



Tishk International University  
Faculty of Applied Science  
Department of Cybersecurity  
CBS 111 Intro to IT

2025 Dec 23

# Introduction to IT & Computing Fundamentals

*Lecture 1*

---

[yasameen.sami@tiu.edu.iq](mailto:yasameen.sami@tiu.edu.iq)

# *Learning Outcome*

---

- Define Information Technology (IT) and explain its role in storing, processing, and managing information.
- Identify the main components of a computer system, including hardware and software.
- Classify computer hardware components into input devices, output devices, storage devices, and internal components.
- Explain the function of primary and secondary memory, and distinguish between RAM and ROM.
- Describe the roles of internal components such as the CPU and motherboard.
- Explain the role of language processors and differentiate between compilers, interpreters, and assemblers.

# *Outline*

---

- what is IT?
  - Component of Computer
    - Computer Hardware
    - Computer Software
-

# *Information Technology (IT)*

Information Technology (IT) is the use of computers hardware, software, networks, and the internet to store, process, send, and manage information.



# *Computer*

A computer is an electronic device that processes data according to instructions provided by software programs.

## *Components of Computer*

### **Computer Hardware**

**Input Devices**

**Output Devices**

**Storage Devices**

**Internal Component**

### **Computer Software**

**System Software**

**Application Software**

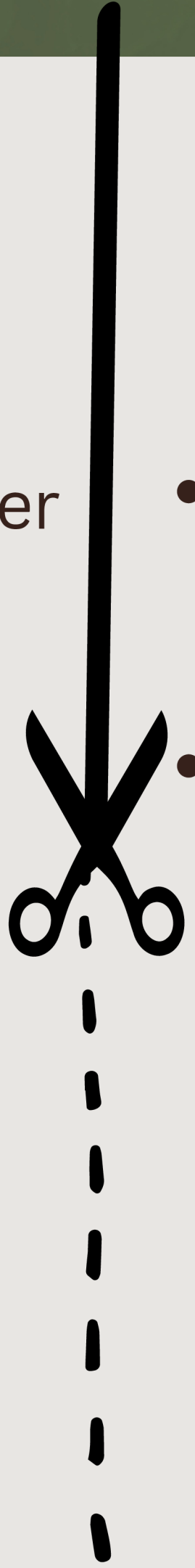
# *Components of Computer Cont..*

## **Computer Hardware**

- **Computer hardware** is a **physical device** of computers that we can see and touch.
- These **hardware components** are further **divided into** the following **categories**, which are:
  - **Input devices**
  - **Output devices**
  - **Storage devices**
  - **Hardware Components**

## Input Devices

- Allow users to interact with a computer by entering data or commands.
- Example
  - Keyboard
  - Mouse
  - Scanner
  - Bar Code Reader



## Output Devices

- Output devices display the results of tasks given to the computer in a human-readable form.
- Example
  - Monitor
  - Printer

# Input and Output Devices



Keyboard & Mouse



Scanner



Joystick



Gamepad



VR

## Input Devices



Printer



Monitor



GPU

## Output Devices



Speaker



Headphones

# Storage Devices

- To **store the information** and instructions to be processed.
- Storage is sub-divided under **primary** and **secondary** memory and is either volatile or nonvolatile.
  - Primary Memory
    - RAM
    - ROM
  - Secondary Memory
    - Hard Disk Drives (HDD)
    - Solid State Drives (SSD)
    - CD/DVD
    - USB flash drives
    - memory cards

