

PORTFOLIO #4 - COMPUTER HARDWARE AND SOFTWARE: THEIR IMPLEMENTATION IN THE DIFFERENT INSTITUTIONS IN THE COMMUNITY

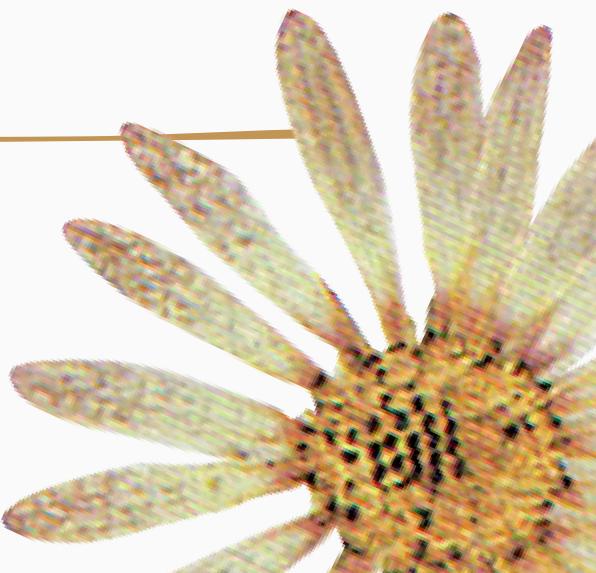
Lesson Outline

WHAT IS COMPUTER HARDWARE AND
IT'S COMPONENTS

WHAT IS SOFTWARE?

MAJOR TYPES OF SOFTWARE

THEIR IMPLEMENTATION IN THE
DIFFERENT INSTITUTIONS IN THE
COMMUNITY

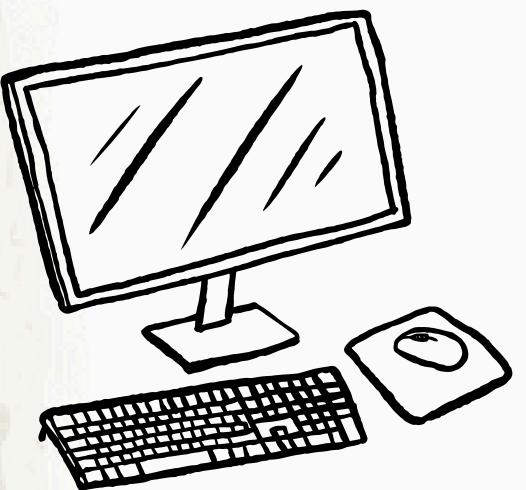


Hardware vs. Software

Hardware refers to the computer's tangible components or delivery systems that store and run the written instructions provided by the software.

Software is the intangible part of the device that lets the user interact with the hardware and command it to perform specific tasks.

Computer Hardware



Computer hardware is a collective term used to describe any of the physical components of an analog or digital computer.

The term hardware distinguishes the tangible aspects of a computing device from software, which consists of written, machine-readable instructions or programs that tell physical components what to do and when to execute the instructions.

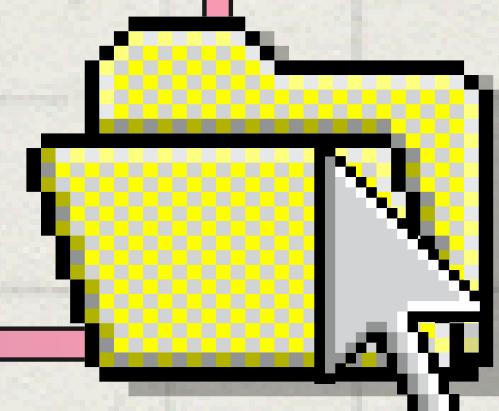
Hardware and software are complementary. A computing device can function efficiently and produce useful output only when both hardware and software work together appropriately.

Computer hardware can be categorized as being either internal or external components. Generally, internal hardware components are those necessary for the proper functioning of the computer, while external hardware components are attached to the computer to add or enhance functionality.

COMPONENTS OF COMPUTER HARDWARE

These hardware components are further divided into the following categories, which are:

- 1. Input Devices
- 2. Output Devices
- 3. Storage Devices
- 4. Processing Devices
- 5. Internal Components

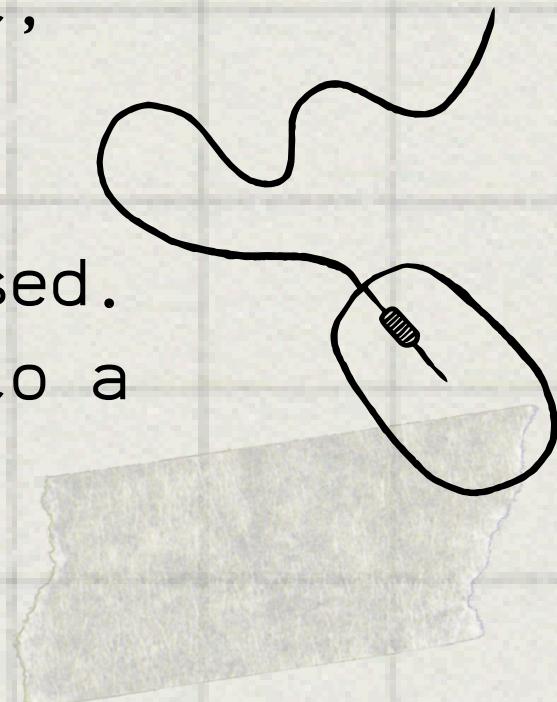


INPUT DEVICES

Input devices are those devices with the help of which the user interacts with the computer. Or, In other words, with the help of input devices, the user enters the data or information into the computer.

