**THE PROCESS OF WHEN A COMPUTER TURNS ON**

When a computer turns on, it goes through a series of steps called the **boot process** to start up the operating system and get ready for use. Here’s what happens step by step:

**1. Power On (Electricity Flows)**

* When you press the power button, electricity flows from the power supply to the motherboard and other components.
* The power supply unit (PSU) checks for proper voltage and distributes power.

**2. Power-On Self-Test (POST)**

* The motherboard firmware (BIOS or UEFI) runs a diagnostic test called **POST** to check if essential hardware components (CPU, RAM, storage, etc.) are working correctly.
* If there is an issue (like missing RAM), the system may beep or display an error message.

**3. BIOS/UEFI Initialization**

* The BIOS/UEFI firmware initializes hardware components.
* It finds the bootable storage device (hard drive, SSD, or USB).
* It loads the bootloader into memory.

**4. Bootloader Execution**

* The **bootloader** (like GRUB for Linux, Windows Boot Manager for Windows) is responsible for loading the operating system.
* It finds the OS kernel and loads it into RAM.

**5. Kernel Loading**

* The operating system’s **kernel** (core software) takes control of the system.
* It initializes drivers for hardware like keyboards, mice, and displays.

**6. System Services and User Interface**

* Background services (like network and security services) start running.
* The **login screen** or desktop environment appears, allowing the user to interact with the system.