Linux Commands and Their Uses

1. File and Directory Management

- **ls**: Lists files and directories.

    o Example: ls -l (detailed list)

- **cd**: Changes the current directory.

    o Example: cd /home (change to /home directory)

- **pwd**: Displays the current working directory.

- **mkdir**: Creates a new directory.

    o Example: mkdir new_folder

- **rmdir**: Removes an empty directory.

    o Example: rmdir old_folder

- **rm**: Removes files or directories.

    o Example: rm file.txt or rm -r folder (remove recursively)

2. File Operations

- **touch**: Creates a new empty file.

    o Example: touch file.txt

- **cp**: Copies files or directories.

    o Example: cp source.txt destination.txt

- **mv**: Moves or renames files or directories.

    o Example: mv old.txt new.txt

- **cat**: Displays the content of a file.

    o Example: cat file.txt

- **more**: Views file content one screen at a time.

    o Example: more file.txt

- **less**: Similar to more but with backward navigation.

    o Example: less file.txt

- **head**: Displays the first few lines of a file.

    o Example: head -n 10 file.txt

- **tail**: Displays the last few lines of a file.

    o Example: tail -n 10 file.txt

- **nano**: Opens a file in the Nano text editor.

    o Example: nano file.txt

- **vi** or **vim**: Opens a file in the Vi text editor.

    o Example: vim file.txt

3. Permissions and Ownership

- **chmod**: Changes file permissions.

    o Example: chmod 755 file.txt

- **chown**: Changes file ownership.

    o Example: chown user:group file.txt

- **chgrp**: Changes group ownership of a file.

    o Example: chgrp group file.txt

4. Process Management

- **ps**: Displays running processes.

    o Example: ps aux

- **top**: Displays real-time system performance and processes.

- **htop**: Interactive process viewer (if installed).

- **kill**: Terminates a process by PID.

  - o Example: kill 1234

- **killall**: Terminates processes by name.

  - o Example: killall firefox

- **jobs**: Lists background jobs.

  - o Example: jobs

- **bg**: Resumes a background job.

  - o Example: bg %1

- **fg**: Brings a background job to the foreground.

  - o Example: fg %1

5. Networking

- **ping**: Checks connectivity to a host.

  - o Example: ping google.com

- **ifconfig**: Displays or configures network interfaces (deprecated, use ip).

  - o Example: ifconfig eth0

- **ip**: Configures network interfaces.

  - o Example: ip addr show

- **netstat**: Displays network connections (deprecated, use ss).

  - o Example: netstat -tuln

- **ss**: Displays network statistics.

  - o Example: ss -tuln

- **curl**: Transfers data from or to a server.

  - o Example: curl http://example.com

- **wget**: Downloads files from the internet.

o Example: wget http://example.com/file.txt

6. System Monitoring

- **df**: Displays disk space usage.

  o Example: df -h

- **du**: Displays directory space usage.

  o Example: du -sh folder

- **free**: Displays memory usage.

  o Example: free -h

- **uptime**: Displays system uptime.

- **who**: Displays logged-in users.

  o Example: who

- **w**: Displays detailed information about logged-in users.

  o Example: w

7. Archiving and Compression

- **tar**: Archives files.

  o Example: tar -cvf archive.tar folder

- **gzip**: Compresses files using gzip.

  o Example: gzip file.txt

- **gunzip**: Decompresses gzip files.

  o Example: gunzip file.txt.gz

- **zip**: Compresses files into a zip archive.

- Example: zip archive.zip file.txt

- **unzip**: Extracts files from a zip archive.

  - Example: unzip archive.zip

8. User Management

- **whoami**: Displays the current user.

- **id**: Displays user ID and group ID.

- **adduser**: Adds a new user.

  - Example: adduser username

- **passwd**: Changes the password of a user.

  - Example: passwd username

- **deluser**: Deletes a user.

  - Example: deluser username

- **usermod**: Modifies user accounts.

  - Example: usermod -aG group username

9. Package Management

- **apt-get**: Installs, upgrades, or removes packages.

  - Example: apt-get install package

- **apt**: Modern package manager for Debian-based systems.

  - Example: apt update

- **dpkg**: Low-level package manager.

  - Example: dpkg -i package.deb

10. Search and Filters

- **find**: Searches for files and directories.

    o Example: find / -name file.txt

- **grep**: Searches for patterns in text.

    o Example: grep 'error' log.txt

- **locate**: Finds files quickly using an indexed database.

    o Example: locate file.txt

- **awk**: Processes and analyzes text.

    o Example: awk '{print $1}' file.txt

- **sed**: Edits text in a stream.

    o Example: sed 's/old/new/g' file.txt

11. Disk Management

- **mount**: Mounts a filesystem.

    o Example: mount /dev/sdb1 /mnt

- **umount**: Unmounts a filesystem.

    o Example: umount /mnt

- **fdisk**: Manages disk partitions.

    o Example: fdisk /dev/sdb

- **mkfs**: Formats a partition.

    o Example: mkfs.ext4 /dev/sdb1

- **fsck**: Checks and repairs a filesystem.

    o Example: fsck /dev/sdb1