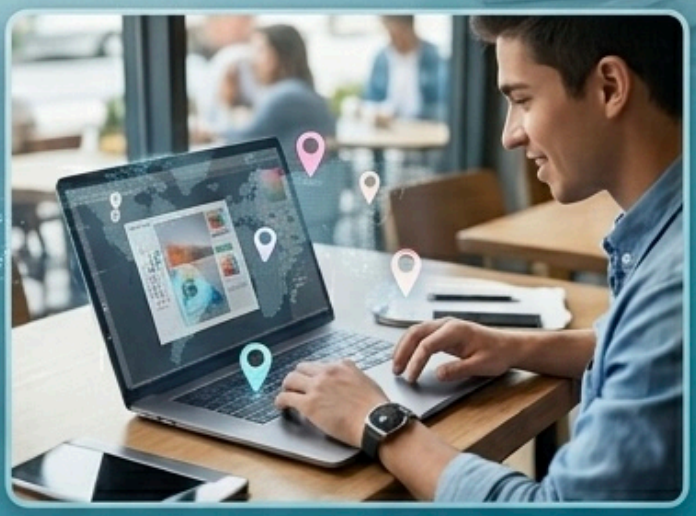
WINDROID ACADEMY

ICT by Nimanka



PREPARATION OF COMPUTER SPECIFICATIONS

- Computers and peripheral devices
- Selection of devices for the user requirement
- Creating computer specifications
- Non-technical factors in purchasing in purchasing a computer

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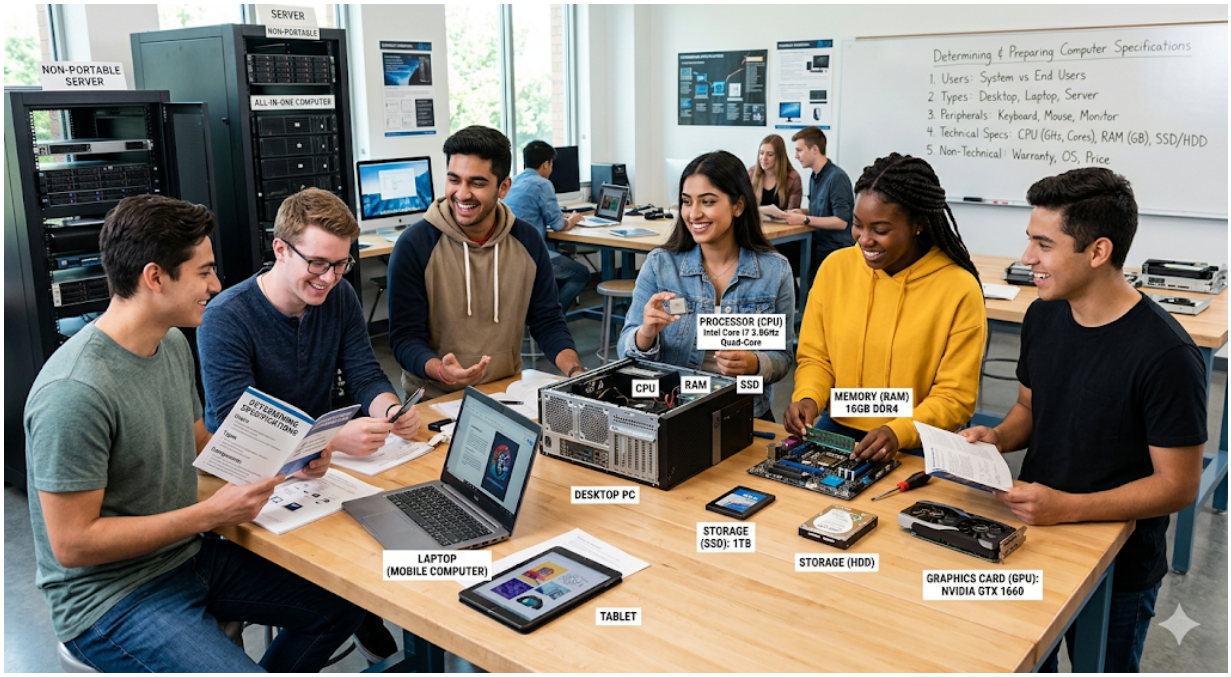
Determining and Preparing Computer Specifications

When you decide to buy or build a computer, stepping into a computer shop can be overwhelming. There are countless models, different price tags, and complex technical terms. This lesson breaks down exactly how to evaluate what you need so you can prepare the perfect computer specification for your specific situation.



