Assignment No - 2

Part A

- echo "Hello, World!"
  Ans. Displays the given text on the terminal.

- name="Productive"
  Ans. Creates a variable named name and stores the value Productive.

- touch file.txt
  Ans. Creates an empty file named file.txt.

- ls -a
  Ans. Lists all files and directories, including hidden ones.

- rm file.txt
  Ans. Deletes the file named file.txt.

- cp file1.txt file2.txt
  Ans. Copies the content of file1.txt into a new file file2.txt.

- mv file.txt /path/to/directory/
  Ans. Moves file.txt to another directory.

- chmod 755 script.sh
  Ans. Changes file permissions.
  Owner: Read, Write, Execute
  Group: Read, Execute
  Others: Read, Execute

- grep "pattern" file.txt
  Ans. Searches for the word "pattern" inside file.txt.

- kill PID
  Ans. Terminates a process using its Process ID.

- mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt
  Ans.
  - mkdir mydir → Creates a new folder mydir.
  - cd mydir → Moves inside the folder.
  - touch file.txt → Creates an empty file.

- echo "Hello, World!" > file.txt → Writes text into the file.
- cat file.txt → Displays the content of the file.

- ls -l | grep ".txt"
  Ans. Lists all files in long format and shows only .txt files

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- cat file1.txt file2.txt | sort | uniq
  Ans. Combines file1.txt and file2.txt
  Sorts the lines alphabetically
  Removes duplicate lines.

- ls -l | grep "^d"
  Ans. Lists **only directories** in the current folder.
  `^d` → Matches directory entries in long listing format.

- grep -r "pattern" /path/to/directory/
  Ans. Searches for **pattern recursively** inside all files in the directory.

- cat file1.txt file2.txt | sort | uniq –d
  Ans. Shows only duplicate lines from both files.

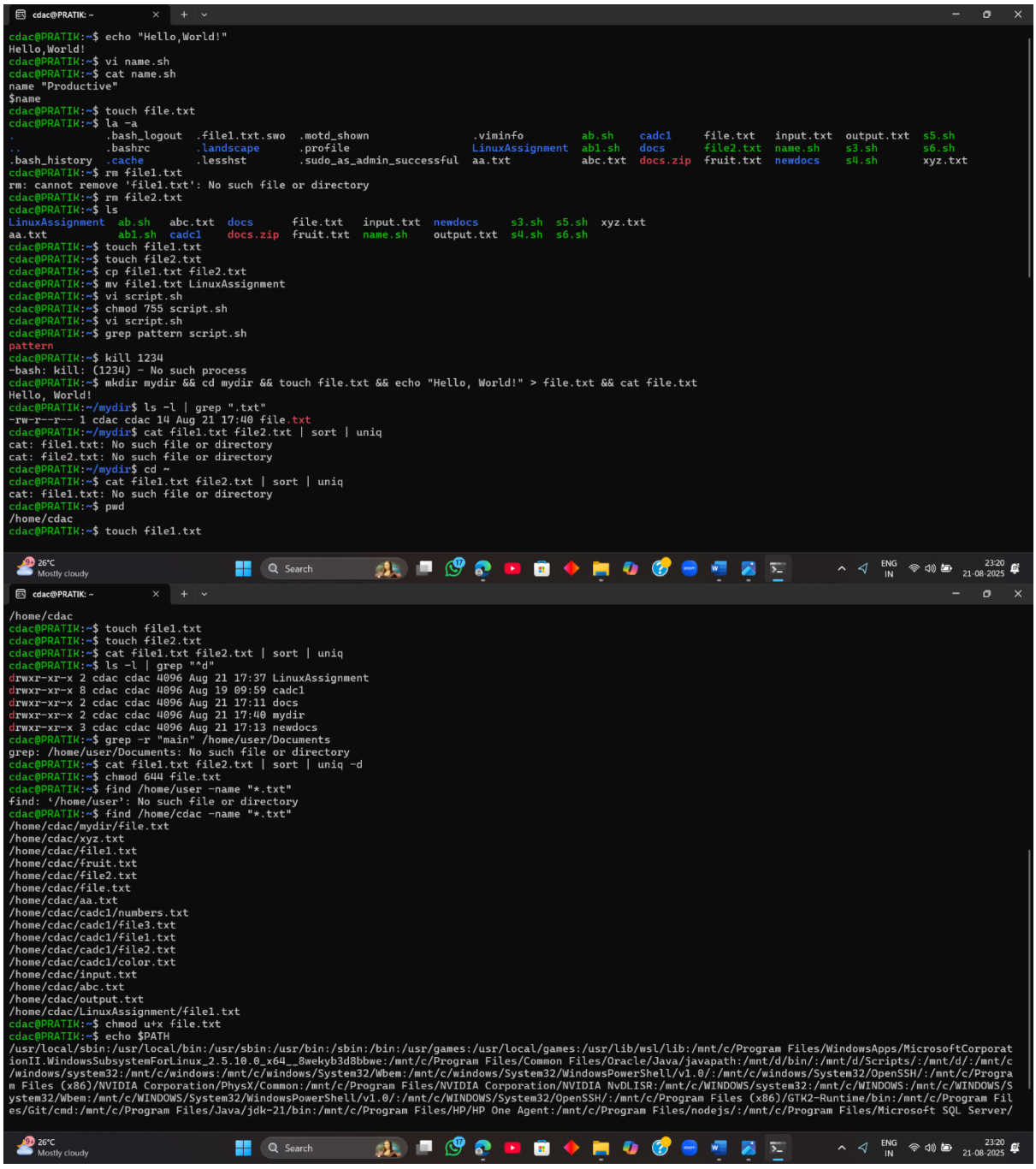
- chmod 644 file.txt
  Ans. Changes file permissions:
  Owner: Read + Write
  Group: Read only
  Others: Read only

