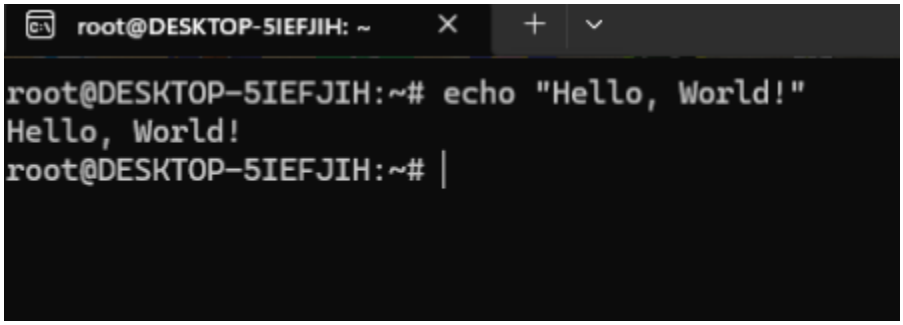
ASSIGNMENT-2

CONCEPTS OF OPERATING SYSTEM

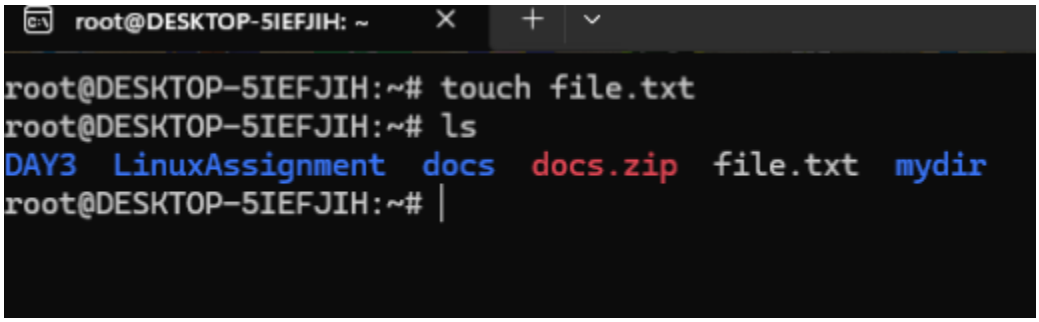
PART A

- **Echo “Hello, World!”**
  It will display the argument (Hello World) passed through the command echo.



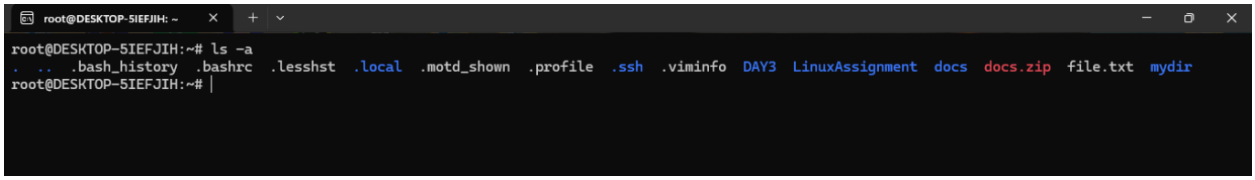
- **Name=”Productive”**
  This command assigning the lable productive to that specific element.

- **Touch file.txt**
  It will create the file named ‘file.txt’.



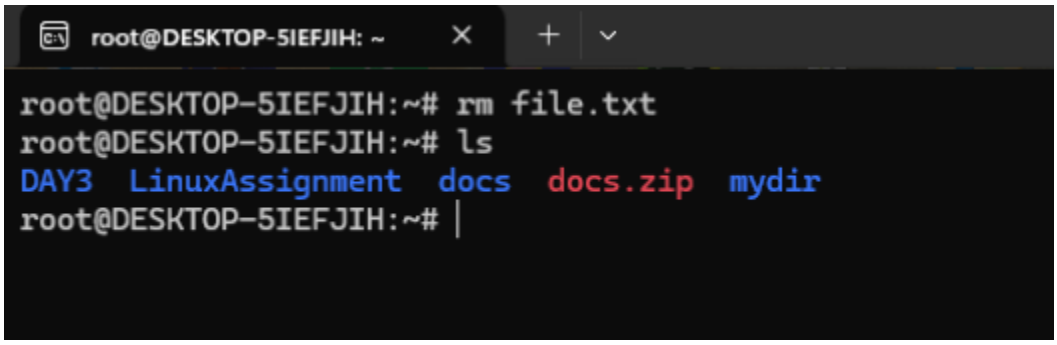
- **ls –a**

  List information about the files (the current directory by default).



