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# Computer Hardware & Software

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# Lesson Outline

1

WHAT IS COMPUTER  
HARDWARE AND IT'S  
COMPONENTS

2

WHAT IS SOFTWARE?  
MAJOR TYPES OF  
SOFTWARE

3

THEIR  
IMPLEMENTATION IN  
THE DIFFERENT  
INSTITUTIONS IN THE  
COMMUNITY





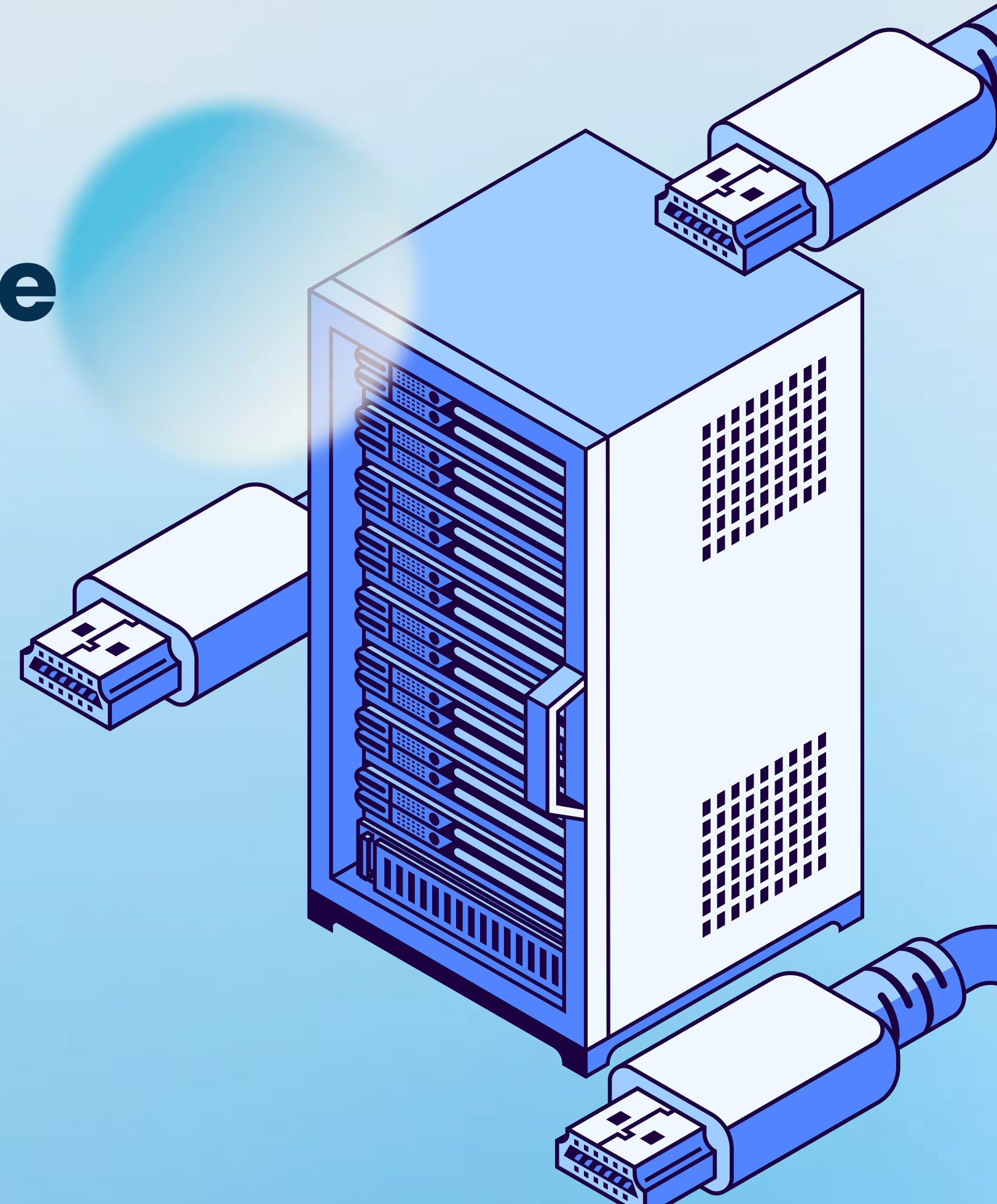
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# Computer Hardware

Computer hardware refers to the physical components of a computer system that you can touch and see. These components work together to process information, store data, and produce output.

