Assignment 2

Part A

What will the following commands do?

echo "Hello, World!"

```
cdac@Suraj:~$ echo "Hello,World"
Hello,World
cdac@Suraj:~$
```

touch file.txt

```
cdac@Suraj:~$ touch file.txt
cdac@Suraj:~$
```

ls -a

```
cdac@Suraj:~$ ls -a
.               .local                      cpp         numck
..              .motd_shown                 demo        q2
.bash_history   .profile                    demo.txt    shp.sh
.bash_logout    .sudo_as_admin_successful   demo1.txt   suraj.sh
.bashrc         32                          file.txt
.cache          LinuxAssignment             ingale.cpp
cdac@Suraj:~$
```

rm file.txt

```
cdac@Suraj:~$ rm file.txt
cdac@Suraj:~$
```

cp file1.txt file2.txt

```
cdac@Suraj:~/q2/mydir$ nano file1.txt
cdac@Suraj:~/q2/mydir$ cp file1.txt file2.txt
cdac@Suraj:~/q2/mydir$ cat file2.txt
i am suraj ingale.
cdac@Suraj:~/q2/mydir$
```

mv file.txt /path/to/directory/

```
cdac@Suraj:~/q2/mydir$ mv file1.txt /home/cdac/demo
cdac@Suraj:~/q2/mydir$
```

chmod 755 script.sh and chmod 644 script.sh

```
cdac@Suraj:~/demo$ chmod 644 file1.txt
cdac@Suraj:~/demo$ ls -l
total 12
-rw-r--r-- 1 cdac cdac   29 Aug 30 19:26 file1.txt
-rw-r--r-- 1 cdac cdac   19 Aug 30 19:19 file2.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 30 16:29 mydir
cdac@Suraj:~/demo$
```

grep "pattern" file.txt

```
cdac@Suraj:~/demo$ nano file1.txt
cdac@Suraj:~/demo$ grep "pattern" file.txt
grep: file.txt: No such file or directory
cdac@Suraj:~/demo$ grep "pattern" file1.txt
this is my pattern.
cdac@Suraj:~/demo$
```

mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt

```
cdac@Suraj:~/demo$ mkdir mydir && cd mydir && touch file.txt &&
echo "Hello, World!" > file.txt && cat file.txt
Hello, World!
cdac@Suraj:~/demo/mydir$
```

ls -l | grep ".txt"

```
cdac@Suraj:~/demo$ ls -l | grep ".txt"
-rw-r--r-- 1 cdac cdac   20 Aug 30 16:26 file1.txt
cdac@Suraj:~/demo$
```

cat file1.txt file2.txt | sort | uniq

```
cdac@Suraj:~/demo$ nano file2.txt
cdac@Suraj:~/demo$ cat file1.txt file2.txt |sort |uniq
I am hero
this is my pattern.
cdac@Suraj:~/demo$
```

grep -r "pattern" /path/to/directory/

```
cdac@Suraj:~/demo$ grep -r "pattern" /home/cdac/q2
/home/cdac/q2/file1.txt:this is my pattern.
cdac@Suraj:~/demo$
```

cat file1.txt file2.txt | sort | uniq –d

```
cdac@Suraj:~/demo$ nano file2.txt
cdac@Suraj:~/demo$ cat file1.txt file2.txt |sort |uniq
I am hero
this is my pattern.
cdac@Suraj:~/demo$
```

cp -r source_directory destination_directory

```
cdac@Suraj:~$ cp -r cpp demo
cdac@Suraj:~$ cd demo/
cdac@Suraj:~/demo$ ls -l
total 20
drwxr-xr-x 3 cdac cdac 4096 Aug 30 19:30 LinuxAssignment
drwxr-xr-x 2 cdac cdac 4096 Aug 30 19:32 cpp
-rw-r--r-- 1 cdac cdac   29 Aug 30 19:26 file1.txt
-rw-r--r-- 1 cdac cdac   19 Aug 30 19:19 file2.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 30 16:29 mydir
cdac@Suraj:~/demo$
```

chmod u+x file.txt

```
cdac@Suraj:~/demo$ chmod u+x file1.txt
cdac@Suraj:~/demo$ ls -l
total 20
drwxr-xr-x 3 cdac cdac 4096 Aug 30 19:30 LinuxAssignment
drwxr-xr-x 2 cdac cdac 4096 Aug 30 19:32 cpp
-rwxr--r-- 1 cdac cdac   29 Aug 30 19:26 file1.txt
-rw-r--r-- 1 cdac cdac   19 Aug 30 19:19 file2.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 30 16:29 mydir
cdac@Suraj:~/demo$
```

