



JAMAL MOHAMED COLLEGE (Autonomous)

Department of Computer Applications

VALUE ADDED COURSE

II BCA – UBUNTU BASICS

Unit-II Notes: Ubuntu Desktop Usage and Configuration

Topic 1. Desktop Elements

Overview

- **Desktop Environment:** Ubuntu uses the GNOME desktop environment by default.
- **Desktop:** The main workspace area where you can place icons and launch applications.
- **Top Bar:** Includes the Activities overview, system status area (clock, network, battery), and system menu.
- **Activities Overview:** Accessed by clicking "Activities" in the top-left corner or pressing the Super key. Provides access to applications, open windows, and search functionality.
- **Dock:** A vertical bar on the left side of the screen with icons for favorite and running applications.
- **Workspaces:** Virtual desktops for organizing open windows and applications.

Key Elements

- **Application Menu:** Access installed applications through the "Show Applications" button at the bottom of the Dock.
- **Settings Menu:** Access system settings, network settings, and other configurations.
- **System Notifications:** Notifications for system updates, messages, and other alerts.

Topic 2. Shutting Down or Restarting Ubuntu

Steps to Shut Down or Restart

1. **System Menu:** Click on the system menu in the top-right corner of the screen (network, battery, user menu).
2. **Power Options:** Select "Power Off / Log Out" from the dropdown menu.
3. **Options:**
 - **Power Off:** Completely shut down the system.

- **Restart:** Reboot the system.
- **Log Out:** Log out of the current user session.

Topic 3. Ensuring Ubuntu Hardware Support

Steps to Ensure Compatibility

1. **Check Compatibility:** Verify hardware compatibility on the Ubuntu website or community forums.
2. **Update System:** Regularly update Ubuntu to get the latest hardware drivers.
3. **Additional Drivers:** Use the "Software & Updates" tool to find and install additional proprietary drivers (e.g., graphics, Wi-Fi).

Installing Additional Drivers

1. **Open Software & Updates:** Go to Settings > Software & Updates.
2. **Additional Drivers Tab:** Check for any available proprietary drivers.
3. **Select Drivers:** Choose and apply the appropriate drivers.
4. **Reboot:** Restart your computer to apply changes.

Topic 4. Configuring Ubuntu

Basic Configuration

- **Settings Menu:** Accessed via the system menu or the Activities overview.
- **Appearance:** Customize the desktop background, lock screen, and themes.
- **Displays:** Configure display settings such as resolution, orientation, and multiple displays.
- **Keyboard and Mouse:** Set keyboard shortcuts, keyboard layout, and mouse settings.
- **Users:** Add or remove user accounts and set permissions.
- **Printers:** Add and manage printers.

Advanced Configuration

- **Terminal:** Use the terminal for advanced configuration and command-line tasks.
- **Configuration Tools:** Tools like GNOME Tweaks for additional customization options.

Topic 5. Getting Online

Connecting to Wi-Fi

1. **Network Menu:** Click on the network icon in the system menu.
2. **Select Network:** Choose a Wi-Fi network from the list.
3. **Enter Password:** Provide the network password if prompted.

Connecting to Ethernet

1. **Plug in Cable:** Connect an Ethernet cable to your computer.
2. **Automatic Connection:** Ubuntu should automatically detect and connect to the network.

Topic 6. Using Power Management Preferences

Accessing Power Settings

- **Settings:** Go to Settings > Power.

Configurable Options

- **Blank Screen:** Set the time to turn off the screen after inactivity.
- **Suspend & Power Button:** Configure actions for the power button and lid close (suspend, power off).
- **Battery Usage:** Monitor battery usage and set power-saving options.
- **Automatic Suspend:** Enable or disable automatic suspend after a period of inactivity.

Topic 7. How to Secure Your Computer

Basic Security Measures

- **Keep System Updated:** Regularly install updates to ensure security patches are applied.
- **Enable Firewall:** Use the built-in firewall (ufw) to block unauthorized access.
- **Strong Passwords:** Use strong passwords for all user accounts.

Advanced Security Measures

- **Disk Encryption:** Encrypt the home directory or entire disk during installation.
- **Two-Factor Authentication:** Set up two-factor authentication for enhanced security.
- **Security Tools:** Use tools like ClamAV for antivirus protection and fail2ban for intrusion prevention.

