CDAC MUMBAI

Concepts of Operating System Assignment 2

Part A

What will the following commands do?

1. Echo “Hello, World!”

Ans. Prints the “Hello, World!” To the console

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ rmdir docs  extracted_docs
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ echo hello world
hello world
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

2. Name = “productive”

Ans. Gives the error “Command 'name' not found, did you mean:”

3. Touch file.txt

Ans. Create a New File named as “file.txt”

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ touch file.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
file.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

4. ls -a

Ans. List the files and directory present in the current directory

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ touch file.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
file.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

5. rm file.txt

Ans. Remove the file file.txt

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ rm file.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

6. cp file1.txt file2.txt

Ans. Copy the content file1.txt to create a new file file2.txt.

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cat file1.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cp file1.txt file2.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cat file2.txt
hii
hsbkdcnda
hudhdksikmd
dndxsjslcmzsd
fshdsihdsd
```

7. mv file.txt /path/to/directory/

Ans. Move the file (file.txt) to the specified directory (/path/to/directory/).

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ mkdir data
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ mv file2.txt /home/cdac/LinuxAssignment/data
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
data  file.txt  file1.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cd data/
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data$ ls
file2.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data$
```

8. chmod 755 script.sh

Ans. Change the permission script.sh to 755 it's means 755 is the owner and it will be permission as read,write and execute the file

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data$ touch script.sh
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data$ ls -l
total 4
-rw-r--r-- 1 cdac cdac 52 Sep  2 17:01 file2.txt
-rw-r--r-- 1 cdac cdac  0 Sep  2 18:07 script.sh
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data$ chmod 755 script.sh
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data$ ls -l
total 4
-rw-r--r-- 1 cdac cdac 52 Sep  2 17:01 file2.txt
-rwxr-xr-x 1 cdac cdac  0 Sep  2 18:07 script.sh
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data$
```

9. grep "pattern" file.txt

Ans. This command used for find the "pattern" this String present the which text line and print this text lines.

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ grep "have" file2.txt
i have complete Assignment1
I have also complete Assignment 2
i have submitted all the documents in google form
```

10. kill PID

Ans. arguments must be process or job IDs

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ps
    PID TTY          TIME CMD
    389 pts/0    00:00:00 bash
  13422 pts/0    00:00:00 ps
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ps 389
    PID TTY      STAT   TIME COMMAND
    389 pts/0    Ss     0:00 -bash
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ps 13422
    PID TTY      STAT   TIME COMMAND
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

11. mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt ls -l | grep ".txt"

Ans. Make a new directory as “mydir” and in this directory new create directory as a “touch.txt” and Enter the data as “Hello World”), and print to the terminal als.

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data$ mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file
.txt && ls -l | grep ".txt"
Hello, World!
-rw-r--r-- 1 cdac cdac 14 Sep  2 18:39 file.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/data/mydir$
```

12. cat file1.txt file2.txt | sort | uniq

Ans. In this problem concatenates the contents of “file.txt” and “file2.txt” then sort the combined output , and finally removes the duplicate lines.

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cat file1.txt file2.txt | sort | uniq
I am Ok
I am join the cdac juhu
I have also complete Assignment 2
bye
can i get your notes
hii
i also finding the errors in the given assignmentbye guys
i have complete Assignment1
i have submitted all the documents in google form
meet you soon
you are going to college?
```

13. ls -l | grep "^d"

Ans. In this problem using ls -l | grep "^d" this command lists all file and directories in the current directory and filter the directory and files and show only directories.

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls -l | grep "^d"
drwxr-xr-x 2 cdac cdac 4096 Aug 30 00:05 docs
drwxr-xr-x 3 cdac cdac 4096 Aug 29 01:19 extracted_docs
drwxr-xr-x 2 cdac cdac 4096 Aug 30 00:23 mydir
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls -l
```

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

Ans. is used to identify and display duplicate lines in the given file.

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cat file1.txt file2.txt | sort | uniq -d
I am Ok
I am join the cdac juhu
I have also complete Assignment 2
bye
can i get your notes
hii
i also finding the errors in the given assignmentbye guys
i have complete Assignment1
i have submitted all the documents in google form
meet you soon
you are going to college?
```

1. chmod 644 file.txt

Ans. This command changes the permissions of file.txt(owner can read and write / group and others only read.