Example of Inputs:

- **Keyboard:** It is the most common and main input device for computers. The data is inputted by typing on the keyboard.
- **Mouse:** A mouse is a kind of pointing device which is rolled over to control the cursor on the screen and it has functional keys like left, middle, and right buttons.
- **Scanner:** As the name suggests, it scans images, documents, etc., and converts them into digital form and that can be further edited and used.
- **Microphone:** It is a kind of voice input system that can be attached to a computer system to record sounds.
- **Track Ball:** It is a device much like an upside-down mouse.



OUTPUT DEVICES

These are the devices that are used to display the output of any task given to the computer in human-readable form.

Example of Outputs:

- **Monitor:** The monitor is the main output device. It is also called VDU(visual display unit) and it looks like a TV screen.
- **Printer:** A printer is an output device that transfers data from the computer in a printed format by using text or images on paper.
- **Speakers:** It is a very common output device and it gives sound as an output.



STORAGE DEVICES

There are some devices that are used for storage purposes and are known as secondary storage devices.

Example of Storage Devices:



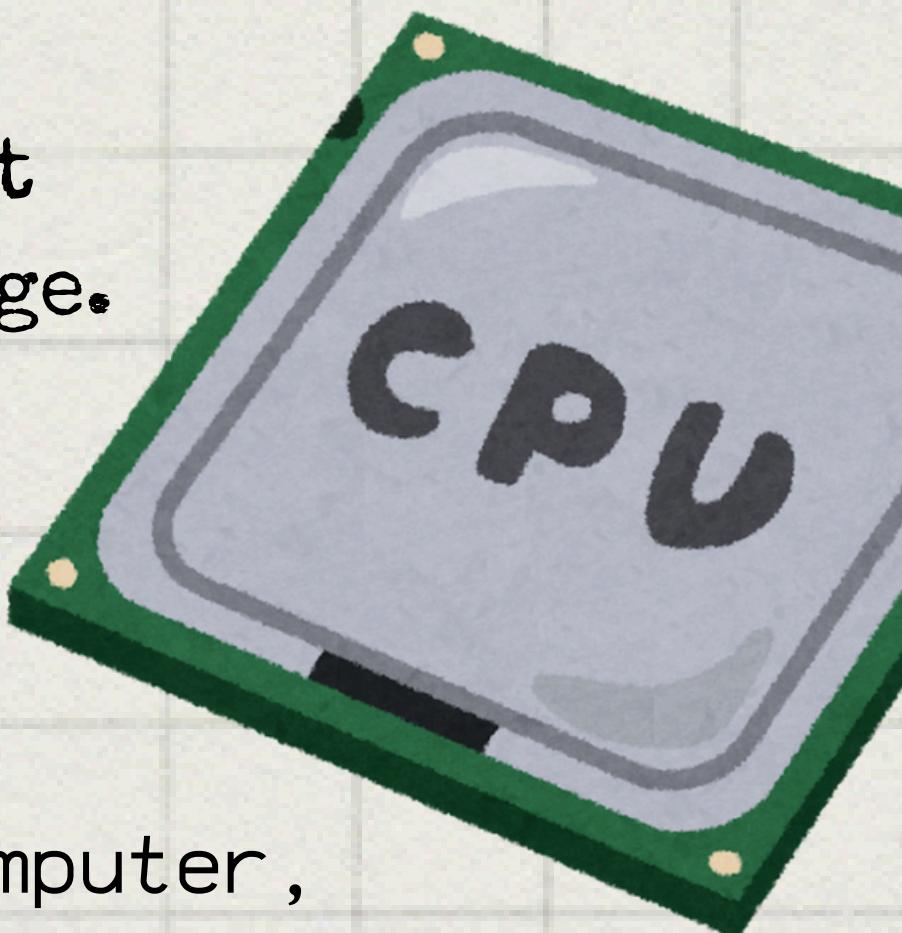
- **Hard Disk Drive (HDD)**: Stores data magnetically.
- **Solid-State Drive (SSD)**: Stores data electronically, offering faster performance.
- **USB Flash Drive**: Portable storage device.
- **External Hard Drive**: A larger, external storage device.

PROCESSING DEVICES

- ✓ A processing device is any hardware inside a computer that interprets and manipulates incoming data during this stage.