Topic 8. Windows Security vs. Linux Security

Windows Security

- **Frequent Targets:** More targeted by malware and viruses due to larger user base.
- **Regular Updates:** Needs regular updates to patch vulnerabilities.
- **Antivirus Software:** Essential for protecting against threats.

Linux Security

- **Less Targeted:** Fewer viruses and malware target Linux systems.
- **User Permissions:** Strong separation between root and ordinary users, reducing the risk of system-wide infections.
- **Open Source:** Code is open for review, leading to faster identification and patching of vulnerabilities.

Topic 9. Root and Ordinary Users

Root User

- **Administrator Privileges:** Full access to all system files and commands.
- **Use with Caution:** Commands executed as root can significantly alter or damage the system.

Ordinary Users

- **Limited Privileges:** Access restricted to user's own files and certain system areas.
- **Sudo Command:** Temporarily grants administrative privileges for specific tasks.

Switching to Root User

- **Sudo Command:** Prefix commands with `sudo` to run them as root.
- **Root Shell:** Use `sudo -i` or `sudo su` to switch to a root shell.

Summary

Understanding the desktop elements and configuring Ubuntu is essential for effective use. Ensuring hardware support and security measures, managing power preferences, and knowing the difference between root and ordinary users will help maintain a secure and efficient system. Ubuntu offers robust security features, user-friendly interfaces, and strong community support, making it a reliable choice for both personal and professional use.



JAMAL MOHAMED COLLEGE (Autonomous)

Department of Computer Applications

VALUE ADDED COURSE

II BCA – UBUNTU BASICS

Unit-III Lecture Notes: Ubuntu Software and Windows Replacements

Topic-1. Ubuntu Replacements for Windows Programs

Common Windows Programs and Their Ubuntu Equivalents

Office Suite

- **Microsoft Office:**
 - **Ubuntu Replacement:** LibreOffice (Writer, Calc, Impress)
 - **Features:** Full-featured office suite compatible with Microsoft Office formats.

Web Browsers

- **Google Chrome:**
 - **Ubuntu Replacement:** Firefox
 - **Features:** Fast, secure, and privacy-focused web browser.

Email Clients

- **Microsoft Outlook:**
 - **Ubuntu Replacement:** Thunderbird
 - **Features:** Comprehensive email client with calendar and task management.

Image Editing

- **Adobe Photoshop:**
 - **Ubuntu Replacement:** GIMP (GNU Image Manipulation Program)
 - **Features:** Powerful image editing with extensive plugin support.

Video Editing

- **Adobe Premiere Pro:**
 - **Ubuntu Replacement:** Kdenlive, OpenShot
 - **Features:** Professional video editing capabilities with a user-friendly interface.

Media Players

- **Windows Media Player:**
 - **Ubuntu Replacement:** VLC Media Player
 - **Features:** Supports a wide range of audio and video formats.

Instant Messaging

- **Skype:**
 - **Ubuntu Replacement:** Skype for Linux, Pidgin
 - **Features:** VoIP and instant messaging with video call support.

File Compression

- **WinRAR/WinZip:**
 - **Ubuntu Replacement:** File Roller (Archive Manager), PeaZip
 - **Features:** Supports various archive formats, including ZIP, RAR, and TAR.

Topic-2. Available Software

Software Management

- **Ubuntu Software Center:** Central hub for browsing, installing, and managing applications.
- **APT (Advanced Package Tool):** Command-line tool for installing and managing software packages.

Categories of Software

- **Office:** LibreOffice, OnlyOffice
- **Internet:** Firefox, Chromium, Thunderbird
- **Graphics:** GIMP, Inkscape, Blender
- **Multimedia:** VLC, Audacity, Kdenlive
- **Development:** VSCode, Atom, Eclipse
- **Utilities:** GParted, BleachBit, Synaptic Package Manager

Topic-3. A Quick Start with Common Ubuntu Programs

Installing Software

Using Ubuntu Software Center

1. **Open Ubuntu Software:** Click on the icon in the Dock or search for it in the Activities overview.
2. **Browse or Search:** Use the search bar or browse categories to find the desired application.
3. **Install:** Click on the application, then click "Install." Authenticate if prompted.

Using APT in the Terminal

1. **Open Terminal:** Press Ctrl+Alt+T.
2. **Update Repositories:** `sudo apt update`
3. **Install Application:** `sudo apt install [application_name]`
 - Example: `sudo apt install gimp`

Common Programs Overview

LibreOffice

- **Installation:** Typically pre-installed on Ubuntu.
- **Usage:** Open Writer, Calc, or Impress from the application menu for word processing, spreadsheets, and presentations.