- cp -r source_directory destination_directory
  Ans. Copies the entire source_directory to destination_directory recursively.

- find /path/to/search -name "*.txt"
  Ans. Finds all files with .txt extension under a specific directory.

- chmod u+x file.txt
  Ans. Gives execute permission to the file owner only.

- echo $PATH
  Ans. Displays the list of directories where Linux looks for executable programs.


cdac@PRATIK: ~
cdac@PRATIK:~$ echo "Hello,World!"
Hello,World!
cdac@PRATIK:~$ vi name.sh
cdac@PRATIK:~$ cat name.sh
name "Productive"
$name
cdac@PRATIK:~$ touch file.txt
cdac@PRATIK:~$ la -a
. .bash_logout .file1.txt.swo .motd_shown .viminfo ab.sh cadc1 file.txt input.txt output.txt s5.sh
.. .bashrc .landscape .profile LinuxAssignment ab1.sh docs file2.txt name.sh s3.sh s6.sh
.bash_history .cache .lesshst .sudo_as_admin_successful aa.txt abc.txt docs.zip fruit.txt newdocs s4.sh xyz.txt
cdac@PRATIK:~$ rm file1.txt
rm: cannot remove 'file1.txt': No such file or directory
cdac@PRATIK:~$ rm file2.txt
cdac@PRATIK:~$ ls
LinuxAssignment ab.sh abc.txt docs file.txt input.txt newdocs s3.sh s5.sh xyz.txt
aa.txt ab1.sh cadc1 docs.zip fruit.txt name.sh output.txt s4.sh s6.sh
cdac@PRATIK:~$ touch file1.txt
cdac@PRATIK:~$ touch file2.txt
cdac@PRATIK:~$ cp file1.txt file2.txt
cdac@PRATIK:~$ mv file1.txt LinuxAssignment
cdac@PRATIK:~$ vi script.sh
cdac@PRATIK:~$ chmod 755 script.sh
cdac@PRATIK:~$ vi script.sh
cdac@PRATIK:~$ grep pattern script.sh
pattern
cdac@PRATIK:~$ kill 1234
-bash: kill: (1234) - No such process
cdac@PRATIK:~$ mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt
Hello, World!
cdac@PRATIK:~/mydir$ ls -l | grep ".txt"
-rw-r--r-- 1 cdac cdac 14 Aug 21 17:40 file.txt
cdac@PRATIK:~/mydir$ cat file1.txt file2.txt | sort | uniq
cat: file1.txt: No such file or directory
cat: file2.txt: No such file or directory
cdac@PRATIK:~/mydir$ cd ~
cdac@PRATIK:~$ cat file1.txt file2.txt | sort | uniq
cat: file1.txt: No such file or directory
cdac@PRATIK:~$ pwd
/home/cdac
cdac@PRATIK:~$ touch file1.txt
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cdac@PRATIK: ~
/home/cdac
cdac@PRATIK:~$ touch file1.txt
cdac@PRATIK:~$ touch file2.txt
cdac@PRATIK:~$ cat file1.txt file2.txt | sort | uniq
cdac@PRATIK:~$ ls -l | grep "^d"
drwxr-xr-x 2 cdac cdac 4096 Aug 21 17:37 LinuxAssignment
drwxr-xr-x 8 cdac cdac 4096 Aug 19 09:59 cadc1
drwxr-xr-x 2 cdac cdac 4096 Aug 21 17:11 docs
drwxr-xr-x 2 cdac cdac 4096 Aug 21 17:40 mydir
drwxr-xr-x 3 cdac cdac 4096 Aug 21 17:13 newdocs
