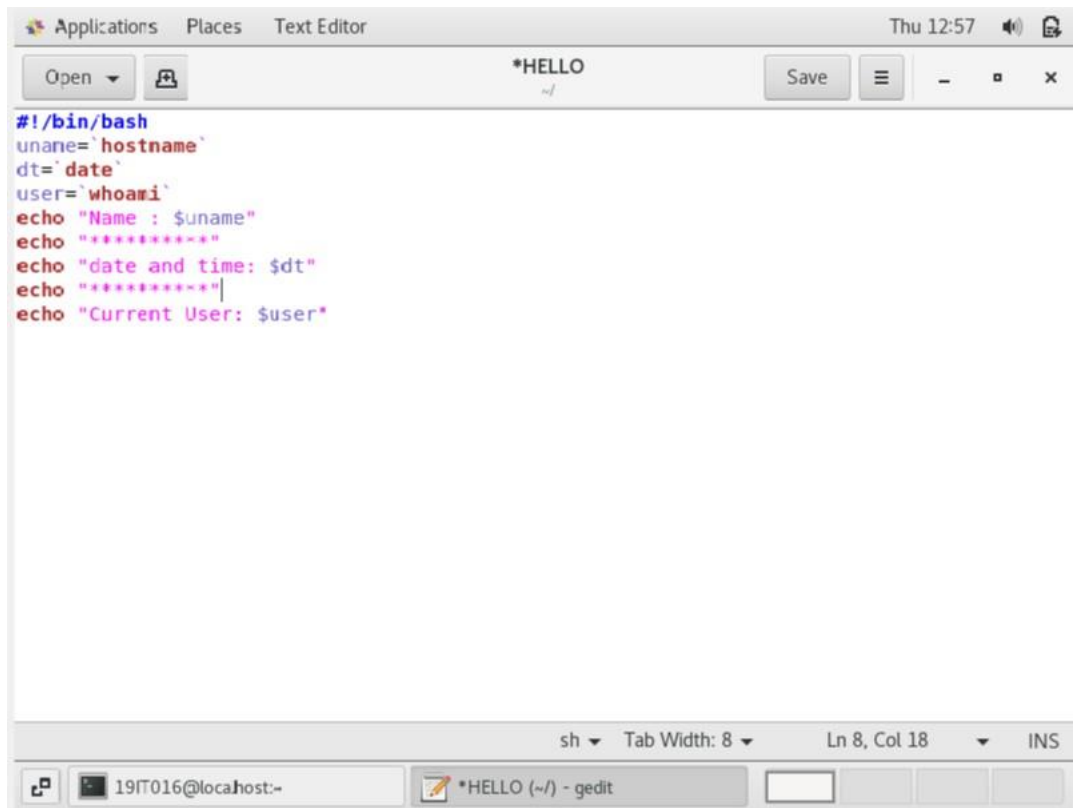


PRACTICAL-5

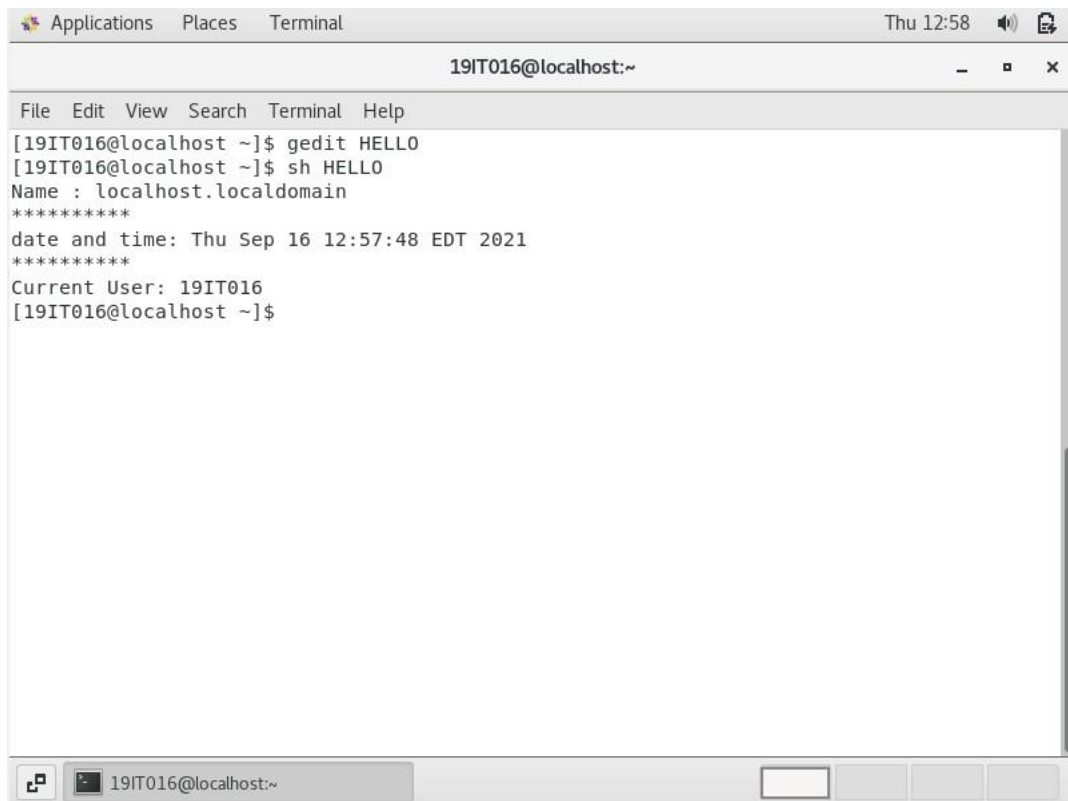
Aim: To perform various shell programming tasks.