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls -l
total 52
-rw-r--r-- 1 cdac cdac  283 Aug 29 13:17 data.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 30 00:05 docs
-rw-r--r-- 1 cdac cdac  316 Aug 29 01:15 docs.zip
-rw-r--r-- 1 cdac cdac   93 Aug 29 22:21 duplicate.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 29 01:19 extracted_docs
-rw-r--r-- 1 cdac cdac    0 Aug 30 00:17 file.txt
-rw-r--r-- 1 cdac cdac  282 Aug 29 12:58 file1.txt
-rw-r--r-- 1 cdac cdac  282 Aug 29 23:53 file2.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 00:33 file3.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 00:33 file4.txt
-rw-r--r-- 1 cdac cdac  122 Aug 29 22:35 fruit.txt
-rw-r--r-- 1 cdac cdac   72 Aug 29 22:06 input.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 30 00:23 mydir
-rw-r--r-- 1 cdac cdac   48 Aug 29 22:49 number.txt
-rw-r--r-- 1 cdac cdac   72 Aug 29 22:08 output.txt
-rwxr-xr-x 1 cdac cdac    0 Aug 30 00:11 script.sh
-rw-r--r-- 1 cdac cdac  983 Aug 29 20:17 text1.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ chmod 644 mydir
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls -l
total 52
-rw-r--r-- 1 cdac cdac  283 Aug 29 13:17 data.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 30 00:05 docs
-rw-r--r-- 1 cdac cdac  316 Aug 29 01:15 docs.zip
-rw-r--r-- 1 cdac cdac   93 Aug 29 22:21 duplicate.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 29 01:19 extracted_docs
-rw-r--r-- 1 cdac cdac    0 Aug 30 00:17 file.txt
-rw-r--r-- 1 cdac cdac  282 Aug 29 12:58 file1.txt
-rw-r--r-- 1 cdac cdac  282 Aug 29 23:53 file2.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 00:33 file3.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 00:33 file4.txt
-rw-r--r-- 1 cdac cdac  122 Aug 29 22:35 fruit.txt
-rw-r--r-- 1 cdac cdac   72 Aug 29 22:06 input.txt
drw-r--r-- 2 cdac cdac 4096 Aug 30 00:23 mydir
-rw-r--r-- 1 cdac cdac   48 Aug 29 22:49 number.txt
-rw-r--r-- 1 cdac cdac   72 Aug 29 22:08 output.txt
-rwxr-xr-x 1 cdac cdac    0 Aug 30 00:11 script.sh
-rw-r--r-- 1 cdac cdac  983 Aug 29 20:17 text1.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ^C
```

2. cp -r source_directory destination_directory

Ans. It is used for copy a directory and content of source directory to loaded into Destination Directory

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
data.txt     docs.zip        file.txt   file3.txt  input.txt   output.txt
destination  duplicate.txt   file1.txt  file4.txt  mydir       script.sh
docs         extracted_docs  file2.txt  fruit.txt  number.txt  text1.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cd docs
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/docs$ sl
Command 'sl' not found, but can be installed with:
sudo apt install sl
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/docs$ ls
file.txt  file2.txt  mydir
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/docs$ cd ..
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cp -r docs final
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
data.txt     duplicate.txt   file2.txt  fruit.txt   output.txt
destination  extracted_docs  file3.txt  input.txt   script.sh
docs         file.txt        file4.txt  mydir       text1.txt
docs.zip     file1.txt       final      number.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ cd final
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/final$ ls
file.txt  file2.txt  mydir
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment/final$ cd ..
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

3. find /path/to/search -name "*.txt"

Ans. Using this command list the all files which is used ‘.txt’ extension.

