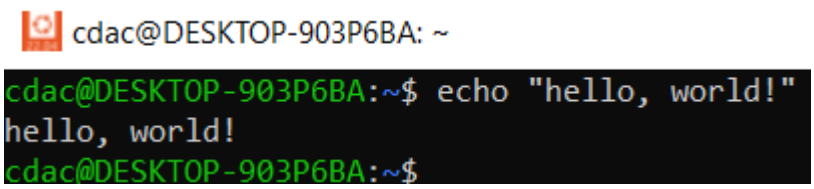
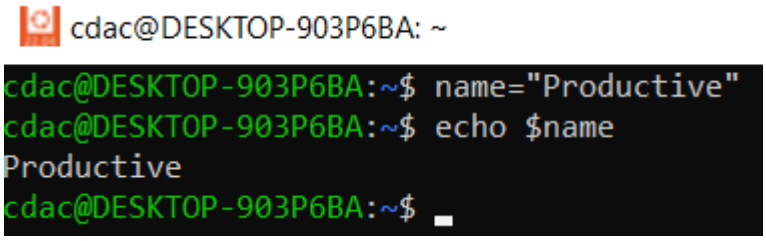
PART A

What will the following commands do?

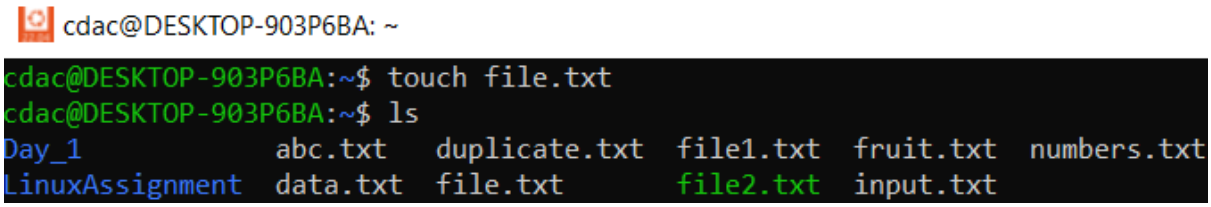
- echo "Hello, World!" : → It display/print hello, world! On command prompt



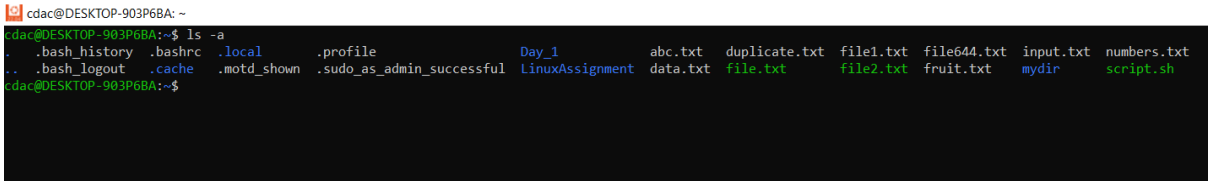
- name="Productive" :→ name is a variable which store the string



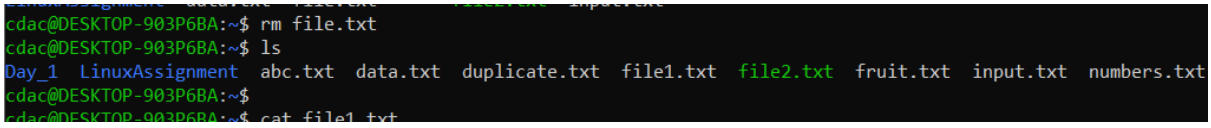
- touch file.txt :→ It create a empty file



- ls -a :→ It list out all the files and directories including hidden files/directories



- rm file.txt :→ this delete the file.txt



COS__ASSINMENT 2

- cp file1.txt file2.txt :→ it will copy the content of file1 into file2

```
cdac@DESKTOP-903P6BA:~$ cat file1.txt
Hello
It's a nice day
cdac@DESKTOP-903P6BA:~$ cat file2.txt
cdac@DESKTOP-903P6BA:~$ cp file1.txt file2.txt
cdac@DESKTOP-903P6BA:~$ cat file2.txt
Hello
It's a nice day
```

- mv file.txt /path/to/directory/ :→these moves the file into directory

```
cdac@DESKTOP-903P6BA:~$ mv file.txt /home/cdac/Day_1/
cdac@DESKTOP-903P6BA:~$ ls
Day_1  LinuxAssignment  abc.txt  data.txt  duplicate.txt  file1.txt  file2.txt  fruit.txt  input.txt  numbers.txt
cdac@DESKTOP-903P6BA:~$ cd Day_1
cdac@DESKTOP-903P6BA:~/Day_1$ ls
docs  file.txt
cdac@DESKTOP-903P6BA:~/Day_1$
```

