**Module – 3 Installation and Maintenance of Hardware and Its components**

* **What is user management?**

**Ans.** User management refers to the process of controlling and administering user access and permissions within a computer system or software application. It involves tasks such as creating user accounts, assigning roles and permissions, setting password policies, and managing user profiles. User management ensures security, proper access control, and efficient administration of resources in a system or application.

* **Where can we access the user management?**

**Ans.**

**Windows:**

Control Panel > Administrative Tools > Computer Management > Local Users and Groups.

**macOS:**

System Preferences > Users & Groups.

**Linux (Ubuntu):**

System Settings > User Accounts or command-line tools like user add and user mod.

**Web Applications:**

User management is often accessed through account settings or an admin dashboard.

**Enterprise Systems:**

Within company networks, user management may be integrated into Active Directory (Windows) or LDAP systems.

**Cloud Services:**

Cloud platforms like AWS, Azure, or Google Cloud have user management features in their respective consoles.

* **Why is user management needed?**

**Ans.**

**Security:** Ensuring that only authorized users have access to resources, protecting against unauthorized access and data breaches.

**Access Control:** Defining and regulating user privileges, restricting or granting access based on roles and responsibilities.

**Data Integrity:** Managing user accounts helps maintain data accuracy, preventing unintentional or malicious alterations.

**Resource Allocation:** Efficiently assigning and revoking permissions ensures proper utilization of system resources.

**Compliance**: Adhering to regulatory requirements by implementing user management practices to safeguard sensitive information.

**Accountability:** Tracking user activities and changes, enabling accountability and auditing for system administrators.

**Customization:** Tailoring user experiences and access levels to specific roles or departments within an organization.

**Password Policies:** Enforcing secure password practices to enhance overall system security.

* **Do a practical to create a user from user management.**

**Ans.**

1. **Access User Management:**

Open the Control Panel.

Navigate to "Administrative Tools" > "Computer Management."

Choose "Local Users and Groups" > "Users."

2. **Create a New User:**

Right-click in the blank area, select "New" > "User."

3. **Fill in User Details:**

Enter the user's username, full name, and a password. You may choose to set a password or allow the system to generate one.

4. **Configure User Options:**

Adjust additional settings, such as password policies or group memberships if needed.

5. **Complete the Process:**

Click "Create" or "OK" to finalize the user creation process.

* **Do a practical to change the password of the administrator from the user management What is file folder permission? sharing and ntfs What is the use of file and folder permission?**

**Ans.**

**File and Folder Permissions:**

File and folder permissions control access to files and directories in a computer's file system. There are two main types of permission systems: one for sharing on networks (such as sharing on a Windows network) and the other for local storage using the NTFS file system on Windows**.**

**1. Sharing Permissions:**

Purpose: Control access to files and folders over a network.

Typical Settings: Read, Write, Modify, Full Control.

Common Use: Facilitate collaboration and resource sharing in a networked environment.

**2. NTFS Permissions:**

Purpose: Control access to files and folders on a local drive formatted with NTFS.

Typical Settings: Read, Write, Execute, Modify, Full Control.

Common Use: Ensure data security and privacy on a local system.

**Use of File and Folder Permissions:**

1. **Security**: Restrict access to sensitive files and folders to authorized users, enhancing data security.

2. **Privacy:** Control who can view, edit, or delete specific files, protecting user privacy and confidential information.

3. **Collaboration:** Facilitate collaboration by allowing multiple users to work on shared documents while controlling their level of access.

4. **Data Integrity:** Prevent accidental or intentional data modifications by enforcing permissions on critical files and folders**.**

5. **Compliance:** Adhere to regulatory requirements by implementing access controls to sensitive data.

6. **Resource Management:** Ensure efficient use of resources by limiting access to files and folders based on user roles and responsibilities.

Understanding and properly configuring file and folder permissions is crucial for maintaining the security, integrity, and accessibility of data on a computer system.

* **Write down the steps to give a folder read only permission.**

**Ans.**

1. **Navigate to the Folder:**

Open File Explorer and locate the folder for which you want to set read-only permissions.

1. **Right-Click on the Folder:**

Right-click on the folder, and from the context menu, select "Properties."

1. **Access the Security Tab:**

In the "Properties" window, go to the "Security" tab.

1. **Click on "Edit":**

Click the "Edit" button to modify the permissions.

1. **Add the User or Group:**

Click "Add" to add the user or group for which you want to set permissions. Enter the name and click "Check Names" to validate.