1. Identifying the User and the Requirement

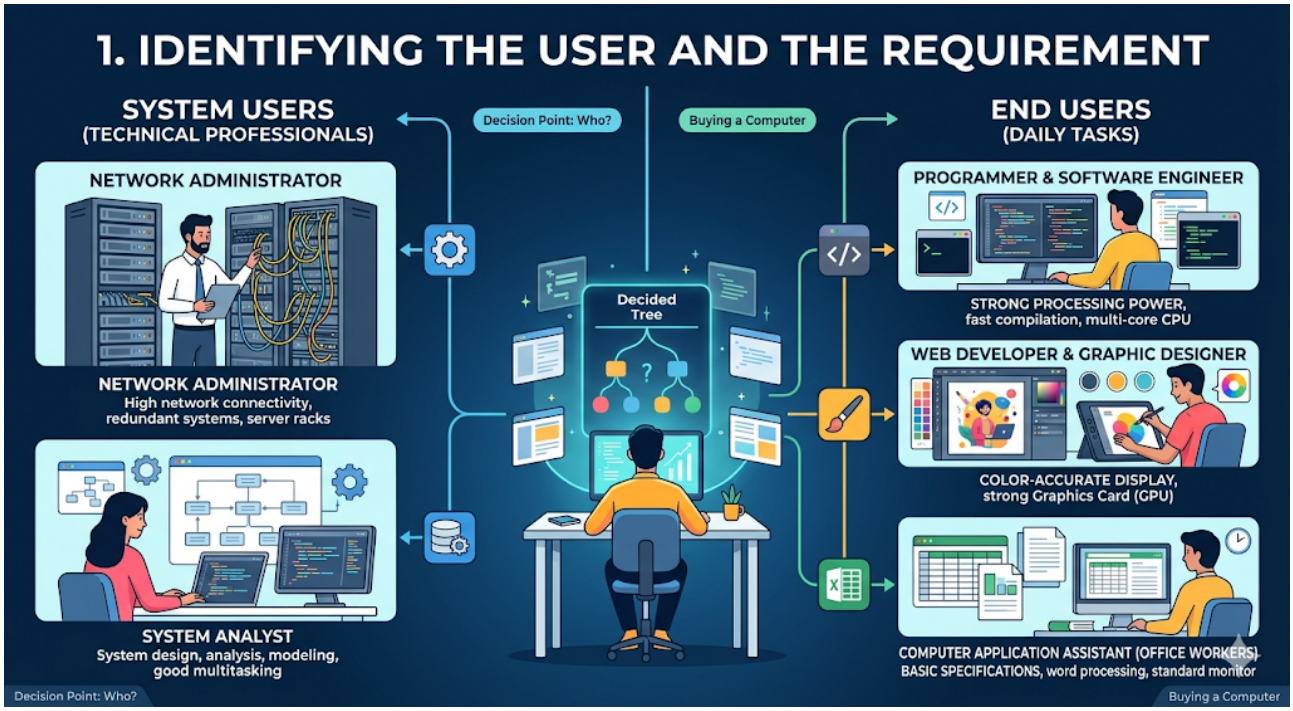
The very first step in buying a computer is defining **who** will use it and **what** they will use it for. In the world of Information and Communication Technology (ICT), users are broadly categorized into two groups:

- **System Users:** The technical professionals who maintain, build, and secure the systems (e.g., Network Administrators, System Analysts).
- **End Users:** The people who use the software and hardware for their daily tasks (e.g., Students, Office Workers, Graphic Designers).

Different roles require entirely different machines:

- **Programmers & Software Engineers:** Need strong processing power to compile code.

- **Web Developers & Graphic Designers:** Need excellent color-accurate displays and strong graphics capabilities to render images.
- **Computer Application Assistants (Office Workers):** Only need basic specifications to run word processors, spreadsheets, and web browsers.



2. Selecting the Right Type of Computer

Once you know the user's requirements, you must choose the form factor. Will the computer stay in one place, or does it need to travel?

