ASSIGNMENT - 02

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1.WHAT IS SOFTWARE AND HARDWARE?

- **Software :**

Software is the set of programs and instructions that tell the computer what to do. It cannot be touched physically, but it helps the system perform different tasks.

Examples of software

- Operating systems like Windows, Linux, Android
- Applications like Google Chrome, MS Word
- Security programs like antivirus and firewall

- **Hardware :**

Hardware refers to the physical parts of a computer that we can touch and see. It forms the base of the computer system.

Examples of hardware

- CPU, RAM, hard disk
- Keyboard, mouse, monitor
- Routers, switches, servers

2.WHAT IS OPERATING SYSTEM AND ITS TYPES?

Operating System :

An operating system (OS) is the main system software that controls and manages the overall working of a computer. It acts as an interface between the user and the computer hardware, helping users run applications and perform tasks easily.

Examples of operating systems include Windows, Linux, macOS, Android, and iOS.

Types Of Operating System

1. **Batch Operating System :**

A Batch Operating System is one of the earliest types of operating systems. In this system, similar jobs are collected together and processed in batches.

Example: Early IBM computers

2. **Time-Sharing Operating System :**

A time-sharing operating system allows multiple users to use the computer system at the same time by sharing CPU time. Each user gets a small time slot for their task, which makes the system appear fast and interactive.

Example: UNIX operating system.

3. Multi-Tasking Operating System :

A multi-tasking operating system allows a single user to run multiple programs simultaneously. For example, a person can browse the internet, listen to music, and work on a document at the same time.

Example : Microsoft Windows and macOS.

4. Multi-User Operating System :

A multi-user operating system is designed to support multiple users accessing the same computer system at once. Each user can work independently while sharing system resources like memory and CPU. This type of OS is mostly used in servers and large organizations.

Example: Linux and UNIX servers.

5. Network Operating System :

A network operating system is specially developed to manage and control network resources such as files, printers, users, and security over a network.

Example: Windows Server and Novell NetWare.

6. Distributed Operating System :

A distributed operating system connects multiple computers and makes them work together as a single system. It helps in sharing resources and improving performance. This type is mainly used in large networks and cloud computing environments.

Example: Amoeba distributed OS.

3. WHAT ARE THE CATEGORIES OF OPERATING SYSTEM?

- **Single-User Operating System**

A single-user operating system is designed to support only **one user at a time**. It is mainly used in personal computers where only one person works on the system.

It allows the user to perform tasks like browsing, gaming, and office work.Resources are dedicated to one user only.

- **Multi-User Operating System**

A multi-user operating system allows **multiple users** to access the same computer system simultaneously.

Each user can work independently.Commonly used in servers, universities, and companies.Provides better resource sharing.

- **Multi-Tasking Operating System**

A multi-tasking operating system allows a user to run **multiple applications at the same time**.

For example : Listening to music , Typing in MS Word , Browsing the internet All can happen simultaneously.

- **Time-Sharing Operating System**

In time-sharing operating systems, CPU time is divided into small time slices and shared among users.

Many users can work at the same time.Provides fast and interactive responses.

- **Batch Operating System**

A batch operating system processes jobs in batches without direct user interaction.

Jobs are collected and executed one after another.Used in large organizations for repetitive tasks.

- **Real-Time Operating System (RTOS)**

A real-time operating system is used where immediate response is required.

Delay is not acceptable.Used in critical applications like medical systems, robotics, and aerospace.

- **Distributed Operating System**

A distributed operating system connects multiple computers and makes them work together like a single system.

Resources are shared among many computers.Used in cloud computing and large networks.

- **Network Operating System**

A network operating system is designed to manage network resources and provide services to connected devices.

It helps in : File sharing , Printer sharing , Network security , User management

4.WHAT IS CLIENT AND SERVER OPERATING SYSTEM?

Client Operating System

A **Client Operating System** is an operating system that is installed on a user's personal device such as a desktop, laptop, or mobile phone.

It is mainly designed for:

- Individual users
- Personal computing tasks
- Running applications like browsers, games, MS Office, etc.
- Client OS focuses on providing a user-friendly interface and smooth performance for daily activities.