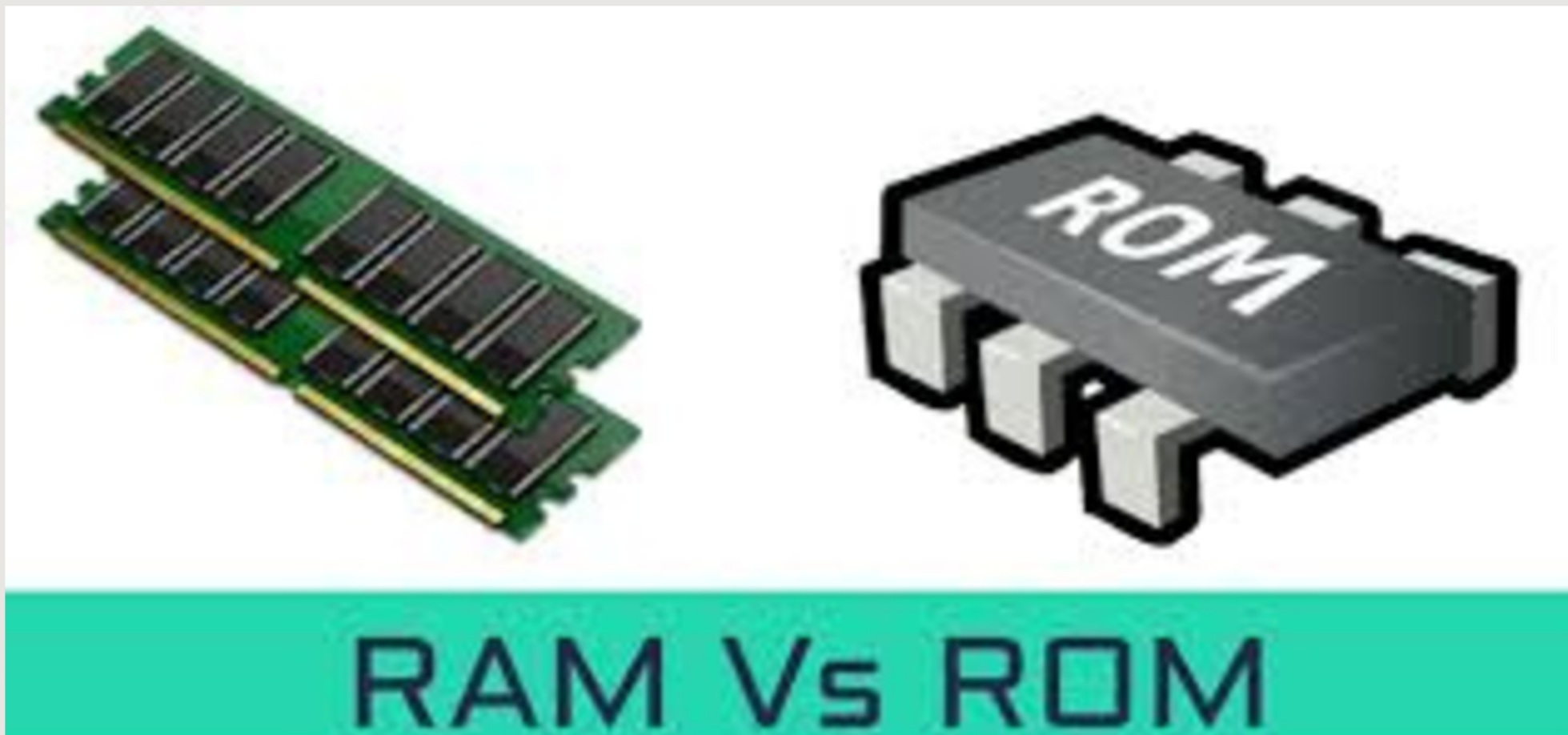
# Primary Memory

## RAM

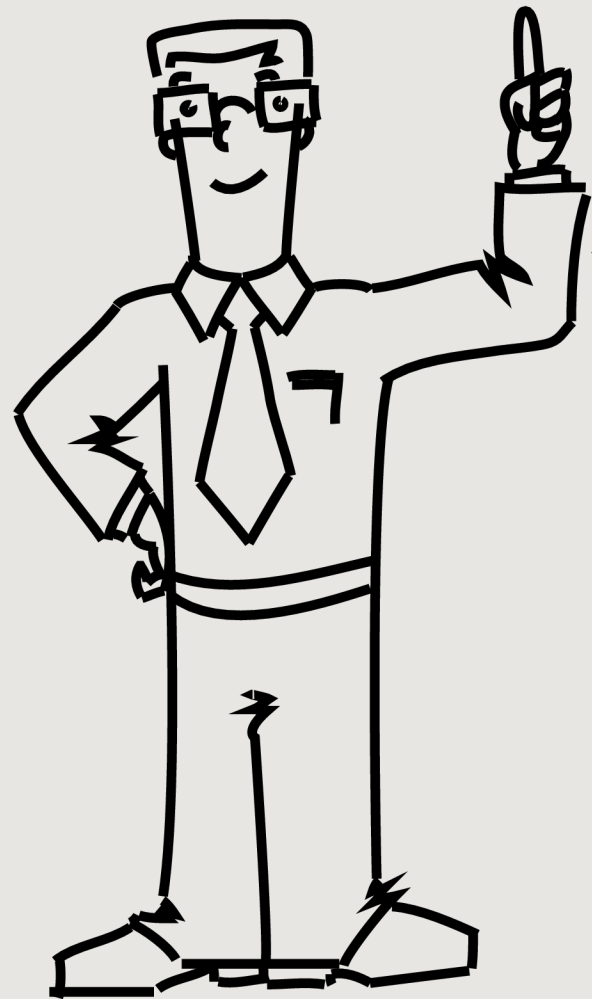
- Stands for Random Access Memory
- Volatile
- Store data and programs **temporarily** while the computer is running.
- Can be **read and written**

## ROM

- Stands for Read-Only Memory
- Non-Volatile
- Store **permanent** data like firewire and system instruction
- Can usually be only **read**



**Example**



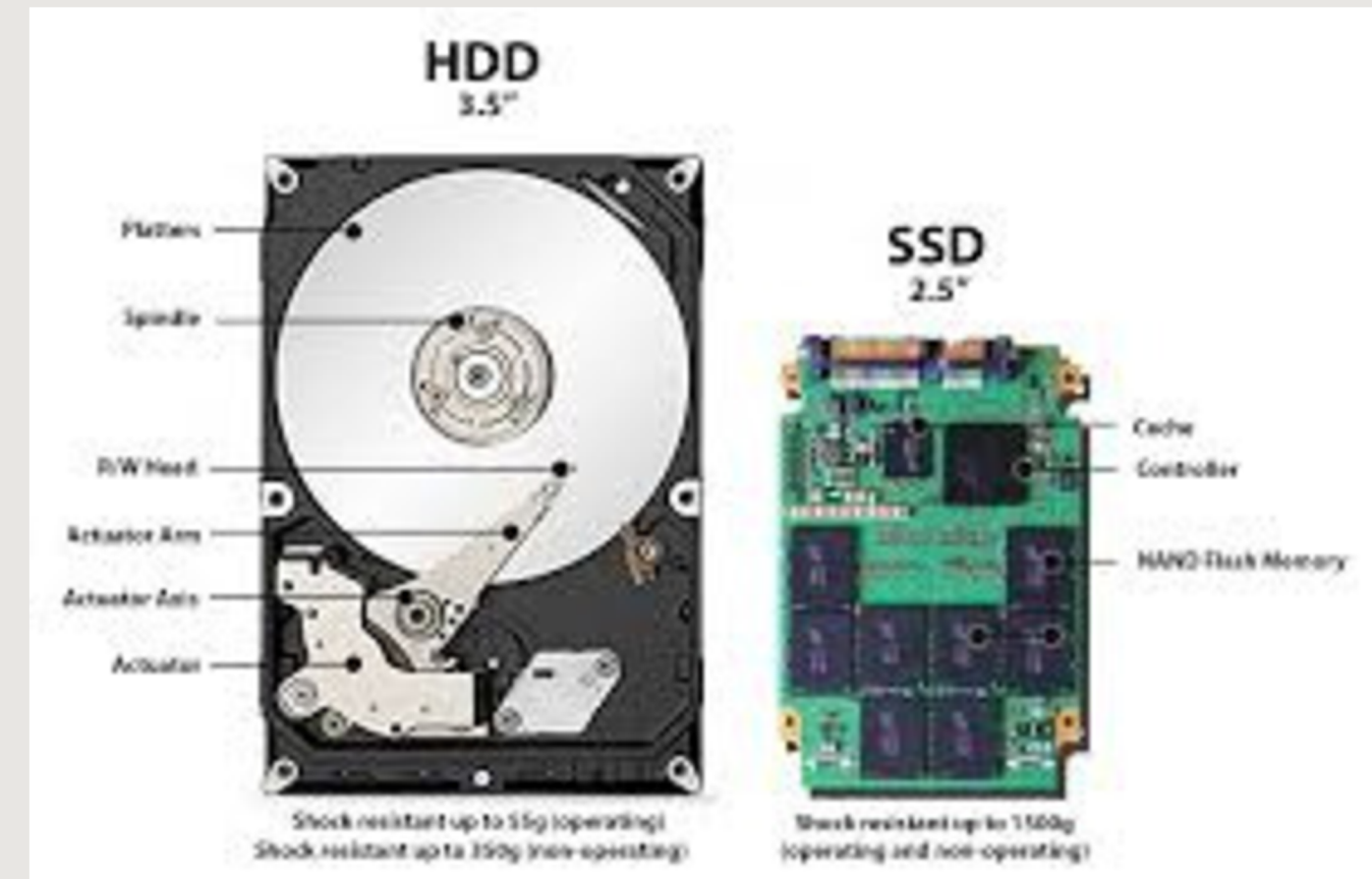
# Secondary Memory (Non-volatile)

