

A COMPUTER

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Definition

- By definition a computer can be explained as an electronic device that accepts data, process data, manipulate data, saves data and output data in the form of information.

Data manipulation

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- Consist arithmetic's and logic's operators
- Arithmetic operators (+, -, x, /)
- Logic operators (=, <, >, >=, <=)

Section of a CPU which deals with data manipulation is called **ALU** (Arithmetic logic unit)

Electronic device

- This is a device that use direct current (DC) power to operate.
- This power can be obtained in batteries

- Or the device itself will contain a unit called power supply that will convert an Alternative current (AC) to direct current (DC) and supply appropriate power into the device

NB:

PSU – Power Supply Unit

- Electrical Devices – Use AC Power

Alternative Current (AC)

- This is a power that we get in our houses

Examples of electronic devices

- Television set
- Calculator
- Microwave oven
- Radio
- DVD player
- Mobile phones
- Play stations, etc

- Is an electronic device which process data according to set of instructions obtained in a program
- Is an electronic device for data processing and manipulation which outputs information
- Is an electronic device which use input data and transform it under influence of software to produce desired information

Two main divisions of a Computer

- Computer hardware
- Computer Software

Computer Hardware

Is a physical appearance of electronic components found within a computer system, e.g.

- Monitor
- Central processing Unit (CPU)
- Keyboard
- Mouse, etc

Classes of Computer Hardware

- Input devices
- Processor unit
- Output devices

INPUT DEVICES

Are those devices which used to enter data and information into the computer. Example,

- Keyboard, Mouse, Digital camera, Web Camera, Microphones, Scanner, etc

PROCESSOR UNIT

Also called CENTRAL PROCESSING UNIT (CPU), is where all activities of a computer are done.

Comprises items such as

- Processor chip, Motherboard, Power supply, Memory cards, etc

OUTPUT DEVICES

Are used to display data and information from the computer in the form of softcopy and hardcopy. Such as,

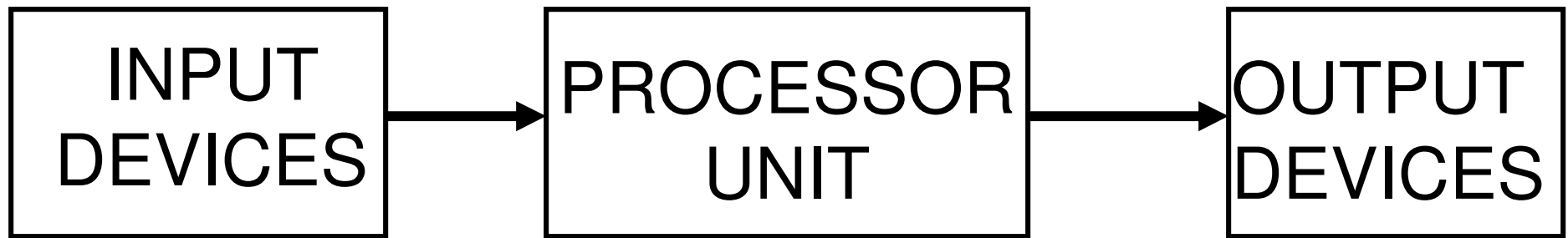
- Monitor
- Printer
- Speaker
- Projector. etc

Quiz

1. Define computer
2. Mention the classes of computer hardware
3. Differentiate between computer hardware and hardcopy
4. Mention three devices that output information in the form of softcopy
5. Differentiate between scanner and printer

Block diagram of computer hardware (1st alternative)