echo $PATH

```
cdac@Suraj:~/demo$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/usr/lib/wsl/lib:/mnt/c/Program Files/Common
 Files/Oracle/Java/javapath:/mnt/c/Windows/system32:/mnt/c/Windows:/mnt/c/Windows/System32/Wbem:/mnt/c/Windows/System32/WindowsPowerS
hell/v1.0/:/mnt/c/Windows/System32/OpenSSH/:/mnt/c/Users/lenovo/AppData/Local/Microsoft/WindowsApps:/mnt/c/Program Files/JetBrains/Py
Charm 2024.1/bin:/mnt/d/PyCharm Community Edition 2022.1.4/bin:/snap/bin
cdac@Suraj:~/demo$
```

Part B

Identify True or False:

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

Ans :- True because ls is used to list directory contents of files and directories.

```
cdac@Suraj:~/demo$ ls
LinuxAssignment  cpp  file1.txt  file2.txt  mydir
cdac@Suraj:~/demo$
```

Here I have list out all the directory and files in demo directoy by using ls command.

2. mv is used to move files and directories.

Ans:-True mv is use dto move a file or a directory from here to there.

```
cdac@Suraj:~/demo$ ls
LinuxAssignment  cpp  file1.txt  file2.txt  mydir
cdac@Suraj:~/demo$ mv file.txt mydir
mv: cannot stat 'file.txt': No such file or directory
cdac@Suraj:~/demo$ mv file2.txt mydir
cdac@Suraj:~/demo$ cd mydir
cdac@Suraj:~/demo/mydir$ ls -l
total 8
-rw-r--r-- 1 cdac cdac 14 Aug 30 16:29 file.txt
-rw-r--r-- 1 cdac cdac 19 Aug 30 19:19 file2.txt
cdac@Suraj:~/demo/mydir$
```

3. cd is used to copy files and directories.

Ans:-False because cd is stands for change directory and with use of cd we can navigate from one directory to another.

```
cdac@Suraj:~$ cd demo/
cdac@Suraj:~/demo$ cd mydir/
cdac@Suraj:~/demo/mydir$
```

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

Ans:- True it display the working directory and show in which directory we are working in.

```
cdac@Suraj:~/demo/mydir$ pwd
/home/cdac/demo/mydir
cdac@Suraj:~/demo/mydir$
```

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

Ans:- True the grep command is used to find the pattern in the file.

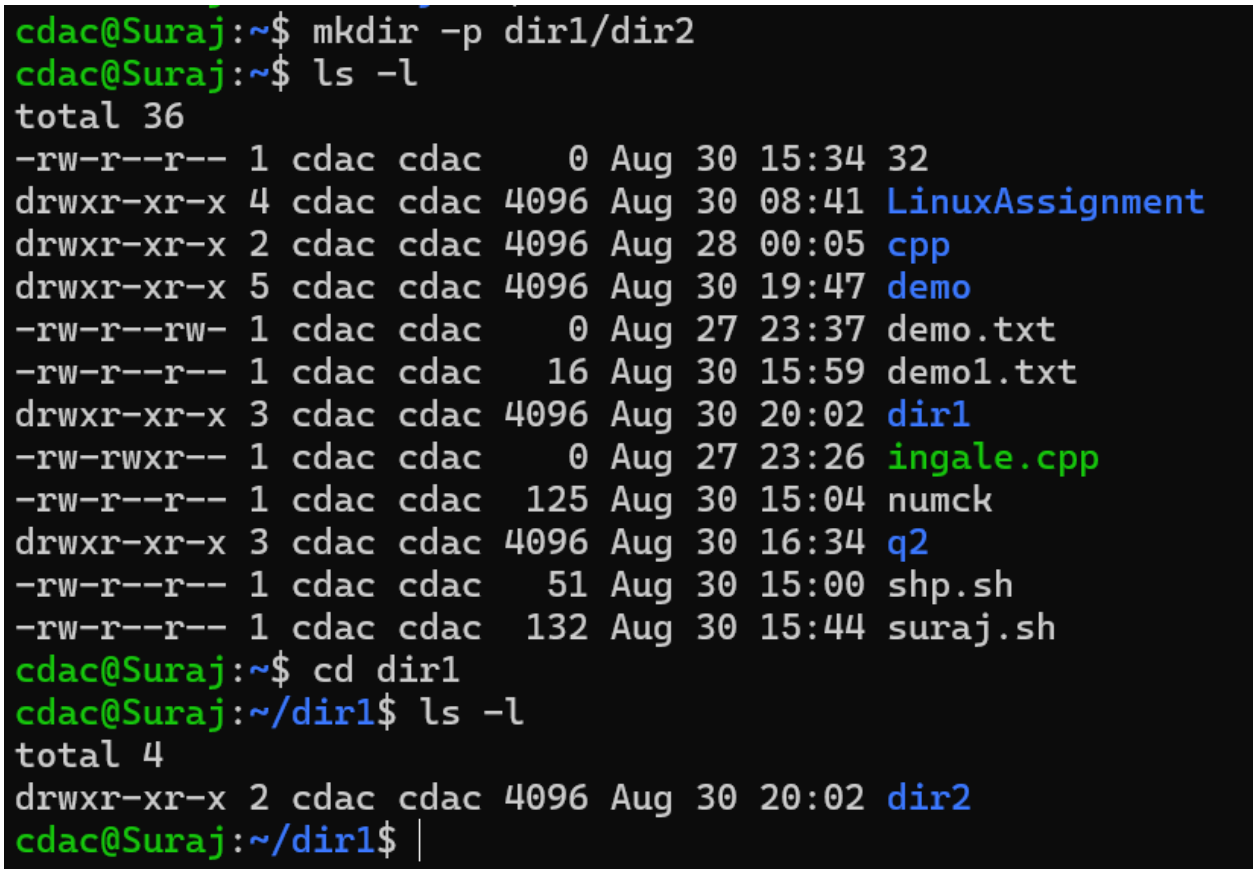
```
cdac@Suraj:~/demo$ nano file1.txt
cdac@Suraj:~/demo$ grep "pattern" file.txt
grep: file.txt: No such file or directory
cdac@Suraj:~/demo$ grep "pattern" file1.txt
this is my pattern.
cdac@Suraj:~/demo$
```