1. **Set Permissions:**

Highlight the added user or group, then in the "Permissions for [User/Group]" box, check the "Read" box under the "Allow" column.

1. **Apply Changes:**

Click "OK" to apply the changes. If you encounter a warning, click "Yes" to continue.

1. **Apply Changes in the Properties Window:**

Back in the "Properties" window, click "Apply" and then "OK."

* **Write a step to give a file only admin permission.**

**Ans.**

1. **Navigate to the File:**

Locate the file in File Explorer.

1. **Right-Click on the File:**

Right-click on the file and choose "Properties."

1. **Access the Security Tab:**

Go to the "Security" tab in the file properties.

1. **Click on "Edit":**

Click the "Edit" button to modify permissions.

1. **Add Admin Group:**

Click "Add," enter "Administrators," and click "Check Names" to validate.

1. **Set Admin Permissions:**

Highlight "Administrators" and grant the desired permissions, such as "Full Control."

1. **Apply Changes:**

Click "OK" to apply the changes. Confirm any warnings.

1. **Finalize:**

In the "Properties" window, click "Apply" and then "OK."

* **Do a practical to change the ownership of the folder and the sub folders in it.**

**Ans.**

1. Open terminal:

Open the terminal on your system.

1. Navigation to the folder:

Use the ‘cd’ command to navigation to the folder whose ownership you want to change.

**Cd /path/to/your/folder**

1. Change Ownership:

**sudo chown new\_owner:new\_group -R folder\_name**

Replace ‘new\_owner’ and ‘new\_group’ with the desired owner’s username and group name.

1. Verify Ownership:

**ls -l**

Check that the owner and group have changed.

* **What is OS?**

**Ans.** OS stands for Operating System. It's the software that manages a computer's hardware and provides a user interface for running applications. Examples include Windows, macOS, and Linux.

* **What are the types of OS?**

**Ans.**

1. Single-user, Single-task:

Example: MS-DOS.

2. Single-user, multi-task:

Examples: Windows, macOS.

3. Multi-user:

Examples: Linux, Unix.

* **Do a practical to create bootable pen drive for kali Linux and install OS**

**Ans.**

1. **Download Kali Linux ISO:**

Visit the official Kali Linux website and download the ISO file for the version you want.

2. **Create Bootable USB:**

Use a tool like Rufus (on Windows) or balenaEtcher (on Windows, macOS, or Linux) to create a bootable USB drive.

Select the Kali Linux ISO file and the USB drive.

3. **Boot from USB:**

Insert the bootable USB into your computer.

Restart the computer and enter the BIOS/UEFI settings to set the USB as the primary boot device.

4. **Install Kali Linux:**

Follow the on-screen instructions to start the Kali Linux live environment.

Use the installer on the desktop to install Kali Linux.

5. **Partition and Install:**

During installation, you'll be prompted to partition your drive. Choose the option that suits your needs.

6. **Configure and Finish Installation:**

Follow the installation prompts, set the root password, create a user, and complete the installation process.

7. **Reboot:**

Once the installation is complete, remove the USB drive and reboot the system.

Make sure to back up your important data before installing a new operating system, as the installation process may involve partitioning your drive.

* **Do a practical to create a bootable pen drive for windows 10 and install OS.**

**Ans.**

**Download Windows 10 ISO:**

Go to the official Microsoft website.

Download the Windows 10 ISO file.

**Download Rufus:**

Download Rufus, a free and open-source tool for creating bootable USB drives.

**Insert USB Drive:**

Insert a USB drive with at least 8GB of storage.

**Open Rufus:**

Run Rufus as an administrator.

**Configure Rufus:**

Select your USB drive under "Device."

Choose the Windows 10 ISO file under "Boot selection."

Leave the file system as NTFS.

Click "Start" and confirm any prompts.

**Wait for Completion:**

Rufus will format the USB drive and copy the Windows 10 installation files. Wait for the process to complete.

**Install Windows 10:**

Eject the USB drive safely.

Insert the USB drive into the computer where you want to install Windows 10.

Boot from the USB drive (you may need to change the boot order in the BIOS/UEFI settings).

Follow the on-screen instructions to install Windows 10.

**Complete Installation:**

Enter your product key when prompted.

Choose the installation type and partition where you want to install Windows.

Wait for the installation to finish.

**Set Up Windows:**

Follow the on-screen prompts to personalize settings, create an account, and set up Windows.

**Finish:**

Once the setup is complete, you have successfully installed Windows 10.

