# EXPERIMENT 1-STUDY OF LINUX COMMANDS

**AIM:** To study and implement various Linux commands.

**Theory:**

Preface:A shell script is a computer program designed to be run by the Unix shell, a command-line interpreter. The various dialects of shell scripts are considered to be scripting languages. Typical operations performed by shell scripts include file manipulation, program execution, and printing text. A script which sets up the environment, runs the program, and does any necessary clean up, logging, etc., is called a wrapper. Shell scripts allow us to program commands in chains (one after another) and have the system execute them as a scripted event, just like batch files. They also allow for useful functions such as command substitution. For example, you can invoke a command like `date` and use its output as part of a file-naming scheme. You can automate backups and each copied file can have the current date appended to its name. Scripts aren't just invocations of commands—they're programs in their own right. Scripting allows you to use programming functions such as `for` loops, `if/then/else` statements, and so forth directly within your operating system's interface. Also, you don't need to learn another language because you're using what you already know: the command-line.

Topics Covered:

1. Linux Commands

2. Directory Tree Structure

3. Shell Scripting

**Commands:**

1. date - Displays current date and time of the system.

2. clear - Clears the terminal screen.

3. who - Displays information about the system users.

4. whoami - Shows the currently logged-in user.

5. ps - Displays all active processes.

6. ls - Lists all files and directories in the current working directory.

7. cal - Displays the calendar of the current year.

8. cat > filename - Creates a new file with the specified name.

9. cat filename - Displays the content of the file.

10. wc file - Displays the number of lines, words, and characters in the file.

11. exit - Closes the terminal.

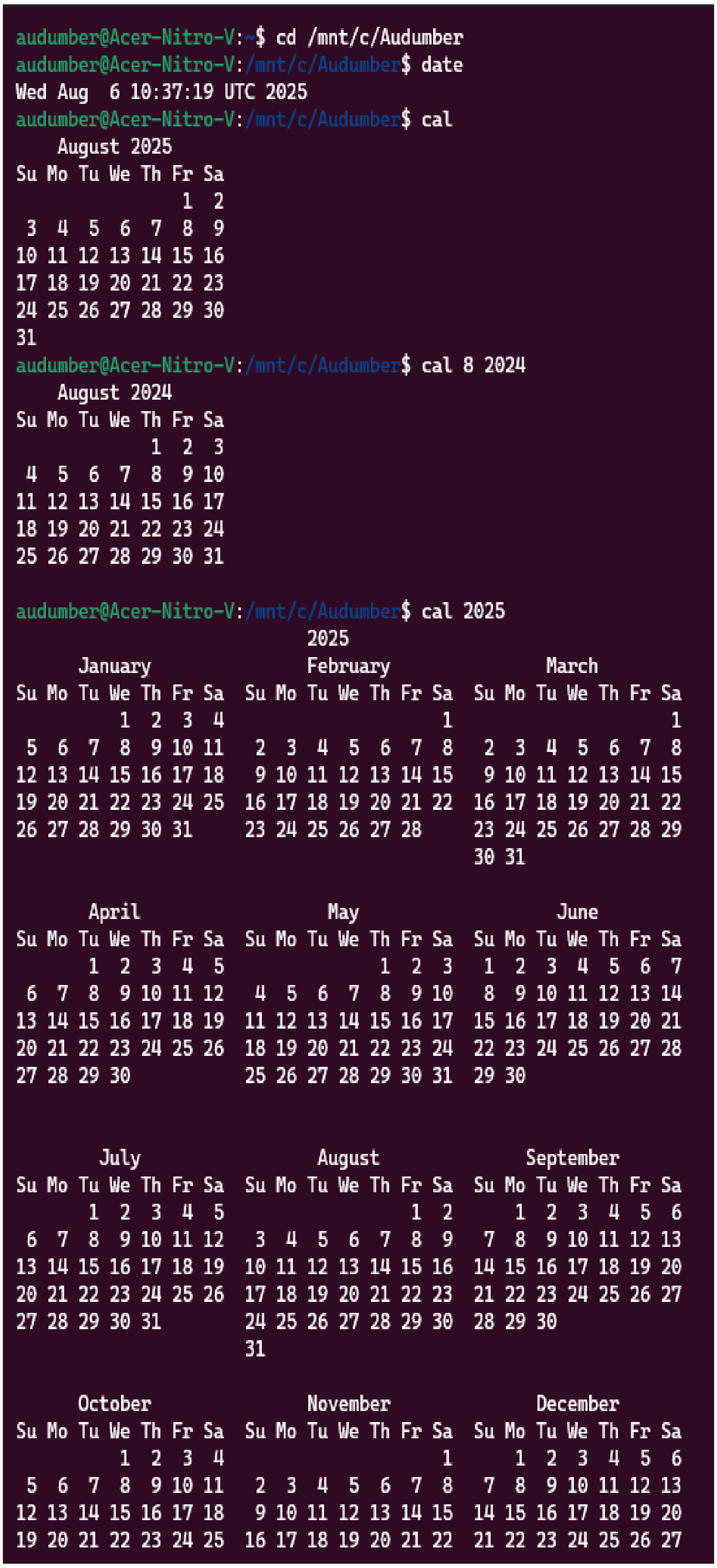
12. echo "text" - Displays a message on the terminal.