1. Write a script called hello which outputs the following:
 - a. your username
 - b. the time and date
 - c. who is logged on?
 - d. Also, output a line of asterisks (*****) after each section.

CODE:



```
#!/bin/bash
uname=`hostname`
dt=`date`
user=`whoami`
echo "Name : $uname"
echo "*****"
echo "date and time: $dt"
echo "*****"
echo "Current User: $user"
```

OUTPUT:

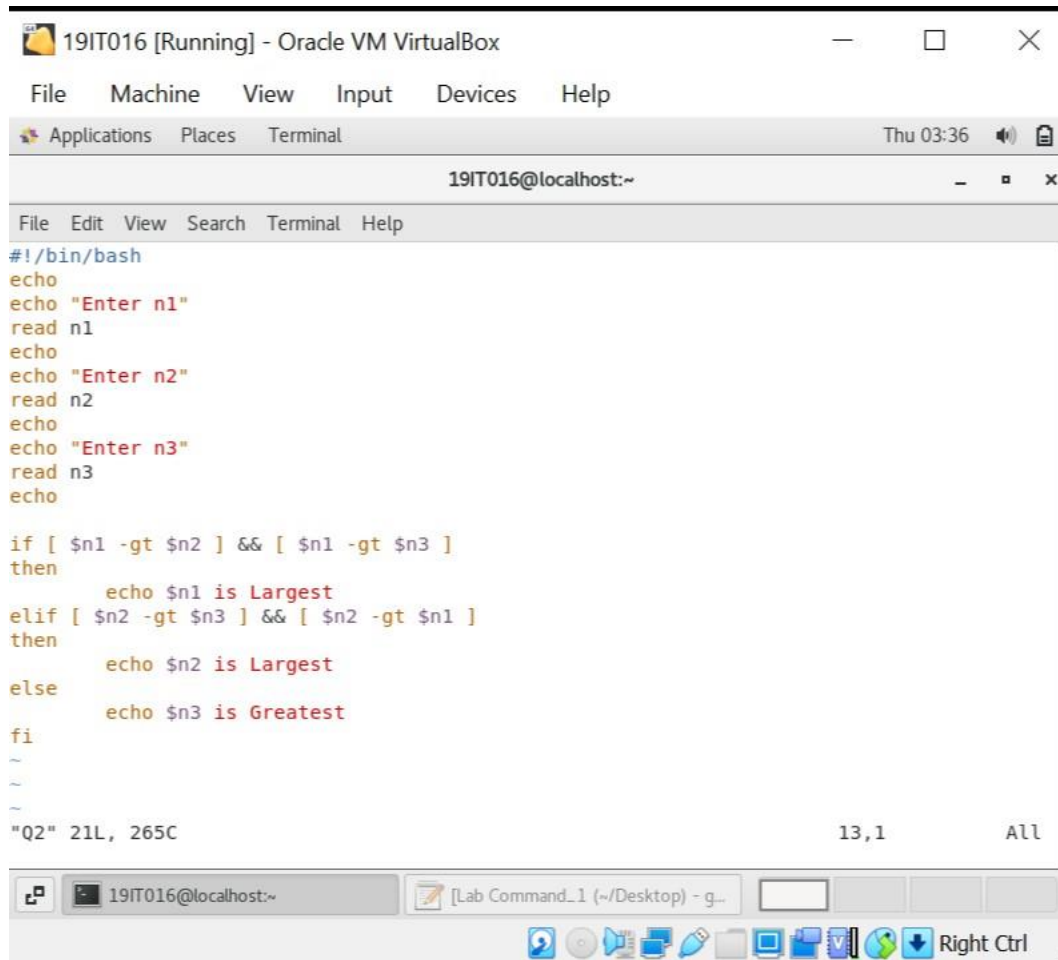
The screenshot shows a terminal window titled "19IT016@localhost:~". The window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal content shows the following commands and output:

```
[19IT016@localhost ~]$ gedit HELLO
[19IT016@localhost ~]$ sh HELLO
Name : localhost.localdomain
*****
date and time: Thu Sep 16 12:57:48 EDT 2021
*****
Current User: 19IT016
[19IT016@localhost ~]$
```