Remember to back up important data before installing a new operating system

* **Do pen drive for creating a pen drive for mac os Big sur with unibeast.**

**Ans.**

**Download macOS Big Sur:**

Get the macOS Big Sur installer from the Mac App Store.

**Download UniBeast:**

Download UniBeast from the tonymacx86 website.

**Prepare USB Drive:**

Insert a USB drive (16GB or larger) and format it using Disk Utility as "Mac OS Extended (Journaled)."

**Run UniBeast:**

Open UniBeast and follow the on-screen instructions.

Select your USB drive as the destination.

Choose UEFI Boot Mode.

**Install macOS Big Sur:**

After UniBeast completes, copy the macOS installer files to the USB drive.

**Configure BIOS/UEFI:**

Boot your computer from the USB drive (adjust BIOS/UEFI settings if needed).

**Install macOS:**

In the UniBeast menu, select the USB drive and boot into the macOS installer.

Follow the on-screen instructions to install macOS Big Sur.

**Complete Installation:**

After installation, boot from the USB drive again.

Complete the post-installation steps using MultiBeast (also available on tonymacx86).

* **What is clean install?**

**Ans.** A clean install refers to the process of installing an operating system on a computer's storage drive, typically erasing all existing data on that drive. This results in a fresh and often more efficient system without any previous files, applications, or settings from the previous installation.

* **What is upgrade installation?**

**Ans.** Upgrade installation means installing a newer version of an operating system over the existing one, keeping files and settings intact. It’s like updating your system without starting from scratch.

* **Do a practical to upgrade from windows 8 to windows 10.**

**Ans.** To upgrade from Windows 8 to Windows 10.

**Check System Requirements:**

Ensure your PC meets Windows 10 requirements.

**Backup Important Data:**

Back up crucial files to prevent data loss.

**Get Windows 10:**

Download the Windows 10 Media Creation Tool from the official Microsoft website.

**Run the Tool:**

Execute the tool and select "Upgrade this PC now."

**Follow On-screen Instructions:**

The tool guides you through the upgrade process.

Choose to keep files and apps during installation.

**Complete Installation:**

Wait for the upgrade to finish.

Follow prompts to set preferences**.**

**Verify Windows 10:**

Check system settings to confirm Windows 10 upgrade.

* **What is partitioning?**

**Ans.** Partitioning is like dividing your computer's storage into separate sections. It's like creating different rooms in a house to organize and manage data. Each partition acts as an independent space, helping you organize files, install different operating systems, or keep data separate for better organization and efficiency.

* **What is partition?**

**Ans.** A partition is like a separate section on your computer's storage. It's like having different compartments in a drawer, each designated for specific types of items. Partitions help organize data, and you can use them to install different operating systems or keep files separate for better management.

* **What is format?**

**Ans.** Formatting is like preparing a blank sheet for writing – it erases everything on a storage device, making it ready to store new data. It's like clearing a whiteboard before adding new information.

* **Format a partition using cmd.**

**Ans.**

To format a partition using Command Prompt (cmd):

Open Command Prompt as Administrator.

Type disk part and press Enter.

Use list disk to identify your disk.

Type select disk X (replace X with your disk number).

Use list partition to select the partition: select partition Y (replace Y with partition number).

Type format fs=ntfs quick for a quick NTFS format.

Press Enter, and wait for the process to complete.

Note: Replace "ntfs" with "exfat" or "fat32" if needed, and be cautious, as formatting erases all data on the partition.

* **List out the administrative tools.**

**Ans.** Administrative Tools include:

Computer Management: Manages system components and services.

Device Manager: Controls hardware devices and drivers.

Disk Management: Manages disks and partitions.

Event Viewer: Views system logs and events.

Local Security Policy: Configures security settings.

Performance Monitor: Monitors system performance.

Services: Manages Windows services.

Task Scheduler: Automates tasks at scheduled times.

Component Services: Manages system components and COM+ applications.

Print Management: Manages printers and print queues.

Access these tools through the Control Panel or by searching in the Start menu.

* **What is disk management tools.**

**Ans.** Disk management tools are software applications or utilities that enable users to organize, optimize, and maintain their computer's storage devices, such as hard drives and solid-state drives. These tools provide functions like partitioning, formatting, and resizing storage space to help users effectively manage their data and ensure efficient use of their disk resources.