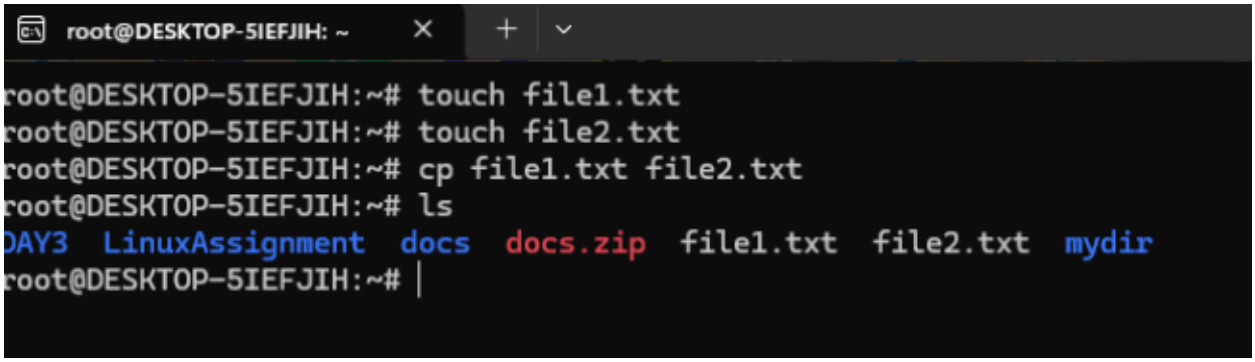
- **rm file.txt**

  It will remove the file named ‘file.txt’