Firefox

- **Installation:** Pre-installed on Ubuntu.
- **Usage:** Open from the Dock or application menu to browse the web.

Thunderbird

- **Installation:** `sudo apt install thunderbird`
- **Usage:** Configure your email accounts and start managing emails.

GIMP

- **Installation:** `sudo apt install gimp`
- **Usage:** Open from the application menu for image editing and graphic design.

VLC Media Player

- **Installation:** `sudo apt install vlc`
- **Usage:** Open from the application menu to play various media formats.

Kdenlive

- **Installation:** `sudo apt install kdenlive`
- **Usage:** Open from the application menu for video editing tasks.

Topic-4. Other Handy Applications

System Utilities

- **GParted:** Partition editor for managing disk partitions.
 - **Installation:** `sudo apt install gparted`
- **BleachBit:** System cleaner to free up disk space and maintain privacy.
 - **Installation:** `sudo apt install bleachbit`

Development Tools

- **Visual Studio Code:** Source-code editor with support for various programming languages.
 - **Installation:** `sudo snap install code --classic`
- **Git:** Version control system for tracking changes in source code.
 - **Installation:** `sudo apt install git`

Multimedia Tools

- **Audacity:** Audio editor for recording and editing sound files.
 - **Installation:** `sudo apt install audacity`
- **Inkscape:** Vector graphics editor for creating scalable graphics.
 - **Installation:** `sudo apt install inkscape`

Communication Tools

- **Slack:** Collaboration and messaging tool for teams.
 - **Installation:** `sudo snap install slack --classic`
- **Discord:** VoIP and chat application for communities and teams.
 - **Installation:** `sudo snap install discord`

Summary

Ubuntu provides a wide range of software to replace common Windows applications, with robust alternatives available for most needs. The Ubuntu Software Center and APT tool make it easy to find and install software. By familiarizing yourself with these tools and applications, you can effectively transition to and utilize Ubuntu for your daily tasks.



JAMAL MOHAMED COLLEGE (Autonomous)

Department of Computer Applications

VALUE ADDED COURSE

II BCA – UBUNTU BASICS

Unit-IV Notes: Bash shell

Topic 1. Introducing the Bash Shell

What is the Bash Shell?

- **Bash (Bourne Again SHell):** A command-line interpreter that provides a user interface for Unix-based systems.
- **Purpose:** Allows users to execute commands, run scripts, and manage the system.
- **Shell Environment:** An interactive environment where users can type commands and receive immediate feedback.

Why Use the Bash Shell?

- **Efficiency:** Faster to perform complex tasks and automate repetitive tasks.
- **Scripting:** Write scripts to automate system administration and programming tasks.
- **Control:** Greater control over the operating system and installed software.

Topic 2. The Bash Shell

Basic Concepts

- **Command Prompt:** The shell prompt, usually represented by \$ or # for root users, indicates that the shell is ready to accept commands.
- **Commands:** Instructions given to the shell, e.g., ls, cd, cp.
- **Options:** Modify the behavior of commands, usually prefixed with - or --.
- **Arguments:** Additional information provided to commands, typically file or directory names.

Basic Commands

- `pwd`: Print Working Directory - displays the current directory.

- `ls`: List - shows the contents of a directory.
- `cd`: Change Directory - changes the current directory.
- `cp`: Copy - copies files or directories.
- `mv`: Move - moves or renames files or directories.
- `rm`: Remove - deletes files or directories.

Topic 3. Getting Started with the Shell

Opening the Terminal

- **Ubuntu**: Press `Ctrl + Alt + T` to open the Terminal.
- **Access via Applications**: Search for "Terminal" in the Activities overview.

Navigating the File System

- **Home Directory**: The default directory when you open a terminal.
- `cd /path/to/directory`: Change to a specified directory.
- `cd ~`: Change to the home directory.
- `cd ..`: Move up one directory level.
- `ls -l`: Detailed list of directory contents, including permissions and file sizes.