```
find: unknown predicate `-name*.txt'
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ find /home/cdac/LinuxAssignment -name"*.txt"
find: unknown predicate `-name*.txt'
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ find /home/cdac/LinuxAssignment -name "*.txt"
/home/cdac/LinuxAssignment/file4.txt
/home/cdac/LinuxAssignment/mydir/file.txt
/home/cdac/LinuxAssignment/data.txt
/home/cdac/LinuxAssignment/final/file2.txt
/home/cdac/LinuxAssignment/final/file.txt
/home/cdac/LinuxAssignment/file1.txt
/home/cdac/LinuxAssignment/text1.txt
/home/cdac/LinuxAssignment/extracted_docs/docs/file2.txt
/home/cdac/LinuxAssignment/file2.txt
/home/cdac/LinuxAssignment/input.txt
/home/cdac/LinuxAssignment/file3.txt
/home/cdac/LinuxAssignment/docs/file2.txt
/home/cdac/LinuxAssignment/docs/file.txt
/home/cdac/LinuxAssignment/output.txt
/home/cdac/LinuxAssignment/file.txt
/home/cdac/LinuxAssignment/duplicate.txt
/home/cdac/LinuxAssignment/destination/file2.txt
/home/cdac/LinuxAssignment/destination/file.txt
/home/cdac/LinuxAssignment/fruit.txt
/home/cdac/LinuxAssignment/number.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

4. chmod u+x file.txt

Ans. Used this command for change the permission. In this case users can add the execute permission

```
-rw-r--r-- 1 cdac cdac  316 Aug 29 01:15 docs.zip
-rw-r--r-- 1 cdac cdac   93 Aug 29 22:21 duplicate.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 29 01:19 extracted_docs
-rw-r--r-- 1 cdac cdac    0 Aug 30 00:17 file.txt
-rw-r--r-- 1 cdac cdac  282 Aug 29 12:58 file1.txt
-rw-r--r-- 1 cdac cdac  282 Aug 29 23:53 file2.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 00:33 file3.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 00:33 file4.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 30 21:12 final
-rw-r--r-- 1 cdac cdac  122 Aug 29 22:35 fruit.txt
-rw-r--r-- 1 cdac cdac   72 Aug 29 22:06 input.txt
drw-r--r-- 2 cdac cdac 4096 Aug 30 00:23 mydir
-rw-r--r-- 1 cdac cdac   48 Aug 29 22:49 number.txt
-rw-r--r-- 1 cdac cdac   72 Aug 29 22:08 output.txt
-rwxr-xr-x 1 cdac cdac    0 Aug 30 00:11 script.sh
-rw-r--r-- 1 cdac cdac  983 Aug 29 20:17 text1.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ chmod u+x file.txt
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls -l
total 60
-rw-r--r-- 1 cdac cdac  283 Aug 29 13:17 data.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 30 20:57 destination
drwxr-xr-x 3 cdac cdac 4096 Aug 30 16:21 docs
-rw-r--r-- 1 cdac cdac  316 Aug 29 01:15 docs.zip
-rw-r--r-- 1 cdac cdac   93 Aug 29 22:21 duplicate.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 29 01:19 extracted_docs
-rwxr--r-- 1 cdac cdac    0 Aug 30 00:17 file.txt
-rw-r--r-- 1 cdac cdac  282 Aug 29 12:58 file1.txt
-rw-r--r-- 1 cdac cdac  282 Aug 29 23:53 file2.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 00:33 file3.txt
-rw-r--r-- 1 cdac cdac    0 Aug 29 00:33 file4.txt
drwxr-xr-x 3 cdac cdac 4096 Aug 30 21:12 final
-rw-r--r-- 1 cdac cdac  122 Aug 29 22:35 fruit.txt
-rw-r--r-- 1 cdac cdac   72 Aug 29 22:06 input.txt
drw-r--r-- 2 cdac cdac 4096 Aug 30 00:23 mydir
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

5. echo $PATH

Ans. Echo is used for display text or variables

This command used for particular command you print then this same command is print.

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ echo $/home/cdac/LinuxAssignment
$/home/cdac/LinuxAssignment
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ echo $ /home/cdac/LinuxAssignment
$ /home/cdac/LinuxAssignment
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ echo $ /home/cdac/
$ /home/cdac/
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

Part B

Identify True or False:

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

Ans. True

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

Ans. True

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

Ans. False (It is used for Change directory)

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

Ans. True

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

Ans. True

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

Owner (user): Read (4), Write (2), and Execute (1) permissions, sum is 7.
Group: Read (4) and Execute (1) permissions, sum is 5.
Others: Read (4) and Execute (1) permissions, sum is 5.

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

Ans: True

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

Ans: True

Identify the Incorrect Commands:

1. **chmodx** is used to change file permissions.

Ans. chmod is used to change file permissions.

2. **cpy** is used to copy files and directories.

Ans. cp is used to copy files and directories.

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

Ans. touch is used to create a new file.

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

Ans. cat is used to concatenate files.

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

Ans. mv is used to rename ,move file

Part C

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

Answer :

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ echo Hello, World!
Hello, World!
```