Example of Processing Devices:

- **Central Processing Unit (CPU)**: The “brain” of the computer, responsible for executing instructions.
- **Graphics Processing Unit (GPU)**: Handles graphics and video processing.

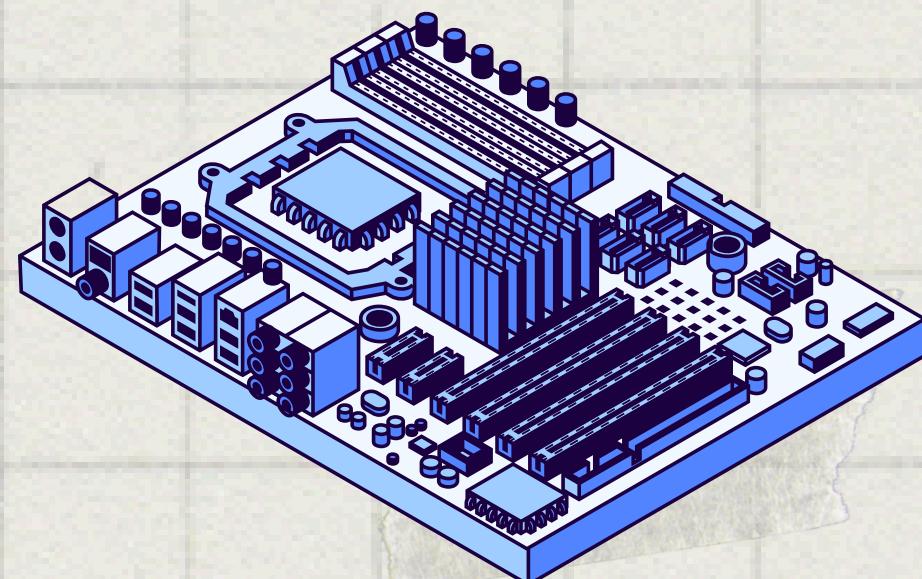


INTERNAL COMPONENTS

- ✓ There are some devices that are used for storage purposes and are known as secondary storage devices.

Example of Internal Components:

- **Motherboard:** The main circuit board that connects all components.
- **Power Supply Unit (PSU):** Provides power to the system.
- **RAM (Random Access Memory):** Temporary storage for data and programs.



>SOFTWARE<

Software, instructions that tell a computer what to do. Software comprises the entire set of programs, procedures, and routines associated with the operation of a computer system. The term was coined to differentiate these instructions from hardware—i.e., the physical components of a computer system. A set of instructions that directs a computer's hardware to perform a task is called a program, or software program.

Major types of Software

- **System Software**

-These are the software that directly allows the user to interact with the hardware components of a computer system. As the humans and machines follow different languages, there has to be an interface that will allow the users to interact with the core system, this interface is provided by the software.

- **Application Software**

-These are the basic software used to run to accomplish a particular action and task. These are the dedicated software, dedicated to performing simple and single tasks. For eg., a single software cannot serve to both the reservation system and banking system

- **Utility Software**

-These are the most basic type of software which provides high utility to the user and the system. These perform the basic but daily need tasks.



Their implementation in the different institutions in the community

1. Educational Institutions

- Impact:

- Facilitates personalized learning experiences
- Enables access to a wealth of online resources
- Improves administrative efficiency

2. Government Institutions

- Impact:

- Increases transparency and accountability
- Improves public service delivery
- Facilitates data-driven decision-making

3. Healthcare Institutions

- Impact:

- Improves patient care and outcomes
- Streamlines administrative processes
- Enhances communication and collaboration among healthcare providers

4. Business and Commercial Institutions

- Impact:

- Boosts productivity and efficiency
- Enhances customer service and satisfaction
- Improves decision-making through data analysis

5. Community Centers and Libraries

Analysis:

Hardware components can be broadly categorized into three groups: input, output, and processing devices. Input devices, like keyboards and mice, act as our interface, allowing us to communicate with the computer. Output devices, including monitors and printers, display the processed information. At the heart of the system lies the processing unit, the CPU, which acts as the brain of the computer, executing instructions and performing calculations. Storage devices, such as hard drives and solid-state drives, hold data and programs, both temporary and permanent. These components work together seamlessly, transforming raw data into meaningful information.

Software, the invisible maestro, dictates how the hardware operates. The operating system (OS), like Windows or macOS, serves as the foundation, managing hardware resources and providing a platform for applications to run. Application software, which includes word processors, web browsers, and games, enables us to carry out particular tasks. Behind the scenes, system software, such as device drivers that help the OS and devices communicate, makes sure everything runs smoothly. In summary, software and hardware are complimentary components of a digital ecosystem rather than separate entities. We can communicate with computers, complete challenging tasks, and access a wealth of knowledge thanks to their sophisticated dance. The future of computing will surely be shaped by the interaction between hardware and software as technology develops further, providing increasingly more potent instruments for interacting, creating, and exploring the digital world.

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