Get familiar with Linux

Linux is a free and open-source operating system based on the Unix operating system. It was created by Linus Torvalds in 1991 and has since become one of the world's most widely used operating systems, powering everything from mobile devices to servers and supercomputers.
Linux is known for its stability, security, and flexibility, and is used by a wide range of individuals and organizations for various purposes. It is highly customisable and can be used for web hosting, data storage, software development, and more tasks.

One of the key features of Linux is its open-source nature, which means that its source code is freely available to anyone who wants to view, modify, or redistribute it. This has led to a large and active community of developers and users who work together to improve the operating system and create new applications and tools.
There are many different "flavors" of Linux, known as distributions, which are tailored to specific needs and use cases. Some popular Linux distributions include Ubuntu, Debian, Red Hat, Fedora, and CentOS.

The Linux command line is a text-based interface that interacts with the Linux operating system. It provides a way to execute commands, run scripts, and manage the system without needing a graphical user interface.

Access control

Access control in Linux is managed through permissions assigned to each file, directory, and device. Permissions control who can access a file or directory, and what type of access they have (read, write, execute). There are three types of users that can be granted permission in Linux:
1. Owner - The user who owns the file or directory.
2. Group - A set of users who share common permissions.
3. Others - Any other user on the system who is not the owner or part of the group.
Each of these user types can be granted read, write, and execute permissions. Read permission allows a user to view the contents of a file or directory, write permission allows a user to modify the contents of a file or directory, and execute permission allows a user to run executable files or access directories.

Permissions can be viewed using the ls -l command in the terminal. The output will display the file or directory name, the owner, the group, and the permissions for each user type. For example, a file with permissions -rwxr-xr-x would indicate that the owner has read, write, and execute permissions, the group has read and execute permissions, and others have read and execute permissions.

Permissions can be changed using the chmod command, which allows you to modify the read, write, and execute permissions for each user type. For example, chmod u+w myfile would add write permission for the owner of the file myfile.

Access control in Linux is a fundamental aspect of system security, and it is important to understand how to manage permissions effectively to ensure the security of your files and directories.

At its most basic level, the Linux command line provides a prompt where the user can enter commands. These commands can perform a wide range of tasks, such as navigating the file system, manipulating files and directories, installing and managing software packages, configuring network settings, and more.

The Linux command line provides a powerful and flexible way to interact with the operating system and can be particularly useful for system administrators, developers, and power users who need to perform complex tasks quickly and efficiently.

Some of the common command line utilities in Linux include:

- **cd** to change the current directory
- **ls** to list the files and directories in the current directory
- **mkdir** to create a new directory
- **rm** to remove files or directories
- **cp** to copy files
- **mv** to move or rename files
- **grep** to search for text within files
- **man** to display the manual pages for commands

Learning how to use the Linux command line can take time and practice, but it can be a valuable skill for anyone who wants to work with Linux.

To use man in Linux, follow these steps:

1. Open a terminal window. You can do this by pressing Ctrl + Alt + T on most Linux systems.
2. Type man followed by the name of the command or utility you want to learn more about. For example, to view the manual page for the ls command, you would type man ls.
3. Press the Enter key. This will display the manual page for the specified command or utility.
4. Use the arrow keys to scroll through the manual page. You can also use the Page Up and Page Down keys to navigate.
5. To search for a specific term, type / followed by the term you want to search for and press Enter. This will highlight the first occurrence of the term in the manual page. To search for the next occurrence, press the n key.
6. To quit the manual page, press the q key.

Note that the manual page may be divided into sections, depending on the topic. You can specify the section number after the command to view a specific section. For example, to view the system calls for the open command, you would type man 2 open. The available sections may vary depending on the distribution of Linux you are using.

man stands for "manual" and it is a command in Unix and Unix-like operating systems that is used to display the manual pages (documentation) of commands and utilities available on the system.

The man command is followed by the command name or utility for which you want to view the manual page. It displays a detailed description of the command, its options, syntax, and usage examples.

Manual pages are organized into sections, with each section covering a specific topic. For example, Section 1 covers commands available to all users, while Section 8 covers system administration commands only available to privileged users.

The man command is a useful tool for learning about the different commands and utilities available on a Unix system, and for finding information on how to use them effectively.