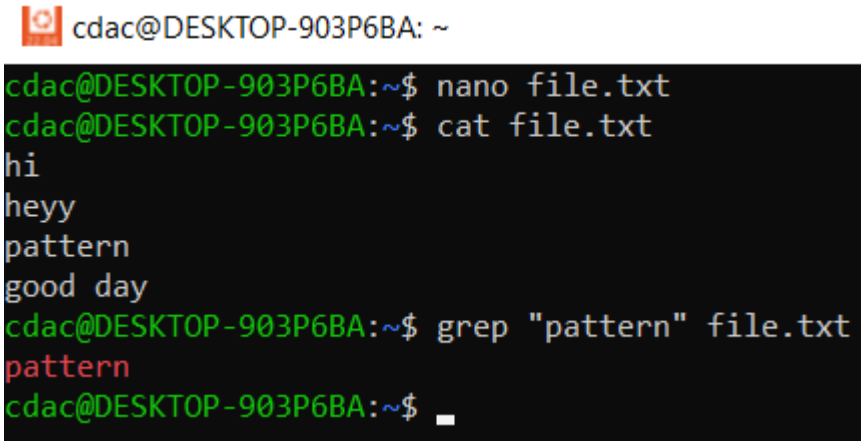
- chmod 755 script.sh :→ it gives read,write and execute permission to the owner of the file

cdac@DESKTOP-903P6BA: ~

```
cdac@DESKTOP-903P6BA:~$ nano script.sh
cdac@DESKTOP-903P6BA:~$ ls -l
total 44
drwxr-xr-x 3 cdac cdac 4096 Aug 29 22:28 Day_1
drwxr-xr-x 3 cdac cdac 4096 Aug 29 19:36 LinuxAssignment
-rw-r--r-- 1 cdac cdac  263 Aug 28 22:19 abc.txt
-rw-r--r-- 1 cdac cdac  168 Aug 29 19:51 data.txt
-rw-r--r-- 1 cdac cdac  118 Aug 29 21:05 duplicate.txt
-rw-r--r-- 1 cdac cdac   23 Aug 29 19:40 file1.txt
-rwxr-x--- 1 cdac cdac   23 Aug 29 22:26 file2.txt
-rw-r--r-- 1 cdac cdac  176 Aug 29 21:13 fruit.txt
-rw-r--r-- 1 cdac cdac   44 Aug 29 20:56 input.txt
-rw-r--r-- 1 cdac cdac   71 Aug 29 19:57 numbers.txt
-rw-r--r-- 1 cdac cdac   19 Aug 29 22:34 script.sh
cdac@DESKTOP-903P6BA:~$ chmod 755 script.sh
cdac@DESKTOP-903P6BA:~$ ls -l
total 44
drwxr-xr-x 3 cdac cdac 4096 Aug 29 22:28 Day_1
drwxr-xr-x 3 cdac cdac 4096 Aug 29 19:36 LinuxAssignment
-rw-r--r-- 1 cdac cdac  263 Aug 28 22:19 abc.txt
-rw-r--r-- 1 cdac cdac  168 Aug 29 19:51 data.txt
-rw-r--r-- 1 cdac cdac  118 Aug 29 21:05 duplicate.txt
-rw-r--r-- 1 cdac cdac   23 Aug 29 19:40 file1.txt
-rwxr-x--- 1 cdac cdac   23 Aug 29 22:26 file2.txt
-rw-r--r-- 1 cdac cdac  176 Aug 29 21:13 fruit.txt
-rw-r--r-- 1 cdac cdac   44 Aug 29 20:56 input.txt
-rw-r--r-- 1 cdac cdac   71 Aug 29 19:57 numbers.txt
-rwxr-xr-x 1 cdac cdac   19 Aug 29 22:34 script.sh
cdac@DESKTOP-903P6BA:~$
```

COS__ASSINMENT 2

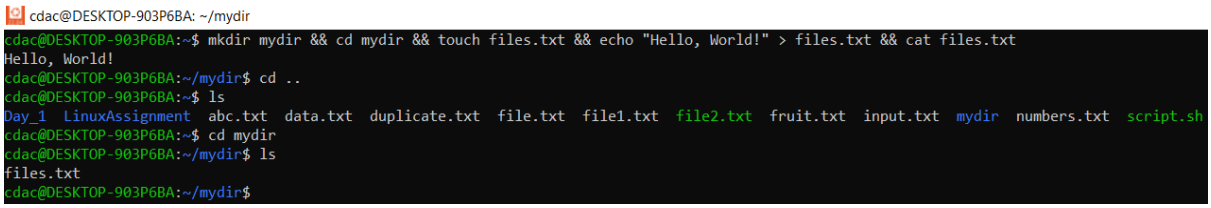
- grep "pattern" file.txt :→it searches for pattern specific word in the file