The computer has mainly has two major components:

1. Hardware
2. Software



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# How it Works



**Input:** Users interact with input devices to provide instructions or data.



**Processing:** The CPU processes the input data according to instructions.



**Storage:** Data is stored in various storage devices.



**Output:** Processed information is displayed on output devices.







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# Components of Computer Hardware

INPUT DEVICES



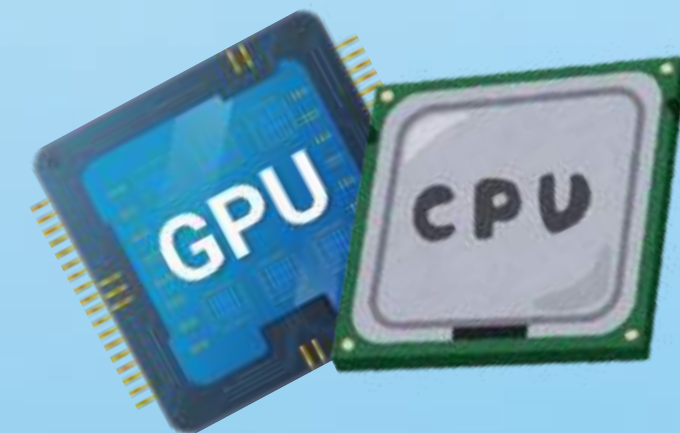
