone



Mouse

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Keyboard



Web cam



Track ball

2. CPU (Central Processing Unit)

Main features:

- CPU is considered as the brain of the computer.
- CPU performs all types of data processing operations.
- It stores data, intermediate results and instructions(program).
- It controls the operation of all parts of computer.

CPU itself has following three components

1. ALU (arithmetic logic unit)
2. Memory unit
3. Control unit

Memory or Storage Unit

This unit can store instructions, data, and intermediate results.

This unit supplies information to other units of the computer when needed. It is also known as internal storage unit or the main memory or the primary storage or Random Access Memory (RAM).

Memory or Storage Unit

Size of memory affects speed, power, and capability. Primary memory and secondary memory are two types of memories in the computer.

Functions of the memory unit are –

- It stores all the data and the instructions required for processing.
- It stores intermediate results of processing.
- It stores the final results of processing before these results are released to an output device.
- All inputs and outputs are transmitted through the main memory.

Control Unit

This unit controls the operations of all parts of the computer but does not carry out any actual data processing operations.

Functions of this unit are –

- It is responsible for controlling the transfer of data and instructions among other units of a computer.
- It manages and coordinates all the units of the computer.
- It obtains the instructions from the memory, interprets them, and directs the operation of the computer.
- It communicates with Input/output devices for transfer of data or results from storage.
- It does not process or store data.

ALU (Arithmetic Logic Unit)

This unit consists of two subsections namely,

- Arithmetic Section
- Logic Section

Arithmetic Section: Function of arithmetic section is to perform arithmetic operations like addition, subtraction, multiplication, and division. All complex operations are done by making repetitive use of the above operations.

Logic Section: Function of logic section is to perform logic operations such as comparing, selecting, matching, and merging of data.

3. Output Unit

- Output unit consists of devices with the help of which we get the information from computer. This unit is a link between computer and users. Output devices translate the computer's output into the form understandable by users.
- Example: Monitor, Printers, Plotters, Projector, LCD Projection Panels, Speaker, Head Phone, Visual Display Unit, etc.

Output devices

SPEAKER



MONITOR



HEADPHONE



Output Devices of Computer

PLOTTER



PROJECTOR



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PRINTER