## HDD

- Slower (reading/writing data mechanically)
- Less durable (moving parts can fail, sensitive to shocks)
- Produces noise due to spinning disks

## SSD

- Faster (data accessed electronically)
- More durable (resistant to drops and shocks)
- Silent operation

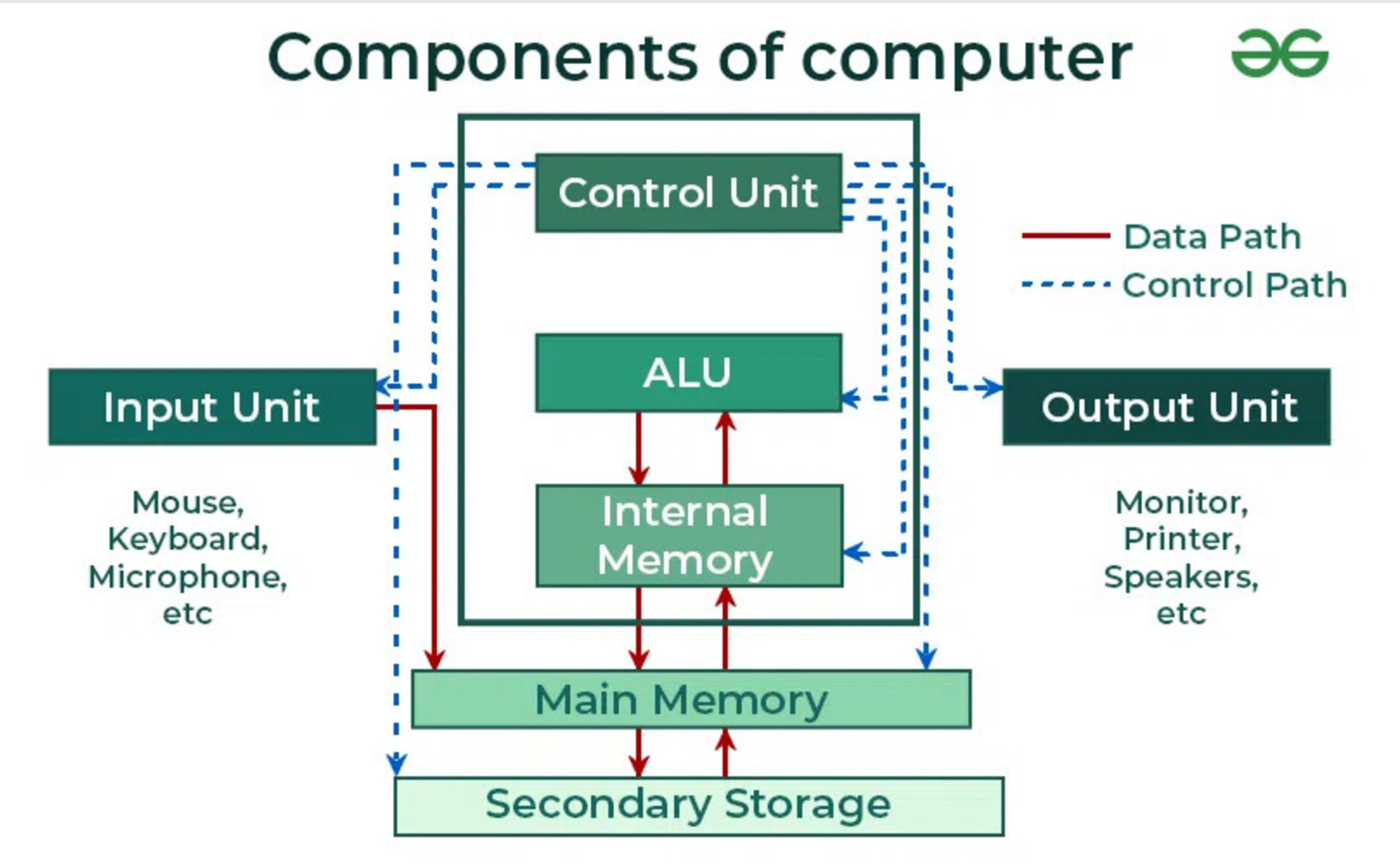


## Fill in the blank..

- You open a YouTube video → Video data is temporarily stored in \_\_\_\_\_ while watching.
- Google Chrome is installed from \_\_\_\_\_. **Even if** the computer is **turned off**, it **still exists there**.
- You shut down → Everything in \_\_\_\_\_ is **lost**, but Chrome is **still** installed in \_\_\_\_\_.