STORAGE DEVICES



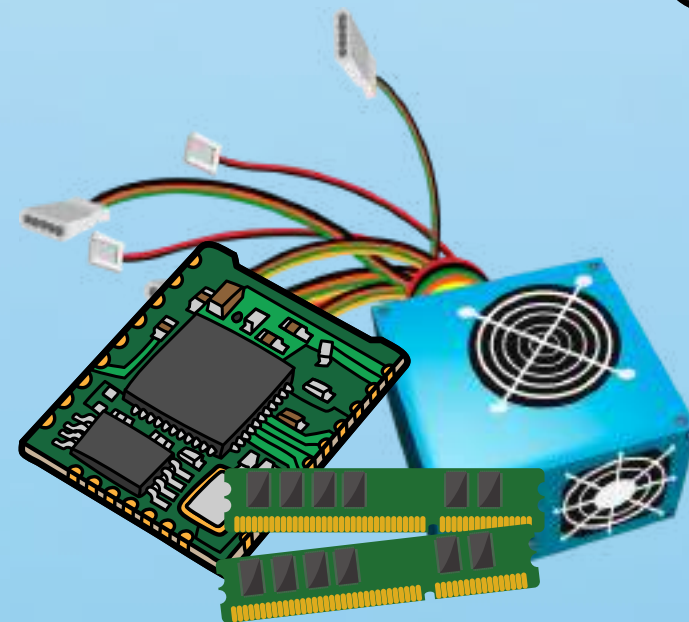
OUTPUT DEVICES



PROCESSING DEVICES

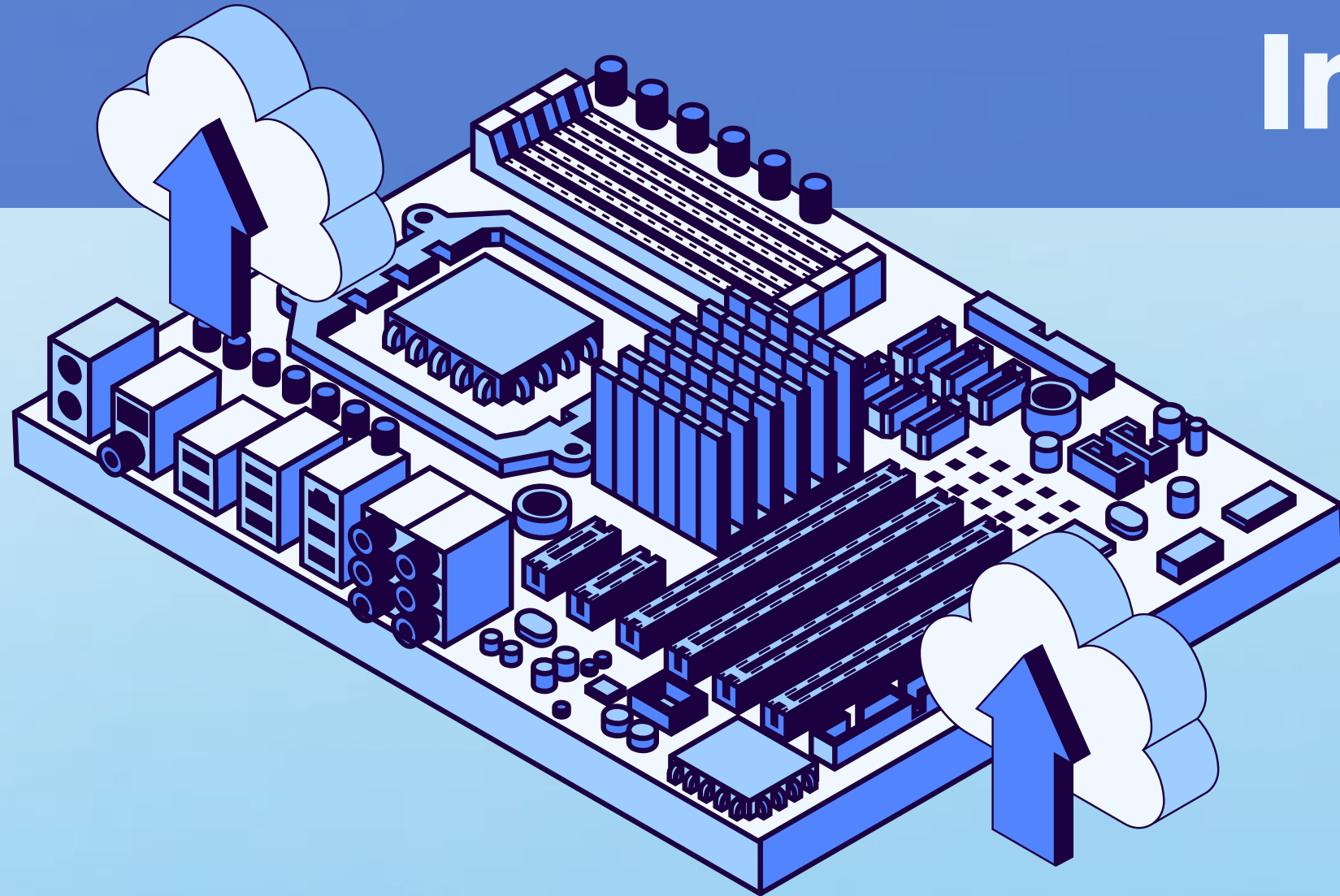


INTERNAL COMPONENTS





# Input Devices



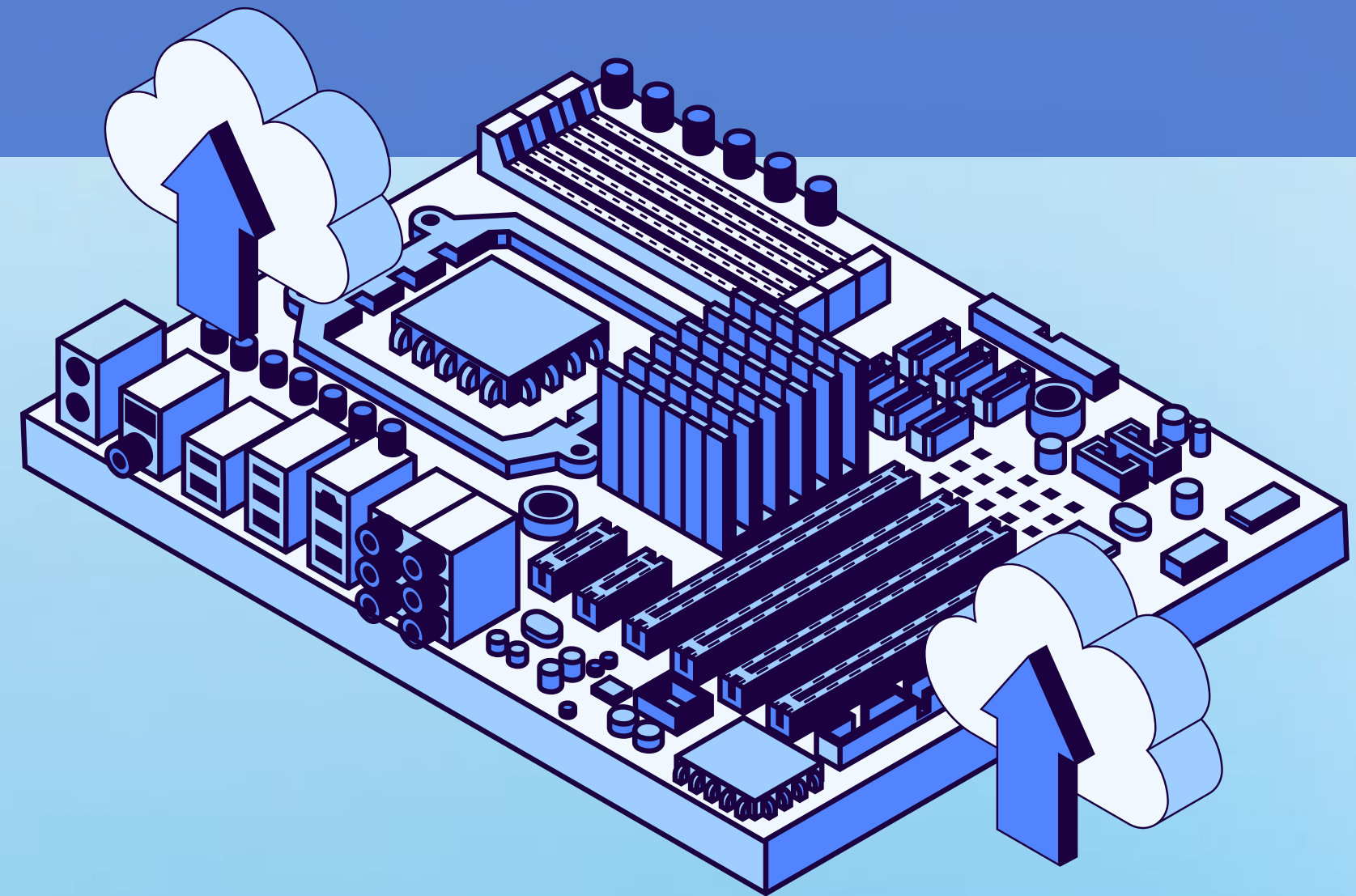
- Keyboard: Used to input text and commands.
- Mouse: Used to control the cursor on the screen and interact with objects.
- Scanner: Converts physical documents into digital images.
- Microphone: Captures audio input for voice commands or recordings.
- Joystick/Gamepad: Used for gaming and other interactive applications.





