

Chapter 4

INTRODUCTION TO OPERATING SYSTEM

- **Hardware** refers to all the **physical components** of the computer

Hardware

- **Software** refers to all the **programs (or Instructions)** that tell these physical components to do something

Software



We know that Hardware and Software components of the computer system **need to work together**.

But we cannot directly use computer programs (softwares) with computer hardware without having a medium to establish a connection between them.

Thus an **operating system** is a **program** that acts as an **interface** between the **software and the computer hardware**.

Operating system is itself a program or software, it allows users to run other programs on the computer system.

Operating System (OS) runs “**behind-the-scene**” to run your computer and manage its functioning properly.

- ✓ **It tells** the computer **what to do** when it starts up
- ✓ **It keeps track** of your documents, files and other software programs
- ✓ **Provides** a standard **user interface** that you see on your computer screen after you switch on your computer.

Operating System Examples

-  Windows
-  MacOS
-  Linux / Unix

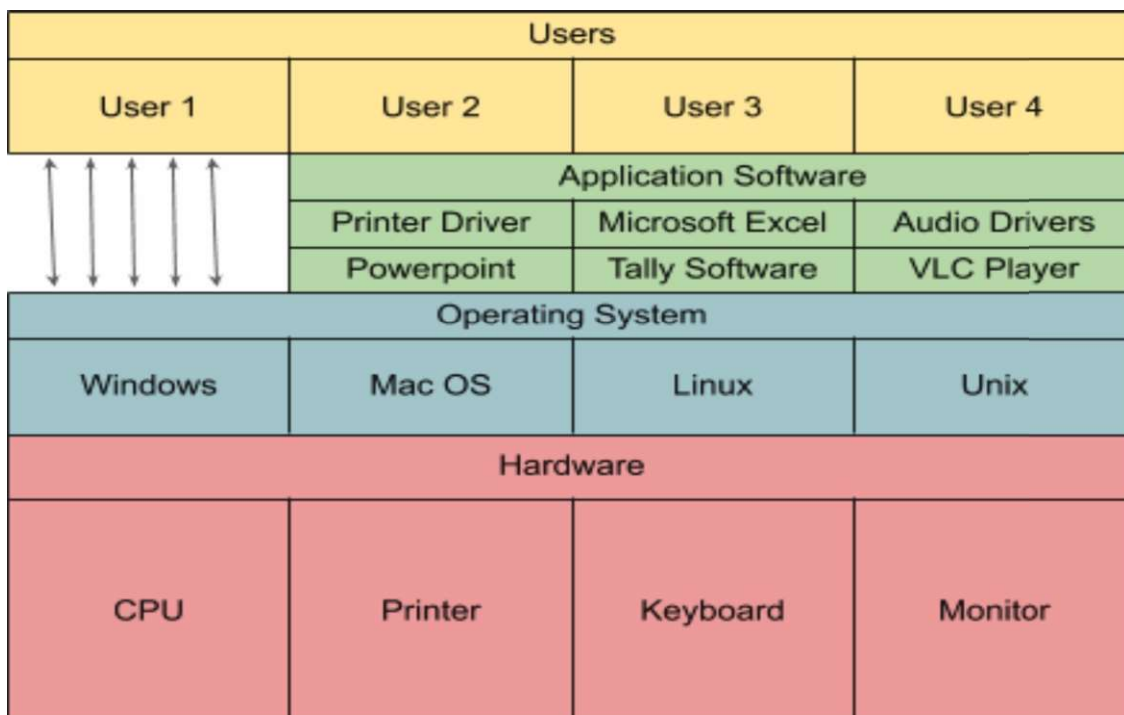
Operating System Layered Architecture

An operating system is like a boss for your computer. It tells all the other programs what to do and makes sure they work well together.

The operating system is made up of different layers, like a cake. Each layer has a different job to do. The top layer is called the user interface, and it's what you see and use when you're using your computer.

The next layer down is called the operating system or kernel. It's in charge of talking to all the parts of your computer. The bottom layer is called the hardware layer.

So, the operating system is like a cake with different layers. Each layer has a different job to do, but they all work together to make sure your computer runs smoothly.



Operating System Functions

Operating system does a variety of things from starting the system to gracefully shutting it down. But we can classify these functions majorly into the following:

- 1. Resource Sharing - Manages computer resources** like input, output devices, cpu, memory etc for effective use.
- 2. Run Application Softwares** - Operating System **provides an environment to run or use** software applications like MS Excel, iCodeT Learning Software.
- 3. Data Management** - Operating system allows users to **view and manage data** on the computer system. Users can view, create, move, rename files or directories by interacting with the operating system.
- 4. Provides User Interface** - It acts as an **interface between the user and the hardware**. It can be a GUI where you can see and click elements on the screen to perform various tasks. It enables you to communicate with the computer even without knowing the computer's language.
- 5. Security - Prevents unauthorized access** to programs and data by means of passwords and other similar techniques.

Types of Operating Systems

There are various types of operating systems **single user** and **multiuser operating systems** are two of them.

Single User Operating System:

Single user operating system means only one person can use the computer at a time. This is like having your own toy box that nobody else can play with.

In other words in a single user operating system, **only one user can access** the system at a time.



Example - **Microsoft Windows**

Multiuser Operating System :

Multiuser operating system means many people can use the computer at the same time. This is like sharing your toy box with your friends, but each person has their own toys to play with.

In other words in a multiuser operating system, **multiple users can access** the system simultaneously.



Example - **Linux, Unix**