# Internal Components

- Some important hardware devices known as the internal components are discussed below:
  - CPU
  - Motherboard



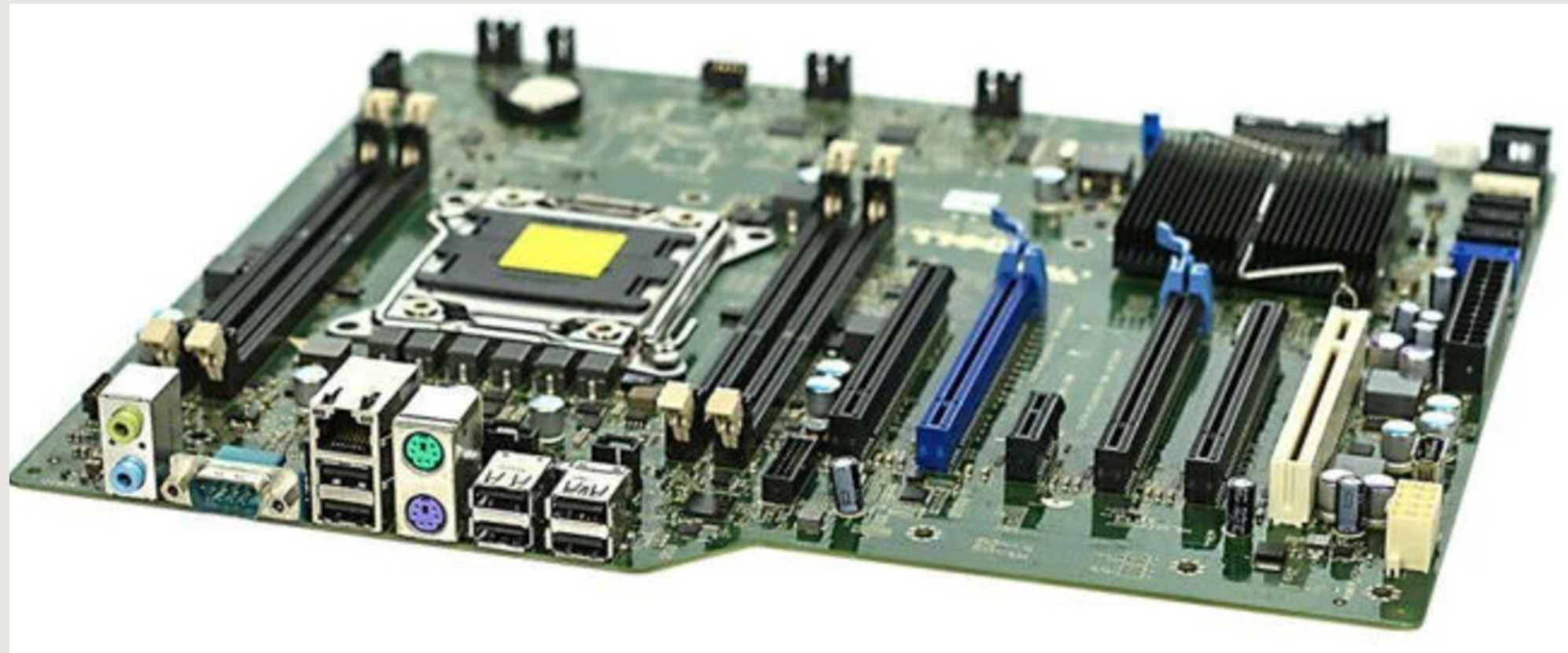
## Central Processing Unit

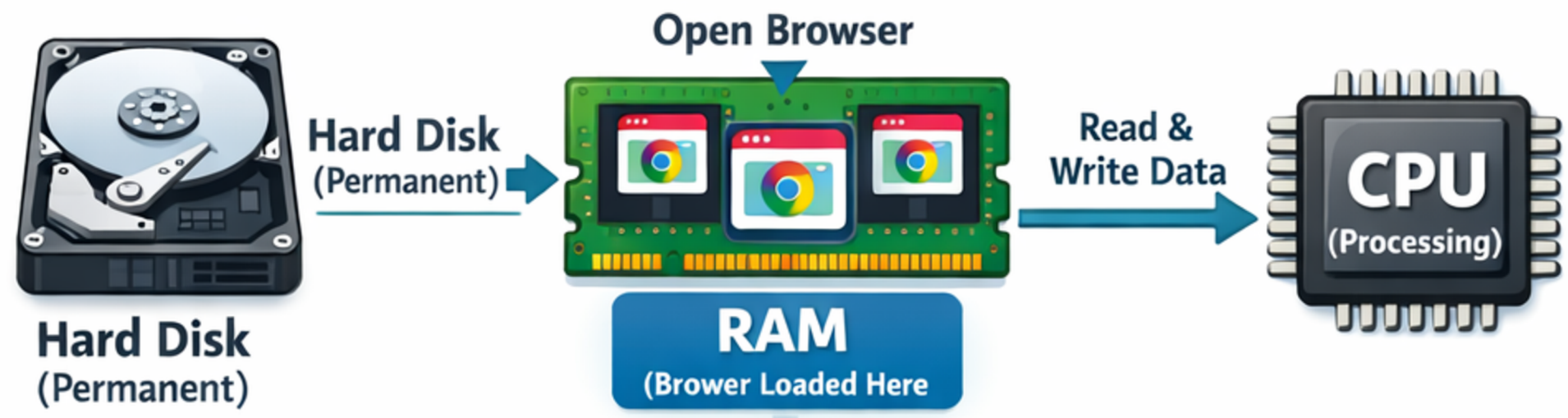
- Often called the “**brain of the computer.**”
- It processes instructions from programs and the **operating system.**
- Handles calculations, logic, and decision-making for tasks.



# Motherboard

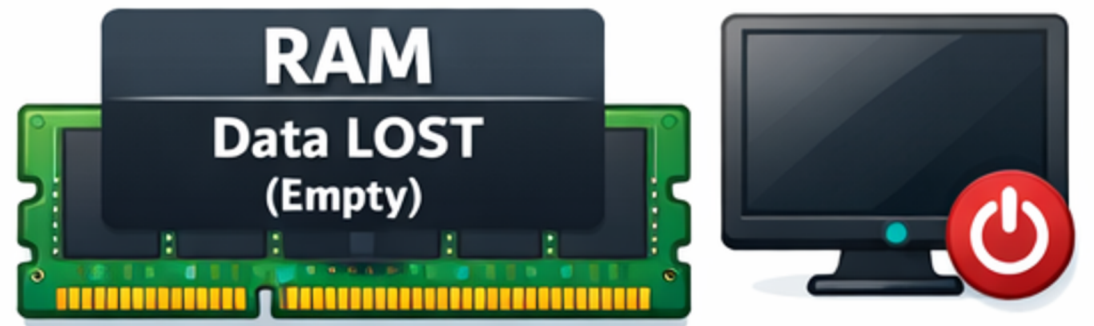
- The **main circuit board** that connects all components of the computer.
- Holds the CPU, RAM, storage, GPU (if present), and other peripherals.
- Contains **buses and connectors** to allow communication between components.