# Output Devices

- Monitor: Displays visual information.
- Printer: Produces physical copies of documents.
- Speakers/Headphones: Output audio.
- Projector: Displays images on a large screen.

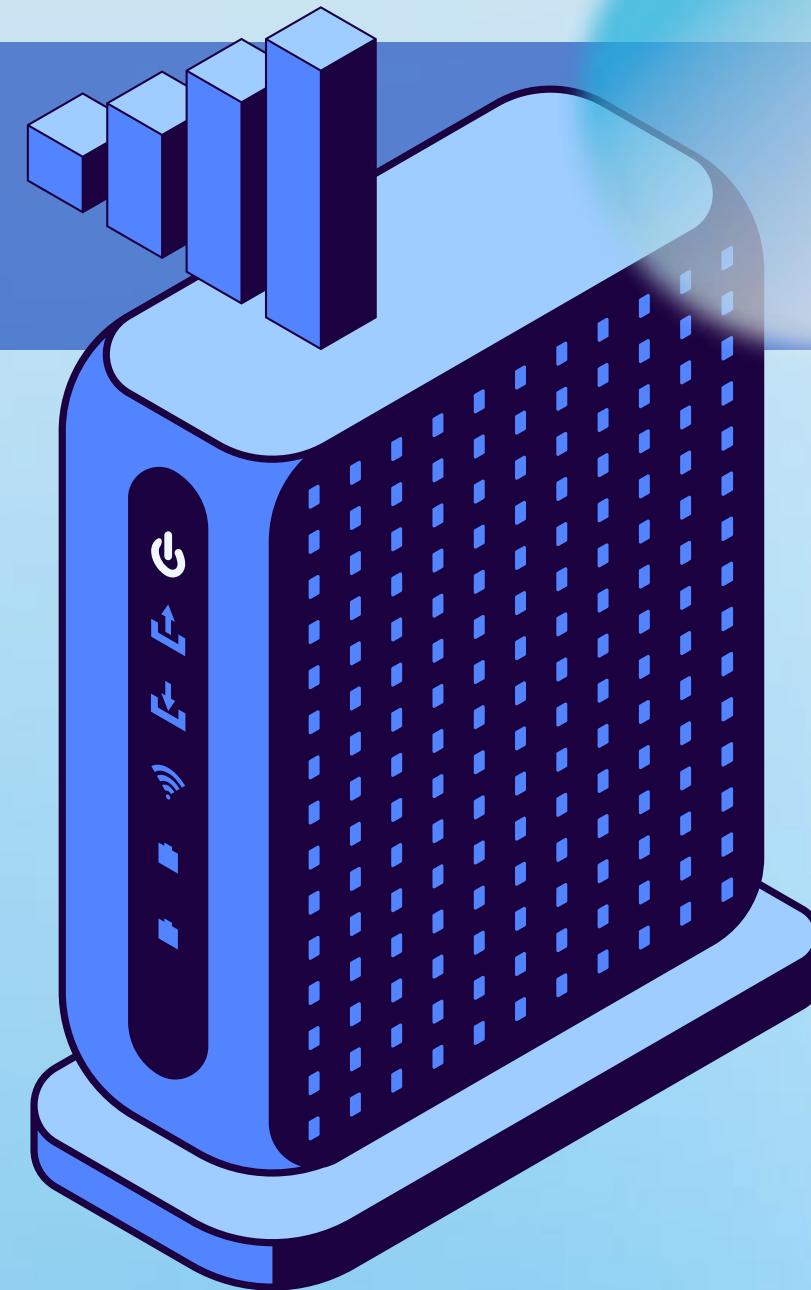




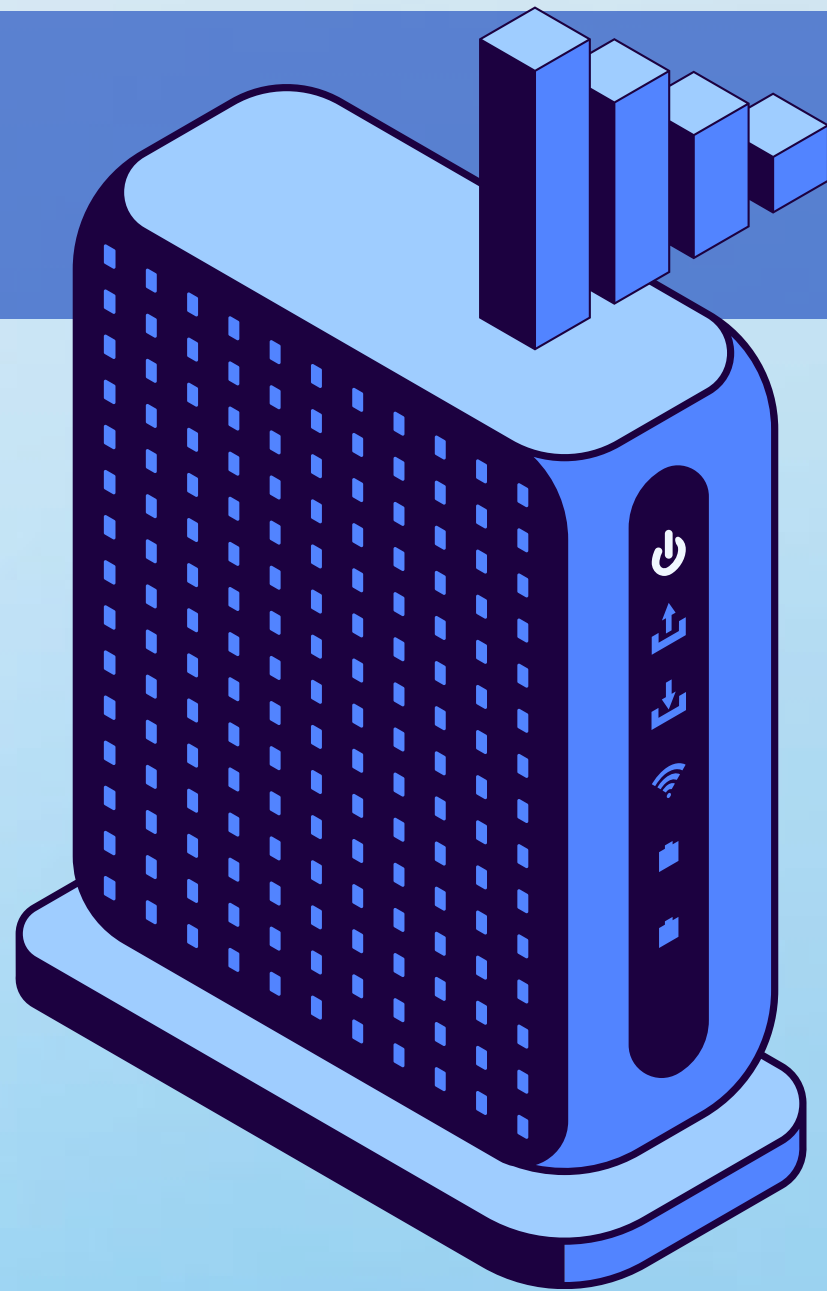


# Storage Devices

- 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

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





# 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

In a computer system, the software is basically a set of instructions or commands that tell a computer what to do. In other words, the software is a computer program that provides a set of instructions to execute a user's commands and tell the computer what to do. For example like MS-Word, MS-Excel, PowerPoint, etc.