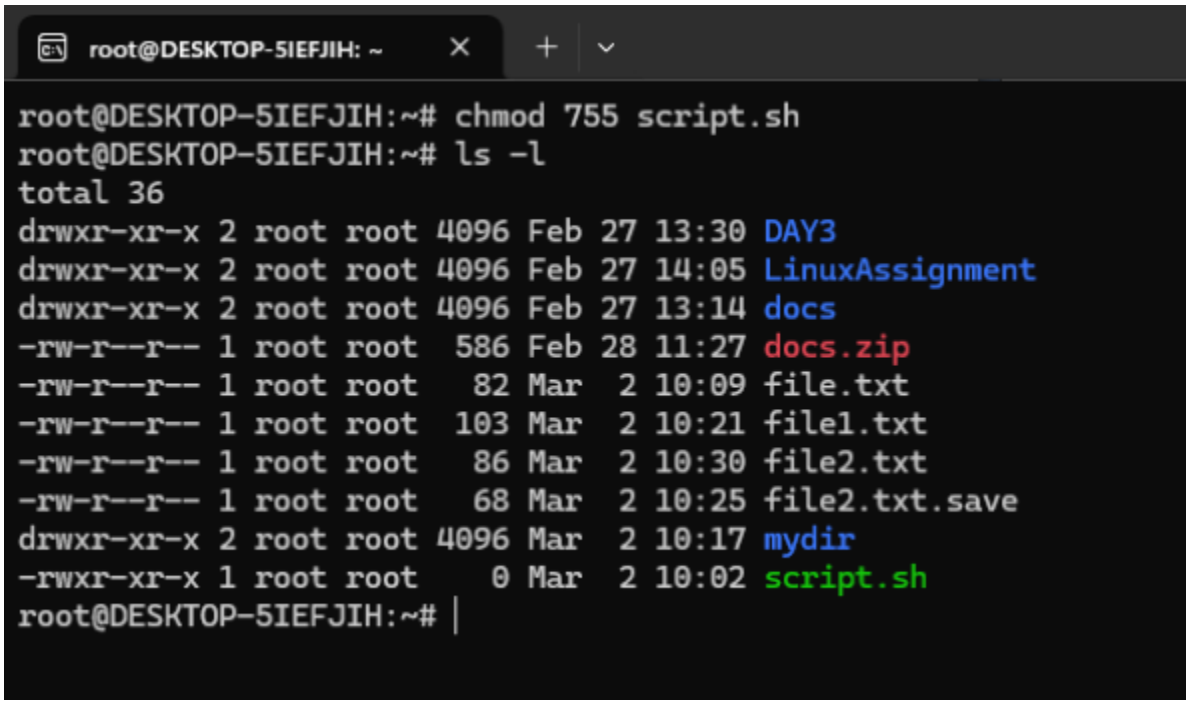
- **cp file1.txt file2.txt**

  It will copy the contents of file1 to file2.



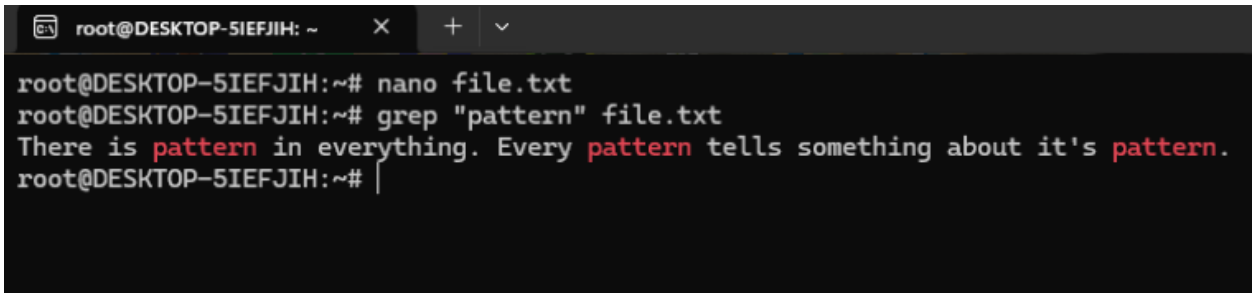
- **mv file.txt/path/to/directory/**
  It will move files and directories from one directory to another or to rename a file or directory

- **chmod 755 script.sh**
  chmod is used to change the permission. It gives read,write and execute permission to owner.
  Only Read and execute permission to both group and others of file script,sh



- **grep “pattern” file.txt**

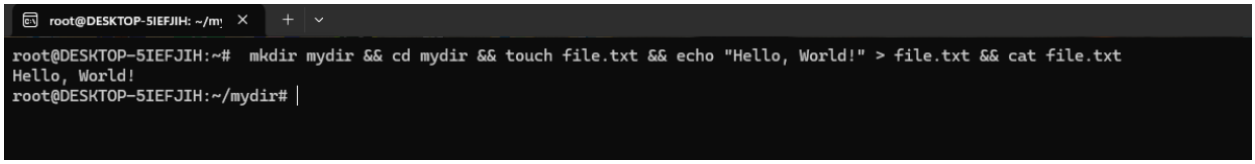
  The grep command searches for a string “pattern” in groups of files. When it finds a pattern that matches in more than one file, it prints the name of the file, followed by a colon.



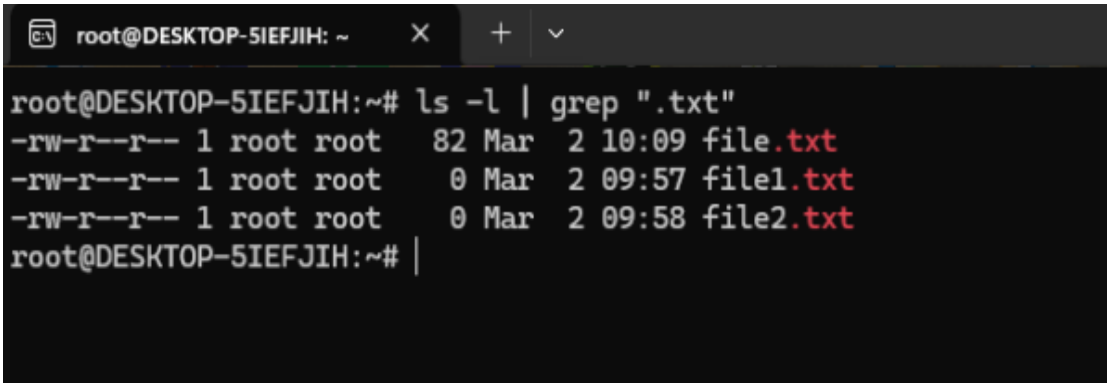
- **Kill PID**

  It sends the TERM signal to the specified process, giving it a chance to shut down in an orderly manner.

