OS

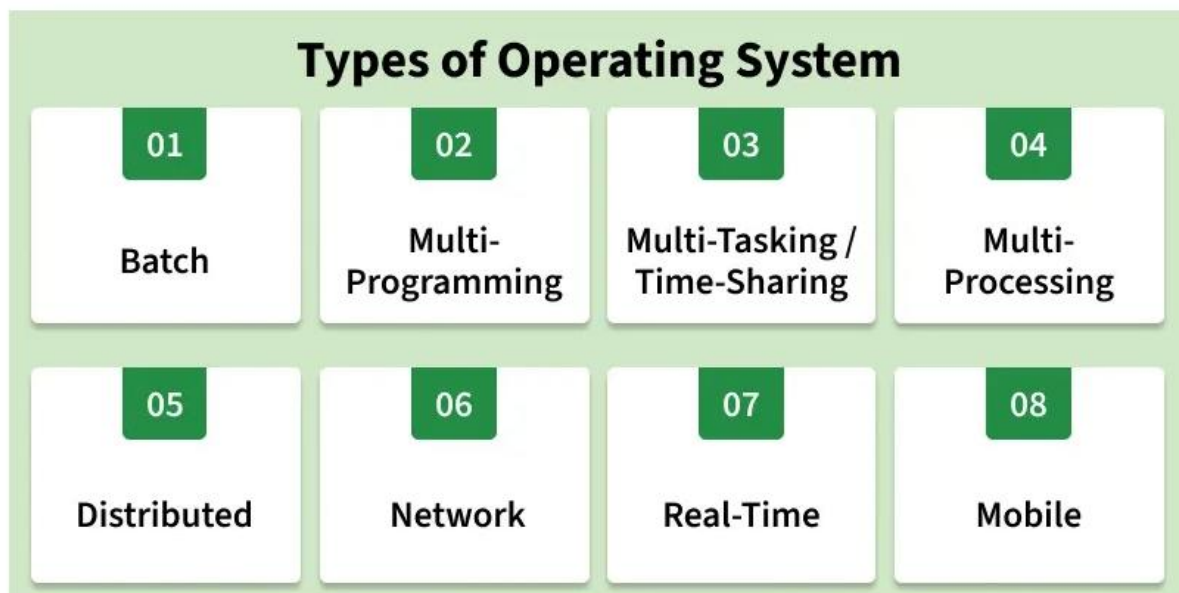**WHT IS OS?**

An operating system (OS) is software that manages computer hardware and software resources. It acts as a bridge between users and the computer, ensuring smooth operation. Different types of OS serve different needs; some handle one task at a time, while others manage multiple users or real-time processes.

Types of Operating Systems

1. Batch operating System
A Batch Operating System is designed to handle large groups of similar jobs efficiently. It does not interact with the computer directly but instead processes jobs that are grouped by an operator. These jobs are queued and executed one after the other, without user interaction during the process.

- *Insurance Claim Processing*
- *Library Book Records*
- *Stock Market Reports*

2. Multi-Programming Operating System

In a Multi-Programming Operating System, multiple programs run in memory at the same time. The CPU switches between programs, utilizing its resources more effectively and improving overall system performance.

Examples:

- *Banking systems*
- *Railway servers*
- *Billing machines*

3. Multi-tasking/Time-sharing Operating systems

Multitasking OS is a type of multiprogramming system where each process runs in a **round-robin** manner. Every task gets a fixed time slice called a **quantum**. After the quantum ends, the OS switches to the next task, allowing multiple tasks—whether from one user or many—to run smoothly on a single system.

Examples:

- *IBM VM/CMS*
- *TSO (Time Sharing Option*
- *Windows Terminal Services*

4. Multi-Processing Operating System

Multi-Processing OS is a type of Operating System in which more than one CPU is used for the execution of resources. It betters the throughput of the System.

Examples:

- *UNIX*
- *Linux (Ubuntu, Red Hat, Debian)*
- *macOS*

5. Distributed Operating System

[Distributed operating systems](#)connects multiple independent computers through a shared communication network. Each system has its own CPU and memory but works together as a single unit. The main benefit is remote access, allowing users to use files and software stored on other connected systems.

Examples:

- *LOCUS*
- *MICROS*
- *Amoeba*

6. Network Operating System

A Network Operating System (NOS) runs on a server and manages data, users, security, applications, and other network functions. It allows shared access to files, printers, and resources within a small private network. Users can see the configuration and connections of other users, which is why these systems are considered [tightly coupled systems](#).

Examples:

- *Microsoft Windows Server 2003*
- *UNIX, Linux*
- *Mac OS X*

7. Real-Time Operating System

These types of OSs serve real-time systems. The time interval required to process and respond to inputs is very small. This time interval is called **response time. Real-time systems** are used when there are time requirements that are very strict like missile systems, air traffic control systems, robots, etc.

Examples:

- *Scientific experiments*
- *Medical imaging systems*
- *Robots*

8. Mobile Operating Systems

Mobile operating systems are designed specifically for mobile devices such as smartphones and tablets. Examples of such operating systems are Android and iOS. These operating systems manage the hardware and software resources of the device, providing a platform for running applications and ensuring a seamless user experience.

Examples:

- *Android*
- *iOS*
- *Blackberry*