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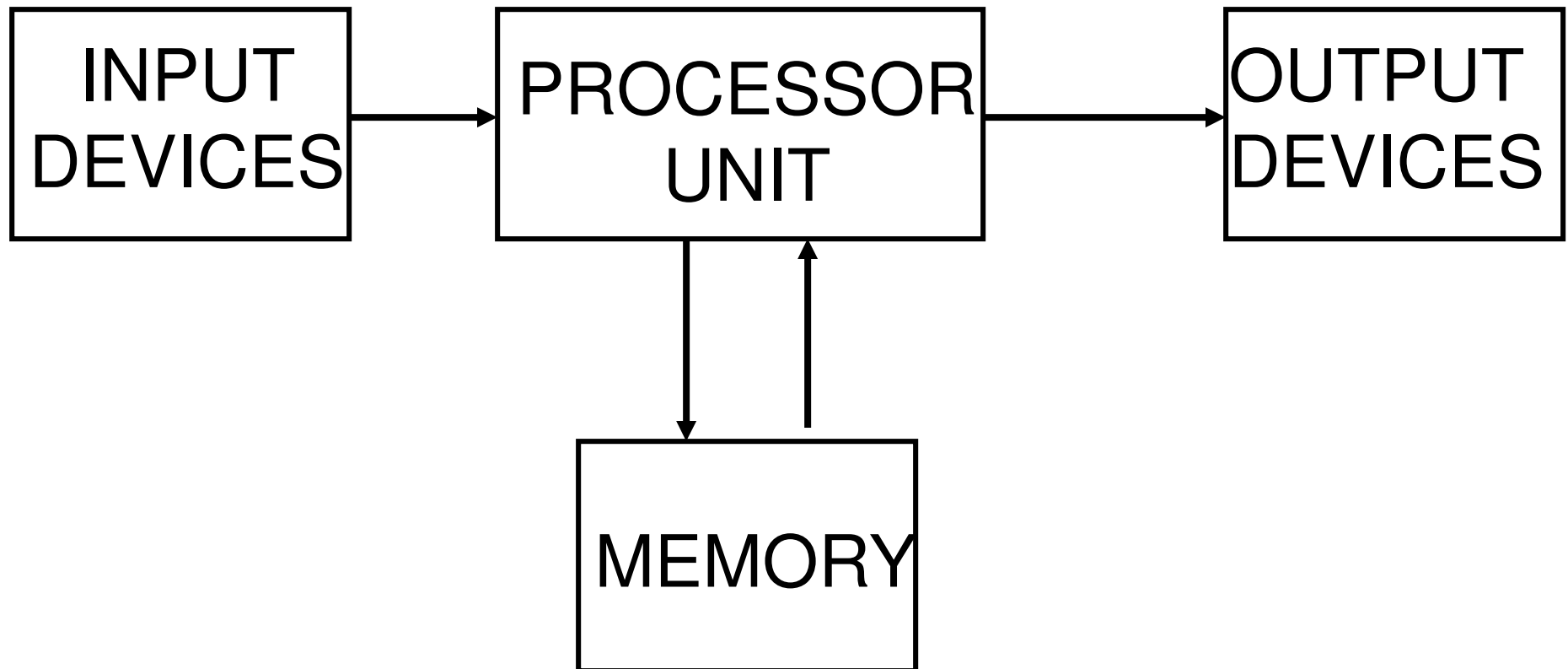


- Keyboard
- Mouse
- Scanner
- Microphone
- Digital camera, etc

- Motherboard
- CPU chip
- Memory
- Power supply unit (PSU), etc

- Monitor
- Printer
- Projector
- Speaker, etc

Block diagram of computer hardware (2nd alternative)



The INPUT-PROCESS-OUTPUT (IPO) process

As computers are capable of,

- Accepting data
- Processing data
- Producing the results of processed data in the form of information

This process can be named as Input-Process-Output

A Calculator

- You press 1 and the number appears on the screen, this process is called INPUT
- When you input all the information necessary, calculator do all the calculations. This process is called PROCESSING
- Then the results are displayed on the screen, this process is called OUTPUT

Data and Computer System

- A computer system is an integrated system of hardware and software that enable data to be **input**, then **processed** and the results **communicated** to the user.
- That is INPUT-PROCESS-OUTPUT

Input stage of a computer system

- When you input data into the computer, it is converted into codes, for example in Ms-Excel the date 26th September 1964 is given a code 23646. this is because its 23646 day from 1st January 1900.

- Then the data entered should be checked to make sure it's the right type (**validation**) eg: to find a percentage of a certain number. The % is 100 not otherwise
- The data should be also checked that it was entered correctly (**verification**)

Processing stage of a computer system

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- Processing involves turning data into information. For example, a set of examination results could be put into a computer which then **calculates** the average score.

- a set of examination results (Student's test scores) is input **data**
- The class' average score or the school's average score is the **information** that can be concluded (processed) from a given data.

Output stage of a computer system

- Output is when the computer communicates the **results** of the data processing to the user. At this point data becomes information.
- The most two common ways are a **screen display** and **printed paper**.