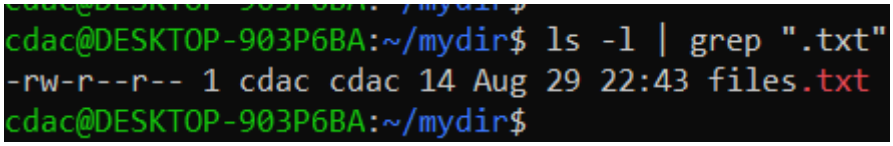
- kill PID

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

1. it will first create mydir directory
2. touch command create file.txt file in mydir directory
3. > redirection command copy hello world in file.txt
4. Cat command display the content in the file.txt



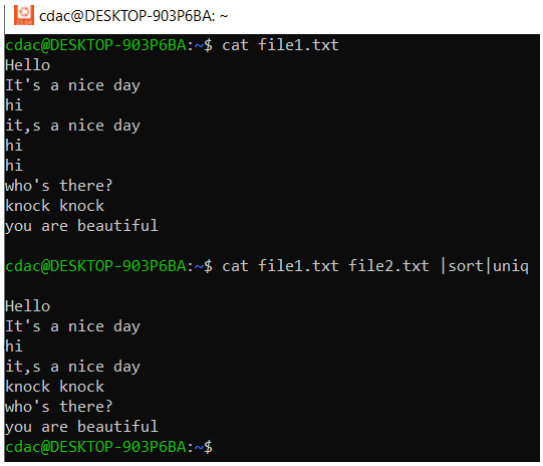
- ls -l | grep ".txt" :→ it list out all the “.txt” files in directories



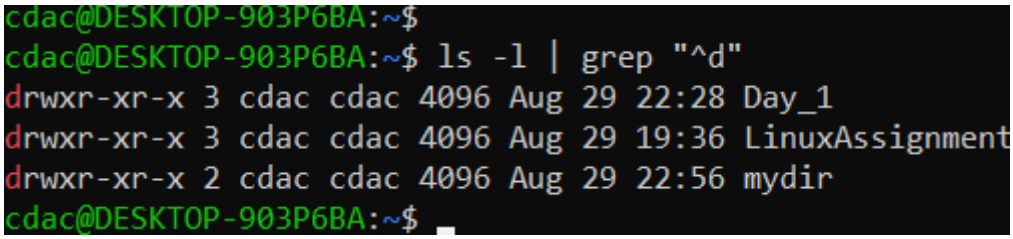
COS__ASSINMENT 2

- cat file1.txt file2.txt | sort | uniq :→ it show the content of file1 and file 2 also sorted out content

  And print only unique content

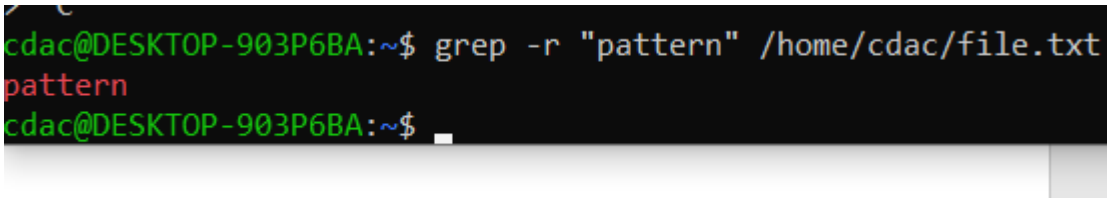


- ls -l | grep "^d" :→it list out all the directories



- grep -r "pattern" /path/to/directory/ :→ it recursively search in all the files of directory to

  Match the “pattern” string



- cat file1.txt file2.txt | sort | uniq –d :→ it concatenate file1 and file2 and sort the content in

  Both the file and uniq command list the lines and repeated line only printed once

```
cdac@DESKTOP-903P6BA: ~
cdac@DESKTOP-903P6BA:~$ cat file1.txt
Hello
It's a nice day
hi
it,s a nice day
hi
hi
who's there?
knock knock
you are beautiful

cdac@DESKTOP-903P6BA:~$ cat file1.txt file2.txt |sort|uniq -d
Hello
It's a nice day
hi
cdac@DESKTOP-903P6BA:~$
```

- chmod 644 file.txt :→ these give read write permission to the user and execute permission to