**While Computer is ON**  
→ CPU reads & writes data in RAM

**When Computer is SHUT DOWN**



# *Components of Computer Cont..*

## **Software**

- Software is **intangible** and its collection of instruction and data that **tell a computer what to do.**
- **Software** is a set of **instructions/programs** that tell the **hardware** what to do
  
- Software is mainly divided into **two main types:**
  - **System Software** (Software used by computers)
  - **Application Software** (Software you use)



# System Software vs Application Software - Informal Analogy

## System Software

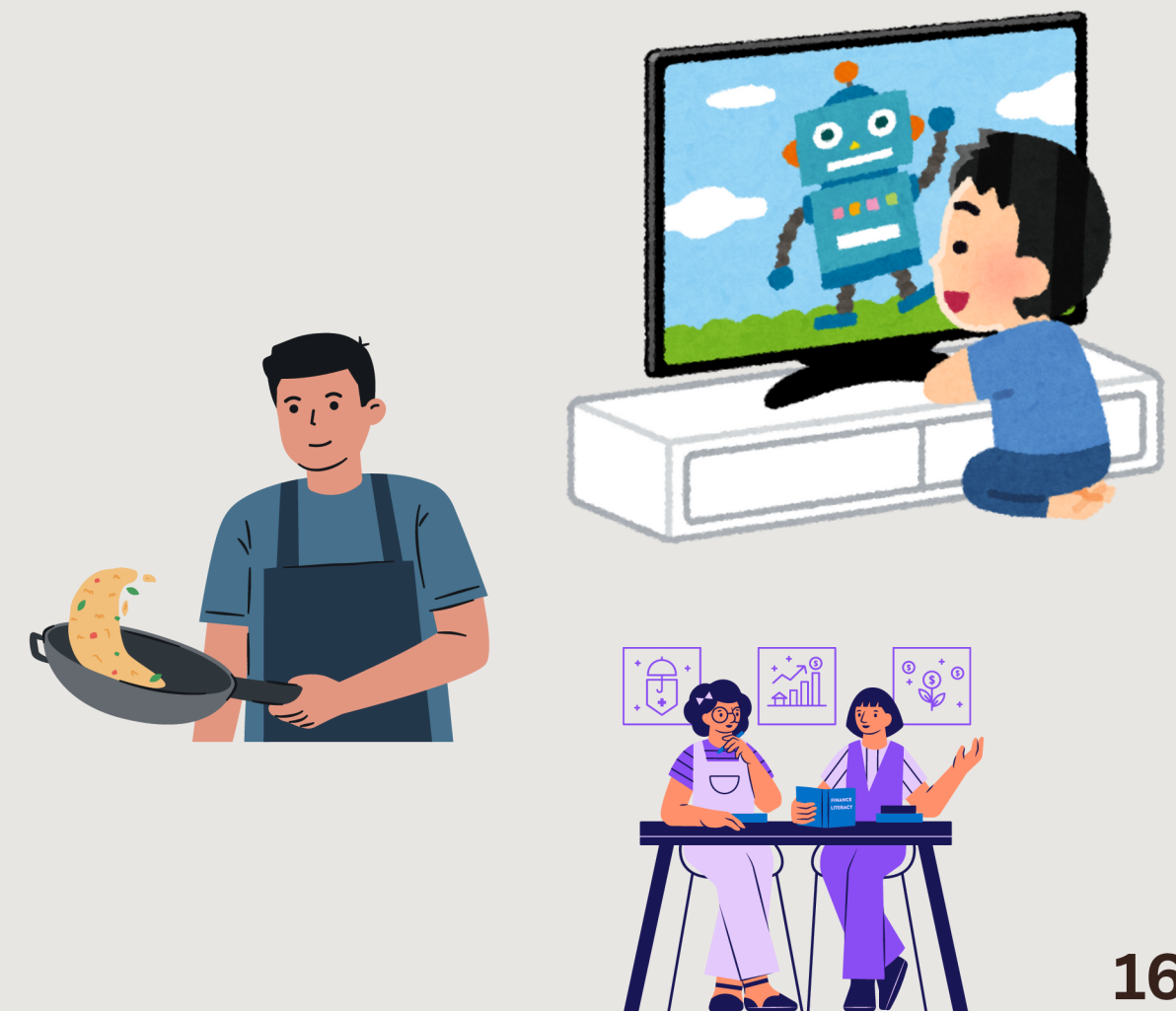
Walls & doors

Electricity

Water pips



## Application Software



# System Software

**System Software** enables the **application software** to interact with the **computer hardware**.

- Types of System Software
  - Operating System
  - Language Processor
  - Device Driver