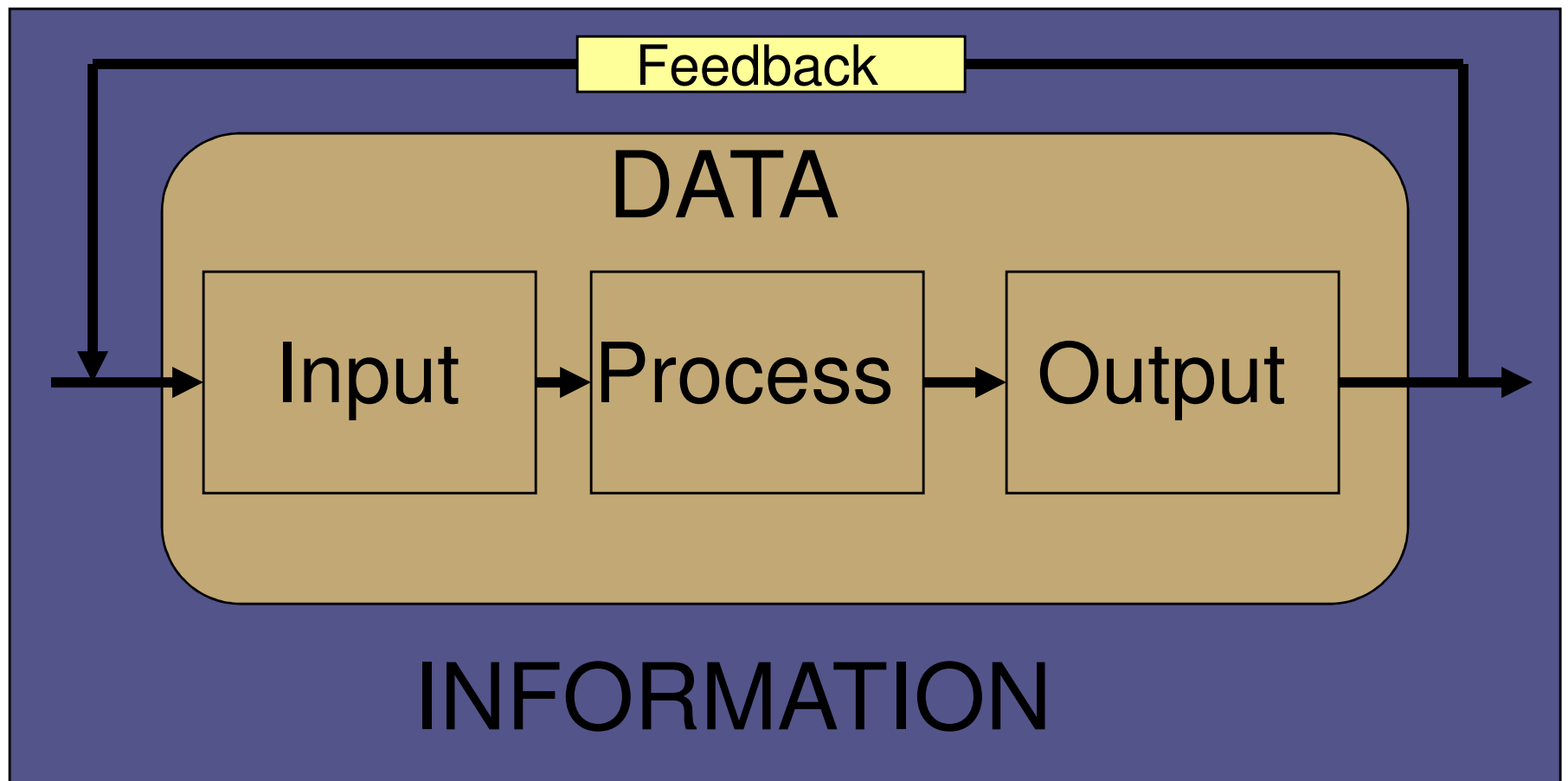
Example of a question

- Explain the process of input-process-output of a computer system / or calculator / or traffic lights / or microwave oven etc

NB:

- The information obtained at the output stage can then be used as **feedback** to **input more data**. This turns the system into a cycle.

A diagram of Feedbacks of input-process-output



homework

1. Explain the process of INPUT-PROCESS-OUTPUT of a microwave oven
2. What is feedback of input-process-output