

## **COMMAND LINE INTERFACE**

**Aim – To implement basic linux commands .**

### **THEORY –**

The Linux Command Line Interface (CLI) allows users to interact directly with the operating system by typing text commands. Unlike the graphical user interface (GUI), the CLI provides more flexibility, power, and control. It is widely used by system administrators, developers, and advanced users for tasks like file manipulation, process management, user administration, and system monitoring. The CLI makes it possible to automate tasks, write shell scripts, and manage the system efficiently.

#### **Basic Linux CLI Commands**

i] **pwd** – Prints the current working directory.

**Syntax** – pwd

**Example** – pwd → /home/user/Documents

ii] **ls** – Lists files and directories in the current directory.

**Syntax** – ls [options] [directory]

**Example** – ls -l → shows details in long format.

iii] **cd** – Changes the current directory.

**Syntax** – cd [directory\_name]

**Example** – cd /home/user/Desktop

iv] **mkdir** – Creates a new directory.

**Syntax** – mkdir [directory\_name]

**Example** – mkdir projects

v] **rmdir** – Removes an empty directory.

**Syntax** – rmdir [directory\_name]

**Example** – rmdir old\_folder

vi] **rm** – Removes files or directories.

**Syntax** – rm [options] [file\_name]

**Example** – rm file.txt or rm -r folder/

vii] **touch** – Creates an empty file or updates file timestamps.

**Syntax** – touch [file\_name]

**Example** – touch notes.txt

viii] **cat** – Displays the content of a file.

**Syntax** – cat [file\_name]

**Example** – cat file.txt

ix] **cp** – Copies files or directories.

**Syntax** – cp [source] [destination]

**Example** – cp file.txt /home/user/Desktop/

x] **mv** – Moves or renames files/directories.

**Syntax** – mv [source] [destination]

**Example** – mv file.txt newname.txt

xi] **head** – Displays the first few lines of a file (default 10).

**Syntax** – head [file\_name]

**Example** – head -5 file.txt

xii] **tail** – Displays the last few lines of a file (default 10).

**Syntax** – tail [file\_name]

**Example** – tail -n 20 file.txt

xiii] **man** – Displays manual/help for a command.

**Syntax** – man [command]

**Example** – man ls

xiv] **clear** – Clears the terminal screen.

**Syntax** – clear

**Example** – clear

xv] **date** – Displays or sets the system date and time.

**Syntax** – date

**Example** – date "+%d-%m-%Y %H:%M:%S"

xvi] **cal** – Displays the calendar.

**Syntax** – cal [month] [year]

**Example** – cal 08 2025

xvii] **whoami** – Displays the current logged-in user.

**Syntax** – whoami

**Example** – whoami → atharv

xviii] **uname** – Displays system information.

**Syntax** – `uname [options]`

**Example** – `uname -a`

xix] **echo** – Prints a line of text.

**Syntax** – `echo [text]`

**Example** – `echo "Hello World"`

xx] **history** – Shows the list of previously executed commands.

**Syntax** – `history`

**Example** – `history | grep ls`

xxi] **find** – Searches for files/directories.

**Syntax** – `find [path] -name [filename]`

**Example** – `find /home -name notes.txt`

xxiii] **wc** – Word, line, and byte count.

**Syntax** – `wc [file]`

**Example** – `wc -l file.txt`

xxiv] **df** – Shows disk space usage.

**Syntax** – `df [options]`

**Example** – `df -h`

xxv] **du** – Shows directory space usage.

**Syntax** – `du [options] [directory]`

**Example** – `du -sh /home/user`

xxvi] **ps** – Shows running processes.

**Syntax** – `ps [options]`

**Example** – `ps aux`

xxvii] **kill** – Kills a running process.

**Syntax** – `kill [PID]`

**Example** – `kill 1234`

xxviii] **chmod** – Changes file permissions.

**Syntax** – `chmod [permissions] [file]`

**Example** – `chmod 755 script.sh`

xxviii] **chown** – Changes file ownership.

**Syntax** – `chown [owner] [file]`

**Example** – `chown user:group file.txt`

xxix] **exit** – Closes the terminal session.

**Syntax** – exit

**Example** – exit

```

root@Atharv:~/Atharv$ date
Wed Aug 20 17:48:03 UTC 2025
root@Atharv:~/Atharv$ cal
    August 2025
Su Mo Tu We Th Fr Sa
                1  2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
root@Atharv:~/Atharv$ cal June 2005
    June 2005
Su Mo Tu We Th Fr Sa
                1  2  3  4
 5  6  7  8  9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30

root@Atharv:~/Atharv$ who
root      pts/1        2025-08-20 17:39
root@Atharv:~/Atharv$ whoami
root
root@Atharv:~/Atharv$ tty
/dev/pts/0
root@Atharv:~/Atharv$ ps
  PID TTY          TIME CMD
  301 pts/0      00:00:00 bash
  427 pts/0      00:00:00 ps
root@Atharv:~/Atharv$ cat file1.txt
Hello world ,I am Atharv
root@Atharv:~/Atharv$ cat>file2.txt
Hello,Soy Atharv Govekar
^C
root@Atharv:~/Atharv$ cat file2.txt>file3.txt
root@Atharv:~/Atharv$ cat>file3.txt
^C
root@Atharv:~/Atharv$ cat file2.txt>file3.txt
root@Atharv:~/Atharv$ cat file3.txt
Hello,Soy Atharv Govekar
root@Atharv:~/Atharv$ cp file1.txt file4.txt
root@Atharv:~/Atharv$ cat file4.txt
Hello world ,I am Atharv
root@Atharv:~/Atharv$ cmp file1.txt file2.txt
file1.txt file2.txt differ: byte 6, line 1

```

```

root@Atharv:~/Atharv$ rm file4.txt
root@Atharv:~/Atharv$ ls
file.txt file1.txt file2.txt file3.txt
root@Atharv:~/Atharv$ wc file2.txt
  1  3 25 file2.txt
root@Atharv:~/Atharv$ pwd
/root/Atharv
root@Atharv:~/Atharv$ diff file1.txt file2.txt
1c1
< Hello world ,I am Atharv
---
> Hello,Soy Atharv Govekar
root@Atharv:~/Atharv$ comm file1.txt file3.txt
Hello world ,I am Atharv
      Hello,Soy Atharv Govekar

root@Atharv:~/Atharv/Exp1$ tree GEC
GEC
├── CIVIL
├── COMP
│   ├── BE
│   ├── FE
│   ├── SE
│   └── TE
│       ├── CLIPR
│       ├── DBMS
│       ├── GB
│       ├── JAVA
│       ├── OS
│       ├── CLASS
│       ├── LAB
│       └── file1.txt
└── WT

ENE
ETC
IT
MECH
MINING
VLSI

21 directories, 1 file

root@Atharv:~/Atharv$ ls -l file1.txt
-rw-r--r-- 1 root root 25 Aug 20 17:47 file1.txt
root@Atharv:~/Atharv$ chmod 756 file1.txt
root@Atharv:~/Atharv$ ls -l file1.txt
-rwxr-xrw- 1 root root 25 Aug 20 17:47 file1.txt
root@Atharv:~/Atharv$ chmod u+x,o+x file1.txt
root@Atharv:~/Atharv$ ls -l file1.txt
-rwxr-xrwx 1 root root 25 Aug 20 17:47 file1.txt

```

## CONCLUSION –

Command Line Interface (CLI) provides a fast and efficient way to interact with the operating system using commands. Mastering these basic commands builds a strong foundation for system navigation, file handling, and process management.