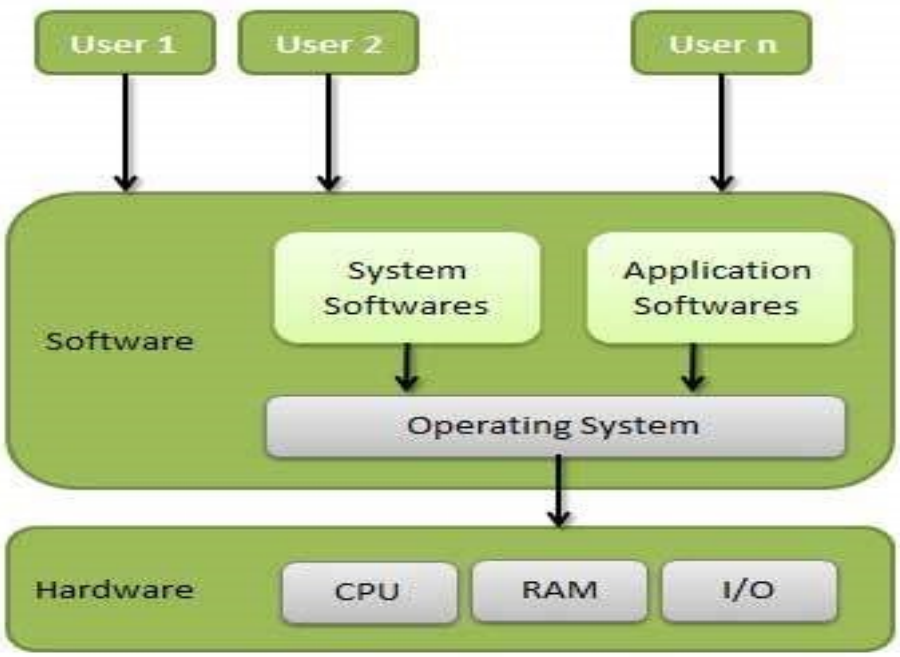
LINUX LAB-1

Q1. Introduction to Operating System?

- An Operating System (OS) is system software that manages hardware and software resources.
- It acts as an intermediary between users and hardware, offering a user interface (GUI or CLI).
- The OS allocates CPU time, memory, and storage to applications and processes for efficient multitasking.
- It manages the file system, organizing and storing data on storage devices.
- Security features protect against unauthorized access and threats.
- The OS manages peripheral devices and enables networking capabilities for communication between devices.



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Operating System

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Q2. Need of Operating System?

An operating system (OS) is crucial for a computer's functionality as it manages both hardware and software, serving as a communication link between the user and the system. Its key functions include:

- **Resource Allocation**: The OS allocates memory, storage, and CPU time to various programs ensuring smooth operation and preventing conflicts for optimal performance.
- **Interface:** It provides a user-friendly interface, simplifying interactions with the computer's hardware and software.
- **Device Management**: The OS manages connected devices like keyboards, mice, and printers, identifies and configures new devices, and updates drivers to ensure performance and security.
- **Program Execution:** It oversees the execution of software programs, handling tasks such as launching, scheduling, and terminating applications.

Need of Operating System

Q3. Services provided by Operating System?

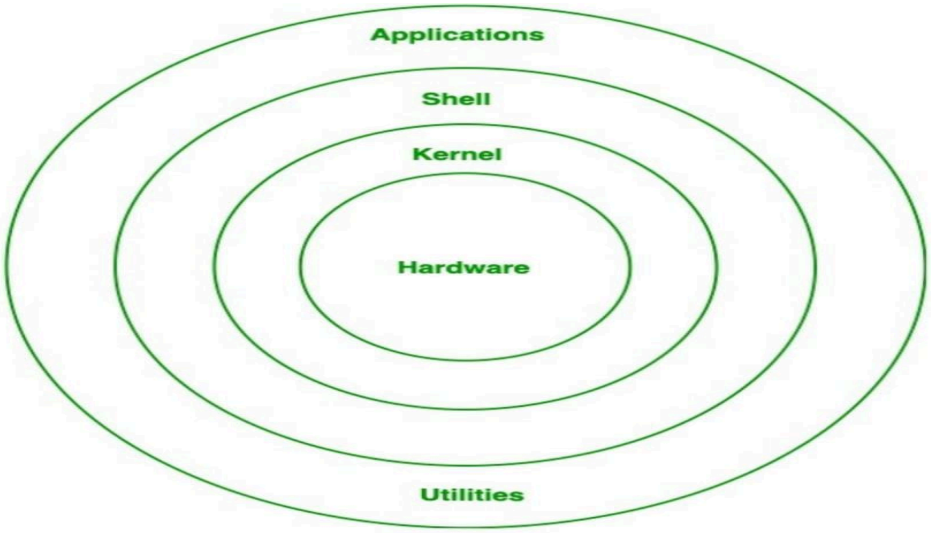
- **Resource Management**: Allocates CPU, memory, and storage.
- **Process Management:** Manages process creation, scheduling, and termination.
- **File System Management:** Organizes and manages files and directories.
- **User Interface:** Provides interaction through GUI or CLI.
- **Security and Access Control:** Protects data and system resources.

- **Device Management:** Facilitates communication with peripheral.
- **Networking Services**: Enables connectivity and communication over networks.
- **Job Scheduling**: Manages and schedules tasks and automated jobs,

Services of operating System

Q4. What is Linux?

- Linux is a free and open-source operating system.
- Developed by Linus Torvalds in 1991.
- Known for stability, security, and flexibility.
- Supports multi-user and multitasking environment.
- Highly customizable with various desktop environments (e.g., GNOME, KDE).
- Offers powerful command-line interface (CLI).
- Comes in multiple distributions (e.g., Ubuntu, Fedora, Debian).
- Widely used in servers, supercomputers, embedded systems, and Android devices.
- Strong community support and active development.



Linux Opeating System

Q5. Need of Linux?

The need for Linux includes several factors:

- **Security:** Linux is less vulnerable to viruses and malware compared to other operating systems.
- **Open Source:** The source code is publicly accessible, allowing anyone to view, modify, and distribute it.
- **Compatibility**: Linux runs on nearly all hardware devices.
- **Customizable**: Users can modify the source code and create their own distributions.
- **Stability:** Known for its reliability and robustness, making it a preferred choice for supercomputers.
- **Efficiency:** Allows multiple users to run programs simultaneously on the same machine.
- **Ease of Use:** Easy to install and use, even for beginners.
- **Educational:** Provides a learning opportunity for understanding how operating systems work.
- **Free**: Available at no cost.
- **Community Support:** Backed by a strong and active support community

Q6. What are the services provided by Linux?

In Linux, services encompass a range of programs that handle various server functions. Examples include:

- **Database Servers:** MySQL and PostgreSQL for managing and querying databases.
- **Web Servers:** Apache and Nginx for serving web pages and applications.
- **Mail Servers:** Postfix and Sendmail for handling email transmission and reception.
- **DNS Servers**: BIND for domain name resolution.
- **DHCP Servers:** ISC DHCP for dynamically assigning IP addresses to network devices.
- **VPN Servers:** OpenVPN for creating secure virtual private networks.

Q7. What are the distributions of Linux?

Linux distributions (distros) are variations of the Linux operating system that include the Linux kernel along with additional software and tools tailored for different uses. Some well-known Linux distributions include:

- Ubuntu
- Arch Linux
- Kali Linux
- CentOS
- Fedora Linux
- Black Arch Linux
- Parrot OS
- Peppermint OS
- Scientific Linux

Distribution of Linux