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

Ans:- True it give read write and execute permission to the user and read and read ,execute permission to the group and others.

```
cdac@Suraj:~/demo/mydir$ ls -l
total 8
-rw-r--r-- 1 cdac cdac 14 Aug 30 16:29 file.txt
---------- 1 cdac cdac 19 Aug 30 19:19 file2.txt
cdac@Suraj:~/demo/mydir$ chmod 755 file2.txt
cdac@Suraj:~/demo/mydir$ ls -l
total 8
-rw-r--r-- 1 cdac cdac 14 Aug 30 16:29 file.txt
-rwxr-xr-x 1 cdac cdac 19 Aug 30 19:19 file2.txt
cdac@Suraj:~/demo/mydir$
```

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



7. rm -rf file.txt deletes a file forcefully without confirmation.

Ans:- True this commad is used to remove the filr or directory forcefully if aldo file not exist then also it don’t give any error and delete the file.

```
cdac@Suraj:~$ ls -l
total 36
-rw-r--r-- 1 cdac cdac    0 Aug 30 15:34 32
drwxr-xr-x 4 cdac cdac 4096 Aug 30 08:41 LinuxAssignment
drwxr-xr-x 2 cdac cdac 4096 Aug 28 00:05 cpp
drwxr-xr-x 5 cdac cdac 4096 Aug 30 19:47 demo
-rw-r--rw- 1 cdac cdac    0 Aug 27 23:37 demo.txt
-rw-r--r-- 1 cdac cdac   16 Aug 30 15:59 demo1.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 30 20:02 dir1
-rw-rwxr-- 1 cdac cdac    0 Aug 27 23:26 ingale.cpp
-rw-r--r-- 1 cdac cdac  125 Aug 30 15:04 numck
drwxr-xr-x 3 cdac cdac 4096 Aug 30 16:34 q2
-rw-r--r-- 1 cdac cdac   51 Aug 30 15:00 shp.sh
-rw-r--r-- 1 cdac cdac  132 Aug 30 15:44 suraj.sh
cdac@Suraj:~$ rm -rf suraj.sh
cdac@Suraj:~$ ls -l
total 32
-rw-r--r-- 1 cdac cdac    0 Aug 30 15:34 32
drwxr-xr-x 4 cdac cdac 4096 Aug 30 08:41 LinuxAssignment
drwxr-xr-x 2 cdac cdac 4096 Aug 28 00:05 cpp
drwxr-xr-x 5 cdac cdac 4096 Aug 30 19:47 demo
-rw-r--rw- 1 cdac cdac    0 Aug 27 23:37 demo.txt
-rw-r--r-- 1 cdac cdac   16 Aug 30 15:59 demo1.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 30 20:02 dir1
-rw-rwxr-- 1 cdac cdac    0 Aug 27 23:26 ingale.cpp
-rw-r--r-- 1 cdac cdac  125 Aug 30 15:04 numck
drwxr-xr-x 3 cdac cdac 4096 Aug 30 16:34 q2
-rw-r--r-- 1 cdac cdac   51 Aug 30 15:00 shp.sh
cdac@Suraj:~$
```