  The group and others

```
cdac@DESKTOP-903P6BA:~$ chmod 644 file644.txt
cdac@DESKTOP-903P6BA:~$ ls -l
total 52
drwxr-xr-x 3 cdac cdac 4096 Aug 29 22:28 Day_1
drwxr-xr-x 3 cdac cdac 4096 Aug 29 19:36 LinuxAssignment
-rw-r--r-- 1 cdac cdac  263 Aug 28 22:19 abc.txt
-rw-r--r-- 1 cdac cdac  168 Aug 29 19:51 data.txt
-rw-r--r-- 1 cdac cdac  118 Aug 29 21:05 duplicate.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 23:31 file.txt
-rw-r--r-- 1 cdac cdac   92 Aug 29 23:02 file1.txt
-rwxr-x--- 1 cdac cdac   23 Aug 29 22:26 file2.txt
-rw-r--r-- 1 cdac cdac   10 Aug 29 23:32 file644.txt
-rw-r--r-- 1 cdac cdac  176 Aug 29 21:13 fruit.txt
-rw-r--r-- 1 cdac cdac   44 Aug 29 20:56 input.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 29 22:56 mydir
-rw-r--r-- 1 cdac cdac   71 Aug 29 19:57 numbers.txt
-rwxr-xr-x 1 cdac cdac   19 Aug 29 22:34 script.sh
cdac@DESKTOP-903P6BA:~$
```

• cp -r source_directory destination_directory :→ these copy all contents from a source directory to the destination directory

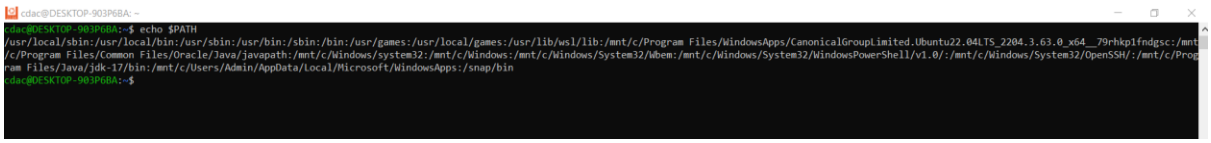
```
cdac@DESKTOP-903P6BA:~$ cp -r abc.txt data.txt
cdac@DESKTOP-903P6BA:~$ cat data.txt
hi
hey
hello
what's up?
heyyy
good morning
good afternoon
good evening
how do you do?
it's nice to meet you
it's a pleasure to meet you
welcome
how's it going?
how are you?
long time no see
what's new?
who's there?
hey beautiful
knock knock..
how is life going?
cdac@DESKTOP-903P6BA:~$
```

• find /path/to/search -name "*.txt"

• chmod u+x file.txt :→ it gives permission to user to execute file

```
cdac@DESKTOP-903P6BA:~$ chmod u+x file.txt
cdac@DESKTOP-903P6BA:~$ ls -l
total 52
drwxr-xr-x 3 cdac cdac 4096 Aug 29 22:28 Day_1
drwxr-xr-x 3 cdac cdac 4096 Aug 29 19:36 LinuxAssignment
-rw-r--r-- 1 cdac cdac  263 Aug 28 22:19 abc.txt
-rw-r--r-- 1 cdac cdac  263 Aug 29 23:38 data.txt
-rw-r--r-- 1 cdac cdac  118 Aug 29 21:05 duplicate.txt
-rwxr--r-- 1 cdac cdac    0 Aug 29 23:31 file.txt
-rw-r--r-- 1 cdac cdac   92 Aug 29 23:02 file1.txt
-rwxr-x--- 1 cdac cdac   23 Aug 29 22:26 file2.txt
-rw-r--r-- 1 cdac cdac   10 Aug 29 23:32 file644.txt
-rw-r--r-- 1 cdac cdac  176 Aug 29 21:13 fruit.txt
-rw-r--r-- 1 cdac cdac   44 Aug 29 20:56 input.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 29 22:56 mydir
-rw-r--r-- 1 cdac cdac   71 Aug 29 19:57 numbers.txt
-rwxr-xr-x 1 cdac cdac   19 Aug 29 22:34 script.sh
cdac@DESKTOP-903P6BA:~$
```

- echo $PATH :→ it allows us to view the current value of the $PATH variable in a linux system



PART B

Identify True or False:

1. l**s** 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. → **True**
2. **cpy** is used to copy files and directories. → **False**
3. **mkfile** is used to create a new file. → **True**
4. **catx** is used to concatenate files. → **False**
5. **rn** is used to rename files. → **True**

PART C

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

```
cdac@DESKTOP-903P6BA:~$ echo "Hello,world!"
Hello,world!
cdac@DESKTOP-903P6BA:~$
```