Non-Portable Computers

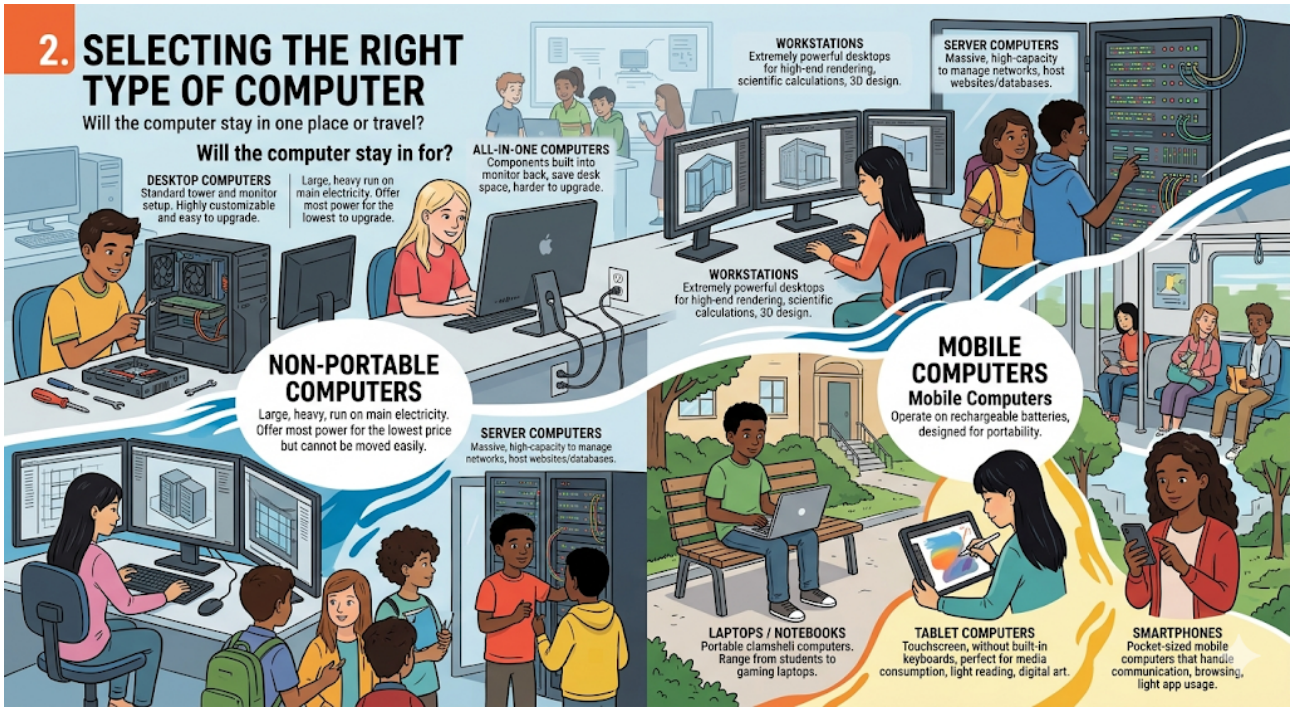
These are large, generally heavier computers that run directly off a main electrical supply. They offer the most power for the lowest price but cannot be moved easily.

- **Desktop Computers:** The standard tower and monitor setup. Highly customizable and easy to upgrade.
- **All-in-One Computers:** The computer components are built directly into the back of the monitor (like an Apple iMac). They save desk space but are harder to upgrade.
- **Workstations:** Extremely powerful desktops designed for high-end rendering, scientific calculations, and 3D design.
- **Server Computers:** Massive, high-capacity computers designed to manage computer networks and host websites or databases.

Mobile Computers

These operate on rechargeable batteries and are designed for portability.

- **Laptops / Notebooks:** Portable clamshell computers. They range from lightweight notebooks for students to heavy, powerful gaming laptops.
- **Tablet Computers:** Touchscreen devices without built-in keyboards, perfect for media consumption, light reading, and digital art.
- **Smartphones:** Pocket-sized mobile computers that handle communication, browsing, and light app usage.