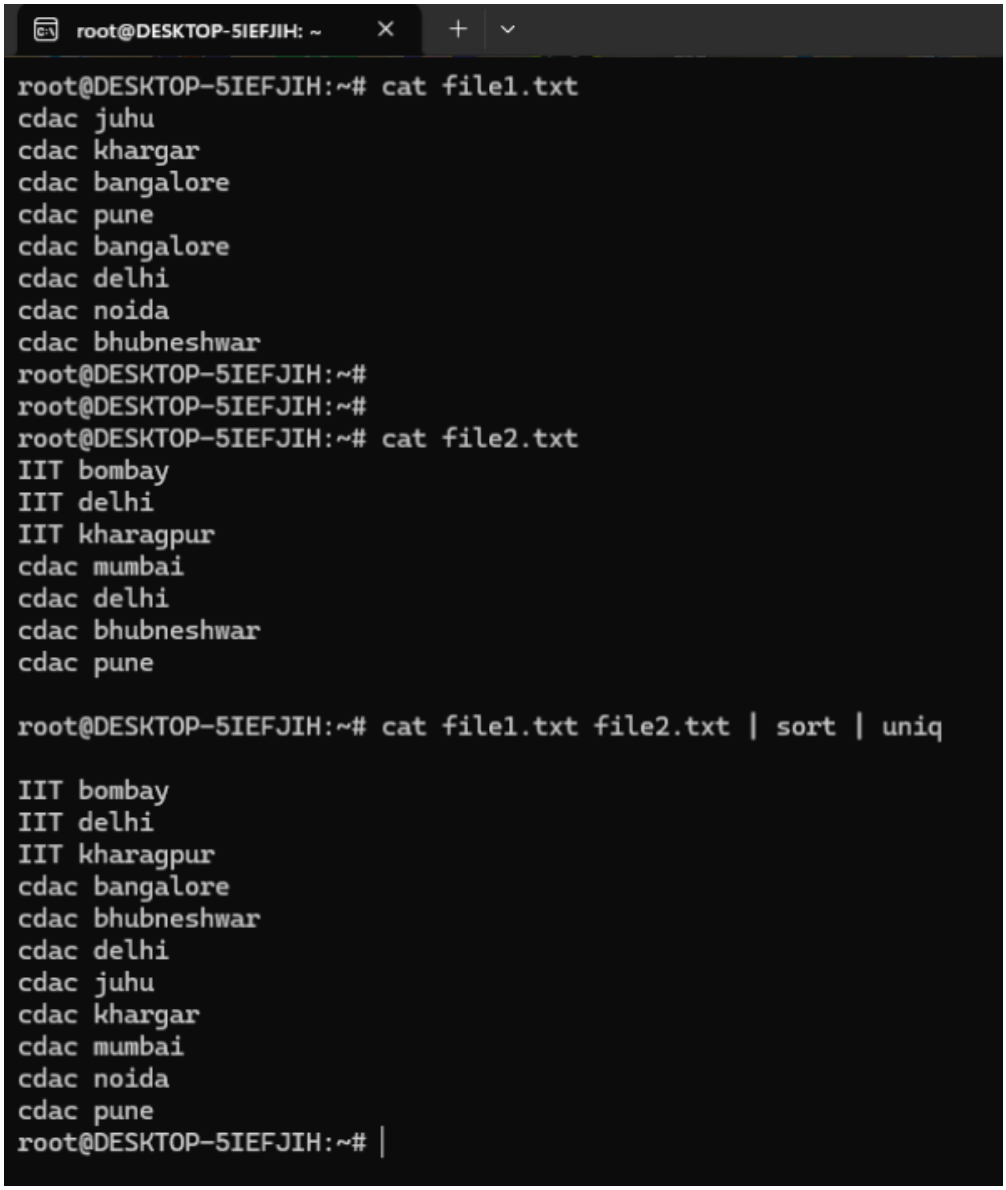
- **Mkdir mydir && cd mydir && touch file.txt && echo “Hello,** World!” > file.txt && cat file.txt