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

cdac@DESKTOP-903P6BA: ~

```
cdac@DESKTOP-903P6BA:~$ name="CDAC Mumbai"
cdac@DESKTOP-903P6BA:~$ echo $name
CDAC Mumbai
```

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

cdac@DESKTOP-903P6BA: ~

```
cdac@DESKTOP-903P6BA:~$ nano p1
cdac@DESKTOP-903P6BA:~$ bash p1
Enter the Number
25
number:- 25
cdac@DESKTOP-903P6BA:~$
```

cdac@DESKTOP-903P6BA: ~

```
 GNU nano 6.2
echo Enter the Number1
read num1
echo Number :- $num1
```

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

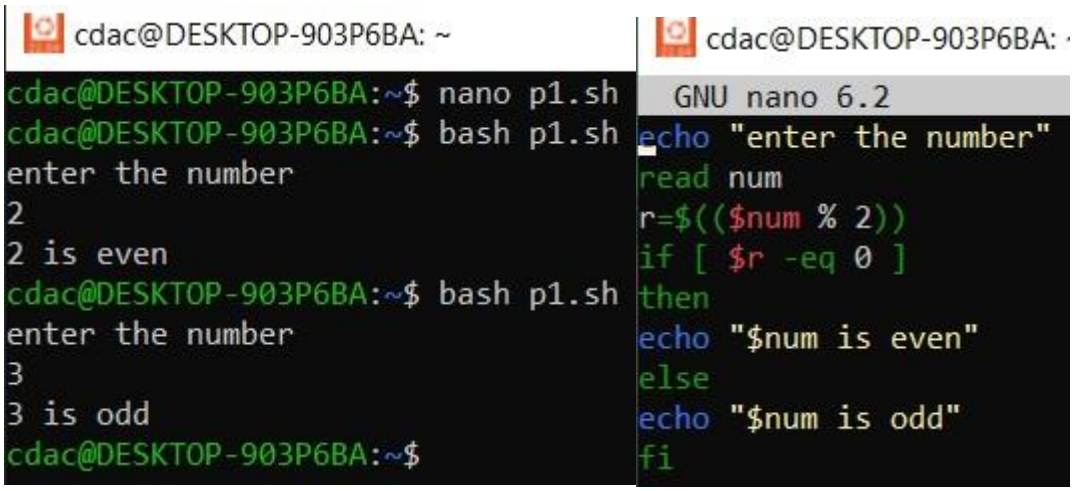
cdac@DESKTOP-903P6BA: ~

```
cdac@DESKTOP-903P6BA:~$ nano p1
cdac@DESKTOP-903P6BA:~$ bash p1
Enter the Number1
5
Enter the Number2
3
result :- 8
cdac@DESKTOP-903P6BA:~$
```

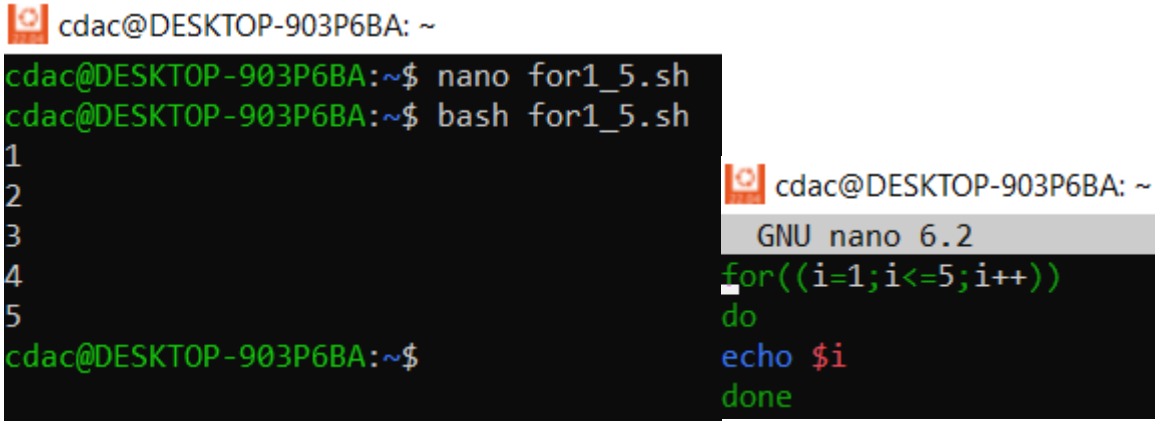
cdac@DESKTOP-903P6BA: ~

```
 GNU nano 6.2
echo Enter the Number1
read num1
echo Enter the Number2
read num2
result=$(($num1 + $num2))
echo result :- $result
```