Part C

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

```
cdac@Suraj:~$ nano suraj.sh
cdac@Suraj:~$ bash suraj.sh
Hello,World!
```

```
  GNU nano 6.2                    suraj.sh
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@Suraj:~$ nano suraj.sh
cdac@Suraj:~$ bash suraj.sh
CDAC Mumbai
cdac@Suraj:~$
```

```
  GNU nano 6.2
#!/bin/bash

name="CDAC Mumbai"
echo $name
```

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

```
cdac@Suraj:~$ nano suraj.sh
cdac@Suraj:~$ bash suraj.sh
Enter the number
23
you enter the number is 23
cdac@Suraj:~$
```

```
  GNU nano 6.2                    suraj.sh
echo "Enter the number"
read  num1
echo "you enter the number is "$num1
```

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

```
  GNU nano 6.2                    suraj.sh
echo "Enter num1 "
read num1
echo "Enter num2"
read num2
echo  "sum of num1 and num2 is " $((num1+num2))
```

```
cdac@Suraj:~$ nano suraj.sh
cdac@Suraj:~$ bash suraj.sh
Enter num1
23
Enter num2
32
sum of num1 and num2 is  55
cdac@Suraj:~$
```

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

```
cdac@Suraj:~$ nano suraj.sh
cdac@Suraj:~$ bash suraj.sh
Enter your number
21
number is odd
cdac@Suraj:~$ bash suraj.sh
Enter your number
12
number is even
cdac@Suraj:~$ nano suraj.sh
cdac@Suraj:~$
```

```
  GNU nano 6.2                    suraj.sh
echo "Enter your number"
read num
if [ $((num%2)) == 0 ];
then
        echo "number is even"
else

        echo "number is odd"
fi
```

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

```
for num in {1..5}
do
        echo $num
done
```

```
cdac@Suraj:~$ nano suraj.sh
cdac@Suraj:~$ bash suraj.sh
1
2
3
4
5
cdac@Suraj:~$
```

Question 7: Write a shell script that uses a while loop to print numbers from 0 to 5.

```
cdac@Suraj:~$ nano suraj.sh
cdac@Suraj:~$ bash suraj.sh
0
1
2
3
4
5
cdac@Suraj:~$
```

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".

```
  GNU nano 6.2                    suraj.sh

i=0
while [ $i -le 5 ]
do
 echo $i
 ((i++))
done
```

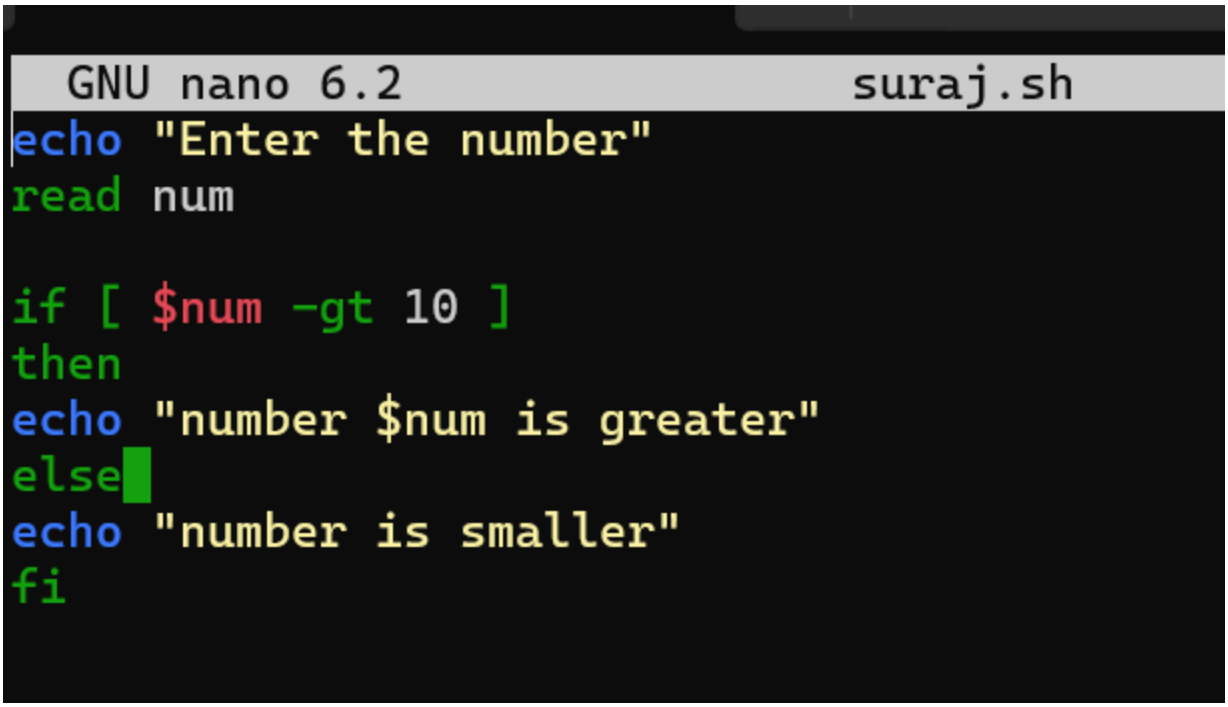
Question 8: Write a shell script that checks if a file named "file.txt" exists in the current directory. If it does, print "File exists", otherwise, print "File does not exist".

```
cdac@Suraj: ~
  GNU nano 6.2                    sur
#!/bin/bash

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

