Experiment No- 08

Aim: To Execute the shell scripts

Roll No.	17
Name	Manav Jawrani
Class	**D10A**
Subject	**Unix Lab**
Lab Outcome	**LO4: To study shell, types of shell, variables and operators.**
Date of Performance/ Submission	**22/3/2022 - 29/3/2022**

AIM: To Execute the shell scripts.

THEORY:

A shell script is a computer program designed to be run by the Unix/Linux shell which could be one of the following:

- The Bourne Shell
- The C Shell
- The Korn Shell
- The GNU Bourne-Again Shell

A shell is a command-line interpreter and typical operations performed by shell scripts include file manipulation, program execution, and printing text.

Ex- The following script uses the read command which takes the input from the keyboard and assigns it as the value of the variable PERSON and finally prints it on STDOUT.

```
echo "What is your name?"

read PERSON

echo "Hello, $PERSON"
```

```
Output- $./test.sh

What is your name?

Zara Ali

Hello, Zara Ali

$
```

Why do we need shell scripts?

There are many reasons to write shell scripts –

1. To avoid repetitive work and automation
2. System admins use shell scripting for routine backups
3. System monitoring
4. Adding new functionality to the shell etc.

Advantages of shell scripts

1. The command and syntax are exactly the same as those directly entered in command line, so programmer do not need to switch to entirely different syntax
2. Writing shell scripts are much quicker
3. Quick start
4. Interactive debugging etc.

Disadvantages of shell scripts

1. Prone to costly errors, a single mistake can change the command which might be harmful
2. Slow execution speed
3. Design flaws within the language syntax or implementation
4. Not well suited for large and complex task
5. Provide minimal data structure unlike other scripting languages. etc

Questions:

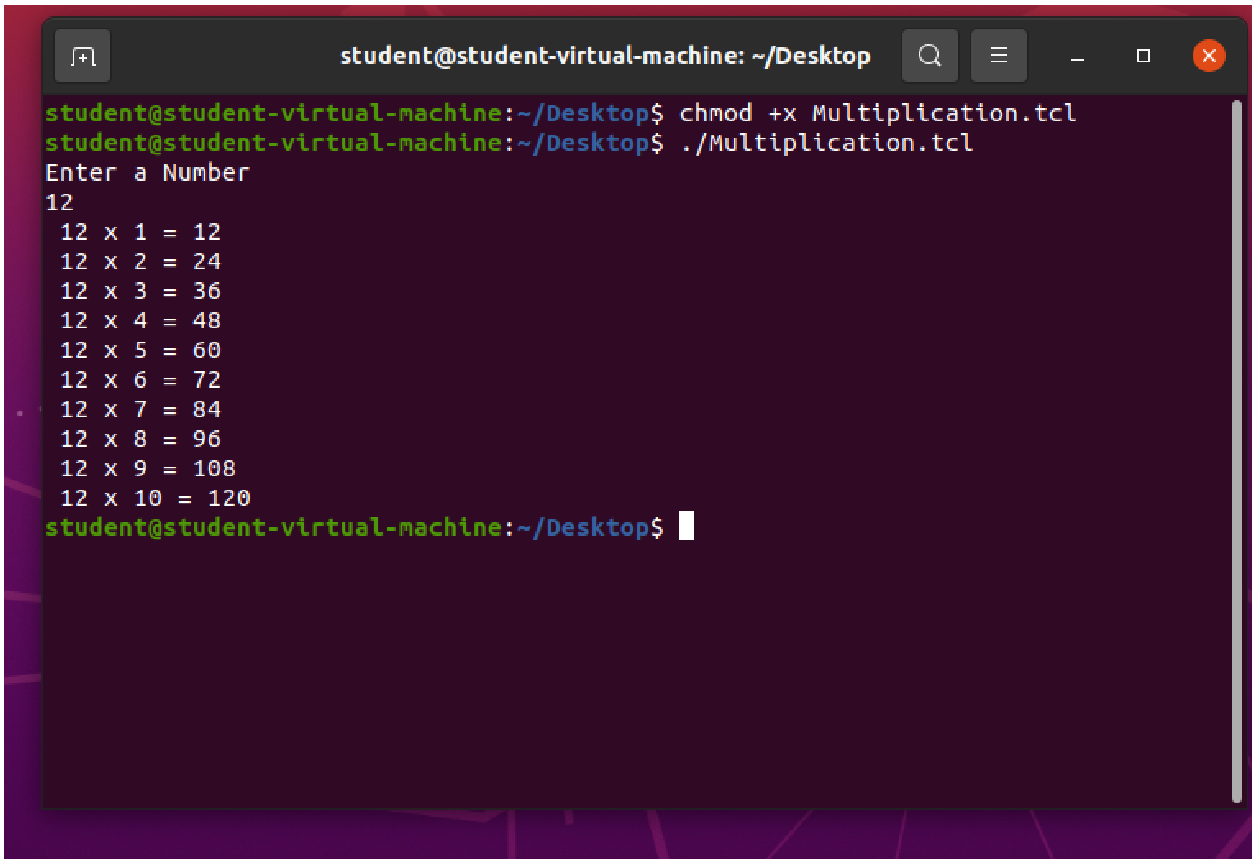
1. **Write a shell script to print a multiplication table of a given number using while/for statement.**