13. cd - Changes the directory.

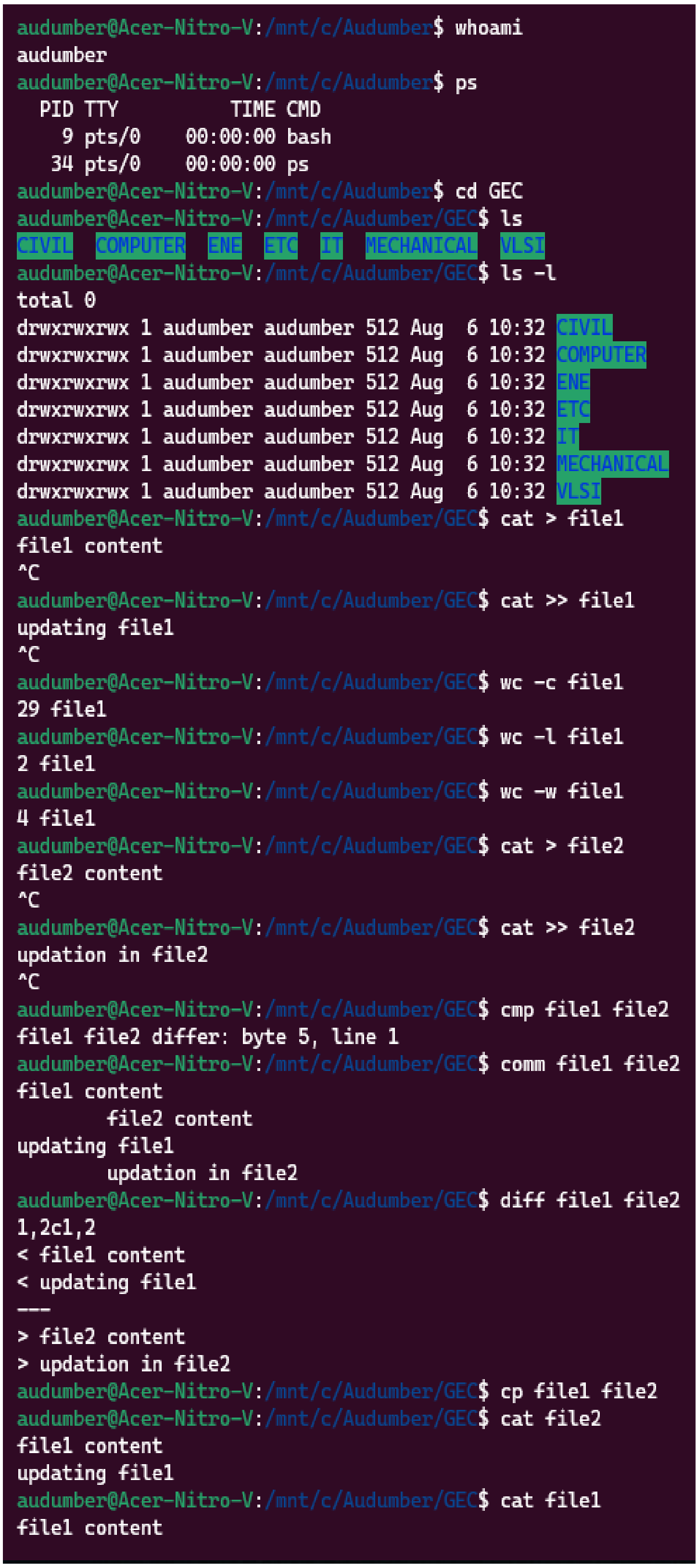
14. pwd - Prints the present working directory.

