# 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.