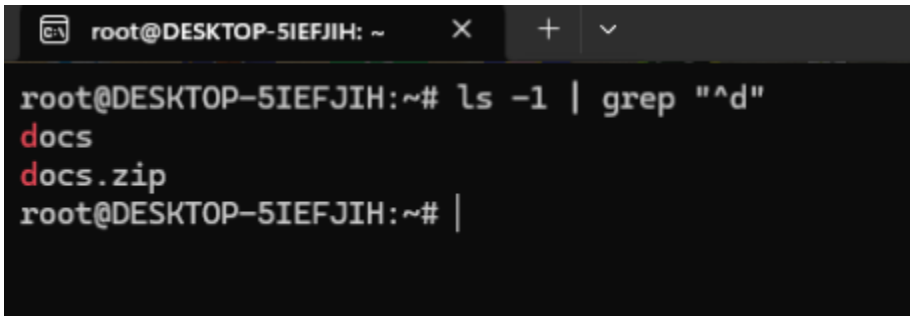
- **ls -1 | grep ".txt"**


root@DESKTOP-5IEFJIH: ~
root@DESKTOP-5IEFJIH:~# ls -l | grep ".txt"
-rw-r--r-- 1 root root 82 Mar 2 10:09 file.txt
-rw-r--r-- 1 root root 0 Mar 2 09:57 file1.txt
-rw-r--r-- 1 root root 0 Mar 2 09:58 file2.txt
root@DESKTOP-5IEFJIH:~#

- **cat file1.txt file2.txt | sort | uniq**
  first cat will copy the contents of file1 into file2. After that it sorts the contents in a unique way.

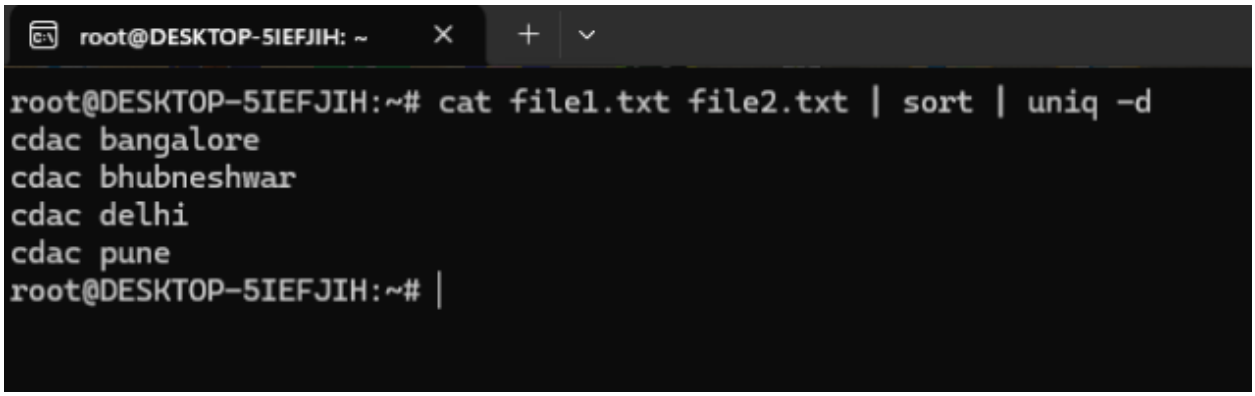


- **ls -l | grep "^d"**
  It is used to current directory with the user.