15. script - Records the terminal session.

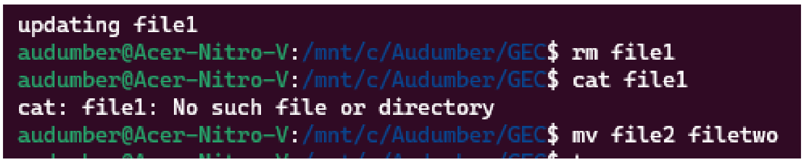
16. tree - Shows all the directories and their contents.



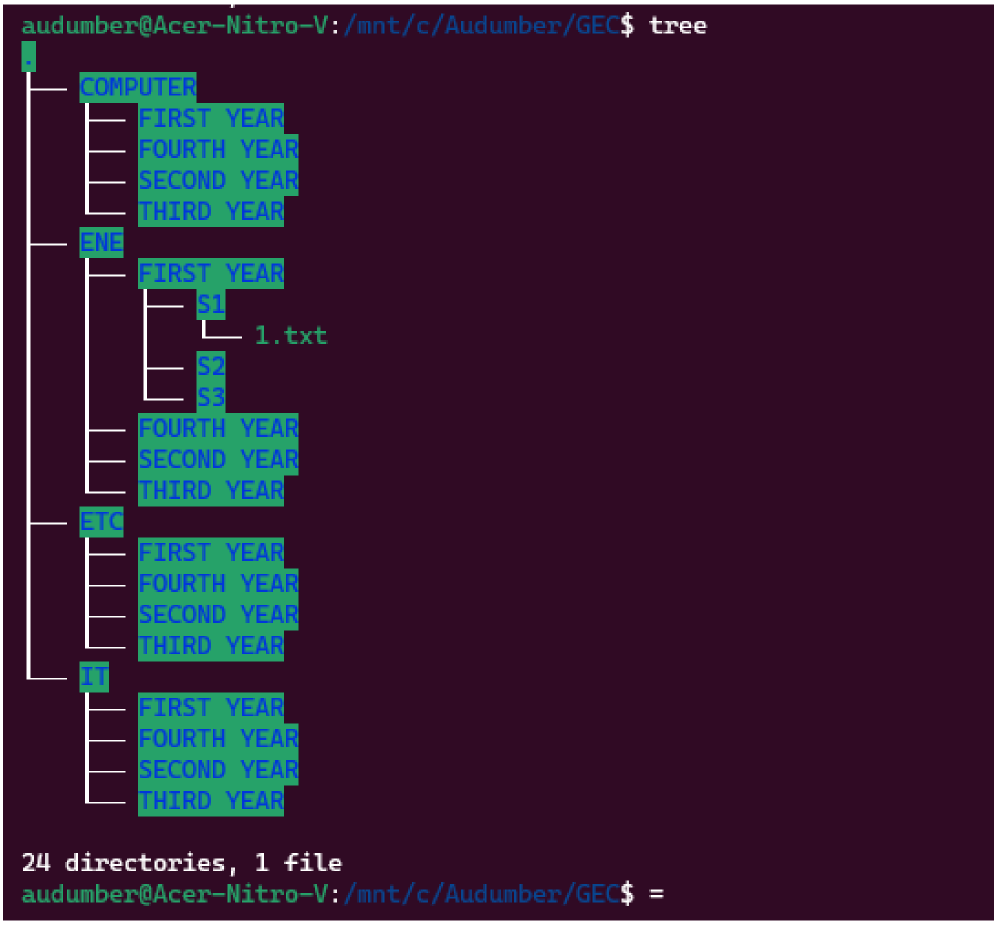
```
audumber@Acer-Nitro-V:~$ cd /mnt/c/Audumber
audumber@Acer-Nitro-V:/mnt/c/Audumber$ date
Wed Aug  6 10:37:19 UTC 2025
audumber@Acer-Nitro-V:/mnt/c/Audumber$ cal
    August 2025
Su Mo Tu We Th Fr Sa
                1  2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
audumber@Acer-Nitro-V:/mnt/c/Audumber$ cal 8 2024
    August 2024
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

audumber@Acer-Nitro-V:/mnt/c/Audumber$ cal 2025
                            2025
      January               February               March
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
          1  2  3  4                     1                     1
 5  6  7  8  9 10 11   2  3  4  5  6  7  8   2  3  4  5  6  7  8
12 13 14 15 16 17 18   9 10 11 12 13 14 15   9 10 11 12 13 14 15
19 20 21 22 23 24 25  16 17 18 19 20 21 22  16 17 18 19 20 21 22
26 27 28 29 30 31     23 24 25 26 27 28     23 24 25 26 27 28 29
                                            30 31


       April                  May                   June