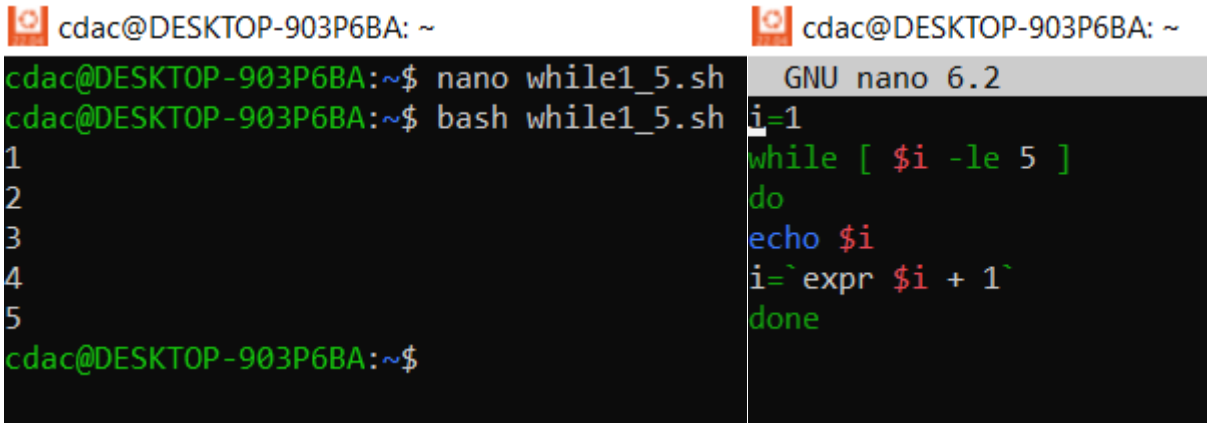
Question 5: Write a shell script that takes a number as input and prints "Even" if it is even, otherwise prints "Odd".



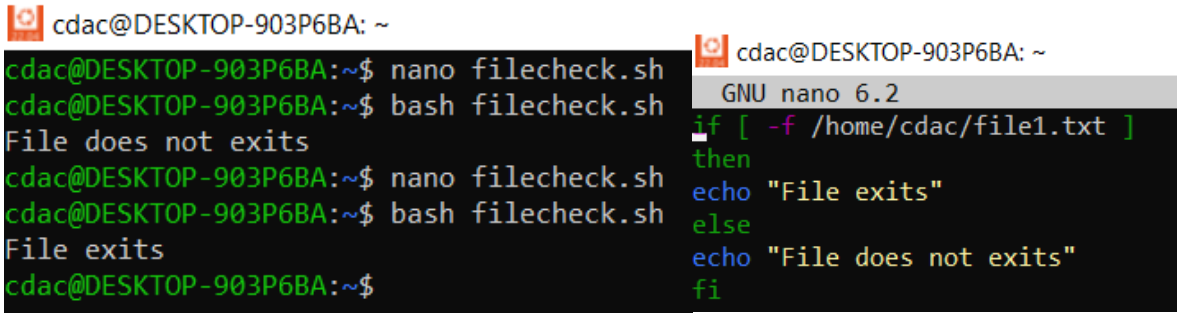
Question 6: Write a shell script that uses a for loop to print numbers from 1 to 5.



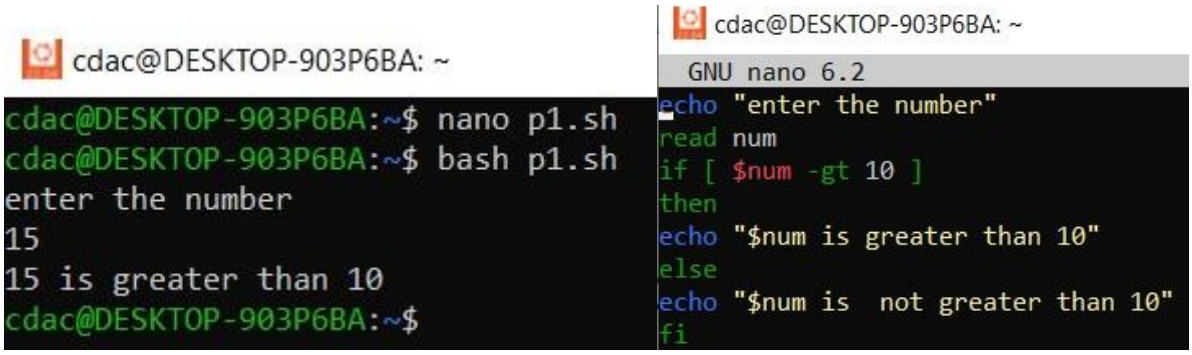
Question 7: Write a shell script that uses a while loop to print numbers from 1 to 5.