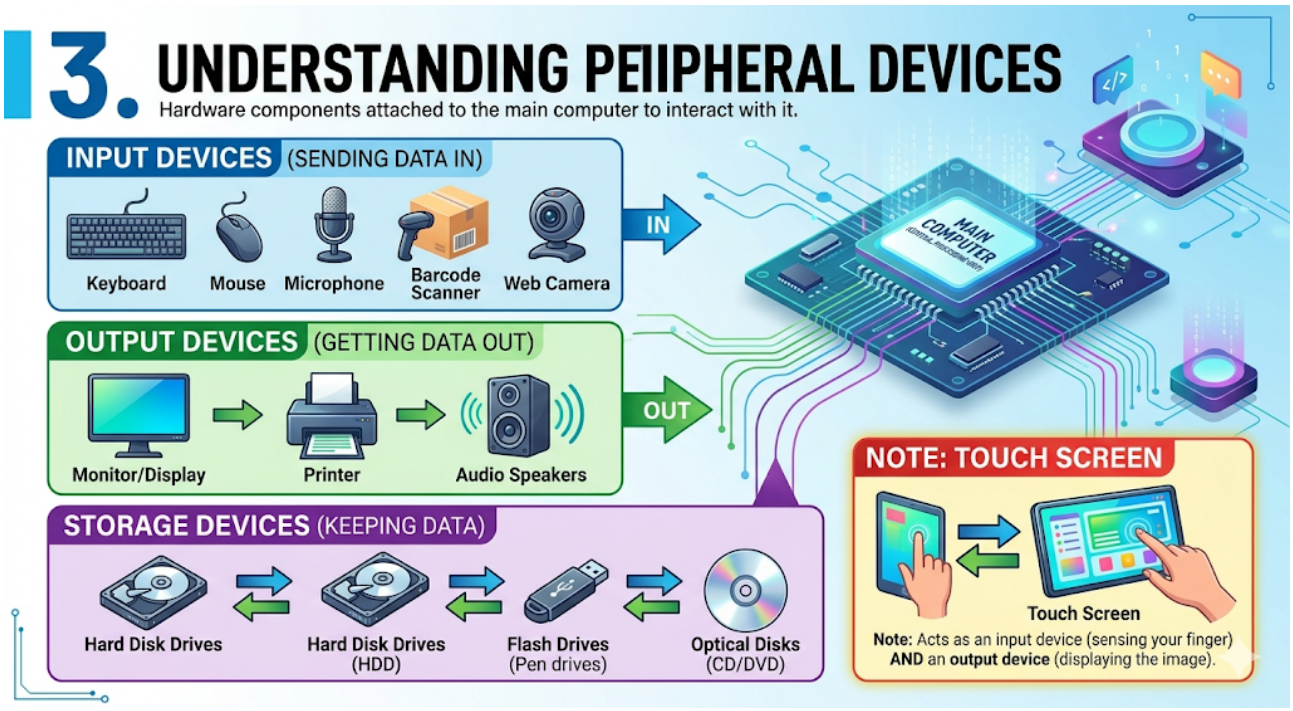


3. Understanding Peripheral Devices

Peripheral devices are the hardware components you attach to the main computer to interact with it. They are categorized by how data flows through them.

- **Input Devices (Sending data** into **the computer):** Keyboard, Mouse, Microphone, Barcode Scanner, Web Camera.
- **Output Devices (Getting data** out **of the computer):** Monitor/Display, Printer, Audio Speakers.
- **Storage Devices (Keeping data):** Hard Disk Drives (HDD), Flash Drives (Pen drives), Optical Disks (CD/DVD).

- Note: A touch screen is unique because it acts as both an input device (sensing your finger) and an output device (displaying the image).



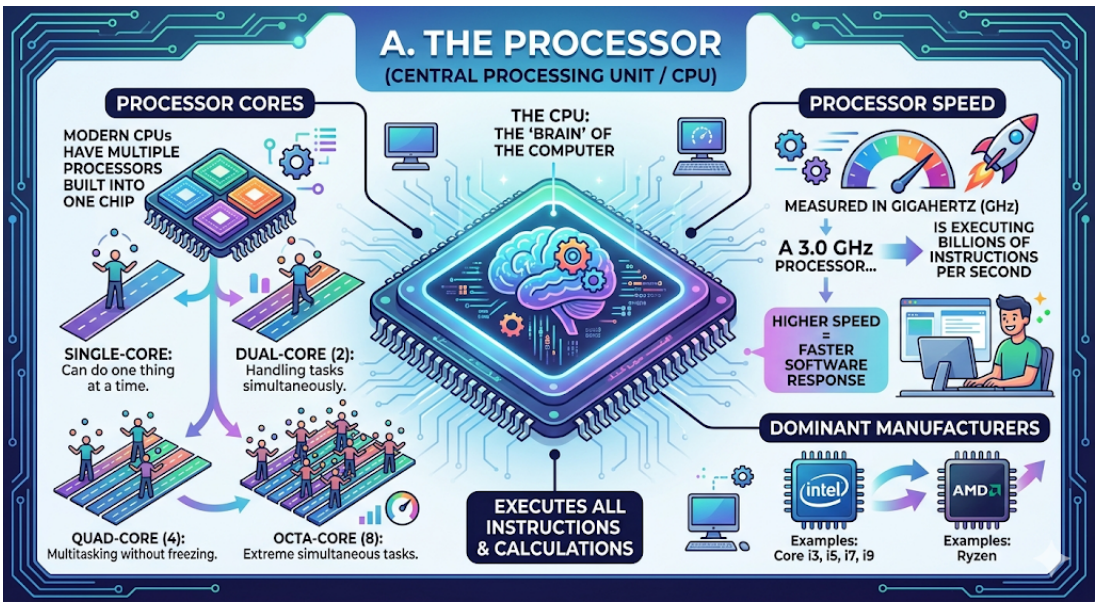
4. Technical Specifications: The Core Hardware