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
       1  2  3  4  5               1  2  3   1  2  3  4  5  6  7
 6  7  8  9 10 11 12   4  5  6  7  8  9 10   8  9 10 11 12 13 14
13 14 15 16 17 18 19  11 12 13 14 15 16 17  15 16 17 18 19 20 21
20 21 22 23 24 25 26  18 19 20 21 22 23 24  22 23 24 25 26 27 28
27 28 29 30           25 26 27 28 29 30 31  29 30


        July                 August              September
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
       1  2  3  4  5                  1  2      1  2  3  4  5  6
 6  7  8  9 10 11 12   3  4  5  6  7  8  9   7  8  9 10 11 12 13
13 14 15 16 17 18 19  10 11 12 13 14 15 16  14 15 16 17 18 19 20
20 21 22 23 24 25 26  17 18 19 20 21 22 23  21 22 23 24 25 26 27
27 28 29 30 31        24 25 26 27 28 29 30  28 29 30
                      31

      October               November              December
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
          1  2  3  4                     1      1  2  3  4  5  6
 5  6  7  8  9 10 11   2  3  4  5  6  7  8   7  8  9 10 11 12 13
12 13 14 15 16 17 18   9 10 11 12 13 14 15  14 15 16 17 18 19 20
19 20 21 22 23 24 25  16 17 18 19 20 21 22  21 22 23 24 25 26 27
```