## Types of Software

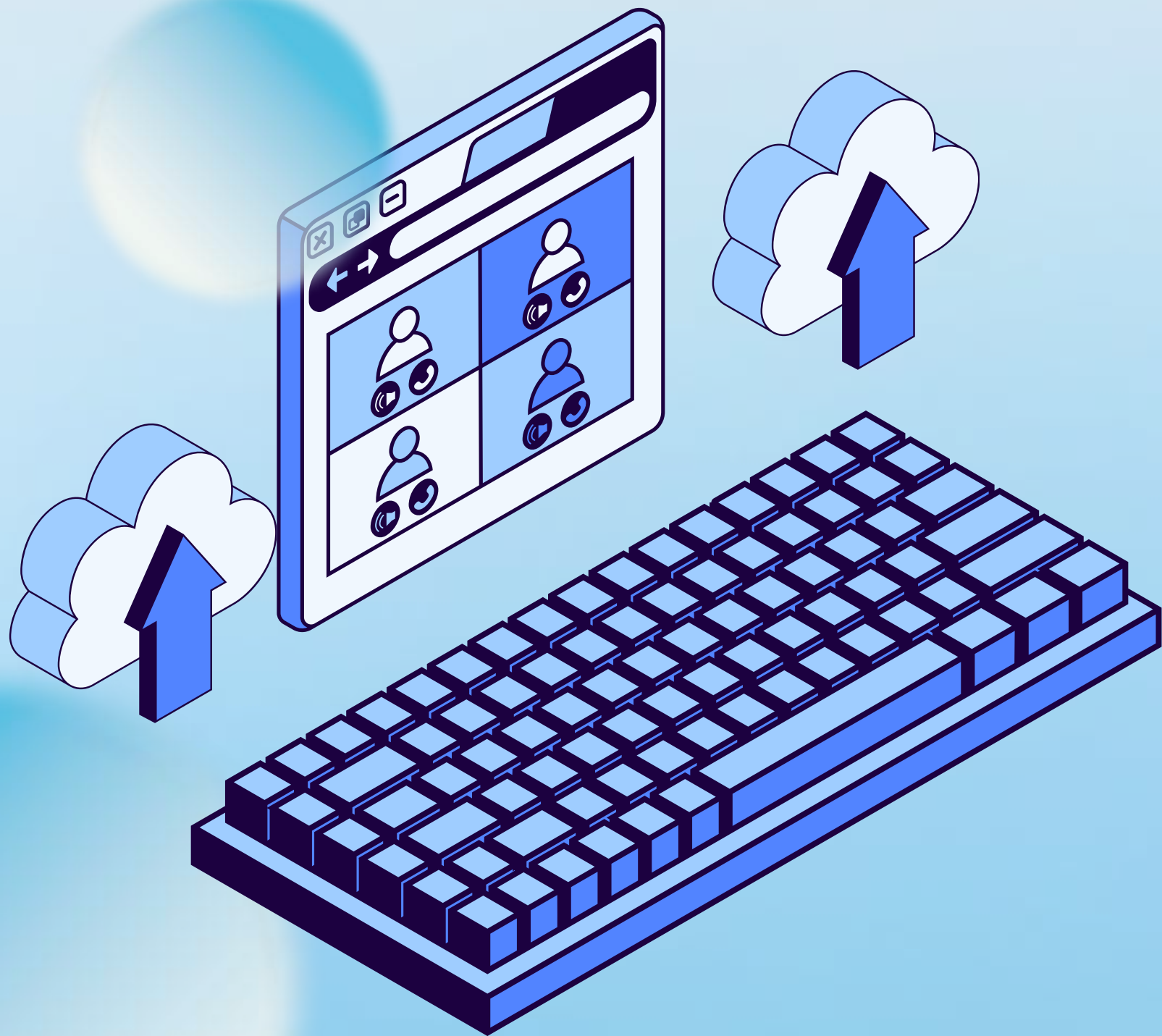
It is a collection of data that is given to the computer to complete a particular task.

1. System Software
  - a. Operating System
  - b. Language Processor
  - c. Device Driver
2. Application Software
  - a. General Purpose Software
  - b. Customize Software
  - c. Utility Software





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# How it Works

- Input: Users interact with input devices to provide instructions or data.
- Processing: The software processes the input data according to its instructions.
- Output: Processed information is displayed on output devices.