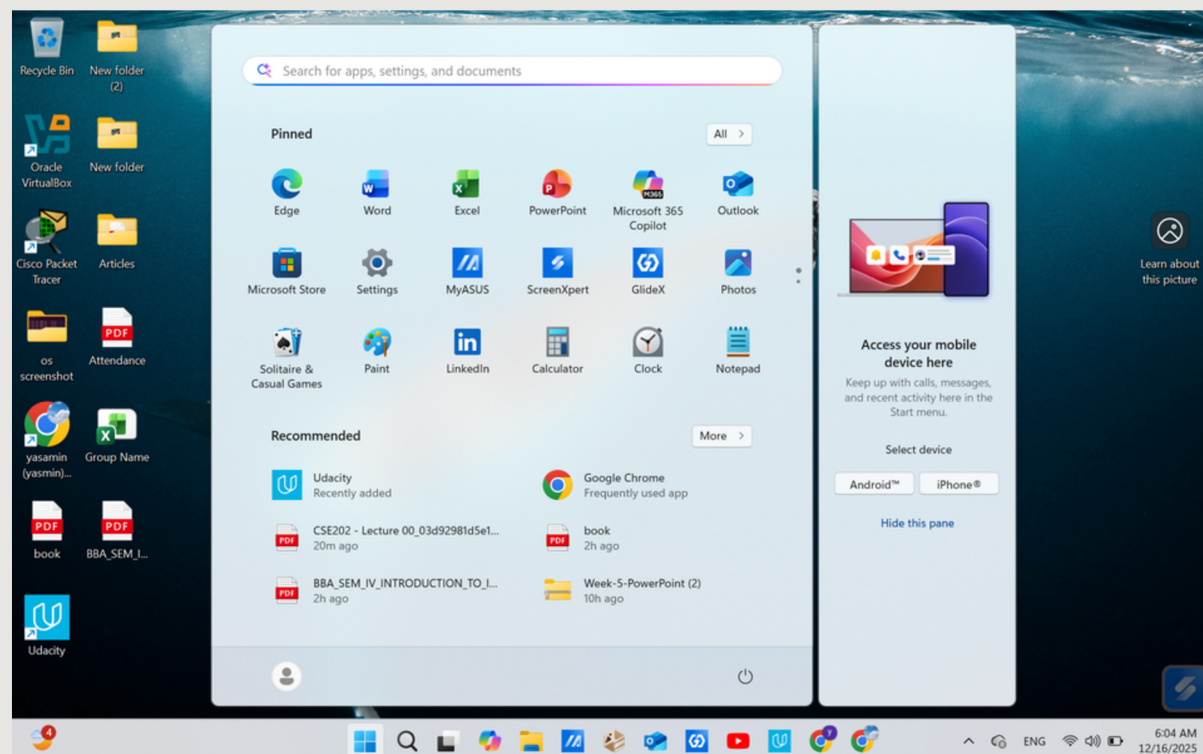


# System Software cont...

18

## Three best Known Operating system are:

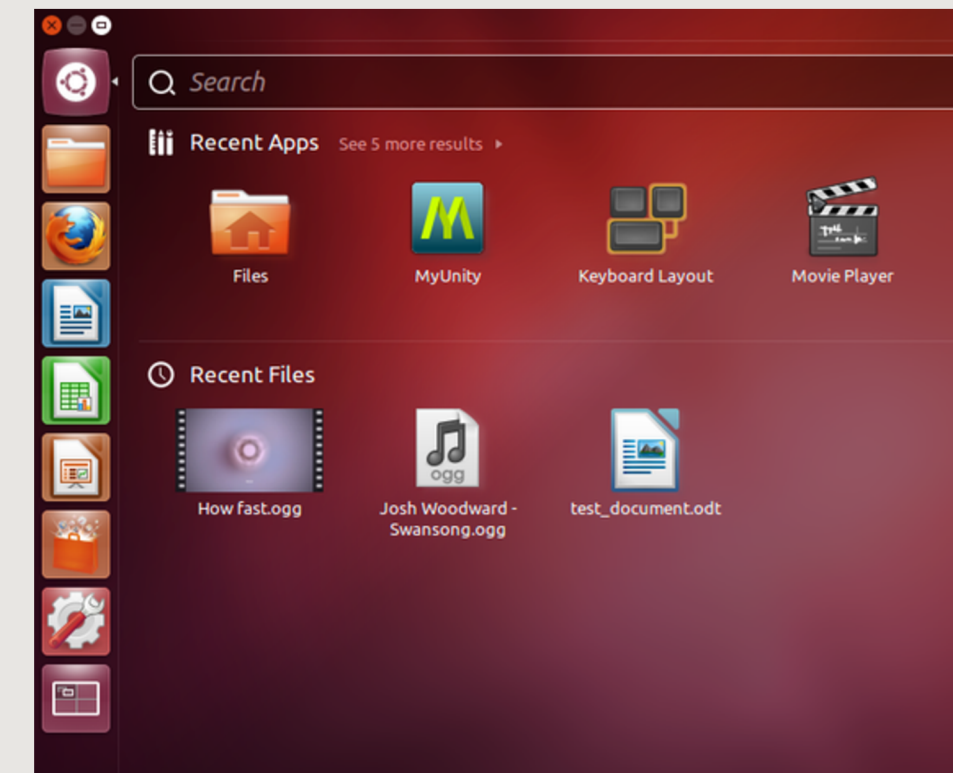
- Windows
- Apple's MacOs
- Linux



Windows



Mac



Linux

- **The function of the OS:**
  1. Coordinates Computer resource
  2. Provides the user interface
  3. Runs applications

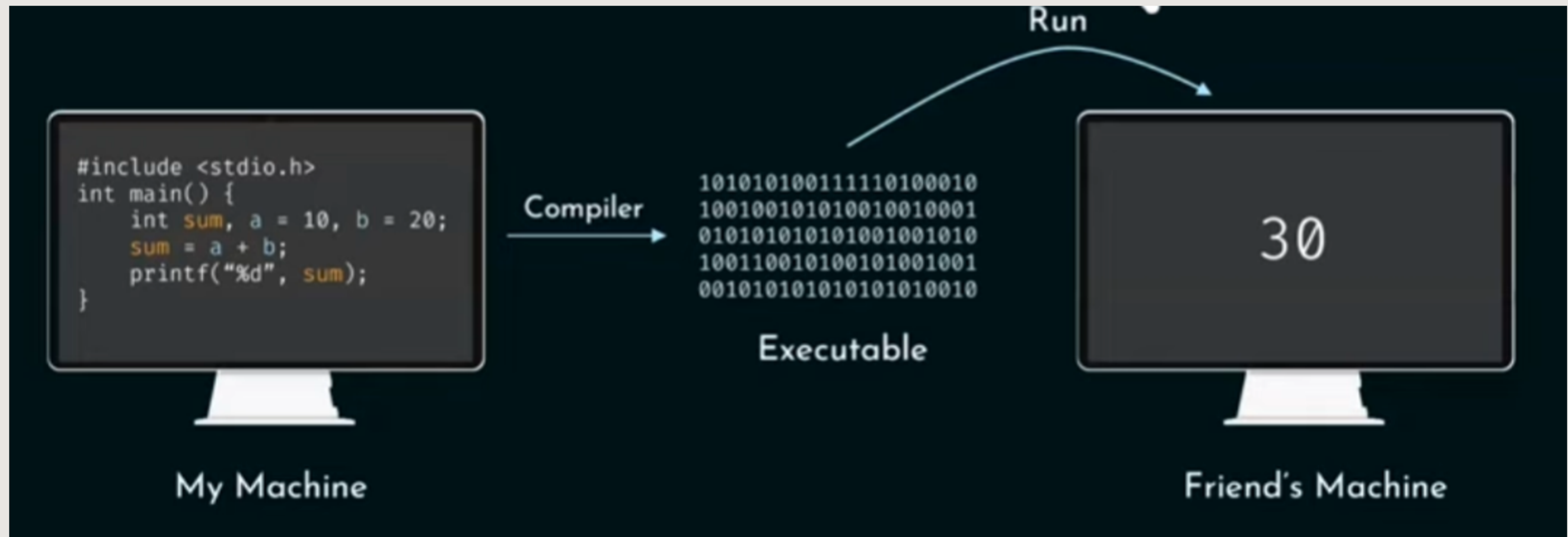
## System Software cont...