Topic 4. Working with Files

Basic File Operations

- **Create a File**: `touch filename`
- **View a File**: `cat filename`
- **Copy a File**: `cp source destination`
- **Move/Rename a File**: `mv oldname newname`
- **Delete a File**: `rm filename`

Viewing File Contents

- `cat filename`: Displays the entire file content.
- `less filename`: Allows for paginated viewing of file content.
- `head filename`: Displays the first 10 lines of a file.
- `tail filename`: Displays the last 10 lines of a file.

Topic 5. Users and File Permissions

Understanding Permissions

- **File Ownership**: Each file has an owner and a group.
- **Permission Types**: Read (`r`), Write (`w`), Execute (`x`).

- **Permission Structure:** Represented as `rwxr-xr-x` (owner-group-others).

Viewing Permissions

- `ls -l`: Lists files with detailed information, including permissions.

Modifying Permissions

- `chmod`: Changes file permissions.
 - Example: `chmod u+x filename` (adds execute permission for the owner).
- `chown`: Changes file ownership.
 - Example: `chown user:group filename` (changes owner and group).

Topic 6. File System

Directory Structure

- **Root Directory:** `/` - The top-level directory of the file system.
- **Home Directory:** `/home` - Contains personal directories for each user.
- **System Directories:**
 - `/bin`: Essential binary executables.
 - `/etc`: Configuration files.
 - `/var`: Variable files like logs.
 - `/tmp`: Temporary files.

Important Files

- **Configuration Files:** Located in `/etc`.
- **Logs:** Stored in `/var/log`.
- **User Data:** Stored in `/home`.

Topic 7. File Searches

Search Commands

- `find`: Searches for files in a directory hierarchy.
 - Example: `find /path -name filename`
- `locate`: Searches for files by name using a prebuilt database.
 - Example: `locate filename`
- `grep`: Searches inside files for specific text patterns.
 - Example: `grep 'text' filename`

Topic 8. File Size and Free Space

Checking File Sizes

- `du`: Disk Usage - estimates file space usage.
 - Example: `du -h filename` (displays human-readable file sizes).
- `df`: Disk Free - reports file system disk space usage.
 - Example: `df -h` (displays human-readable disk space usage).

Monitoring Free Space

- `df -h`: Shows disk space usage for all mounted file systems.

Topic 9. Viewing Text Files

Basic Commands

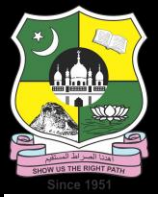
- `cat filename`: Concatenates and displays file content.
- `less filename`: Allows scrolling through file content page by page.
- `more filename`: Similar to `less`, but with basic functionality.
- `nano filename`: A simple text editor for viewing and editing files.

Searching Within Files

- **less**: Use `/pattern` to search for text within the file.
- **nano**: Use `Ctrl + w` to search for text within the file.

Summary

The Bash shell is a powerful tool for managing and interacting with your Ubuntu system. Understanding basic commands, file operations, permissions, and the file system structure will enhance your ability to use and configure Ubuntu effectively. Additionally, knowing how to view, search, and manage files will streamline your workflow and improve productivity.



JAMAL MOHAMED COLLEGE (Autonomous)

Department of Computer Applications

VALUE ADDED COURSE

II BCA – UBUNTU BASICS

Unit-V Notes:

Advanced Command Line and Office Suite in Ubuntu

Topic 1. Using a Command Line Text Editor

Overview

- **Command Line Text Editors:** Tools for editing text files directly from the terminal.
- **Common Editors:** nano, vim, emacs.

Nano

- **Simple and user-friendly:** Ideal for beginners.
- **Basic Commands:**
 - Open file: `nano filename`
 - Save file: `Ctrl + O`
 - Exit editor: `Ctrl + X`
 - Cut text: `Ctrl + K`
 - Paste text: `Ctrl + U`
 - Search text: `Ctrl + W`

Vim

- **Powerful and highly configurable:** Steeper learning curve.
- **Basic Commands:**
 - Open file: `vim filename`
 - Enter insert mode: `i`
 - Save file: `:w`
 - Exit editor: `:q`
 - Save and exit: `:wq`
 - Delete a line: `dd`

- Search text: /pattern

Emacs

- **Extensible and versatile:** Suitable for advanced users.
- **Basic Commands:**
 - Open file: `emacs filename`
 - Save file: `Ctrl + X, Ctrl + S`
 - Exit editor: `Ctrl + X, Ctrl + C`
 - Cut text: `Ctrl + K`
 - Paste text: `Ctrl + Y`
 - Search text: `Ctrl + S`

Topic 2. Piping and Redirecting the Output

Piping (|)

- **Definition:** Sends the output of one command as input to another.
- **Example:** `ls -l | grep ".txt"` - Lists all .txt files.