Script:

```
#!/bin/bash
echo "Enter a Number"
read i
a=1

while [ $a -le 10 ]
do
        echo " $i x $a = $(( i * a ))"
        a=$(( a + 1 ))
done
```

Manav Jawrani_17

Output:



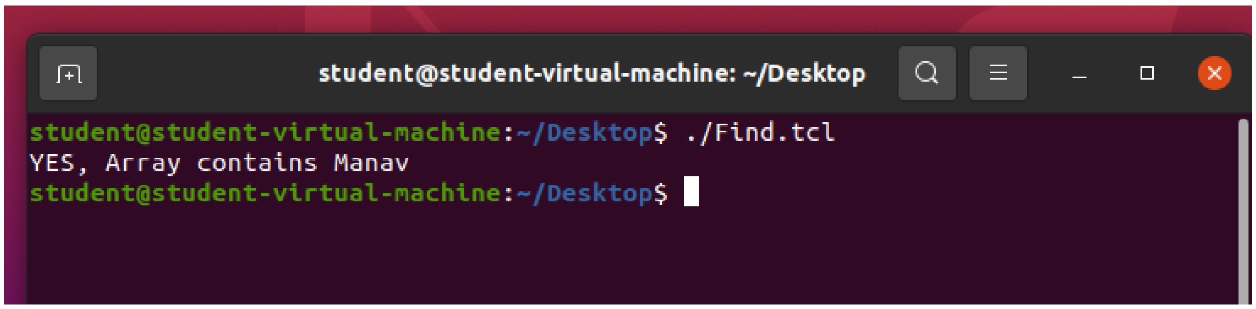
```
student@student-virtual-machine:~/Desktop$ chmod +x Multiplication.tcl
student@student-virtual-machine:~/Desktop$ ./Multiplication.tcl
Enter a Number
12
 12 x 1 = 12
 12 x 2 = 24
 12 x 3 = 36
 12 x 4 = 48
 12 x 5 = 60
 12 x 6 = 72
 12 x 7 = 84
 12 x 8 = 96
 12 x 9 = 108
 12 x 10 = 120
student@student-virtual-machine:~/Desktop$
```

2. **Write a shell script to search whether an element is present in the list or not.**

Script:

```
#!/bin/bash

arr=()
arr+=('Manav')
arr+=('Meet')
arr+=('Riddhi')

SEARCH_STRING='Manav'

if [[ " ${arr[*]} " == *"$SEARCH_STRING"* ]];
then
        echo "YES, Array contains $SEARCH_STRING"
else
        echo "NO, Arrays does not contain $SEARCH_STRING"
fi
```

Output:



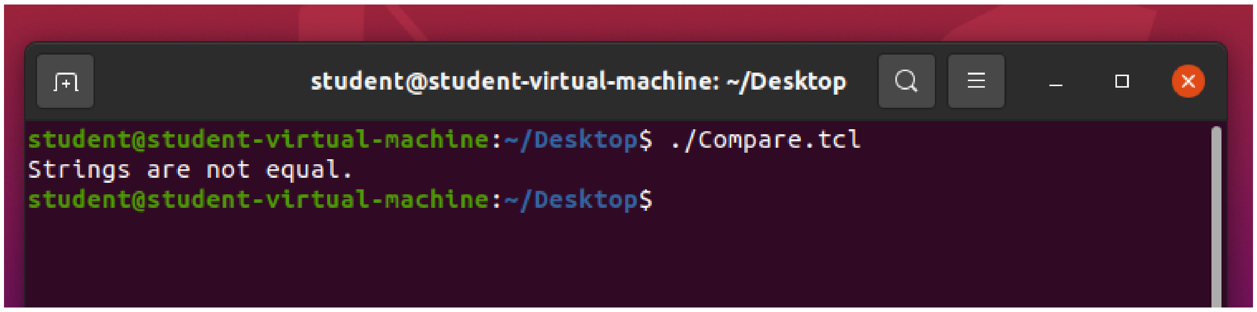
```
student@student-virtual-machine:~/Desktop$ ./Find.tcl
YES, Array contains Manav
student@student-virtual-machine:~/Desktop$
```