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

Answer :

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ name="CDAC mumbai"
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ echo $name
CDAC mumbai
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

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

Answer:

```
 GNU nano 6.2                    input1.sh
echo Enter the number
read num1
```

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ nano input1.sh
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash input1.sh
Enter the number
25
```

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                    input1.sh
echo Enter the first number
read num1
echo Enter the second number
read num2
result=$((num1+num2))
echo Addition of 2 no. $result
```

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ nano input1.sh
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash input1.sh
Enter the first number
23
Enter the second number
12
Addition of 2 no. 35
```

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

```
echo Enter a number
read num
if [ $((num % 2)) == 0 ];
then
        echo number is even
else
        echo number is odd
fi
```

```
cdac@DESKTOP-RJF4UPC:~$ bash OddEven
Enter a number
45
number is odd
cdac@DESKTOP-RJF4UPC:~$ bash OddEven
Enter a number
44
number is even
cdac@DESKTOP-RJF4UPC:~$
```

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

```
  GNU nano 6.2
for a in {1..5}
do
        echo $a
done
```

```
cdac@DESKTOP-RJF4UPC:~$ nano OddEven
cdac@DESKTOP-RJF4UPC:~$ bash OddEven
1
2
3
4
5
cdac@DESKTOP-RJF4UPC:~$
```

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

```
num=1
while [ $num -le 5 ]
do
        echo $num
        num=$((num + 1))
done
```

```
cdac@DESKTOP-RJF4UPC:~$ nano OddEven
cdac@DESKTOP-RJF4UPC:~$ bash OddEven
1
2
3
4
5
cdac@DESKTOP-RJF4UPC:~$
```

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@DESKTOP-RJF4UPC:~/LinuxAssignment$ nano checkfile
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash checkfile
file1.txt is present
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ ls
b1         destination  duplicate.txt   file1.txt  file4.txt  input.txt  mydir       output.txt  sum.sh
checkfile  docs         extracted_docs  file2.txt  final      input1.sh  nano.sh     script.sh   text1.txt
data.txt   docs.zip     file.txt        file3.txt  fruit.txt  less.sh    number.txt  sh
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ nano checkfile
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash checkfile
file10.txt is not present
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

```
  GNU nano 6.2
if [ -e "file1.txt" ];
then
        echo file1.txt  is present
else
        echo file1.txt is not present
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.

```
  GNU nano 6.2
echo Enter a number:
read num1
if [ "$num1" -gt 10 ];
then
        echo number is greater than 10
elif [ "$num1" -lt 10 ];
then
        echo number is less than 10
else
        echo number is equal to 10
fi
```

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ nano checkfile
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash checkfile
Enter a number:
12
number is greater than 10
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash checkfile
Enter a number:
9
number is less than 10
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ 10
10: command not found
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash checkfile
Enter a number:
10
number is equal to 10
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

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@DESKTOP-RJF4UPC:~/LinuxAssignment$ nano mult5table
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash mult5table
   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
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```

```
for i in {1..5}; do
  for j in {1..5}; do
        printf "%4d" $((i * j))
  done
  echo
done
```

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.

```
echo Enter a number
read num
while [ "$num" -gt 0 ]
do
       sq=$((num * num))
        echo "Square of $num is $sq "

        echo "Enter another number / if you are enter the negative number to exit):"
    read num
done
echo "Negative number entered. Exiting..."
```

```
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ nano negative
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$ bash negative
Enter a number
10
Square of 10 is 100
Enter another number / if you are enter the negative number to exit):
-101
Negative number entered. Exiting...
cdac@DESKTOP-RJF4UPC:~/LinuxAssignment$
```