Redirecting Output

- **Standard Output (>):**
 - Redirects output to a file, overwriting it: `echo "Hello, World!" > file.txt`
- **Appending Output (>>):**
 - Appends output to a file: `echo "Hello, again!" >> file.txt`
- **Standard Input (<):**
 - Redirects input from a file: `sort < file.txt`
- **Error Redirection (2>):**
 - Redirects errors to a file: `ls non_existing_file 2> error.log`

Topic 3. In Depth: LibreOffice Suite

In Depth: Writer

- **Overview:** Word processing tool similar to Microsoft Word.
- **Key Features:**
 - Templates: Pre-designed documents for various needs.
 - Styles: Formatting consistency throughout the document.
 - Track Changes: Edit and review changes collaboratively.
 - Export Options: Save as PDF, DOCX, ODT.
- **Usage:**
 - Create and format text documents.
 - Insert images, tables, and charts.

- Use mail merge for mass mailings.

In Depth: Calc

- **Overview:** Spreadsheet tool similar to Microsoft Excel.
- **Key Features:**
 - Functions and Formulas: Built-in mathematical, statistical, and financial functions.
 - Pivot Tables: Summarize and analyze data.
 - Data Visualization: Create charts and graphs.
 - Conditional Formatting: Highlight data based on rules.
- **Usage:**
 - Manage data in cells, rows, and columns.
 - Perform calculations and data analysis.
 - Create and format charts and graphs.

In Depth: Impress

- **Overview:** Presentation tool similar to Microsoft PowerPoint.
- **Key Features:**
 - Templates and Layouts: Predefined designs for presentations.
 - Animations and Transitions: Add effects to slides and elements.
 - Master Slides: Ensure consistency across slides.
 - Export Options: Save as PDF, PPTX, ODP.
- **Usage:**
 - Create and design presentation slides.
 - Add multimedia elements like images, videos, and sound.
 - Present and share slideshows.

In Depth: Base

- **Overview:** Database management tool similar to Microsoft Access.
- **Key Features:**
 - Table Creation: Define fields, types, and relationships.
 - Queries: Extract and manipulate data.
 - Forms: User-friendly data entry interfaces.
 - Reports: Format and print data summaries.
- **Usage:**
 - Design and manage relational databases.
 - Create and run SQL queries.
 - Develop forms and reports for data entry and output.

Topic 4. Managing Users

Understanding User and Group Accounts

User Accounts

- **User Account:** Represents a single user with specific permissions and settings.
- **Home Directory:** `/home/username` - Personal storage space.
- **User ID (UID):** Unique identifier for each user.

Group Accounts

- **Group Account:** Collection of users with shared permissions.
- **Group ID (GID):** Unique identifier for each group.
- **Primary Group:** Default group for a user.
- **Secondary Groups:** Additional groups a user belongs to.

Adding and Deleting Users and Groups

Adding Users

- **Command:** `sudo adduser username`
 - Adds a new user and sets up their home directory and password.
- **Example:** `sudo adduser john`

Deleting Users

- **Command:** `sudo deluser username`
 - Removes a user from the system.
- **Example:** `sudo deluser john`

Adding Groups

- **Command:** `sudo addgroup groupname`
 - Creates a new group.
- **Example:** `sudo addgroup developers`

Deleting Groups

- **Command:** `sudo delgroup groupname`
 - Removes a group from the system.
- **Example:** `sudo delgroup developers`

Adding and Changing Passwords

Setting User Password

- **Command:** `sudo passwd username`
 - Sets or changes the password for a user.

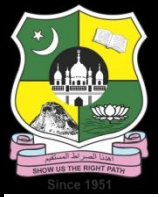
- **Example:** `sudo passwd john`

Password Management

- **Changing Own Password:** `passwd`
 - Prompts the current user to change their password.
- **Force Password Change:** `sudo passwd -e username`
 - Forces the user to change their password at next login.
- **Lock User Account:** `sudo passwd -l username`
 - Locks the user's account, preventing login.
- **Unlock User Account:** `sudo passwd -u username`
 - Unlocks the user's account.