3. **Write a shell script to compare two strings.**

Script:

```
#!/bin/bash

VAR1="Manavj"
VAR2="Manav"

if [ "$VAR1" = "$VAR2" ]; then
        echo "Strings are equal."
else
        echo "Strings are not equal."
fi
```

Output:



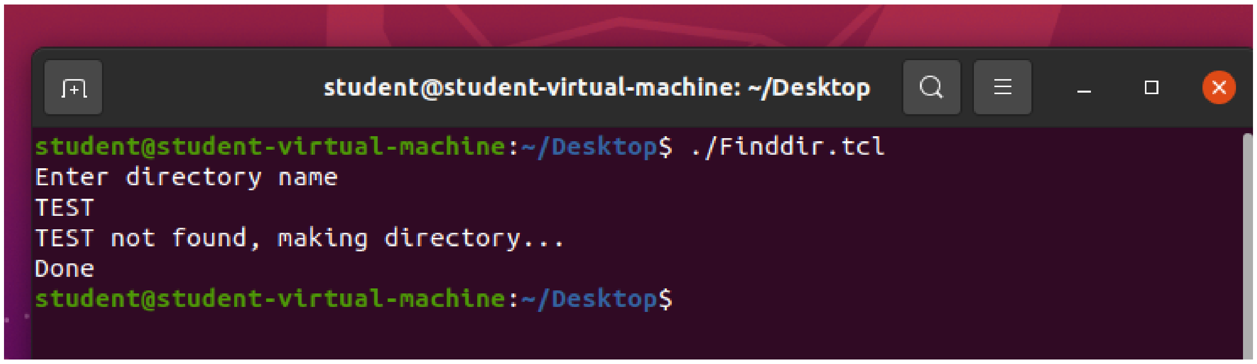
```
student@student-virtual-machine:~/Desktop$ ./Compare.tcl
Strings are not equal.
student@student-virtual-machine:~/Desktop$
```

4. **Write a shell script to read and check if the directory/file exists or not, if not make the directory /file.**

Script:

```
#!/bin/bash

echo "Enter directory name"
read file
if [ -f "$file" ]
then
   echo "$file found."
else
   echo "$file not found, making directory..."
   mkdir ./$file
   echo "Done"
fi
```

Output:



```
student@student-virtual-machine:~/Desktop$ ./Finddir.tcl
Enter directory name
TEST
TEST not found, making directory...
Done
student@student-virtual-machine:~/Desktop$
```

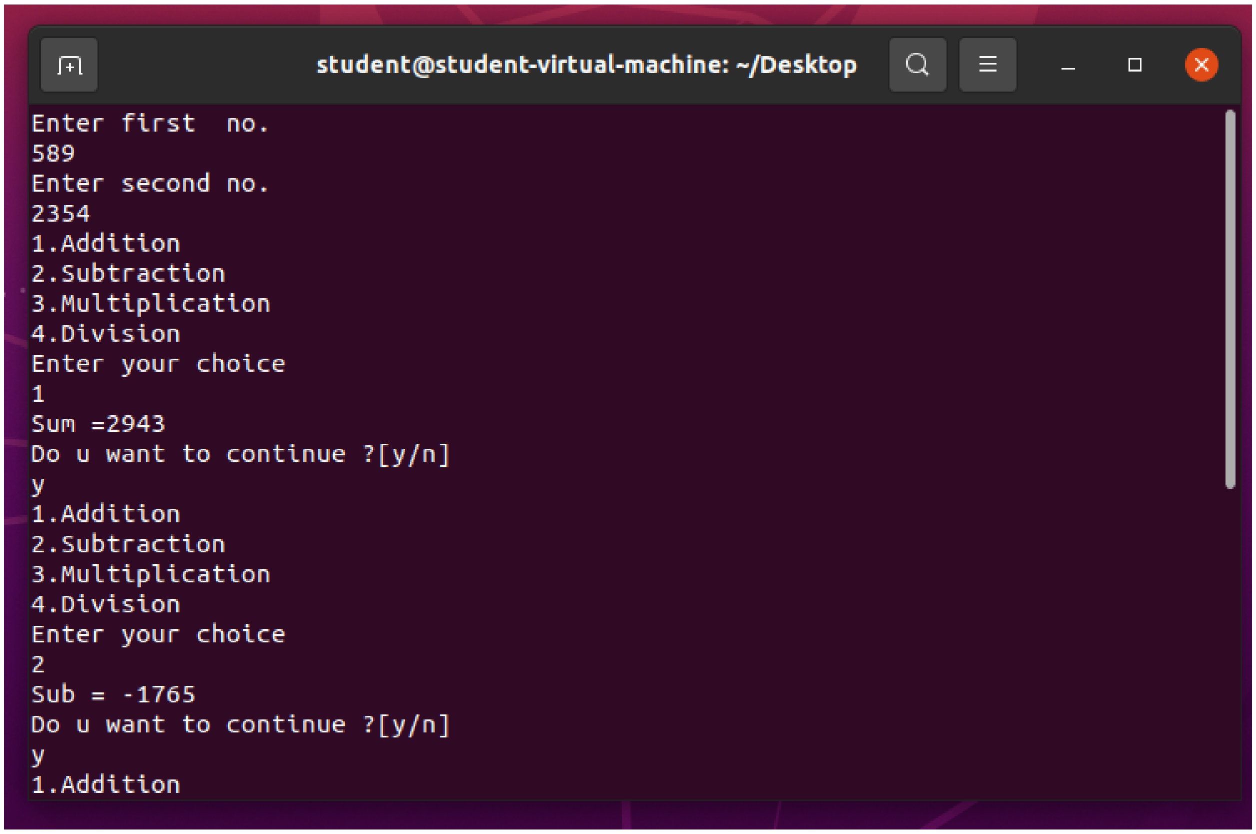
5. **Write a shell script to implement the menu driven calculator using case statements.**