A "specification" (or spec) is a detailed description of the computer's components. Understanding these is crucial to knowing the true value and capability of a machine.

A. The Processor (Central Processing Unit / CPU)

The CPU is the "brain" of the computer. It executes all the instructions and calculations.

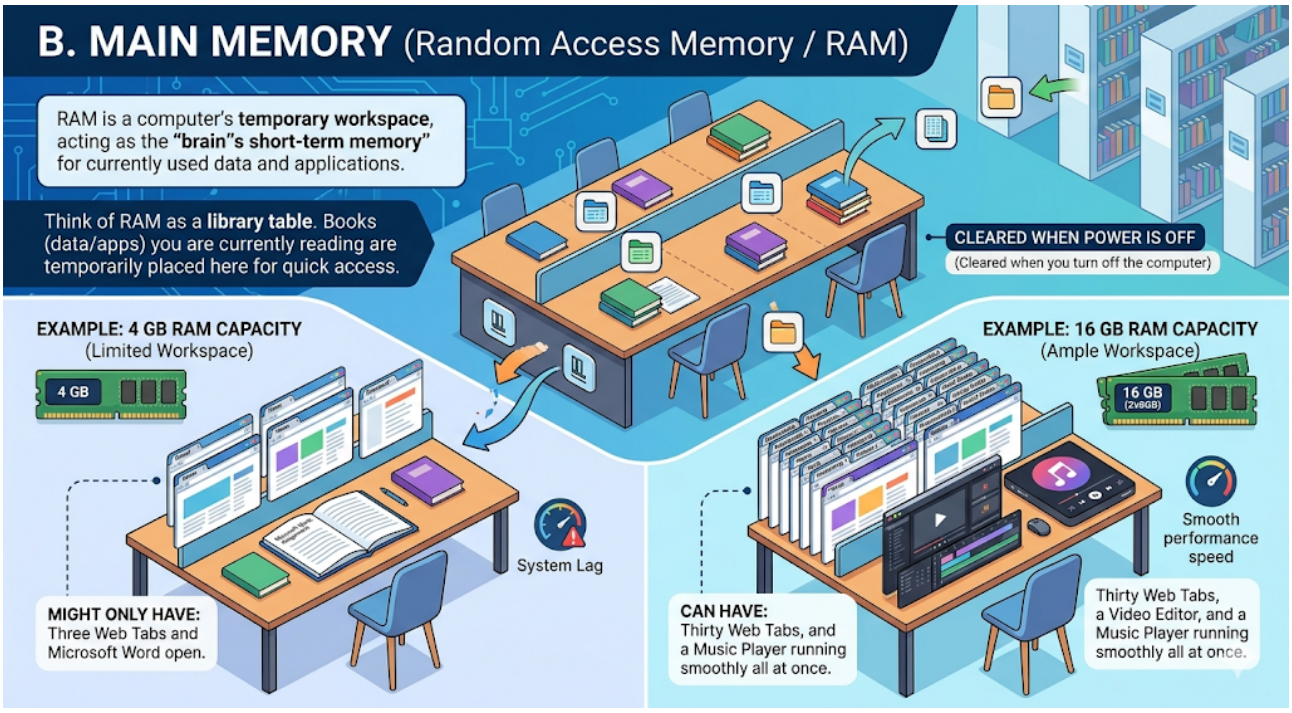
- **Speed:** Measured in Gigahertz (**GHz**). If a processor has a speed of 3.0 GHz, it is executing billions of instructions per second. Higher speed equals faster software response.
- **Cores:** Modern CPUs have multiple processors built into one chip. A Single-Core can do one thing at a time. A **Dual-Core**, **Quad-Core** (4), or **Octa-Core** (8) can handle multiple tasks simultaneously without freezing.
- **Manufacturers:** Intel (Core i3, i5, i7, i9) and AMD (Ryzen) are the dominant brands.