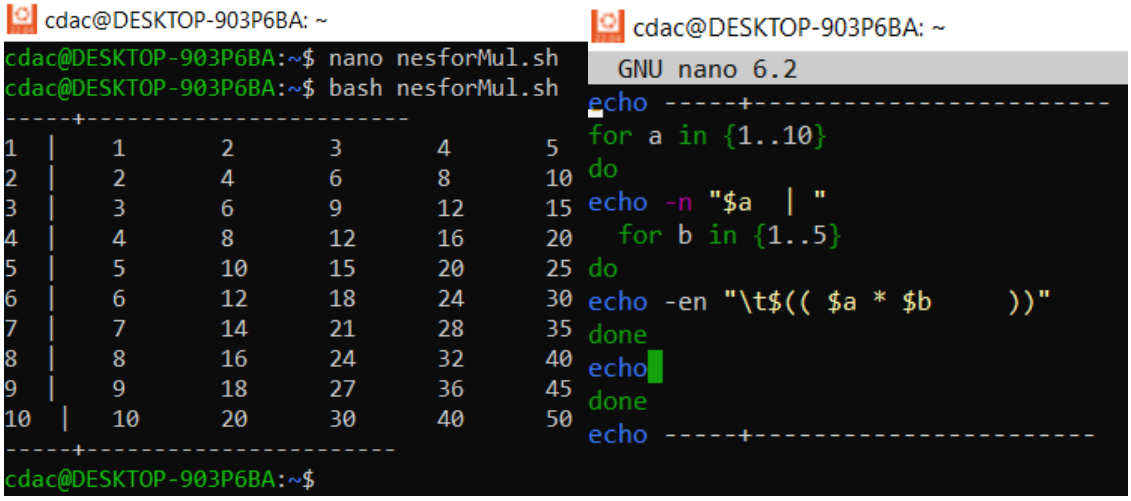
Question 8: Write a shell script that checks if a file named "file.txt" exists in the current directory. If it does, print "File exists", otherwise, print "File does not exist".



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.



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.