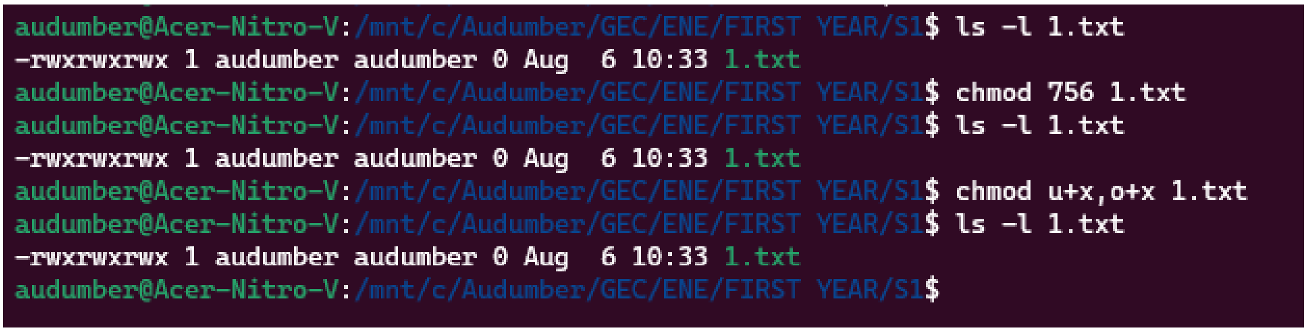
```
audumber@Acer-Nitro-V:/mnt/c/Audumber$ whoami
audumber
audumber@Acer-Nitro-V:/mnt/c/Audumber$ ps
  PID TTY          TIME CMD
    9 pts/0    00:00:00 bash
   34 pts/0    00:00:00 ps
audumber@Acer-Nitro-V:/mnt/c/Audumber$ cd GEC
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ ls
CIVIL  COMPUTER  ENE  ETC  IT  MECHANICAL  VLSI
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ ls -l
total 0
drwxrwxrwx 1 audumber audumber 512 Aug  6 10:32 CIVIL
drwxrwxrwx 1 audumber audumber 512 Aug  6 10:32 COMPUTER
drwxrwxrwx 1 audumber audumber 512 Aug  6 10:32 ENE
drwxrwxrwx 1 audumber audumber 512 Aug  6 10:32 ETC
drwxrwxrwx 1 audumber audumber 512 Aug  6 10:32 IT
drwxrwxrwx 1 audumber audumber 512 Aug  6 10:32 MECHANICAL
drwxrwxrwx 1 audumber audumber 512 Aug  6 10:32 VLSI
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cat > file1
file1 content
^C
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cat >> file1
updating file1
^C
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ wc -c file1
29 file1
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ wc -l file1
2 file1
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ wc -w file1
4 file1
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cat > file2
file2 content
^C
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cat >> file2
updation in file2
^C
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cmp file1 file2
file1 file2 differ: byte 5, line 1
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ comm file1 file2
file1 content
        file2 content
updating file1
        updation in file2
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ diff file1 file2
1,2c1,2
< file1 content
< updating file1
---
> file2 content
> updation in file2
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cp file1 file2
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cat file2
file1 content
updating file1
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cat file1
file1 content
```



```
updating file1
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ rm file1
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ cat file1
cat: file1: No such file or directory
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ mv file2 filetwo
```



```
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ tree
.
├── COMPUTER
│   ├── FIRST YEAR
│   ├── FOURTH YEAR
│   ├── SECOND YEAR
│   └── THIRD YEAR
├── ENE
│   ├── FIRST YEAR
│   │   ├── S1
│   │   │   └── 1.txt
│   │   ├── S2
│   │   └── S3
│   ├── FOURTH YEAR
│   ├── SECOND YEAR
│   └── THIRD YEAR
├── ETC
│   ├── FIRST YEAR
│   ├── FOURTH YEAR
│   ├── SECOND YEAR
│   └── THIRD YEAR
└── IT
    ├── FIRST YEAR
    ├── FOURTH YEAR
    ├── SECOND YEAR
    └── THIRD YEAR

24 directories, 1 file
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC$ =
```



```
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC/ENE/FIRST YEAR/S1$ ls -l 1.txt
-rwxrwxrwx 1 audumber audumber 0 Aug  6 10:33 1.txt
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC/ENE/FIRST YEAR/S1$ chmod 756 1.txt
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC/ENE/FIRST YEAR/S1$ ls -l 1.txt
-rwxrwxrwx 1 audumber audumber 0 Aug  6 10:33 1.txt
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC/ENE/FIRST YEAR/S1$ chmod u+x,o+x 1.txt
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC/ENE/FIRST YEAR/S1$ ls -l 1.txt
-rwxrwxrwx 1 audumber audumber 0 Aug  6 10:33 1.txt
audumber@Acer-Nitro-V:/mnt/c/Audumber/GEC/ENE/FIRST YEAR/S1$
```

Conclusion: This experiment demonstrated various fundamental Linux commands that are essential for managing files and directories in the terminal. The practice of creating, editing, comparing, and deleting files, along with permission control, forms the backbone of working effectively in a Linux environment.