Script:

```
#!/bin/bash
clear
sum=0
i="y"

echo "Enter first  no."
read n1
echo "Enter second no."
read n2
while [ $i = "y" ]
do
echo "1.Addition"
echo "2.Subtraction"
echo "3.Multiplication"
echo "4.Division"
echo "Enter your choice"
read ch
case $ch in
        1)sum=`expr $n1 + $n2`
        echo "Sum ="$sum;;
        2)sum=`expr $n1 - $n2`
        echo "Sub = "$sum;;
        3)sum=`expr $n1 \* $n2`
        echo "Mul = "$sum;;
        4)sum=`echo "scale=2;$n1/$n2"|bc`
        echo "div=" $sum;;
        *)echo "Invalid choice";;
esac
echo "Do u want to continue ?[y/n]"
read i
if [ $i != "y" ]
then
```

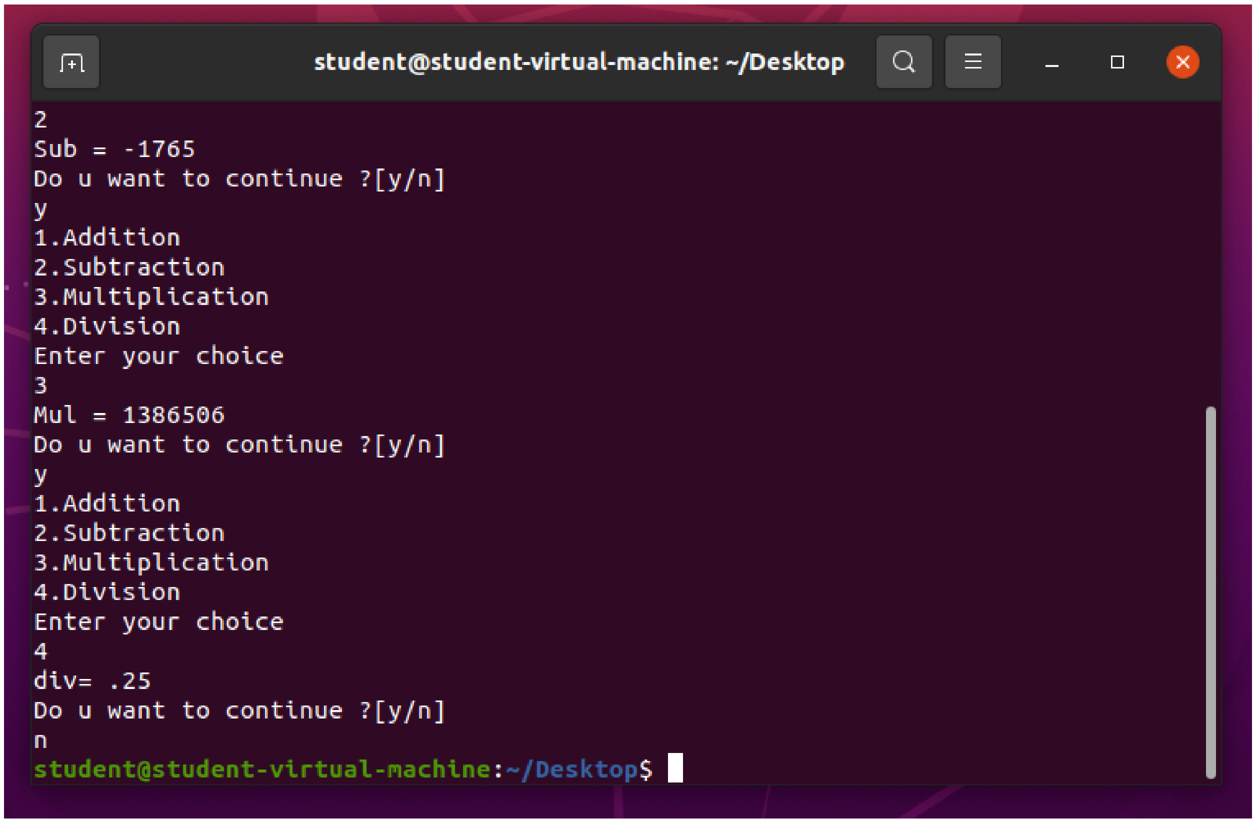
```
	exit
fi
done
```

Output:



```
Enter first  no.
589
Enter second no.
2354
1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter your choice
1
Sum =2943
Do u want to continue ?[y/n]
y
1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter your choice
2
Sub = -1765
Do u want to continue ?[y/n]
y
1.Addition
```

Manav Jawrani_17



```
2