The terminal window has a status bar at the bottom showing the current directory and user: "19IT016@localhost:~".

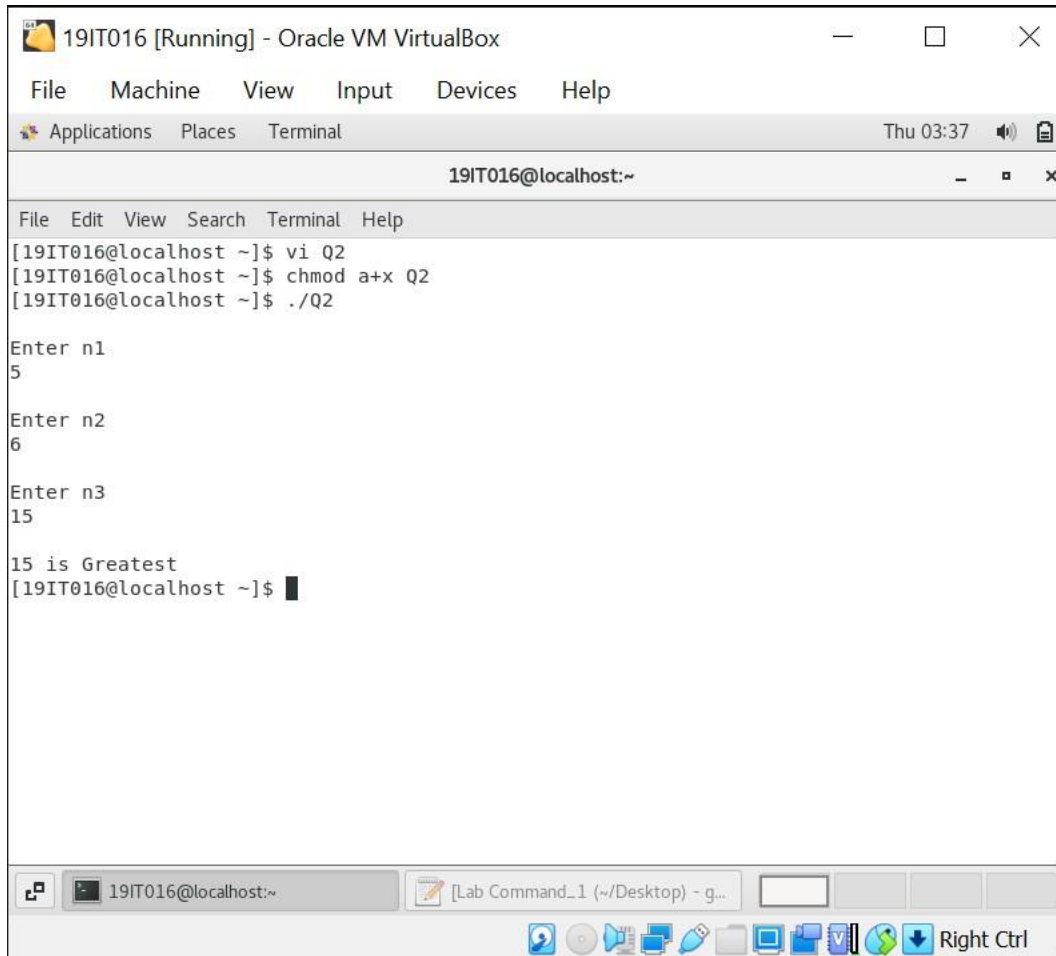
2. Write a shell program to find the largest integer among the three integers given as arguments.