B. Main Memory (Random Access Memory / RAM)

Think of RAM as a library table. It is where the computer temporarily places the books (data/apps) you are currently reading. When you turn off the computer, the table is cleared.

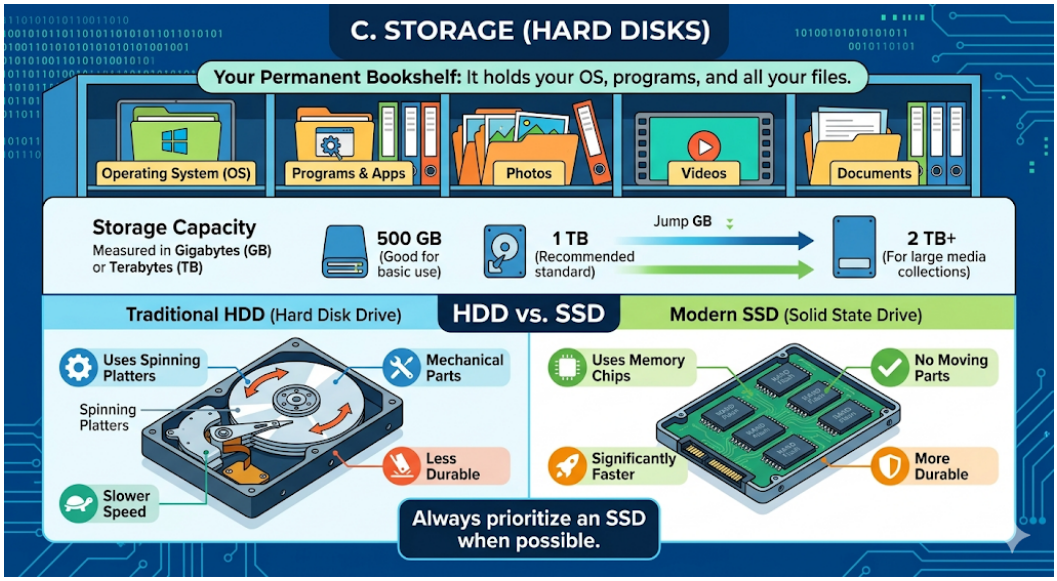
- **Capacity:** Measured in Gigabytes (**GB**).
- **Why it matters:** If you have 4 GB of RAM, you might only be able to have three web tabs and Microsoft Word open. If you have 16 GB of RAM, you can have thirty web tabs, a video editor, and a music player running smoothly all at once.