```
cdac@Suraj:~$ nano suraj.sh
cdac@Suraj:~$ bash suraj.sh
File exists
```

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.



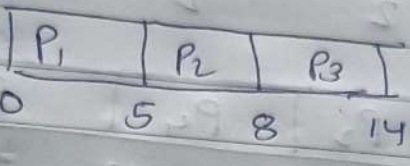

```
cdac@Suraj:~$ bash suraj.sh
Enter the number
1
number is smaller
cdac@Suraj:~$ bash suraj.sh
Enter the number
23
number 23 is greater
cdac@Suraj:~$
```

Q1)

Part E

=>

Process	AT	BT	CT	WT	TAT
P_1	0	5	5	0	5
P_2	1	3	8	4	7
P_3	2	6	14	6	12



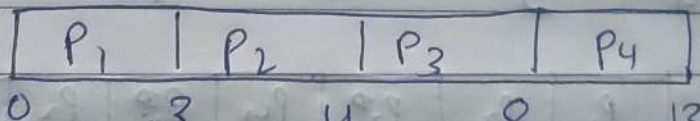
Avg $WT = \frac{0+4+6}{3} \Rightarrow \frac{10}{3} = 3.33$

Avg $TAT = \frac{5+7+12}{3} \Rightarrow \frac{24}{3} = 8$

Q2)

=>

Process	AT	BT	CT	WT	TAT
P_1	0	3	3	0	3
P_2	1	5	4	7	3
P_3	2	1	8	1	6
P_4	3	4	13	1	10

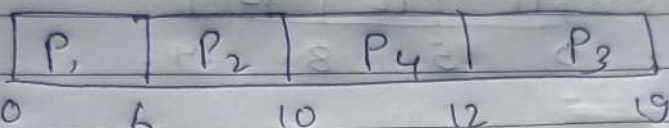


Avg $WT = \frac{0+7+1+1}{4} = \frac{9}{4} = 2.2$

Avg $TAT = \frac{3+3+6+10}{4} = \frac{22}{4} = 5.5$

Q3)

Process	AT	BT	priority	CT	WT	TAT
P_1	0	6	3	6	0	6
P_2	1	4	1	10	5	9
P_3	2	7	4	19	10	17
P_4	3	2	2	12	7	9

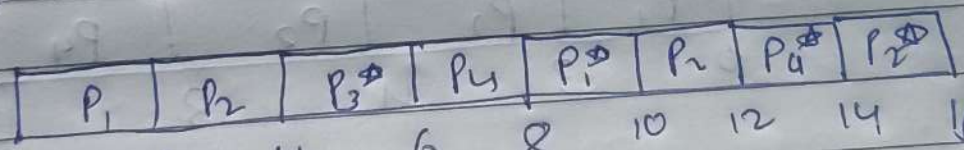


$$\text{Avg } WT = \frac{0+5+10+7}{4} = \frac{22}{4} = 5.5$$

$$\text{Avg } TAT = \frac{6+9+17+9}{4} = \frac{41}{4} = 10.1$$

Q4)

Process	AT	BT	CT	WT	TAT
P_1	0	4	10	6	10
P_2	1	5	16	9	15
P_3	2	2	6	2	4
P_4	3	3	14	1	11



$$\text{Avg } WT = \frac{6+9+2+1}{4} = \frac{18}{4}$$

$$\text{Avg } TAT = \frac{10+15+4+11}{4} \Rightarrow \frac{40}{4} = 10$$