- **Language Processor** Second Type System Software that converts **programs written by humans into machine language (binary)** so the computer can understand and execute them.
  - ◆ **Types of Language Processors**
    - ◆ Compiler
    - ◆ Interpreter
    - ◆ Assembly

# Types of Language Processors

## 1. Compiler

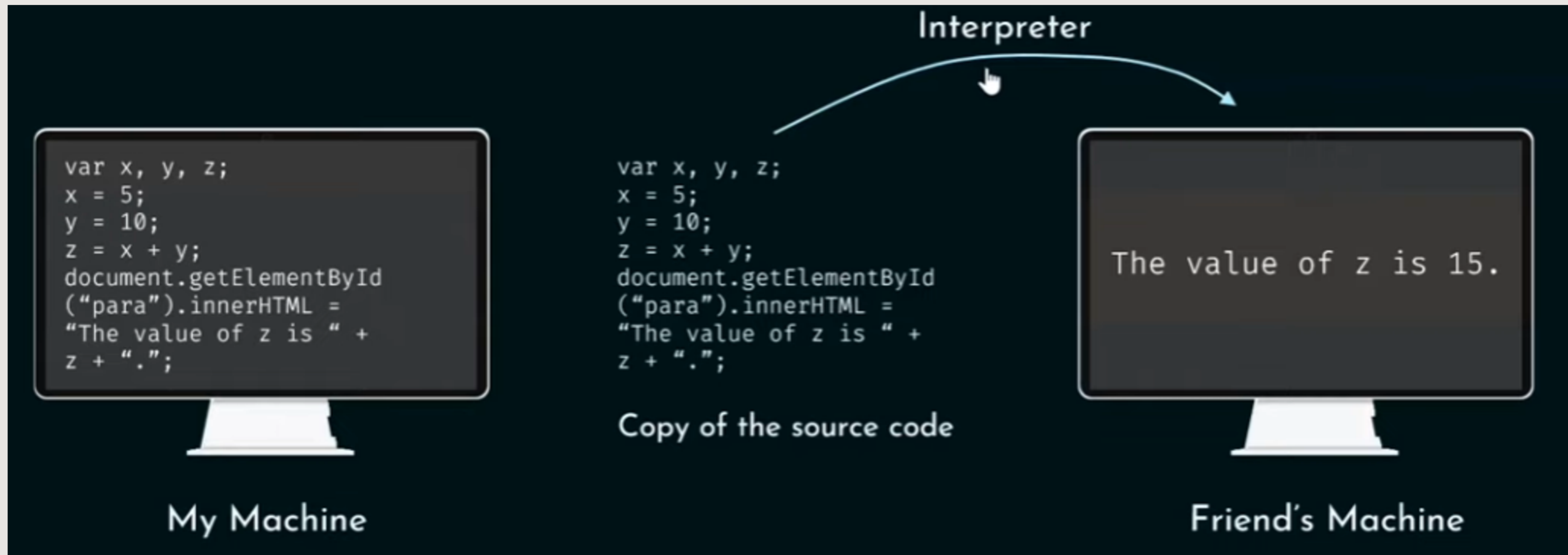
- Translates the entire program at once
- Produces an executable file
- Errors are shown after compilation
- Example: C,C++



# Types of Language Processors

## 2. Interpreter

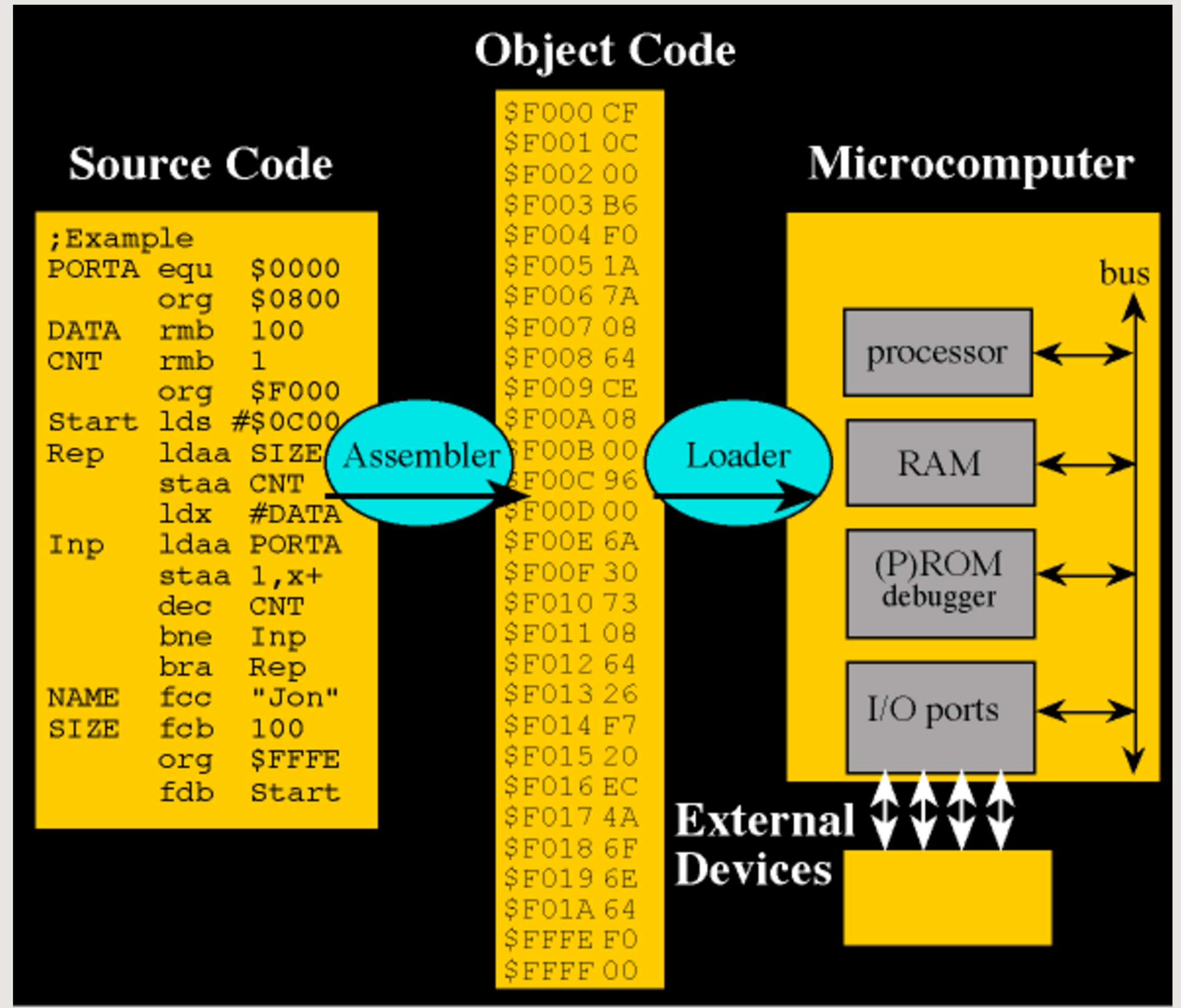
- Translates and executes line by line
- Stops when it finds an error
- Example: JavaScript, Python