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# Types of Software

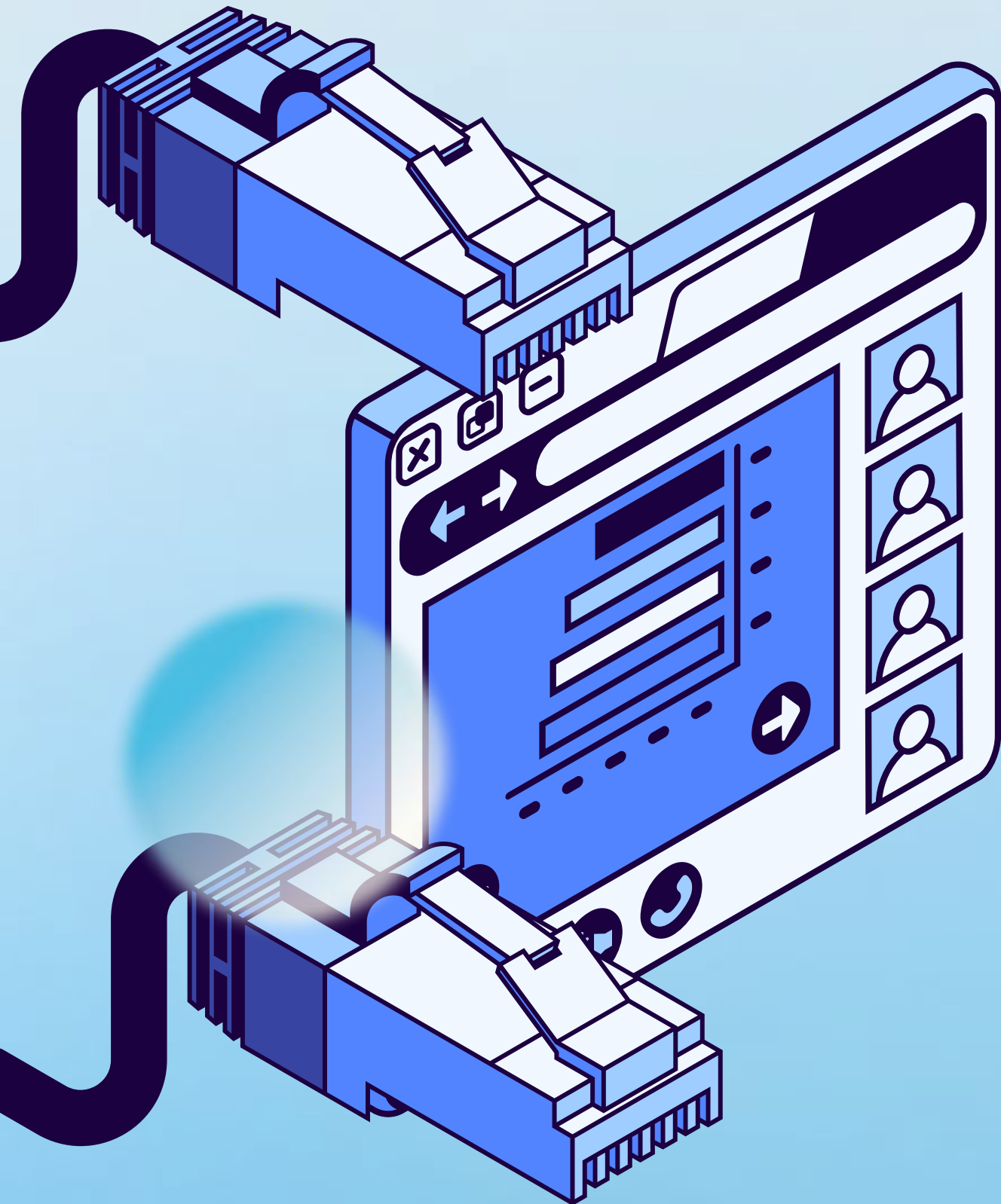
## System Software

Software designed to manage and control the hardware and basic system operations of a computer. It provides a platform for running application software. Examples include operating systems (like Windows, macOS, and Linux) and utility programs.

## Application Software

Software designed to perform specific tasks for users. It includes programs used for productivity, entertainment, and other user-centric functions. Examples include word processors (like Microsoft Word), web browsers (like Google Chrome), and games.

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# System Software

- Operating System (OS): The core software that manages hardware and software resources. Examples: Windows, macOS, Linux.
- Device Drivers: Software that allows the OS to communicate with hardware devices.
- Language Processors: Convert human-readable code into machine-readable code. Examples: Compilers, Interpreters.