Sub = -1765
Do u want to continue ?[y/n]
y
1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter your choice
3
Mul = 1386506
Do u want to continue ?[y/n]
y
1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter your choice
4
div= .25
Do u want to continue ?[y/n]
n
student@student-virtual-machine:~/Desktop$
```

Manav Jawrani_17

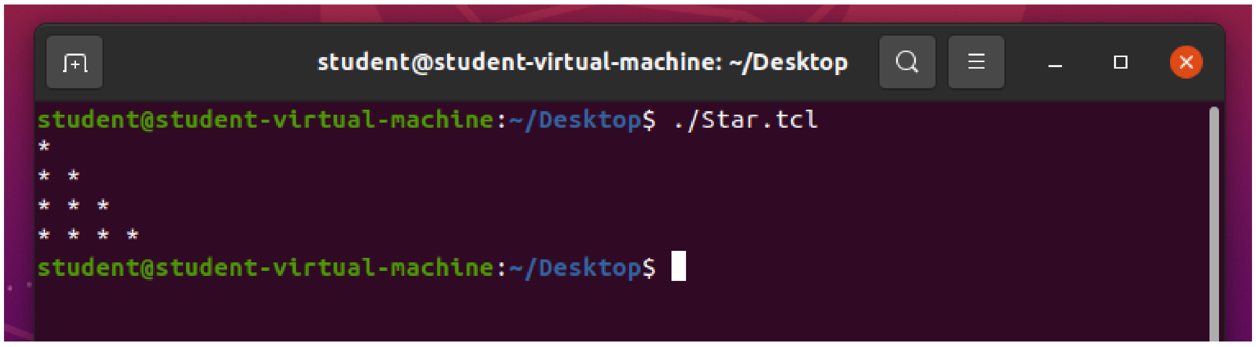
6. **Write a shell script to print the following pattern:**

```
*
* *
* * *
* * * *
```

Script:

```
N=3
i=0
j=0
while [ $i -le $N ]
do
 j=0
 while [ $j -le $i ]
 do
 echo -n "* "
 j=`expr $j + 1`
 done
 echo
 i=`expr $i + 1`
done
```

Output:



```
student@student-virtual-machine:~/Desktop$ ./Star.tcl
*
* *
* * *
* * * *
student@student-virtual-machine:~/Desktop$
```

7. **Write a shell script to perform operations on a directory like: display the name of the current directory. display a list of directory contents, create another directory, write contents on that and copy it to a suitable location in your home directory.**