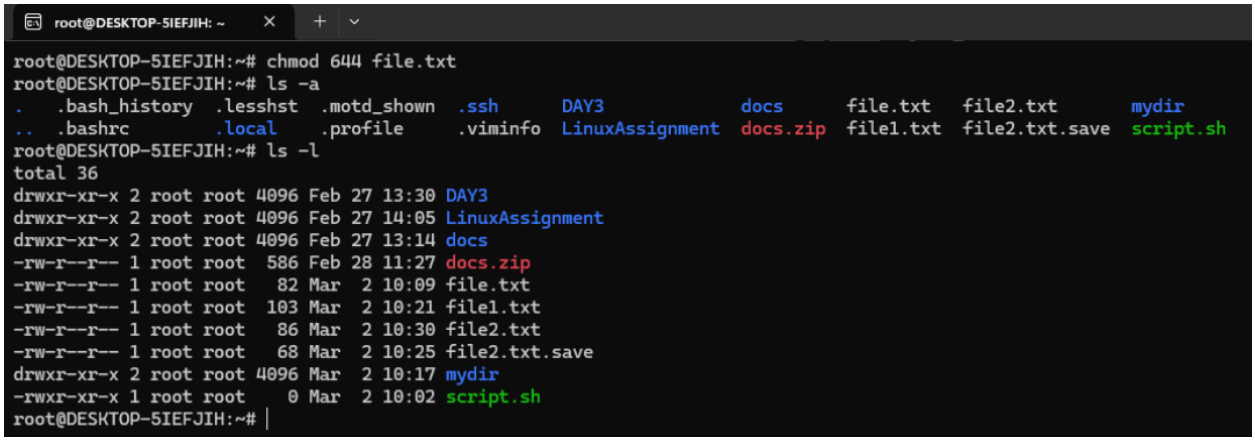


- **grep -r "pattern" /path/to/directory/**
  It is used to search for a specific pattern inside all files within a given directory and its subdirectories.

- **cat file1.txt file2.txt | sort | uniq –d**
  It is used to find duplicate lines from both the files i.e., file1.txt and file2.txt.



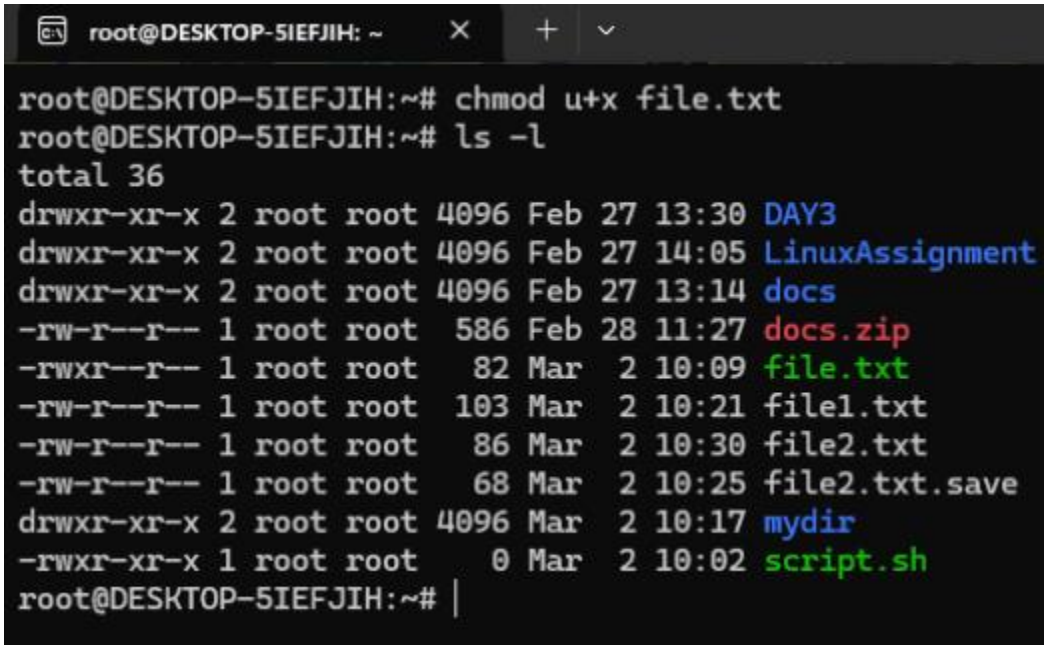
- **chmod 644 file.txt**
  chmod is used to change the permission. It will set readread and write permission for owner. Only read permission to both the group and other.