cdac@PRATIK:~$ grep -r "main" /home/user/Documents
grep: /home/user/Documents: No such file or directory
cdac@PRATIK:~$ cat file1.txt file2.txt | sort | uniq -d
cdac@PRATIK:~$ chmod 644 file.txt
cdac@PRATIK:~$ find /home/user -name "*.txt"
find: ‘/home/user’: No such file or directory
cdac@PRATIK:~$ find /home/cdac -name "*.txt"
/home/cdac/mydir/file.txt
/home/cdac/xyz.txt
/home/cdac/file1.txt
/home/cdac/fruit.txt
/home/cdac/file2.txt
/home/cdac/file.txt
/home/cdac/aa.txt
/home/cdac/cadc1/numbers.txt
/home/cdac/cadc1/file3.txt
/home/cdac/cadc1/file1.txt
/home/cdac/cadc1/file2.txt
/home/cdac/cadc1/color.txt
/home/cdac/input.txt
/home/cdac/abc.txt
/home/cdac/output.txt
/home/cdac/LinuxAssignment/file1.txt
cdac@PRATIK:~$ chmod u+x file.txt
cdac@PRATIK:~$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/usr/lib/wsl/lib:/mnt/c/Program Files/WindowsApps/MicrosoftCorporationII.WindowsSubsystemForLinux_2.5.10.0_x64__8wekyb3d8bbwe:/mnt/c/Program Files/Common Files/Oracle/Java/javapath:/mnt/d/bin/:/mnt/d/Scripts/:/mnt/d/:/mnt/c/windows/system32:/mnt/c/windows:/mnt/c/windows/System32/Wbem:/mnt/c/windows/System32/WindowsPowerShell/v1.0/:/mnt/c/windows/System32/OpenSSH/:/mnt/c/Program Files (x86)/NVIDIA Corporation/PhysX/Common:/mnt/c/Program Files/NVIDIA Corporation/NVIDIA NvDLISR:/mnt/c/WINDOWS/system32:/mnt/c/WINDOWS:/mnt/c/WINDOWS/System32/Wbem:/mnt/c/WINDOWS/System32/WindowsPowerShell/v1.0/:/mnt/c/WINDOWS/System32/OpenSSH/:/mnt/c/Program Files (x86)/GTK2-Runtime/bin:/mnt/c/Program Files/Git/cmd:/mnt/c/Program Files/Java/jdk-21/bin:/mnt/c/Program Files/HP/HP One Agent:/mnt/c/Program Files/nodejs/:/mnt/c/Program Files/Microsoft SQL Server/
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Part B

Identify True or 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
2. **cpy** is used to copy files and directories. cp
3. **mkfile** is used to create a new file. Touch
4. **catx** is used to concatenate files. Cat
5. **rn** is used to rename files. mv

Part C

Question 1: Write a shell script that prints "Hello, World!" to the terminal.

```
cdac@PRATIK:~$ vi hello.sh
cdac@PRATIK:~$ chmod +x hello.sh
cdac@PRATIK:~$ ./hello.sh
Hello,World!
```

```
#!/bin/bash
echo "Hello,World!"
~
```

Question 2: Declare a variable named "name" and assign the value "CDAC Mumbai" to it. Print the value of the variable.

```
cdac@PRATIK:~$ vi cdac1.sh
cdac@PRATIK:~$ chmod +x cdac1.sh
cdac@PRATIK:~$ ./cdac1.sh
 My institute is CDAC Mumbai
cdac@PRATIK:~$
```

```
#!/bin/bash
name="CDAC Mumbai"
echo " My institute is $name "
~
~
```