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@DESKTOP-903P6BA: ~
  GNU nano 6.2
echo enter the number
read num1
while [ $num1 -lt 0 ]
do
echo enter the number
read num1
 if [ $num1 -gt 0 ]
then
sq=`expr $num1 \* $num1`
echo square = $sq
else
 break
fi
done
```

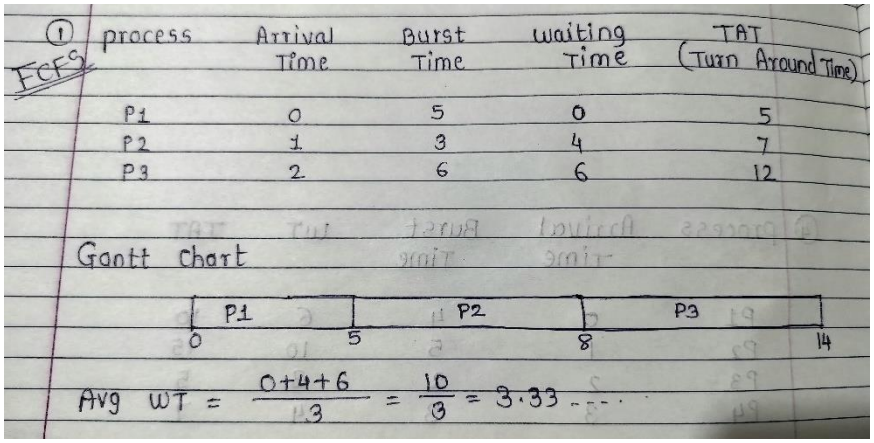
```
cdac@DESKTOP-903P6BA: ~
cdac@DESKTOP-903P6BA:~$ bash positiveneg.sh
enter the number
-3
enter the number
8
square = 64
cdac@DESKTOP-903P6BA:~$
```

PART E

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

Process	Arrival Time	Burst Time
P1	0	5
P2	1	3
P3	2	6

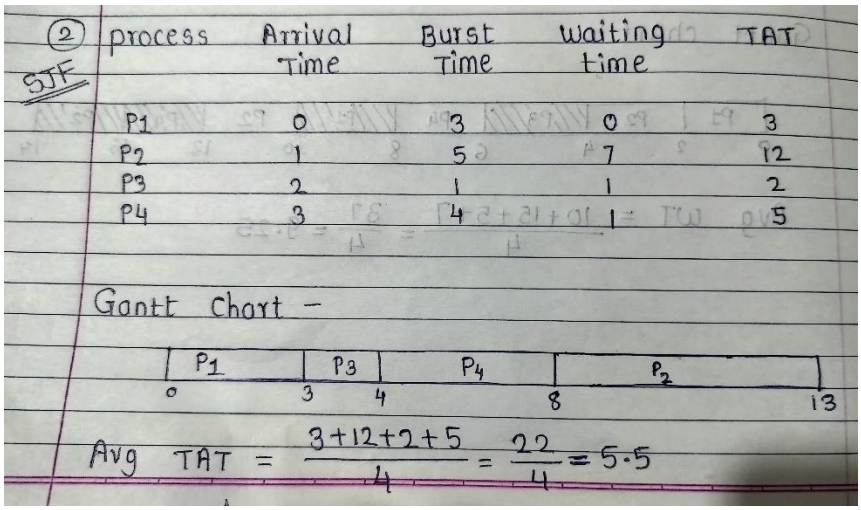
Calculate the average waiting time using First-Come, First-Served (FCFS) scheduling.



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

Process	Arrival Time	Burst Time
P1	0	3
P2	1	5
P3	2	1
P4	3	4

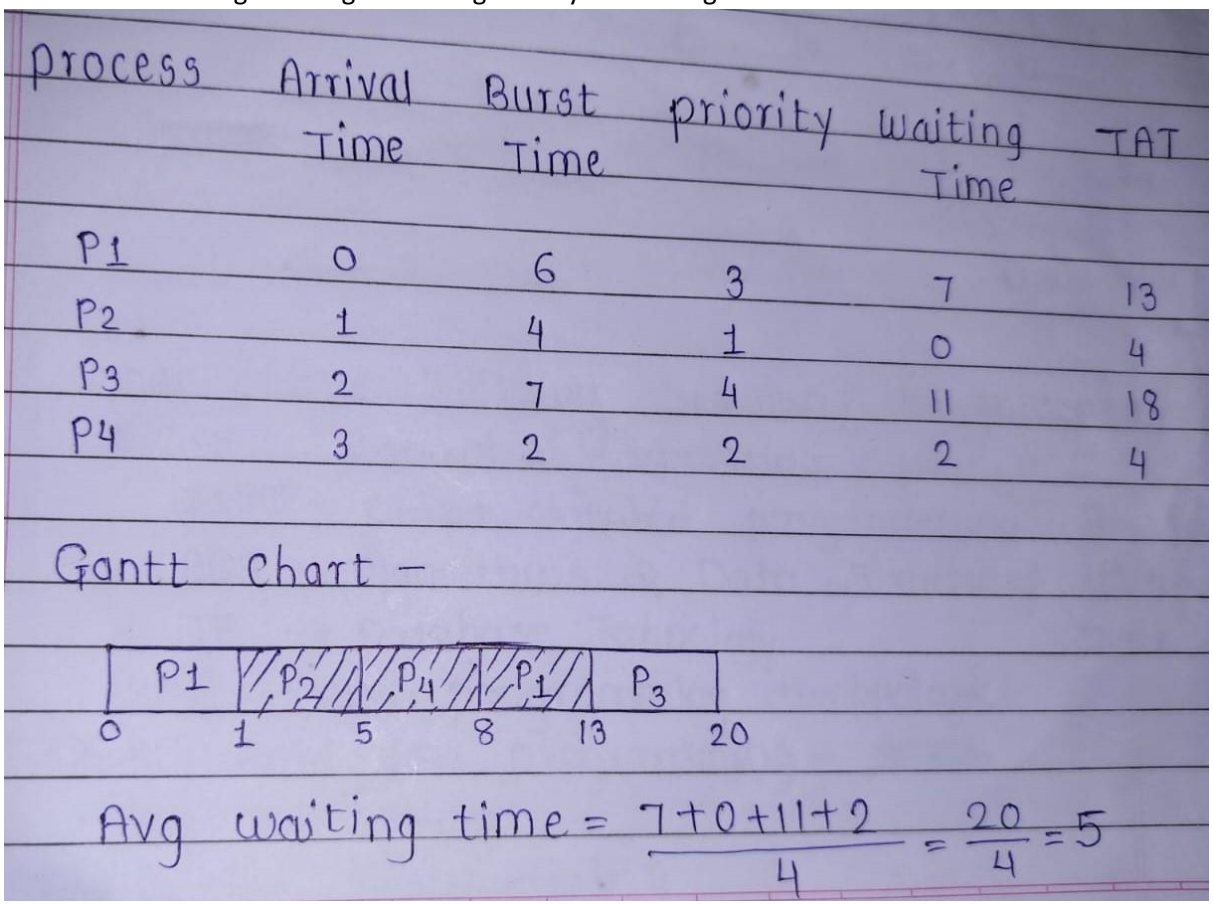
Calculate the average turnaround time using Shortest Job First (SJF) scheduling.



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

Process	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.



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

Process	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.