Basic Linux Terminal Commands Cheat Sheet

I. Navigation (Moving Around)

- **pwd** (Print Working Directory): Shows you exactly where you are in the file system.
  - Usage: `pwd`
- **ls** (List): Lists the files and folders in your current directory.
  - Usage: `ls` (simple list)
  - Usage: `ls -l` (detailed list with permissions, size, etc.)
  - Usage: `ls -a` (shows hidden files starting with a dot `.`)
- **cd** (Change Directory): Moves you to a different folder.
  - Usage: `cd Documents` (move to the Documents folder)
  - Usage: `cd ..` (move one step back/up)
  - Usage: `cd ~` (go back to your home directory)

II. File Management (Create, Copy, Delete)

- **mkdir** (Make Directory): Creates a new folder.
  - Usage: `mkdir MyProject`
- **touch**: Creates an empty file.
  - Usage: `touch notes.txt`
- **cp** (Copy): Copies files or directories.
  - Usage: `cp file.txt copy.txt` (copy a file)
  - Usage: `cp -r folder1 folder2` (copy an entire folder recursively)
- **mv** (Move/Rename): Moves a file or renames it.
  - Usage: `mv file.txt Documents/` (move file to Documents)
  - Usage: `mv old.txt new.txt` (rename the file)
- **rm** (Remove): Deletes files. **Warning: There is no Recycle Bin.**
  - Usage: `rm file.txt`
  - Usage: `rm -r foldername` (delete a folder and everything inside it)

III. Viewing & Editing Files

- **cat**: Displays the content of a file in the terminal.
  - Usage: `cat file.txt`
- **less**: Lets you read a large file page by page (Press `q` to exit).
  - Usage: `less huge_log_file.log`
- **nano**: A beginner-friendly text editor.
  - Usage: `nano file.txt` (Edit the file; use `Ctrl+O` to save and `Ctrl+X` to exit).
- **grep**: Searches for specific text inside files.
  - Usage: `grep "error" log.txt` (finds all lines containing "error")

IV. System & Admin (The "Root" Stuff)

- **sudo**: (SuperUser Do) Runs a command with administrator privileges. Required for installing apps.
  - Usage: `sudo apt update`
- **apt update**: Refreshes the list of available software/updates.
  - Usage: `sudo apt update`
- **apt install**: Installs new software.
  - Usage: `sudo apt install python3`
- **chmod**: Changes file permissions (make a file executable, read-only, etc).
  - Usage: `chmod +x script.sh` (makes a file executable)

V. Networking & Internet

- **ping**: Checks if you are connected to the internet/website.
  - Usage: `ping google.com` (Press `Ctrl+C` to stop)
- **ip a**: Shows your IP address and network details.
  - Usage: `ip a`
- **wget**: Downloads a file from the internet.
  - Usage: `wget https://example.com/image.png`

VI. Getting Help

- **man**: The manual. Shows you the instruction manual for any command.
  - Usage: `man ls` (shows everything `ls` can do. Press `q` to quit).
- **clear**: Clears the terminal screen so you have a fresh workspace.
  - Usage: `clear`

VII. System Monitoring (Task Manager)

When your computer slows down or a program freezes, use these:

- **top**: Displays a real-time list of running processes (like Task Manager).
  - Usage: `top` (Press `q` to exit).
- **htop**: A colorful, easier-to-read version of top. (Note: You usually need to install it first: `sudo apt install htop`).
  - Usage: `htop`
- **ps**: Lists currently running processes.
  - Usage: `ps aux` (shows all processes for all users).
- **kill**: Stops a specific process using its PID (Process ID).
  - Usage: `kill 1234` (where 1234 is the PID from top or ps).
- **free**: Checks how much RAM (memory) is being used.
  - Usage: `free -h` (The `-h` flag makes numbers "human-readable," e.g., 8G instead of huge bytes).

VIII. Disk & Storage

- **df** (Disk Free): Shows how much space is left on your hard drive.
  - Usage: `df -h`
- **du** (Disk Usage): Checks the size of a specific folder.
  - Usage: `du -sh foldername` (Shows the total summary size of that folder).

IX. Finding Files

- **find**: Powerful tool to search for files in a directory hierarchy.
  - Usage: `find . -name "filename.txt"` (Searches for "filename.txt" starting from the current folder `.`).
  - Usage: `find /home -name "*.jpg"` (Finds all JPG images in the home directory).
- **locate**: Searches a database of files (faster than find, but might miss very new files).
  - Usage: `locate filename`

X. Archives (Zip/Unzip)

In Linux, you will often see `.tar.gz` files instead of `.zip`.

- **tar**: Used to compress or extract `.tar` files.
  - Usage (Extract): `tar -xvf file.tar.gz` (Memorize: xtract verbose file).
  - Usage (Compress): `tar -czvf archive.tar.gz foldername`
- **zip / unzip**: Standard zip tools (may need install: `sudo apt install zip`).
  - Usage: `unzip file.zip`
  - Usage: `zip -r archive.zip foldername`

XI. Productivity & "Superpowers"

- **history**: Shows a list of every command you have typed recently.
  - Usage: `history`

    - Tip: Type `!105` to re-run command #105 from the history list.
- **echo**: Prints text to the screen (useful for scripts).
    - Usage: `echo "Hello World"`
- **alias**: Create shortcuts for long commands.
    - Usage: `alias update='sudo apt update && sudo apt upgrade'` (Now typing `update` does both).

XII. Redirection & Pipes (Important Concept)

These aren't commands, but symbols that connect commands.

- **|** (Pipe): Takes the output of the left command and feeds it into the right command.
    - Example: `history | grep "git"` (Search your history log for the word "git").
- **>** (Redirect): Takes the output of a command and saves it into a file (overwrites).
    - Example: `ls > filelist.txt` (Save the list of files into a text document).
- **>>** (Append): Same as above, but adds to the end of the file instead of deleting it.

Bonus: Essential Keyboard Shortcuts

- **Tab**: Auto-completes commands and filenames. (Type `cd Doc` and hit Tab → it becomes `cd Documents/`). Use this constantly.
- **Ctrl + C**: Stops/Kills the current running command immediately.
- **Ctrl + L**: Clears the screen (same as typing `clear`).
- **Up Arrow**: Scrolls through your previous commands.