Question 3: Write a shell script that takes a number as input from the user and prints it.

```
cdac@PRATIK:~$ vi input.sh
cdac@PRATIK:~$ chmod +x input.sh
cdac@PRATIK:~$ ./input.sh
Enter a number: 45
You entered: 45
cdac@PRATIK:~$
```

```
#!/bin/bash
read -p "Enter a number: " num
echo "You entered: $num"
~
~
```

Question 4: Write a shell script that performs addition of two numbers (e.g., 5 and 3) and prints the result.

```
cdac@PRATIK:~$ vi input.sh
cdac@PRATIK:~$ vi addition.sh
cdac@PRATIK:~$ chmod +x addition.sh
cdac@PRATIK:~$ ./addition.sh
Sum: 8
```

```
#!/bin/bash
a=5
b=3
sum=$((a + b))
echo "Sum: $sum"
~
~
~
```

Question 5: Write a shell script that takes a number as input and prints "Even" if it is even, otherwise prints "Odd".

```
cdac@PRATIK:~$ vi evenodd.sh
cdac@PRATIK:~$ chmod +x evenodd.sh
cdac@PRATIK:~$ ./evenodd.sh
Enter a number: 5
Odd
```

```
#!/bin/bash
read -p "Enter a number: " num
if (( num % 2 == 0 )); then
    echo "Even"
else
    echo "Odd"
fi
~
```

Question 6: Write a shell script that uses a for loop to print numbers from 1 to 5.

```
cdac@PRATIK:~$ vi loop.sh
cdac@PRATIK:~$ chmod +x loop.sh
cdac@PRATIK:~$ ./loop.sh
1
2
3
4
```

```
#!/bin/bash
for i in {1..5}
do
    echo $i
done
```

Question 7: Write a shell script that uses a while loop to print numbers from 1 to 5.

```
cdac@PRATIK:~$ vi while.sh
cdac@PRATIK:~$ chmod +x while.sh
cdac@PRATIK:~$ ./while.sh
1
2
3
4
5
```

```
#!/bin/bash
for i in {1..5}
do
    echo $i
done
```

```
#!/bin/bash
i=1
while [ $i -le 5 ]
do
    echo $i
    ((i++))
done
```

Question 8: Write a shell script that checks if a file named "file.txt" exists in the current directory. If it does, print "File exists", otherwise, print "File does not exist".

```
cdac@PRATIK:~$ vi check.sh
cdac@PRATIK:~$ chmod +x check.sh
cdac@PRATIK:~$ ./check.sh
File exists
```

```
#!/bin/bash
if [ -f file.txt ]; then
    echo "File exists"
else
    echo "File does not exist"
fi
```

Question 9: Write a shell script that uses the if statement to check if a number is greater than 10 and prints a message accordingly**.**

```
cdac@PRATIK:~$ vi number.sh
cdac@PRATIK:~$ chmod +x number.sh
cdac@PRATIK:~$ ./number.sh
Enter a number: 5
Number is less than or equal to 10
```

```
#!/bin/bash
read -p "Enter a number: " num
if (( num > 10 )); then
    echo "Number is greater than 10"
else
    echo "Number is less than or equal to 10"
fi
```

Question 10: Write a shell script that uses nested for loops to print a multiplication table for numbers from 1 to 5. The output should be formatted nicely, with each row representing a number and each column representing the multiplication result for that number.

```
cdac@PRATIK:~$ vi table.sh
cdac@PRATIK:~$ chmod +x table.sh
cdac@PRATIK:~$ ./table.sh
1 2 3 4 5
2 4 6 8 10
3 6 9 12 15
4 8 12 16 20
5 10 15 20 25
```

```
#!/bin/bash
for i in {1..5}
do
    for j in {1..5}
    do
        echo -n "$((i*j)) "
    done
    echo
done
:wq
```

Question 11: Write a shell script that uses a while loop to read numbers from the user until the user enters a negative number. For each positive number entered, print its square. Use the break statement to exit the loop when a negative number is entered.

```
cdac@PRATIK:~$ vi square.sh
cdac@PRATIK:~$ chmod +x square.sh
cdac@PRATIK:~$ ./square.sh
Enter a number: 5
Square: 25
```

```bash
#!/bin/bash
while true
do
    read -p "Enter a number: " num
    if (( num < 0 )); then
        break
    fi
    echo "Square: $((num * num))"
done
```