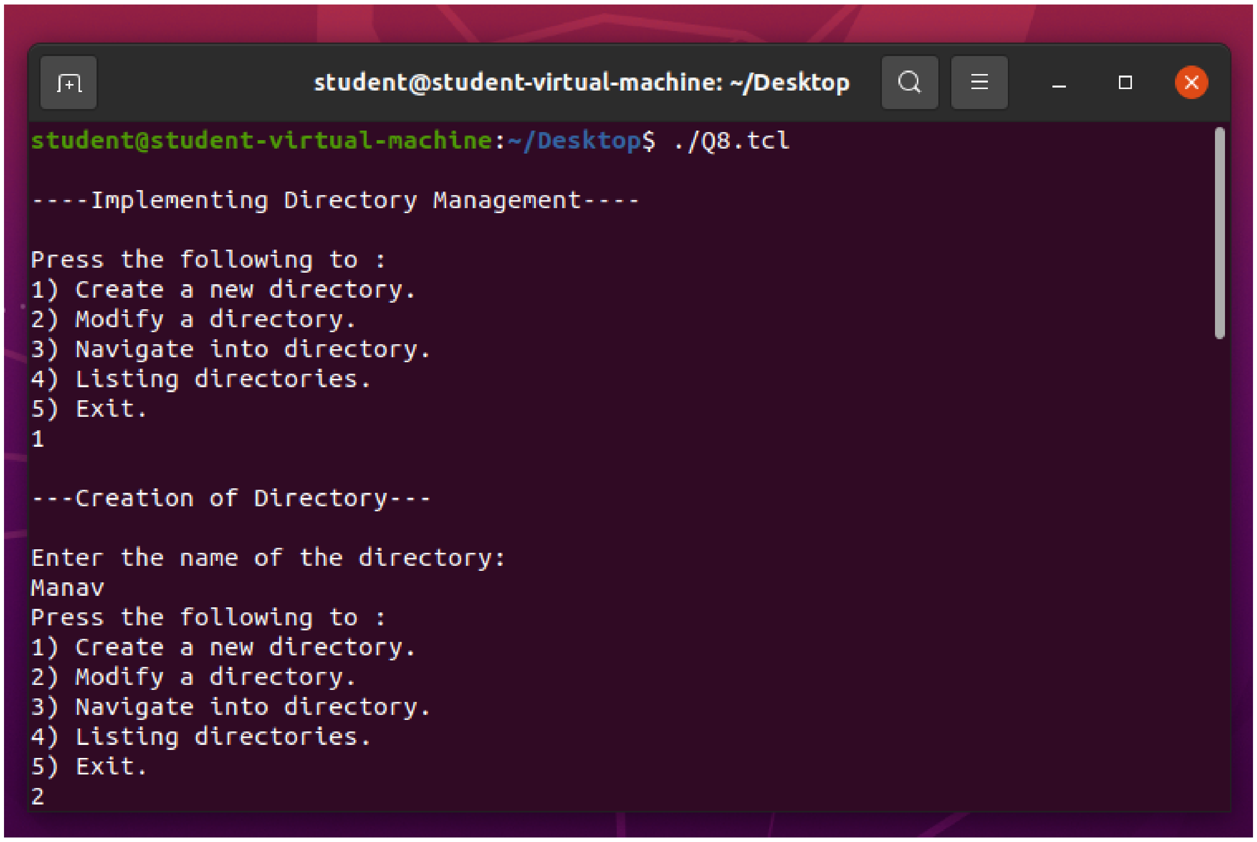
Script:

```
#!/bin/bash

echo " "
echo "----Implementing Directory Management----"
echo " "
ch=0
while [ $ch -lt 6 ]
do
   echo "Press the following to :"
   echo "1) Create a new directory."
   echo "2) Modify a directory."
   echo "3) Navigate into directory."
   echo "4) Listing directories."
   echo "5) Exit."
   read ch

   case $ch in
   1) echo " "
   echo "---Creation of Directory---"
   echo " "
   echo "Enter the name of the directory:"
   read name
   mkdir $name
   ;;
   2) echo " "
   echo "---Modification of Directory---"
   echo " "
   echo "Enter the directory to be modified:"
   read orgdir
   echo "Press the following to :"
   echo " "
   echo "1) Rename directory."
   echo "2) Copy directory to another."
   echo "3) Move directory."
   echo "4) Delete directory."
   echo "5) Exit from Modify Mode."
   read modch

       case $modch in
       1) echo " "
       echo "---Rename a directory---"
       echo " "
       echo "Enter new name for the directory:"
       read newname
       mv $orgdir $newname
       ;;
       2) echo " "
       echo "---Copying a directory to another---"
       echo " "
       echo "Enter target directory:"
       read target
       mkdir $target
       cp $orgdir $target
       ;;
       3) echo " "
       echo "---Moving a directory---"
       echo " "
       echo "Enter target directory:"
       read target
       mkdir $target
       mv $orgdir $target
       ;;
       4) echo " "
       echo "---Deleting a directory---"
       echo " "
```

```
        rmdir $orgdir
        ;;
        5) echo " "
        echo "---Exiting from modify mode---"
        echo " "
        exit
        ;;
        esac
    ;;
    3)
    echo "---Navigation of Directory---"
    echo " "
    echo "Enter your choice for method of navigation :"
    echo "1) Go to Parent Directory. "
    echo "2) Navigate to specific directory."
    echo "3) Exit from Navigate Mode."
    read navch

    case $navch in
        1) echo " "
        echo "---Parent Directory---"
        echo " "
        cd ..
        pwd
        ;;
        2) echo " "
        echo "---Navigation to Specific Directory---"
        echo " "
        echo "Enter the target Path:"
        read path
        cd $path
        pwd
        ;;
        3) echo " "
        echo "---Exiting from Navigate Mode---"
        echo " "
        exit
        ;;
        esac
    ;;
    4)
    echo "--- Listing of Directories---"
    echo " "
    echo "Enter your choice for method of listing :"
    echo "1) List of directories. "
    echo "2) List of directories and their details."
    echo "3) Exit from List Mode."
    read lisch

    case $lisch in
        1) echo " "
        echo "---List of directories---"
        echo " "
        ls
        ;;
        2) echo " "
        echo "---Detailed List of directories---"
        echo " "
        ls -l
        ;;
        3) echo " "
        echo "---Exiting from List Mode---"
        echo " "
        exit
        ;;
        esac
    ;;
    5)echo " "
    echo "---Exiting---"
    echo " "
```