C. Storage (Hard Disks)

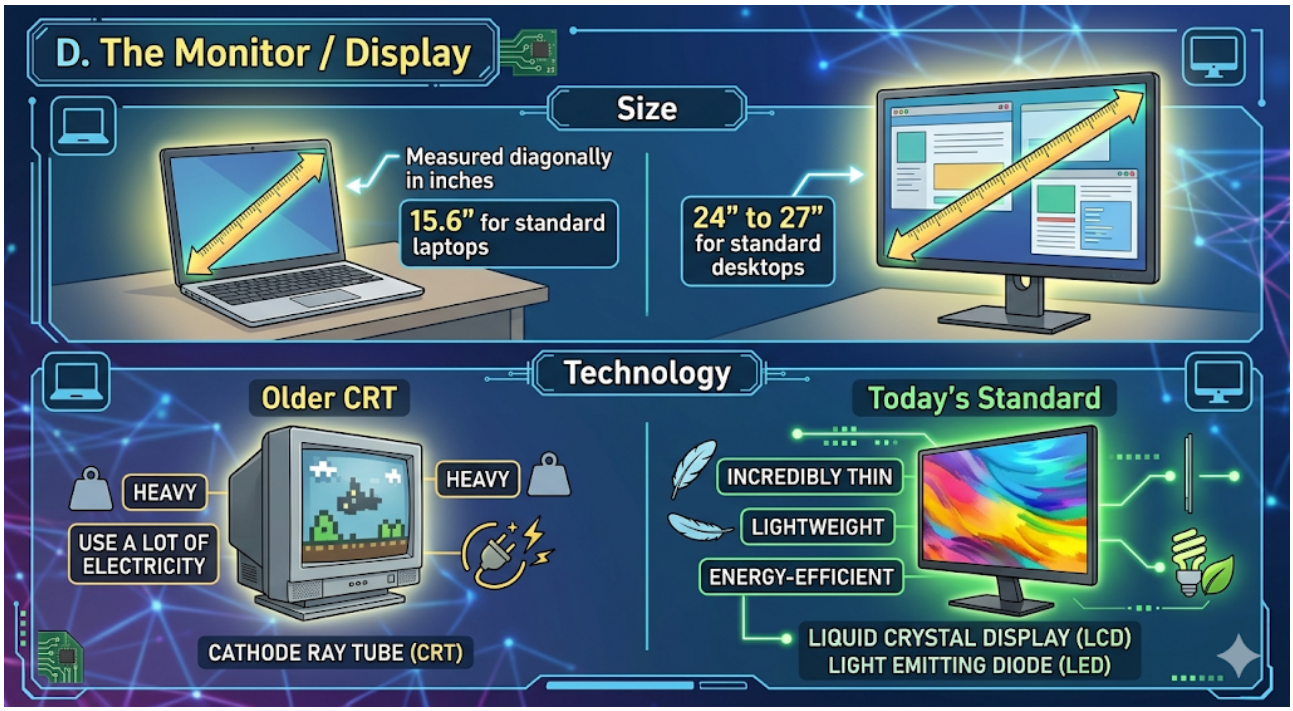
This is your permanent bookshelf. It holds your operating system, programs, and all your files.

- **Capacity:** Measured in Gigabytes (**GB**) or Terabytes (**TB**). (e.g., 500 GB, 1 TB, 2 TB).
- **HDD vs. SSD:** Traditional Hard Disks use spinning magnetic platters. Modern **Solid State Drives (SSDs)** have no moving parts and are significantly faster, durable, and quieter. Always prioritize an SSD when possible.



D. The Monitor / Display

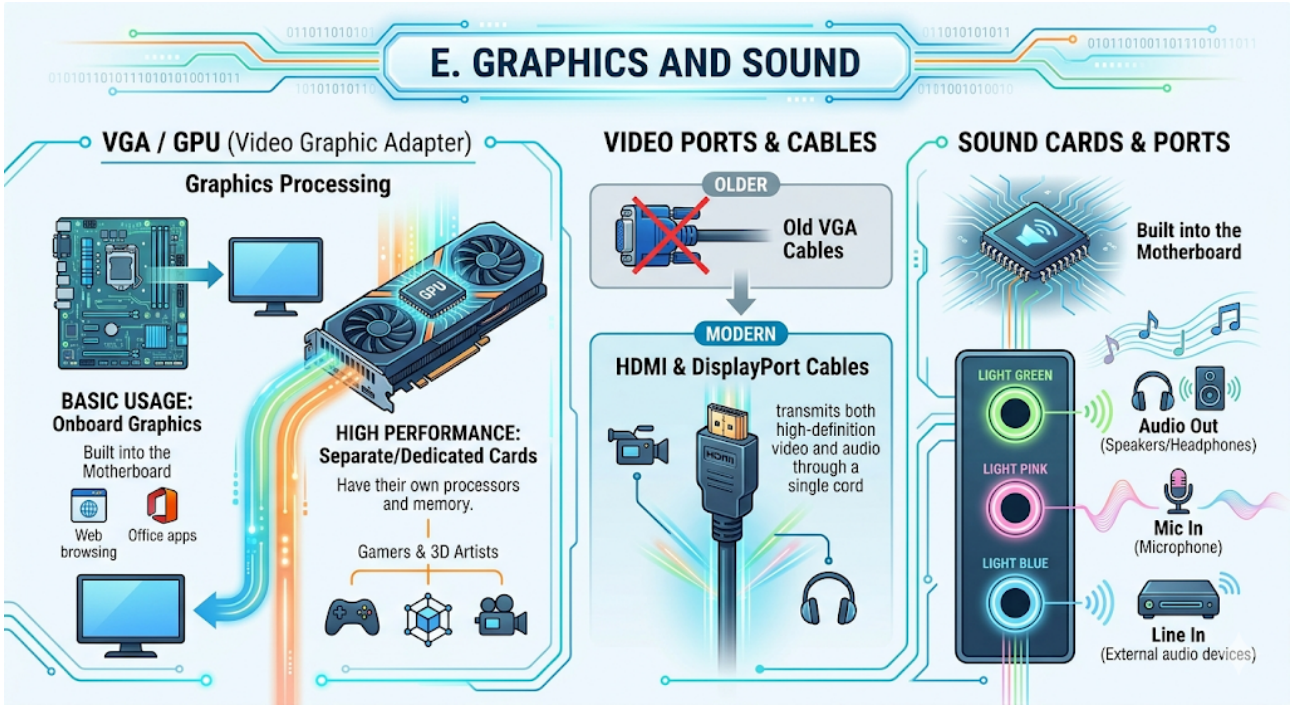
- **Size:** Measured diagonally in inches (e.g., 15.6" for standard laptops, 24" to 27" for standard desktops).
- **Technology:** Older CRT (Cathode Ray Tube) monitors are heavy and use a lot of electricity. Today, **LCD** (Liquid Crystal Display) and **LED** (Light Emitting Diode) screens are the standard because they are incredibly thin, lightweight, and energy-efficient.