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# Application Software

- **General-Purpose Software:** Designed for a wide range of tasks. Examples: Word processors, spreadsheets, web browsers.
- **Specialized Software:** Tailored to specific industries or tasks. Examples: CAD software, accounting software, medical software.
- **System Software:** Manages the hardware and software resources of a computer system. Examples: Operating systems, device drivers, language processors.







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# Their implementation in the different institutions in the community



## Educational Institutions

The implementation of computer hardware and software facilitates personalized learning experiences, enables access to a wealth of online resources, and improves administrative efficiency.

## Healthcare Institutions

The integration of digital technology in healthcare improves patient care and outcomes, streamlines administrative processes, and enhances communication and collaboration among healthcare providers.







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# Their implementation in the different institutions in the community



## Government Institutions

The use of ICT in government institutions increases transparency and accountability, improves public service delivery, and facilitates data-driven decision-making.

## Business and Industry

The application of computer systems in business and industry boosts productivity and efficiency, enhances customer service and satisfaction, and improves decision-making through data analysis.





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# Their implementation in the different institutions in the community



## Community Centers and Libraries

The use of digital technology in community centers and libraries enhances educational and social opportunities by providing access to computers, internet, and digital resources.





# SOURCES

<https://www.interaction-design.org/literature/book/the-social-design-of-technical-systems-building-technologies-for-communities/the-evolution-of-computing>

<https://www.ethnosproject.org/the-impact-of-digital-technology-on-indigenous-peoples/>

<https://link.springer.com/article/10.1007/s44217-022-00019-6>

<https://open.ocolearnok.org/informationssystem/chapter/chapter-2-computer-hardware-software-and-networks/>

<https://www.ethnosproject.org/the-impact-of-digital-technology-on-indigenous-peoples/>

<https://www.geeksforgeeks.org/computer-hardware/>

<https://www.britannica.com/technology/hardware-computing>

<https://www.lifewire.com/computer-hardware-2625895>

<https://www.howtogeek.com/what-is-computer-hardware/>

<https://softwarelab.org/blog/what-is-hardware/>

<https://www.geeksforgeeks.org/software-and-its-types/>

<https://www.techtarget.com/searchapparchitecture/definition/software>

<https://www.britannica.com/science/computer-science>

<https://softwarelab.org/blog/what-is-software/>

<https://www.lifewire.com/what-is-software-4153107>





# ANALYSIS

Computer hardware forms the backbone of any computing system, encompassing all physical components that interact to perform essential tasks. Articles from GeeksforGeeks, Britannica, Lifewire, How-To Geek, and SoftwareLab offer comprehensive insights into the intricacies of computer hardware, elucidating its fundamental role in computing. Computer hardware includes various components that work together to execute instructions provided by software. As GeeksforGeeks highlights, the central processing unit (CPU) stands as the "brain" of the computer, performing calculations and executing commands. Complementing the CPU, random access memory (RAM) provides temporary storage for data that the CPU needs to access quickly. Storage devices, such as hard disk drives (HDD) and solid-state drives (SSD), are pivotal for storing data persistently, ensuring that information remains available even when the system is powered off.

Input and output devices are critical for user interaction. Input devices like keyboards, mice, and scanners allow users to input data and commands into the system. Meanwhile, output devices, such as monitors and printers, display or produce the results of the computer's processes. Lifewire and How-To Geek emphasize the importance of these peripherals in facilitating efficient and user-friendly computing experiences. Internal components are equally vital, providing the infrastructure needed for the smooth operation of all other hardware. The motherboard, as detailed in the Britannica article, serves as the central hub, connecting all components and enabling communication between them. The power supply unit (PSU) delivers the necessary electrical power, while the graphics processing unit (GPU) handles complex graphical tasks, enhancing both everyday computing and specialized applications like gaming and video editing.

The seamless integration of these components is paramount for the functionality and efficiency of a computer system. The articles collectively underscore how each piece of hardware, from the minute transistors in the CPU to the extensive circuits of the motherboard, contributes to the overall performance. Furthermore, advancements in hardware technology, such as the transition from HDDs to SSDs, continue to drive improvements in speed, reliability, and storage capacity. In conclusion, computer hardware is an intricate and essential aspect of modern computing. By understanding the roles and interactions of various hardware components, we gain a deeper appreciation for the technology that underpins our digital world. The continuous evolution of hardware promises even greater advancements, paving the way for more powerful, efficient, and versatile computing systems.





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# Thank You!

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