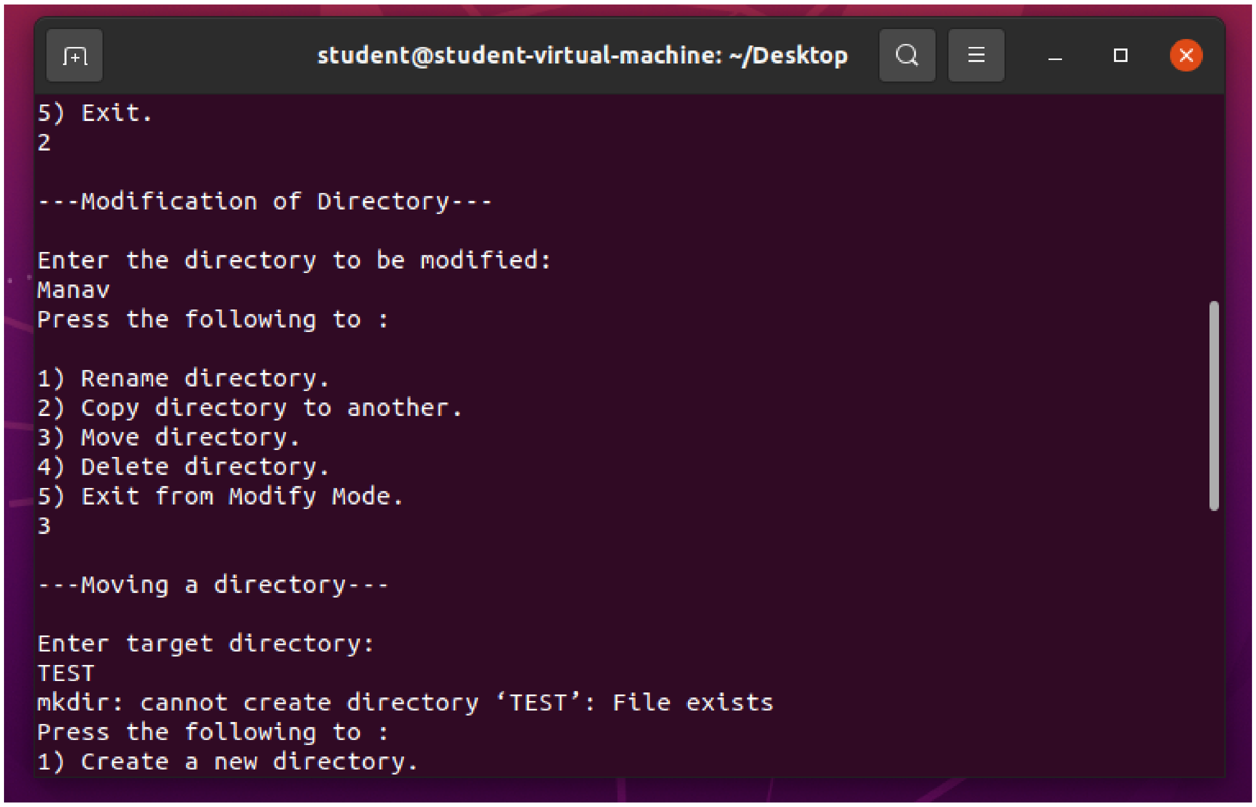
```
    exit
    ;;
    esac
done
```

Output:

