

# Linux Cheat Sheet for Beginners

## 1. Introduction to Linux:

- Linux is an open-source operating system kernel used by various distributions (distros) like Ubuntu, Debian, CentOS, etc. It's widely used in servers, embedded systems, and personal computers.
- The terminal is a text-based interface where users can interact with the system by typing commands.

## Useful Commands to interact with Linux system

## 2. Navigating the File System:

- `ls`: Lists files and directories in the current directory.
  - Example: `ls -l` (lists files with detailed information).
- `cd`: Changes the current directory.
  - Example: `cd Documents` (changes to the "Documents" directory).
- `pwd`: Prints the path of the current directory.
  - Example: `pwd` (displays the current directory's path).

## 3. File and Directory Operations:

- `mkdir`: Creates directories.
  - Example: `mkdir new_directory` (creates a directory named "new\_directory").
- `touch`: Creates empty files or updates the timestamp of existing files.
  - Example: `touch new_file.txt` (creates a file named "new\_file.txt").
- `cp`: Copies files and directories.
  - Example: `cp file1.txt file2.txt` (copies "file1.txt" to "file2.txt").
- `mv`: Moves or renames files and directories.
  - Example: `mv file1.txt folder1/` (moves "file1.txt" to "folder1/").
- `rm`: Removes files and directories.
  - Example: `rm file.txt` (removes "file.txt").

## 4. Working with Files:

- `cat`: Displays file content.
  - Example: `cat file.txt` (displays the content of "file.txt").
- `less/more`: Views file content page by page.
  - Example: `less file.txt` (displays "file.txt" one page at a time).
- `head/tail`: Displays the beginning/end of a file.
  - Example: `head -n 5 file.txt` (displays the first 5 lines of "file.txt").
- `nano/vim/emacs`: Text editors.
  - Example: `nano file.txt` (opens "file.txt" for editing in the Nano editor).

## 5. File Permissions:

- `chmod`: Changes file permissions.
  - Example: `chmod 644 file.txt` (sets read and write permissions for the owner and read-only permissions for others).
- `chown`: Changes file ownership.
  - Example: `chown user:group file.txt` (changes the owner and group of "file.txt" to "user" and "group" respectively).

## 6. Managing Processes:

- `ps`: Displays information about processes.
  - Example: `ps aux` (displays all running processes).
- `top/htop`: Monitors system resources and processes.
  - Example: `top` (displays dynamic information about processes and resource usage).
- `kill`: Terminates processes.
  - Example: `kill PID` (terminates the process with the specified PID).

## 7. Package Management:

- `apt/apt-get` or `yum/dnf`: Installs, updates, and removes packages.
  - Example: `sudo apt-get install package_name` (installs a package named "package\_name").

## 8. Networking:

- `ifconfig/ip`: Displays network interface information.
  - Example: `ifconfig` (displays information about all network interfaces).
- `ping`: Checks connectivity to a remote host.

- Example: `ping google.com` (sends ICMP echo requests to "google.com" to check connectivity).
- `ssh`: Connects to a remote server securely.
  - Example: `ssh username@remote_host` (connects to "remote\_host" using SSH).

## 9. File Compression:

- `tar`: Creates and extracts tar archives.
  - Example: `tar -czvf archive.tar.gz directory/` (creates a gzipped tar archive of "directory/").
- `gzip/gunzip`: Compresses and decompresses files.
  - Example: `gzip file.txt` (compresses "file.txt" into "file.txt.gz").
- `zip/unzip`: Creates and extracts zip archives.
  - Example: `zip -r archive.zip directory/` (creates a zip archive of "directory/").

## 10. Additional Commands:

- `find`: Searches for files and directories.
- `grep`: Searches for patterns in files.
- `sed`: Stream editor for filtering and transforming text.
- `useradd`: Adds a new user.
- `passwd`: Changes a user's password.
- `groupadd`: Adds a new group.
- `htop`: Interactive process viewer.
- `iotop`: Monitors I/O usage by processes.
- `scp`: Securely copies files between hosts.
- `rsync`: Efficiently synchronizes files and directories.
- `shutdown`: Shuts down or reboots the system.
- `df`: Displays disk space usage.
- `du`: Displays disk usage of files and directories.
- `lscpu`: Displays CPU information.