



جامعة المستقبل  
AL MUSTAQL UNIVERSITY

كلية العلوم  
قسم الأدلة الجنائية

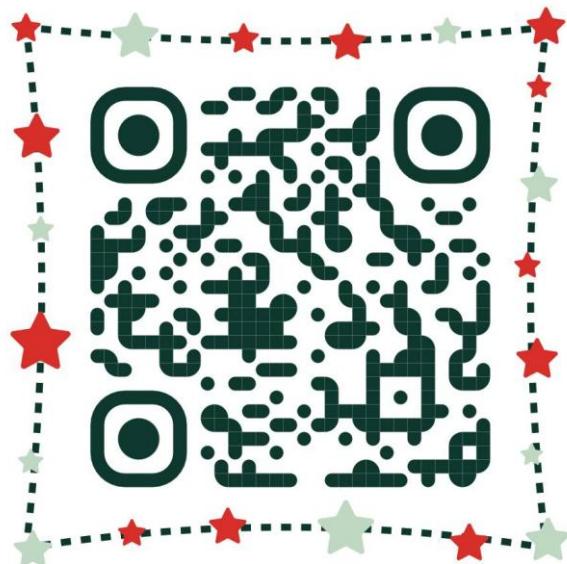
Lecture (1)

INTRODUCTION TO COMPUTERS

المادة : الحاسوب 2

المرحلة : الثانية

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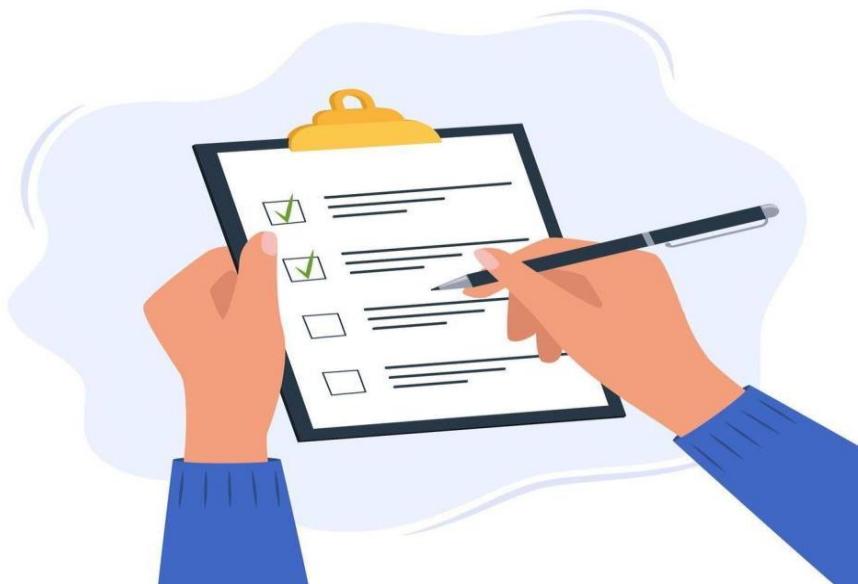
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## **Content**

- Introduction to computers
- Characteristics of computers
- Components of computers



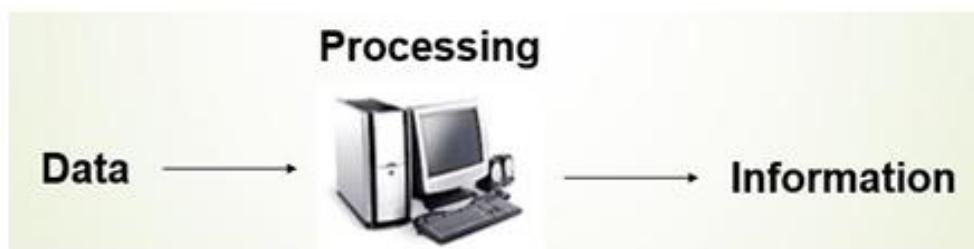


## I. Introduction to computers

A computer is an electronic device, operating under the control of instructions stored in its own memory that can accept data (input), process the data according to specified rules, produce information (output), and store the information for future use.