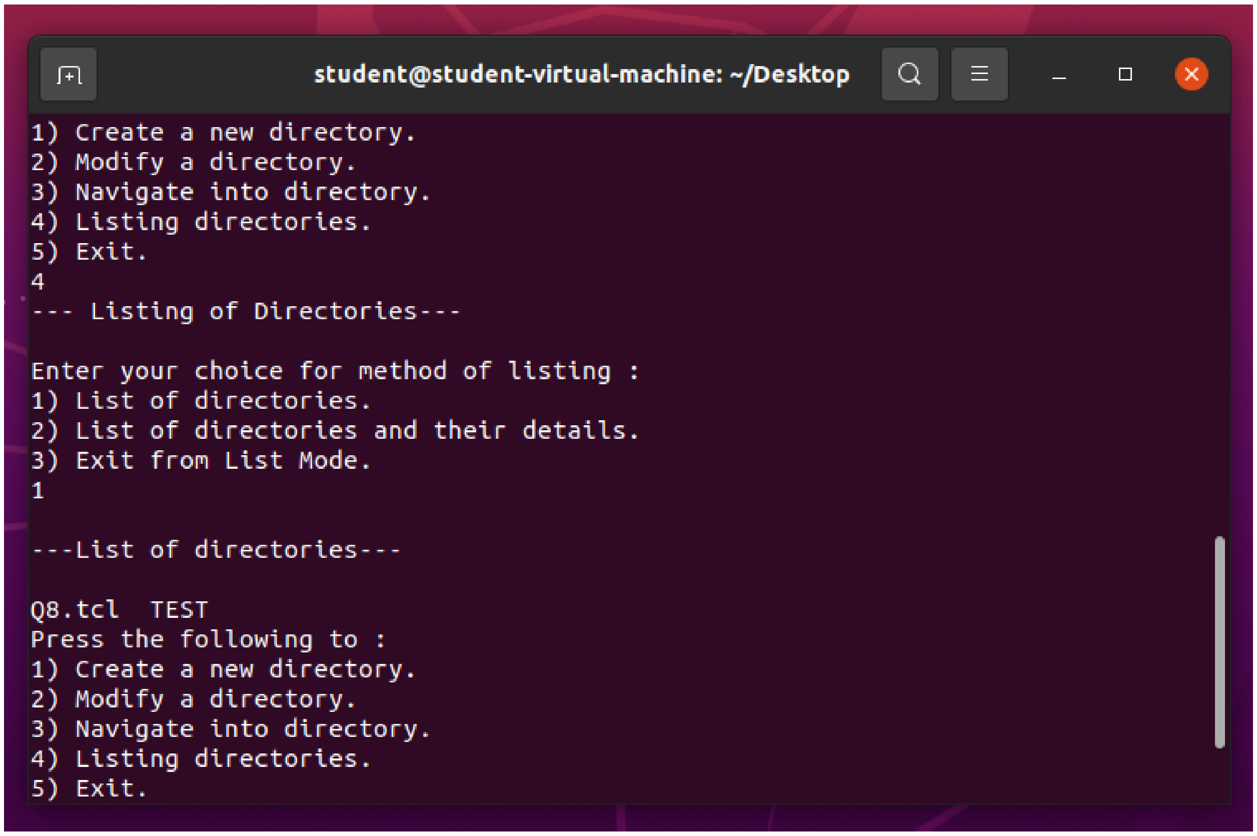


```
student@student-virtual-machine:~/Desktop$ ./Q8.tcl

----Implementing Directory Management----

Press the following to :
1) Create a new directory.
2) Modify a directory.
3) Navigate into directory.
4) Listing directories.
5) Exit.
1

---Creation of Directory---

Enter the name of the directory:
Manav
Press the following to :
1) Create a new directory.
2) Modify a directory.
3) Navigate into directory.
4) Listing directories.
5) Exit.
2
```

Manav Jawrani_17



```
5) Exit.
2

---Modification of Directory---

Enter the directory to be modified:
Manav
Press the following to :

1) Rename directory.
2) Copy directory to another.
3) Move directory.
4) Delete directory.
5) Exit from Modify Mode.
3

---Moving a directory---

Enter target directory:
TEST
mkdir: cannot create directory ‘TEST’: File exists
Press the following to :
1) Create a new directory.
```



```
1) Create a new directory.
2) Modify a directory.
3) Navigate into directory.
4) Listing directories.
5) Exit.
4
--- Listing of Directories---

Enter your choice for method of listing :
1) List of directories.
2) List of directories and their details.
3) Exit from List Mode.
1

---List of directories---

Q8.tcl  TEST
Press the following to :
1) Create a new directory.
2) Modify a directory.
3) Navigate into directory.
4) Listing directories.
5) Exit.
```

Conclusion:

We have written and successfully executed the shell script for the given questions.