Summary

Understanding the use of command line text editors, piping and redirecting output, and in-depth knowledge of the LibreOffice suite enhances productivity and system management in Ubuntu. Managing users and groups effectively ensures proper access control and security. By mastering these tools and concepts, users can optimize their workflows and maintain a well-organized system.



JAMAL MOHAMED COLLEGE (Autonomous)

Department of Computer Applications

VALUE ADDED COURSE

II BCA – UBUNTU BASICS

Unit-1 Lecture Notes: Introduction to Linux

Topic 1. Introduction to Linux

Definition and History of Linux

- **Linux:** An open-source operating system modeled after UNIX.
- **Creator:** Linus Torvalds, who initiated the project in 1991.
- **Open Source:** Source code is freely available, allowing anyone to view, modify, and distribute it.

Core Components of Linux

- **Kernel:** The core part of the operating system, managing hardware and system resources.
- **GNU Utilities:** Essential tools and libraries that work with the kernel to provide a complete operating system.

Topic 2. Problems with Windows

Common Issues

- **Cost:** Licensing fees for the Windows OS and associated software.
- **Security:** Higher susceptibility to viruses, malware, and other security threats.
- **Performance:** Can be resource-heavy, leading to slower performance on older hardware.
- **Proprietary Software:** Lack of flexibility in terms of customization and freedom to modify the software.
- **System Stability:** Frequent updates and patches can lead to system instability.

Topic 3. Benefits of Linux

Advantages

- **Cost-Effective:** Free to download and use, reducing overall costs.
- **Security:** Fewer viruses and malware due to the robust security model and community scrutiny.
- **Performance:** Efficient resource management, suitable for older hardware.
- **Customizability:** High level of customization through different distributions and open-source nature.
- **Stability:** Known for stability and reliability, suitable for servers and long-term use.
- **Community Support:** Extensive online communities and forums for troubleshooting and support.

Topic 4. Different Flavors of Linux

Linux Distributions (Distros)

- **Definition:** Variants of Linux that come packaged with different sets of software and configurations.
- **Popular Distros:**
 - **Ubuntu:** User-friendly, popular among beginners.
 - **Fedora:** Cutting-edge features and latest software.
 - **Debian:** Stability and reliability.
 - **Arch Linux:** Customizability and a rolling release model.
 - **CentOS:** Enterprise-grade, derived from Red Hat Enterprise Linux.
 - **Mint:** Ease of use, aimed at Windows users transitioning to Linux.

Topic 5. Ubuntu: African Philosophy

Meaning and Philosophy

- **Ubuntu:** Derived from the Nguni Bantu term meaning "humanity to others."
- **Philosophy:** Emphasizes community, sharing, and interconnectedness. Reflects the open-source and collaborative nature of Linux development.

Ubuntu Linux

- **Focus:** Ease of use, accessibility, and community support.
- **Canonical:** The company behind Ubuntu, providing professional support and services.

Topic 6. Uses of Linux

Desktop Computing

- **Personal Use:** Ideal for personal computers with various user-friendly distributions.
- **Education:** Widely used in schools and educational institutions for teaching and learning.

Servers

- **Web Servers:** Hosting websites and web applications.
- **File Servers:** Managing and storing files.
- **Database Servers:** Running database management systems.

Development

- **Software Development:** Preferred by developers for its powerful tools and environments.
- **Embedded Systems:** Used in devices like routers, smart TVs, and more.

Specialized Applications

- **Scientific Computing:** High-performance computing and research.
- **Cybersecurity:** Tools for penetration testing and security analysis (e.g., Kali Linux).

Topic 7. Understanding How Linux Differs

Comparison with Other Operating Systems

Linux vs. Windows

- **Source Code:** Open-source vs. closed-source.
- **Customization:** Highly customizable vs. limited customization.
- **Cost:** Free vs. commercial licensing.
- **Security:** Generally more secure vs. higher susceptibility to threats.

Linux vs. macOS

- **Source Code:** Open-source vs. closed-source.
- **Hardware Compatibility:** Runs on various hardware vs. exclusive to Apple hardware.
- **Customization:** More customizable vs. less customizable.

Technical Differences

- **File System:** Uses file systems like ext4, Btrfs, etc., compared to NTFS (Windows) and HFS+/APFS (macOS).
- **Package Management:** Software installation via package managers like APT (Debian/Ubuntu), YUM (Red Hat/Fedora), etc.
- **Command Line Interface:** Extensive use of CLI for system management and scripting.