* **List out the operations we can do with disk management tool.**

**Ans.**

1. **Partitioning:** Create, delete, or modify partitions on a storage device.
2. **Formatting:** Prepare a partition or disk for data storage by defining a file system.
3. **Resizing:** Adjust the size of existing partitions to allocate or free up storage space.
4. **Assigning Drive Letters:** Assign or change the drive letters associated with partitions.
5. **Changing File Systems:** Convert between different file systems, such as FAT32 and NTFS.
6. **Marking Partitions as Active:** Designate a partition as the active, bootable partition.
7. **Creating Logical Drives**: Organize extended partitions into logical drives for better data management.
8. **Mounting and Dismounting Volumes:** Connect or disconnect a storage volume from the file system.
9. **Checking for Errors**: Scan and fix errors on a disk to ensure data integrity.
10. **Defragmentation:** Rearrange fragmented data on a disk for improved performance.

* **What is Device Management.**

**Ans.** The act and skill of overseeing the installation, operation, and upkeep of a computer or network.

* **Do a practical to delete a driver from the device management tool.**

**Ans.** I can guide you through the general steps to uninstall a driver using Device Manager on a Windows operating system:

**Open Device Manager:**

Right-click on the Start button.

Select "Device Manager" from the menu.

**Locate the Device:**

In Device Manager, find and expand the category that includes the device for which you want to uninstall the driver.

**Uninstall the Driver:**

Right-click on the specific device.

Choose "Uninstall device" from the context menu.

**Confirm Uninstallation:**

If prompted, confirm that you want to uninstall the device driver.

**Restart the Computer:**

After uninstalling the driver, it's often recommended to restart your computer to complete the process.

* **What are windows features?**

**Ans.** The primary function of the windows operating system is to manage and organize computer resources such as CPU, RAM, and hard disk.

Windows features are additional functionalities and programs that can be added or removed from the Windows operating system. These features enhance the capabilities of the system and cater to specific needs. Examples include Internet Explorer, Microsoft .NET Framework, and various administrative tools. Users can access the "Turn Windows features on or off" settings to customize their Windows installation by enabling or disabling these features based on their preferences and requirements.

* **Do a practical to install dotnet framework 3.5 with Windows feature.**

**Ans.**

**Open Windows Features:**

Press Win + X and select "Control Panel."

Navigate to "Programs" and then click on "Turn Windows features on or off."

**Enable .NET Framework 3.5:**

In the "Windows Features" window, locate ".NET Framework 3.5 (includes .NET 2.0 and 3.0)" in the list.

Check the box next to it to enable the feature.

**Install the Feature:**

Click "OK" to close the window.

Windows may prompt you to download the necessary files. If an internet connection is available, allow Windows to connect and download the required components.

**Complete the Installation:**

Once the download is complete, the installation of .NET Framework 3.5 will proceed automatically.

**Restart Your Computer:**

After the installation is finished, restart your computer to apply the changes.

* **Do a practical to disable internet explorer in windows feature.**

**Ans.**

1. **Open Windows Features:**

Press Win + X and select "Control Panel."

Navigate to "Programs" and click on "Turn Windows features on or off."

1. **Disable Internet Explorer:**

Uncheck the box next to "Internet Explorer 11" in the "Windows Features" window.

1. **Confirm and Apply:**

Click "OK" to confirm your choice and close the window.

1. **Restart Your Computer:**

Restart your computer for the changes to take effect.

Now, Internet Explorer should be disabled on your Windows system. Keep in mind that some system components may still rely on Internet Explorer, so it's a good idea to have an alternative web browser installed before disabling it.

* **What is backup and restore?**

**Ans.** Backup and restore refer to the processes of creating copies of data (backup) and returning the data to its original state (restore) in case of data loss, corruption, or system failures.

**Backup:** Making a duplicate copy of important files or data to protect against loss or damage. Backups are typically stored on external devices or cloud services**.**

**Restore:** The process of recovering data from a backup to restore it to its original location or to a new system after a data loss event. This ensures that the information is returned to its previous state.

* **What are the tools of backup?**

**Ans. Backup tools include:**

**File History (Windows**): Automatically backs up files and allows you to retrieve previous versions.

**Time Machine (macOS):** Apple's built-in backup solution that automatically saves versions of files over time.

**Backup and Restore (Windows):** Windows utility for creating and restoring system image backups.

**rsync (Unix/Linux):** Command-line tool for syncing and backing up files.

**Clonezilla:** Open-source software for disk imaging and cloning.

**Acronis True Image:** Commercial backup and recovery software with various features.

**Veeam Backup & Replication:** Enterprise-level solution for virtual and physical environments.

**Backblaze:** Cloud backup service for personal and business use.

**Carbonite:** Cloud-based backup service for both personal and business data.

**Duplicate**: Free and open-source backup software supporting various cloud services.

* **Do a practical to restore from restore point.**

**Ans.**

**Open System Restore:**

Press Win + S to open the search bar.