1. **man pwd**: The pwd command stands for "print working directory". When executed, it prints the current working directory (the directory in which the user is currently located) to the console.
2. **man cd:** The cd command is used to change the current working directory. When executed, it allows the user to navigate through the directory structure of the file system.
3. **man ps:** The ps command is used to display information about currently running processes. It shows the process ID (PID), the user who started the process, the CPU and memory usage, and other relevant information.
4. **man netstat:** The netstat command is used to display active network connections, routing tables, and network interface statistics. It shows information such as the local and remote IP addresses and ports, the protocol used, and the status of the connection.
5. **man ls**: The ls command stands for "list directory contents". When executed, it displays a list of files and directories in the current working directory.
6. **man mkdir:** The mkdir command stands for "make directory". When executed, it creates a new directory with the specified name in the current working directory.

Some more basics commands:

1. **mkdir Activity2Lab1**: This command creates a new directory called "Activity2Lab1" in the current directory.
2. **cd Activity2Lab1**: This command changes the current working directory to "Activity2Lab1".
3. **mkdir LinuxLab**: This command creates a new directory called "LinuxLab" in the current directory, which is now "Activity2Lab1".
4. **cd LinuxLab**: This command changes the current working directory to "LinuxLab", which is now inside "Activity2Lab1".

5. **cd ..**: This command changes the current working directory to the parent directory of the current directory, which is "Activity2Lab1".
6. **cd .**: This command does not change the current working directory. It is equivalent to staying in the same directory.
7. **cd ~**: This command changes the current working directory to the user's home directory.
8. **cd -**: This command changes the current working directory to the previous directory you were in.
9. **ls -la**: This command lists all files and directories in the current directory, including hidden files, and displays them in long format.
10. **ls –ld**: This command lists the details of the current directory but in long format and without the directory's content.
11. **mkdir C106-Act2**: This command creates a new directory called "C106-Act2" in the current directory.
12. **rmdir C106-Act2**: This command removes the "C106-Act2" directory from the current directory, but only if it is empty. If the directory contains any files or subdirectories, the command will fail.

Library cont:

1. **man cat**: This command displays the contents of one or more files to the console.
2. **man rm -rf**: This command removes one or more files or directories recursively and forcefully, without prompting the user for confirmation.
3. **man alias**: This command allows you to create custom shortcuts or aliases for other commands.
4. **man adduser**: This command is used to add a new user to the system.
5. **man groupadd**: This command is used to create a new group on the system.
6. **man chmod**: This command is used to change the permissions of a file or directory.
7. **man chown**: This command is used to change the ownership of a file or directory.
8. **man chown -R**: This command is used to change the ownership of a file or directory recursively, including all subdirectories and files.
9. **man ssh**: This command is used to connect to a remote system securely over a network.
10. **man ftp**: This command is used to transfer files to and from a remote system using the File Transfer Protocol (FTP).
11. **man ssh -P**: This command is used to specify a custom port number when connecting to a remote system using SSH.
12. **man vi**: This command is used to edit files in the terminal using the Vi or Vim text editor.
13. **man du**: This command is used to display the disk usage of files and directories.
14. **man debugfs**: This command is used to perform low-level filesystem debugging.
15. **man df**: This command is used to display information about the disk usage and available space on file systems.
16. **man dosfsck**: This command is used to check and repair DOS file systems.
17. **man find**: This command is used to search for files and directories that match specific criteria.
18. **man sort**: This command is used to sort the lines of a text file.

19. **man wc**: This command is used to count the number of lines, words, and characters in a file.
20. **man frep**: This command is used to find and replace text within files.
21. **man gunzip**: This command is used to decompress files that have been compressed using the gzip compression algorithm.
22. **man kill**: This command is used to send a signal to a process, which can be used to terminate the process.
23. **man poweroff -p**: This command is used to power off the system immediately.
24. **man suspend**: This command is used to suspend the system to RAM, which puts the system in a low-power state.
25. **man umask**: This command is used to set the default file permissions for new files and directories.
26. **man tail**: This command is used to display the last few lines of a file.
27. **man head**: This command is used to display the first few lines of a file.
28. **man cp**: This command is used to copy files and directories from one location to another.
29. **man locate**: This command is used to find files and directories on the system quickly.