Features of Client OS

- Supports single-user environment
- Easy graphical interface (GUI)
- Used for personal work and entertainment
- Limited network management features

Examples of Client OS

- Windows 10 / Windows 11
- macOS
- Ubuntu Desktop
- Android, iOS

Server Operating System

A Server operating system is a special type of OS designed to run on servers. It is used to manage network resources and provide services to multiple client computers.

Server OS handles tasks like:

- File sharing
- Hosting websites
- Managing users and permissions
- Database storage
- Network security and control

Features of Server OS

- Supports multiple users simultaneously
- Provides centralized control and security
- Handles large network traffic
- Offers services like web hosting, email, cloud storage
- More powerful than client OS

Examples of Server OS

- Windows Server (2016, 2019, 2022)
- Linux Server (Ubuntu Server, Red Hat)
- UNIX
- CentOS

5.LIST CLIENT OS VERSION OF LINUX (RED HAT SYSTEM)?

Red Hat is one of the most popular Linux distributions used in both personal computers and enterprise systems. The client versions of Red Hat Linux are mainly designed for desktop users, developers, and workstation environments.

Below are the important Client OS versions of Red Hat System:

- **Red Hat Linux (RHL)**

This was the original Red Hat distribution released for general desktop and personal use before the enterprise editions were introduced.

Example Versions:

- ✓ Red Hat Linux 7.0
- ✓ Red Hat Linux 9

- **Red Hat Enterprise Linux Desktop (RHEL Desktop)**

This is a client-oriented version of Red Hat Enterprise Linux designed for desktop users in organizations.

Features:

- ✓ User-friendly interface
- ✓ Secure workstation environment
- ✓ Long-term support

- **Red Hat Enterprise Linux Workstation**

This is a powerful client OS version mainly used for professional users like developers, engineers, and researchers.

Features:

- ✓ High performance
- ✓ Supports advanced tools
- ✓ Suitable for technical work

- **Fedora Linux**

Fedora is a community-supported Linux distribution sponsored by Red Hat. It is mainly used as a desktop/client OS and is the testing ground for future Red Hat technologies.

Features:

- ✓ Latest software updates
- ✓ Best for students and developers
- ✓ **Example Versions:** Fedora 38, Fedora 39

- **CentOS (Client Use)**

CentOS was a free, community version based on Red Hat Enterprise Linux. It was also used as a desktop OS by many users.

6.LIST SERVER OS VERSION OF WINDOWS(RED HAT) ?

Red Hat provides different versions of Linux specially designed for **server environments**. These are called **Red Hat Enterprise Linux (RHEL)** server operating systems. They are widely used in companies, data centers, and cloud platforms because of their stability, security, and long-term support.

Below are the major **Server OS Versions of Red Hat**:

1. **Red Hat Enterprise Linux 5 (RHEL 5)**

RHEL 5 was one of the earlier enterprise server versions used for network services, database hosting, and enterprise applications.

2. Red Hat Enterprise Linux 6 (RHEL 6)

This version provided improved performance, better virtualization support, and stronger server security features.

3. Red Hat Enterprise Linux 7 (RHEL 7)

RHEL 7 introduced modern system management tools like **systemd** and became widely popular for enterprise server deployments.

4. Red Hat Enterprise Linux 8 (RHEL 8)

RHEL 8 supports advanced technologies such as containerization, cloud computing, and enhanced security frameworks.

7.LIST SERVER AND CLIENT OS VERSION OF LINUX?

Client OS Versions of Linux (Desktop Versions)

Client Linux operating systems are mainly used for personal computers, laptops, and workstation environments. They provide a user-friendly interface and support daily applications.

Examples of Client Linux OS Versions:

- Ubuntu Desktop
- Fedora Workstation
- Linux Mint

Server OS Versions of Linux (Enterprise Server Versions)

Server Linux operating systems are designed for managing networks, hosting websites, databases, cloud services, and enterprise-level applications.

Examples of Server Linux OS Versions:

- Red Hat Enterprise Linux Server (RHEL 5, 6, 7, 8, 9)
- Ubuntu Server
- CentOS / CentOS Stream
- Debian Server
- SUSE Linux Enterprise Server (SLES)
- Oracle Linux Server

THANK YOU