# Types of Language Processors

## 3. Assembly

- Converts assembly language into machine code
- Example: Assembly Language



# Application Software

**Application software** is the type of software that runs as per **user request**. It runs on the platform which is provided by system software.

- Type of application software
  1. General-Purpose applications
  2. Customized Application Software



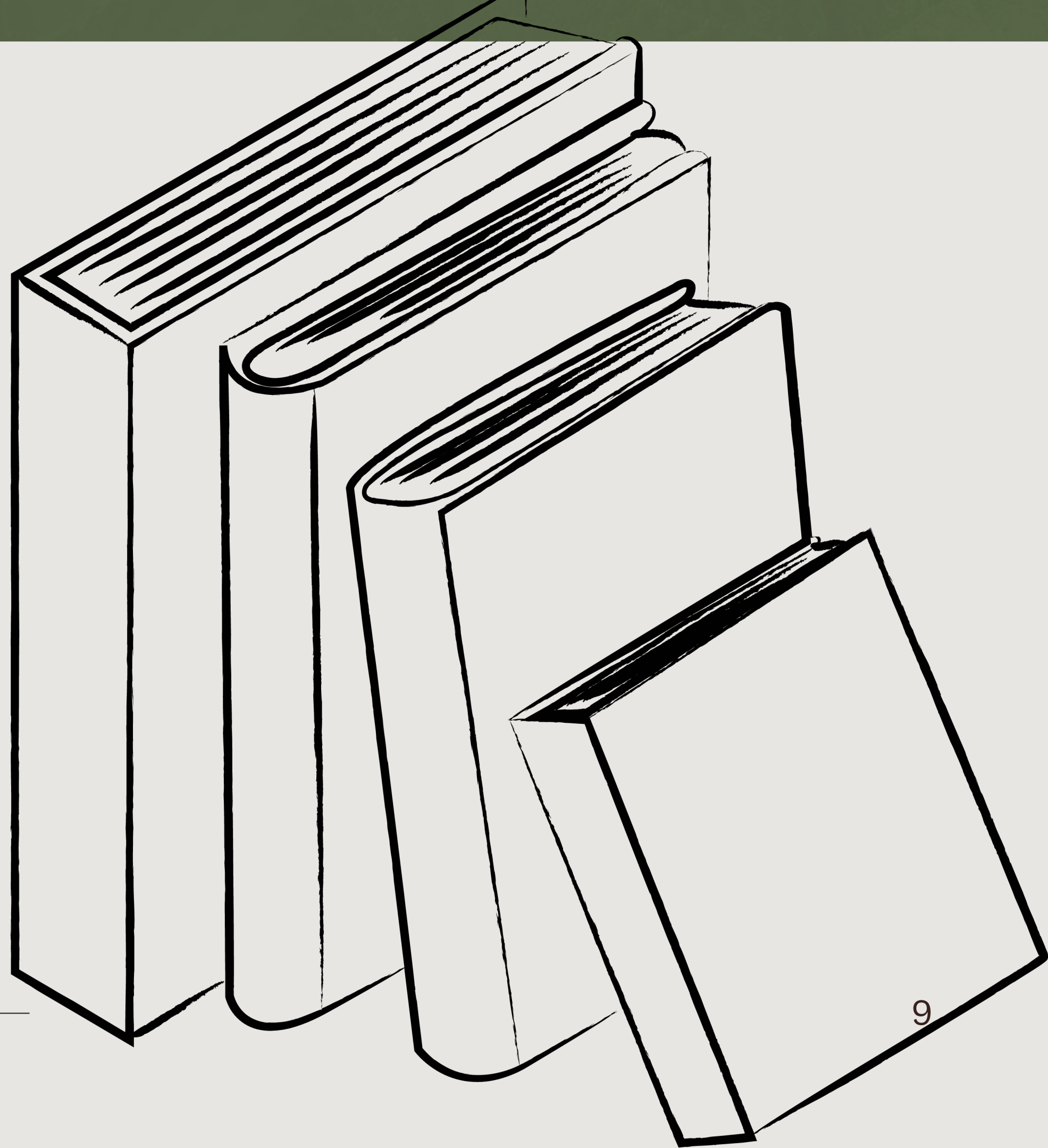
# Task

Search for 2 different type pc brand  
Important Laptop Features to Consider

- ◆ Processor (CPU)
- ◆ Memory (RAM)
- ◆ Storage (HDD / SSD)
- ◆ Battery Life
- ◆ Screen Size and Display
- ◆ Keyboard and Touchpad
- ◆ Ports and Connectivity
- ◆ Operating System

Budget Consideration

# REFERENCES



2025 Dec 23

THANK YOU