Type "Create a restore point" and select the corresponding result.

**Access System Restore:**

In the "System Properties" window, go to the "System Protection" tab.

Click on the "System Restore" button.

**Choose a Restore Point:**

Click "Next" in the System Restore wizard.

You'll see a list of available restore points. Choose a point from when your system was working correctly.

**Initiate the Restore:**

Click "Next" and then "Finish" to confirm your restore point selection.

Confirm the restoration process by clicking "Yes."

**Wait for the Process:**

The system will restart, and the restoration process will begin. This may take some time.

**Completion:**

Once the process is complete, your system will restart, and it should be restored to the selected restore point.

* **How to protect system from malfunctioning due to electrical fluctuation?**

**Ans.** To protect a system from malfunctioning due to electrical fluctuations:

**Use Surge Protectors:**

Connect your computer and other sensitive electronics to surge protectors to guard against sudden voltage spikes.

**Uninterruptible Power Supply (UPS):**

Invest in a UPS to provide temporary power during outages and protect against voltage fluctuations. This allows you to shut down your system properly.

**Voltage Regulators:**

Consider using voltage regulators or voltage stabilizers to maintain a stable voltage supply to your devices.

**Quality Power Strips:**

Use high-quality power strips with surge protection for additional safety.

**Regular Maintenance:**

Ensure the electrical wiring in your home or office is well-maintained, and fix any issues promptly.

**Backup Power Generator:**

In areas with frequent power issues, consider a backup power generator for continuous power supply during outages.

**Avoid Overloading Circuits:**

Avoid overloading electrical circuits with too many devices, as this can lead to fluctuations.

**Proper Grounding:**

Ensure that your electrical system is properly grounded to minimize the risk of electrical issues.

**Update System and Data Protection:**

Regularly update and maintain your system's antivirus and backup software to protect against data loss in case of electrical issues.

**Educate Users:**

Train users to save work frequently and shut down systems properly during power outages or when not in use.

* **What is os base firewall? And configure inbound and outbound rule.**

**Ans.** An OS-based firewall is a firewall that operates at the operating system level, providing a layer of security by controlling incoming and outgoing network traffic based on an organization's previously established security policies.

Here's a short guide to configuring inbound and outbound rules in the Windows Firewall:

1. **Open Windows Firewall:**

Press Win + S to open the search bar.

Type "Windows Defender Firewall" and select the corresponding result.

1. **Access Inbound Rules:**

In the Windows Defender Firewall window, click on "Advanced settings" on the left.

1. **Create Inbound Rule:**

In the "Windows Defender Firewall with Advanced Security" window, select "Inbound Rules."

Right-click and choose "New Rule."

Follow the wizard to specify the rule type, program, and action (allow or block).

1. **Access Outbound Rules:**

Similarly, select "Outbound Rules" to configure rules for outgoing traffic.

1. **Create Outbound Rule:**

Right-click and choose "New Rule."

Follow the wizard to specify the rule type, program, and action.

1. **Configure Rule Settings:**

Set rule details such as protocols, ports, and specific programs as needed.

1. **Finalize and Apply:**

Complete the wizard, giving your rule a name and description.

Click "Finish" to apply the rule.

* **Do a practical to block internet with firewall.**

**Ans.**

**Open Windows Firewall:**

Press Win + S to open the search bar.

Type "Windows Defender Firewall" and select the corresponding result.

**Access Outbound Rules:**

In the "Windows Defender Firewall" window, click on "Advanced settings" on the left.

**Create Outbound Rule:**

In the "Windows Defender Firewall with Advanced Security" window, select "Outbound Rules."

Right-click and choose "New Rule."

**Choose Rule Type:**

Select "Custom" and click "Next."

**Choose Programs:**

Choose "This program path" and click "Browse" to select the executable of the browser you want to block (e.g., chrome.exe for Google Chrome).

Click "Next."

**Choose Action:**

Select "Block the connection" and click "Next."

**Name and Description:**

Provide a name and description for the rule.

Click "Finish" to create the rule.

**Test the Rule:**

Open the blocked browser and try accessing a website to confirm that the internet access is blocked.

To restore internet access, you can go back to the Windows Defender Firewall with Advanced Security, find the rule you created, and either disable or delete it. Keep in mind that this method blocks internet access for the specified program, so be cautious and ensure you have alternative means to manage your system.