Any digital computer carries out five functions in gross terms:

- Takes data as input.
- Stores the data/ instructions in its memory and use them when required.
- Processes the data and converts it into useful information.
- Generates the output
- Controls all the above four steps



## II. Characteristics of computers

- ✓ **Speed:** Works very fast
- ✓ **Accuracy:** Gives correct results
- ✓ **Diligence:** Does not get tired
- ✓ **Storage Capability:** Stores large amounts of data
- ✓ **Versatility:** Performs many different tasks
- ✓ **Limitation:** Works only as programmed

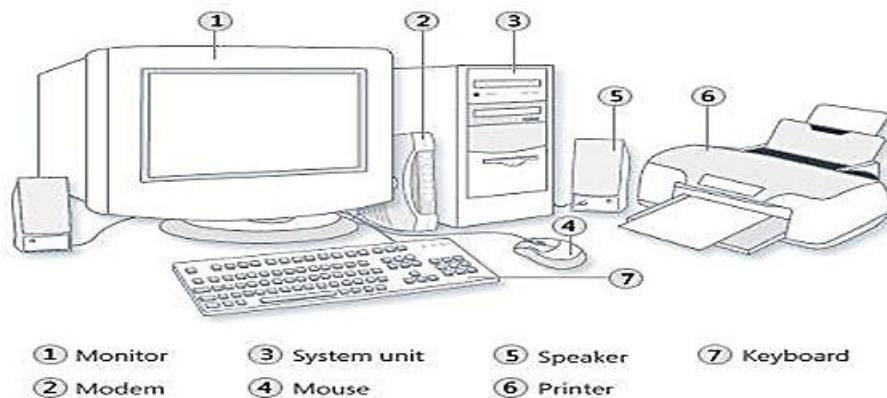


### III. Components of computers

Any kind of computers consists of **HARDWARE** and **SOFTWARE**.

#### Hardware :

Computer hardware is the collection of physical elements that constitutes a computer system. Computer hardware refers to the physical parts or components of a computer such as the monitor, mouse, keyboard, computer data storage, hard drive disk (HDD) ,system unit (graphic cards, sound cards, memory, motherboard and chips), etc. all of which are physical objects that can be touched.



#### Input Devices

Input device is any peripheral (piece of computer hardware equipment to provide data and control signals to an information processing system such as a computer or other information appliance .Input device Translate data from form that humans understand to one that the computer can work with. Most common are keyboard and mouse.



Examples of Manual Input Devices			
Keyboard	Numeric Keypad	Pointing Device	Remote Control
Joystick	Touch Screen	Scanner	Graphics Tablet
Microphone	Digital Camera	Webcams	Light Pens

Example of Input Devices:-

1. Keyboard	2. Mouse (pointing device)	3. Microphone
4. Touch screen	5. Scanner	6. Webcam
7. Touchpads	8. MIDI keyboard	9.
10. Graphics Tablets	11. Cameras	12. Pen Input
13. Video Capture Hardware	14. Microphone	15. Trackballs
16. Barcode reader	17. Digital camera	18. Joystick
19. Gamepad	20. Electronic Whiteboard	21.

## Central Processing Unit (CPU)

A CPU is brain of a computer. It is responsible for all functions and processes.

Regarding computing power, the CPU is the most important element of a computer system.

The CPU is comprised of three main parts:

**Arithmetic Logic Unit (ALU):** Executes all arithmetic and logical operations.

Arithmetic calculations like as addition, subtraction, multiplication and division.

Logical operation like compare numbers, letters, or special characters

**Control Unit (CU):** controls and co-ordinates computer components.



1. Read the code for the next instruction to be executed.
2. Increment the program counter so it points to the next instruction.
3. Read whatever data the instruction requires from cells in memory.
4. Provide the necessary data to an ALU or register.
5. If the instruction requires an ALU or specialized hardware to complete, instruct the hardware to perform the requested operation.

**Registers:** Stores the data that is to be executed next, "very fast storage area".

### Primary Memory:

**1. RAM (Random Access Memory):** RAM is a temporary memory used to store data while the computer is running. The processor accesses data from RAM quickly.

All data is lost when the power is turned off.

**2. ROM (Read Only Memory):** ROM is a permanent memory. It keeps data even when the power is off. The stored data cannot be changed.

### Secondary Memory:-

Stores data and programs permanently :its retained after the power is turned off.

- 1. Hard drive (HD)**
- 2. Optical Disk**
- 3. Flash Disk**

### Output devices

An output device is any piece of computer hardware equipment used to communicate the results of data processing carried out by an information processing system (such as a computer) which converts the electronically generated information into human readable form.



Examples of Output Devices					
CRT Monitor	TFT Monitor	Laser Printer	Inkjet Printer		
Dot Matrix Printer		Speakers			
Plotters		Multimedia Projectors			

Example on Output Devices:

1. Monitor	2. LCD Projection Panels
3. Printers (all types)	4. Computer Output Microfilm (COM)
5. Plotters	6. Speaker(s)
7. Projector	

## Software

Software is a generic term for organized collections of computer data and instructions ,often broken into two major categories: system software that provides the basic non-task-specific functions of the computer, and application software which is used by users to accomplish specific tasks.

## Software Types:

### A. System Software:

Controls and manages computer hardware and basic system operations, such as the operating system and essential utilities.

### B. Application Software:

Programs used by users to perform specific tasks like writing documents, calculations, or image editing.