E. Graphics and Sound

- **Video Graphic Adapter (VGA / GPU):** This processes what you see on the screen. Basic computers use "Onboard" graphics built into the motherboard. Gamers and 3D artists need "Separate/Dedicated" Graphics Cards, which have their own processors and memory.
- **Video Ports:** Modern computers use **HDMI** or **DisplayPort** cables instead of old VGA cables because HDMI transmits both high-definition video and audio through a single cord.
- **Sound Cards:** Built into the motherboard. They use standard color coding:
  - **Light Green:** Audio Out (Speakers/Headphones)
  - **Light Pink:** Mic In (Microphone)

- **Light Blue:** Line In (External audio devices)



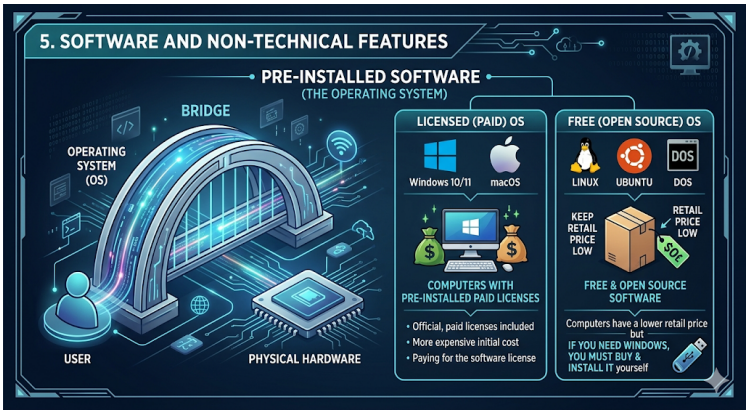
5. Software and Non-Technical Features

Even if a computer has amazing hardware, you must consider the software and the business terms of your purchase.

Pre-Installed Software (The Operating System)

The Operating System (OS) is the bridge between you and the physical hardware.

- **Licensed (Paid) OS:** Computers coming with Windows 10/11 or macOS pre-installed are generally more expensive because you are paying for the software license.
- **Free OS:** Some computers come with Linux, Ubuntu, or DOS to keep the retail price low. If you buy one of these but need Windows, you will have to buy and install Windows yourself.



Non-Technical Purchasing Factors

- **Ports & Connectivity:** Ensure the computer has enough USB ports for your devices, an RJ45 Network Port for a wired internet cable, and built-in Wi-Fi and Bluetooth.

Warranty Types:

- Manufacturer Warranty: Standard coverage replacing defective parts.
- Extended Warranty: Additional years of coverage you buy separately.
- On-site Warranty: Highly convenient; if the computer breaks, the company sends a technician to your house or office to fix it.

- **After-Sales Service & Price:** Don't just look for the cheapest option. Research the brand's reputation for customer service. A slightly more expensive computer from a company with a reliable helpdesk is often worth the extra money.