Topic 8. Using Ubuntu

Overview of Ubuntu

- **Ubuntu:** A popular Linux distribution known for its user-friendliness and strong community support.
- **Editions:** Ubuntu Desktop, Ubuntu Server, and various flavors like Xubuntu, Kubuntu, etc.

Features of Ubuntu

- **User Interface:** GNOME desktop environment for an intuitive user experience.
- **Package Management:** APT (Advanced Package Tool) for installing, updating, and managing software.
- **Security:** Regular updates, strong firewall, and built-in security features.
- **Community Support:** Extensive documentation, forums, and user communities.

Common Applications

- **Office Suite:** LibreOffice for word processing, spreadsheets, and presentations.
- **Web Browser:** Firefox for internet browsing.
- **Email Client:** Thunderbird for managing emails.
- **Multimedia:** VLC media player, Rhythmbox for music.
- **Software Center:** Ubuntu Software Center for easy installation of additional applications.

Topic 9. Installing Ubuntu

Installation Methods

- **Live USB/DVD:** Bootable media created from an ISO image.
- **Virtual Machine:** Installing Ubuntu within virtualization software like VirtualBox or VMware.
- **Dual Boot:** Installing alongside another operating system (e.g., Windows).

System Requirements

- **Minimum Requirements:**
 - 2 GHz dual-core processor
 - 4 GB RAM
 - 25 GB of free hard drive space
 - Internet access (optional but recommended for updates)

Installation Steps

1. **Download Ubuntu ISO:**
 - Go to the official Ubuntu website.
 - Download the latest Ubuntu Desktop ISO image.
2. **Create Bootable Media:**
 - Use software like Rufus (Windows), UNetbootin, or the built-in Startup Disk Creator (Linux) to create a bootable USB drive or burn the ISO to a DVD.
3. **Boot from USB/DVD:**
 - Insert the bootable USB/DVD into the computer.
 - Restart the computer and enter the BIOS/UEFI settings.
 - Change the boot order to boot from the USB/DVD.
4. **Start Installation:**
 - Select "Try Ubuntu" to test the system without making changes, or "Install Ubuntu" to start the installation process.
 - Choose the language and keyboard layout.
5. **Prepare Installation:**
 - **Updates and Third-Party Software:** Optionally select to download updates and install third-party software for graphics and Wi-Fi hardware, Flash, MP3, and other media.
6. **Disk Setup:**
 - Choose the installation type:
 - **Erase Disk and Install Ubuntu:** Use the entire disk for Ubuntu.
 - **Install Ubuntu Alongside:** Set up a dual-boot system.
 - **Something Else:** Manually create or resize partitions.
7. **User Information:**
 - Enter your name, computer name, username, and password.
 - Optionally choose to encrypt the home folder for added security.
8. **Installation Process:**
 - The installer will copy files and install Ubuntu.
 - This may take some time depending on the system and selected options.
9. **Complete Installation:**
 - Once the installation is complete, you will be prompted to restart the computer.
 - Remove the installation media and press Enter to reboot.
10. **First Boot:**
 - After rebooting, log in with your username and password.
 - Perform any system updates that are available.

Topic 10. Pre-installation Steps

Backup Important Data

- Ensure all important data is backed up to an external drive or cloud storage.

Check System Requirements

- Verify that your hardware meets the minimum requirements for Ubuntu.

Prepare Installation Media

- Download the Ubuntu ISO image from the official website.
- Create a bootable USB drive or DVD using the downloaded ISO image.

Verify BIOS/UEFI Settings

- Access the BIOS/UEFI settings to:
 - Enable booting from USB/DVD.
 - Disable Secure Boot if necessary (some systems may require this to boot Linux).

Plan Disk Partitioning

- Decide how you want to partition your disk:
 - Full disk for Ubuntu.
 - Dual boot with another operating system.
 - Custom partitions for specific needs.

Internet Connection

- While not strictly necessary, having an internet connection during installation can help download updates and third-party software.

Create a Live USB/DVD

- Use tools like Rufus (Windows) or Startup Disk Creator (Ubuntu) to create a live USB or burn the ISO to a DVD.

Summary

Installing Ubuntu is a straightforward process with proper preparation. Ensure you back up important data, verify your system meets the requirements, and create a bootable installation media. Following these steps, you can install Ubuntu efficiently, whether on a personal computer, as a dual-boot system, or in a virtual environment.