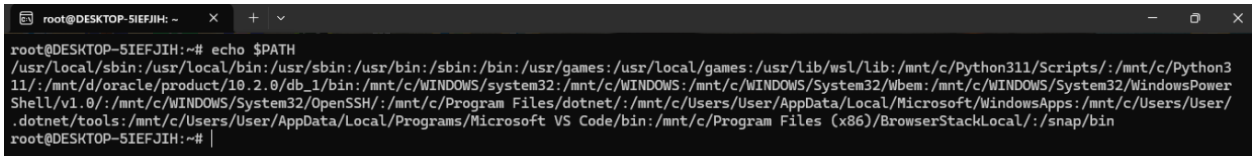
- **cp -r source_directory destination_directory**
  It is ued to copy a directory and its contents (including subdirectories and files) to another location in Linux.

- **find /path/to/search -name "*.txt"**
  It will find .txt file in the given directory.

- **chmod u+x file.txt**
  chmod is used to change the permission. In this command user is able to execute the file.



- **echo $PATH**
  It will print the environment variable that stores a list of directories where executable files (commands, scripts, programs) are located.



PART B

❖Identify true and false:

1. ls is used to list files and directories in a directory. **TRUE**

2. mv is used to move files and directories. **TRUE**

3. cd is used to copy files and directories. **FALSE**

4. pwd stands for "print working directory" and displays the current directory. **TRUE**

5. grep is used to search for patterns in files. **TRUE**

6. chmod 755 file.txt gives read, write, and execute permissions to the owner, and read and execute permissions to group and others. **TRUE**

7. mkdir -p directory1/directory2 creates nested directories, creating directory2 inside directory1 if directory1 does not exist. **TRUE**

8. rm -rf file.txt deletes a file forcefully without confirmation. **TRUE**

❖Identify the Incorrect Commands:

1. **chmodx** is used to change file permissions.
   chmod is used to change file permissions
.
2. **cpy** is used to copy files and directories.
   cp is used to copy files and directories.

3. **mkfile** is used to create a new file.
   touch file.txt is used to create a new file.

4. **catx** is used to concatenate files.
   cat is used to concatenate files.

5. **rn** is used to rename files.
   mv is used to rename files.

PART- E

1. Consider the following processes with arrival times and burst times:

PID	ARRIVAL TIME	BURST TIME
P1	0	5
P2	1	3
P3	2	6

Calculate the average waiting time using First-Come, First-Served (FCFS) scheduling.

Ans. Avg. waiting time= 3.33

2. Consider the following processes with arrival times and burst times:

PID	ARRIVAL TIME	BURST TIME
P1	0	3
P2	1	5
P3	2	1
P4	3	4

Calculate the average turnaround time using Shortest Job First (SJF) scheduling.

Ans. Avg Turnaround Time = 5.5.

3. Consider the following processes with arrival times, burst times, and priorities (lower number
indicates higher priority):

PID	ARRIVAL TIME	BURST TIME	PRIORITY
P1	0	6	3
P2	1	4	1
P3	2	7	4
P4	3	2	2

Calculate the average waiting time using Priority Scheduling.

Ans. Avg. Waiting Time = 7.75.

4. Consider the following processes with arrival times and burst times, and the time quantum for
Round Robin scheduling is 2 units:

PID	ARRIVAL TIME	BURST TIME
P1	0	4
P2	1	5
P3	2	2
P4	3	3

Calculate the average turnaround time using Round Robin scheduling.

Ans. Avg. Turnaround time = 9.

5. Consider a program that uses the fork() system call to create a child process. Initially, the parent
process has a variable x with a value of 5. After forking, both the parent and child processes
increment the value of x by 1.
What will be the final values of x in the parent and child processes after the fork() call

Ans.

Let x = 5.
Call fork().
Both parent and child increase x by 1.
child x = 6.
parent x = 6.
Final values of x:
child process, x = 6.
parent process, x = 6.