**🔹 Basic Linux Commands**

| **Command** | **Description** |
| --- | --- |
| pwd | Prints the current working directory. |
| ls | Lists files and directories. |
| cd | Changes the current directory. |
| mkdir | Creates a new directory. |
| rmdir | Deletes an empty directory. |
| touch | Creates an empty file. |
| cp | Copies files or directories. |
| mv | Moves or renames files or directories. |
| rm | Deletes files or directories. |
| clear | Clears the terminal screen. |
| echo | Displays a line of text. |
| cat | Displays contents of a file. |
| head | Shows the first few lines of a file. |
| tail | Shows the last few lines of a file. |
| man | Shows the manual for a command. |
| whoami | Displays the current user. |
| exit | Exits the terminal session. |

**🔹 File Permissions & Ownership**

| **Command** | **Description** |
| --- | --- |
| chmod | Changes file permissions. |
| chown | Changes file owner and group. |
| umask | Sets default permissions for new files. |

**🔹 File Search & Management**

| **Command** | **Description** |
| --- | --- |
| find | Searches for files in a directory hierarchy. |
| locate | Finds files using a database (faster than find). |
| which | Shows the path of an executable. |
| whereis | Finds source, binary, and man pages for a command. |
| grep | Searches text using patterns. |

**🔹 System Information**

| **Command** | **Description** |
| --- | --- |
| uname -a | Displays system information. |
| top | Shows real-time system processes. |
| htop | Enhanced version of top (if installed). |
| df -h | Shows disk space usage. |
| du -sh | Shows size of a file or directory. |
| free -h | Displays memory usage. |
| uptime | Shows how long the system has been running. |
| hostname | Displays the system's hostname. |
| lscpu | Displays CPU architecture info. |
| lsblk | Lists block devices. |
| dmesg | Displays system boot logs. |

**🔹 Networking**

| **Command** | **Description** |
| --- | --- |
| ip a or ifconfig | Shows IP and network interfaces. |
| ping | Checks network connectivity. |
| netstat -tulpn | Displays active connections and listening ports. |
| ss -tuln | Faster, modern alternative to netstat. |
| curl | Transfers data from/to a server. |
| wget | Downloads files from the web. |
| nslookup | Queries DNS servers. |
| traceroute | Traces the route packets take to a host. |

**🔹 Process Management**

| **Command** | **Description** |
| --- | --- |
| ps | Displays running processes. |
| kill | Sends signal to a process (usually to stop it). |
| killall | Kills all processes by name. |
| nice | Launches a process with a specified priority. |
| renice | Changes the priority of a running process. |
| jobs | Lists background jobs. |
| fg | Brings a background job to the foreground. |
| bg | Resumes a job in the background. |

**🔹 Archiving & Compression**

| **Command** | **Description** |
| --- | --- |
| tar -cvf | Creates a tar archive. |
| tar -xvf | Extracts a tar archive. |
| zip / unzip | Compresses or extracts .zip files. |
| gzip / gunzip | Compresses or decompresses .gz files. |

**🔹 Package Management**

**Debian/Ubuntu-based:**

| **Command** | **Description** |
| --- | --- |
| apt update | Updates package lists. |
| apt upgrade | Upgrades installed packages. |
| apt install | Installs a package. |
| apt remove | Removes a package. |

**RedHat/CentOS-based:**

| **Command** | **Description** |
| --- | --- |
| yum install | Installs a package. |
| yum update | Updates all packages. |

**🔹 Disk Partition & Mounting**

| **Command** | **Description** |
| --- | --- |
| fdisk | Partition management tool. |
| mount | Mounts a file system. |
| umount | Unmounts a file system. |
| blkid | Shows block device UUIDs. |

**🔹 User Management**

| **Command** | **Description** |
| --- | --- |
| adduser / useradd | Adds a new user. |
| passwd | Changes user password. |
| deluser / userdel | Deletes a user. |
| groupadd | Creates a new group. |
| usermod | Modifies user accounts. |
| id | Shows user ID and group info. |

**🔹 Advanced & Miscellaneous**

| **Command** | **Description** |
| --- | --- |
| alias | Creates a shortcut for a command. |
| cron / crontab | Schedules recurring tasks. |
| at | Schedules one-time tasks. |
| ssh | Connects to remote systems securely. |
| scp | Securely copies files between systems. |
| rsync | Syncs files and directories. |
| screen / tmux | Creates terminal multiplexing sessions. |
| strace | Traces system calls of a program. |
| lsof | Lists open files. |
| journalctl | Views systemd logs. |

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