CODE:



```
19IT016 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 03:36
19IT016@localhost:~
File Edit View Search Terminal Help
#!/bin/bash
echo
echo "Enter n1"
read n1
echo
echo "Enter n2"
read n2
echo
echo "Enter n3"
read n3
echo

if [ $n1 -gt $n2 ] && [ $n1 -gt $n3 ]
then
    echo $n1 is Largest
elif [ $n2 -gt $n3 ] && [ $n2 -gt $n1 ]
then
    echo $n2 is Largest
else
    echo $n3 is GREATEST
fi
~
~
~
"Q2" 21L, 265C 13,1 All
[Lab Command_1 (~/.Desktop) - g...
Right Ctrl
```

OUTPUT:

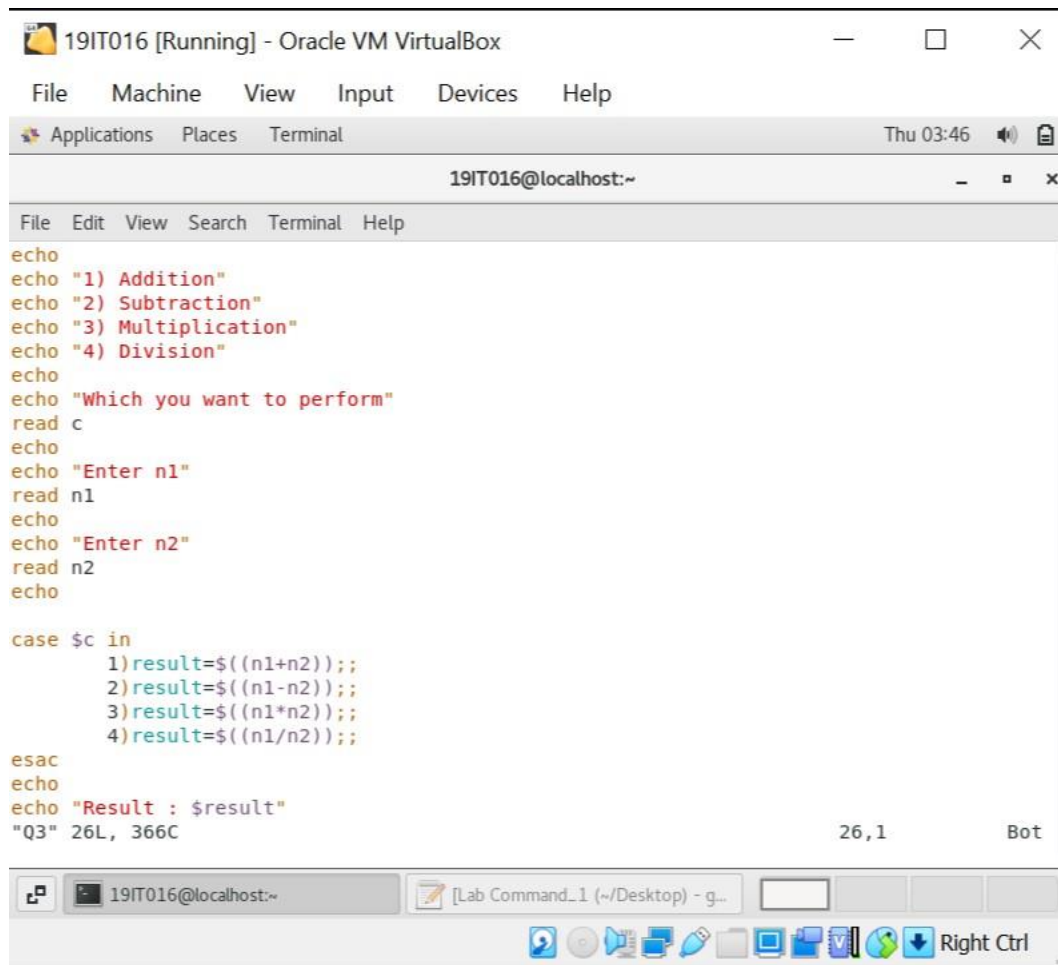
```
19IT016 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 03:37
19IT016@localhost:~
File Edit View Search Terminal Help
[19IT016@localhost ~]$ vi Q2
[19IT016@localhost ~]$ chmod a+x Q2
[19IT016@localhost ~]$ ./Q2

Enter n1
5

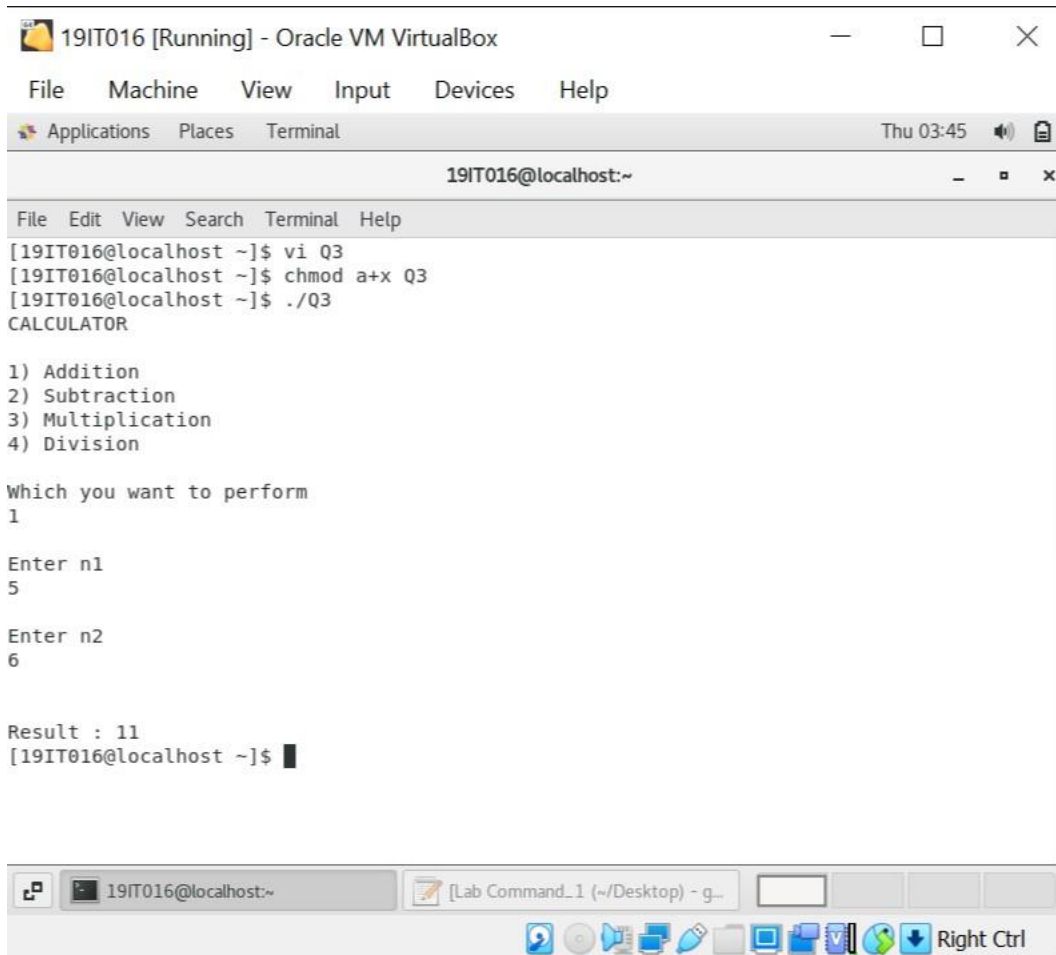
Enter n2
6

Enter n3
15

15 is Greatest
[19IT016@localhost ~]$
```


3. Write a shell script to simulate a simple calculator.**CODE:**

```
19IT016 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 03:46
19IT016@localhost:~
File Edit View Search Terminal Help
echo
echo "1) Addition"
echo "2) Subtraction"
echo "3) Multiplication"
echo "4) Division"
echo
echo "Which you want to perform"
read c
echo
echo "Enter n1"
read n1
echo
echo "Enter n2"
read n2
echo
case $c in
  1) result=$((n1+n2));;
  2) result=$((n1-n2));;
  3) result=$((n1*n2));;
  4) result=$((n1/n2));;
esac
echo
echo "Result : $result"
"Q3" 26,1 Bot
```

OUTPUT:

```
19IT016 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 03:45
19IT016@localhost:~
File Edit View Search Terminal Help
[19IT016@localhost ~]$ vi Q3
[19IT016@localhost ~]$ chmod a+x Q3
[19IT016@localhost ~]$ ./Q3
CALCULATOR

1) Addition
2) Subtraction
3) Multiplication
4) Division

Which you want to perform
1

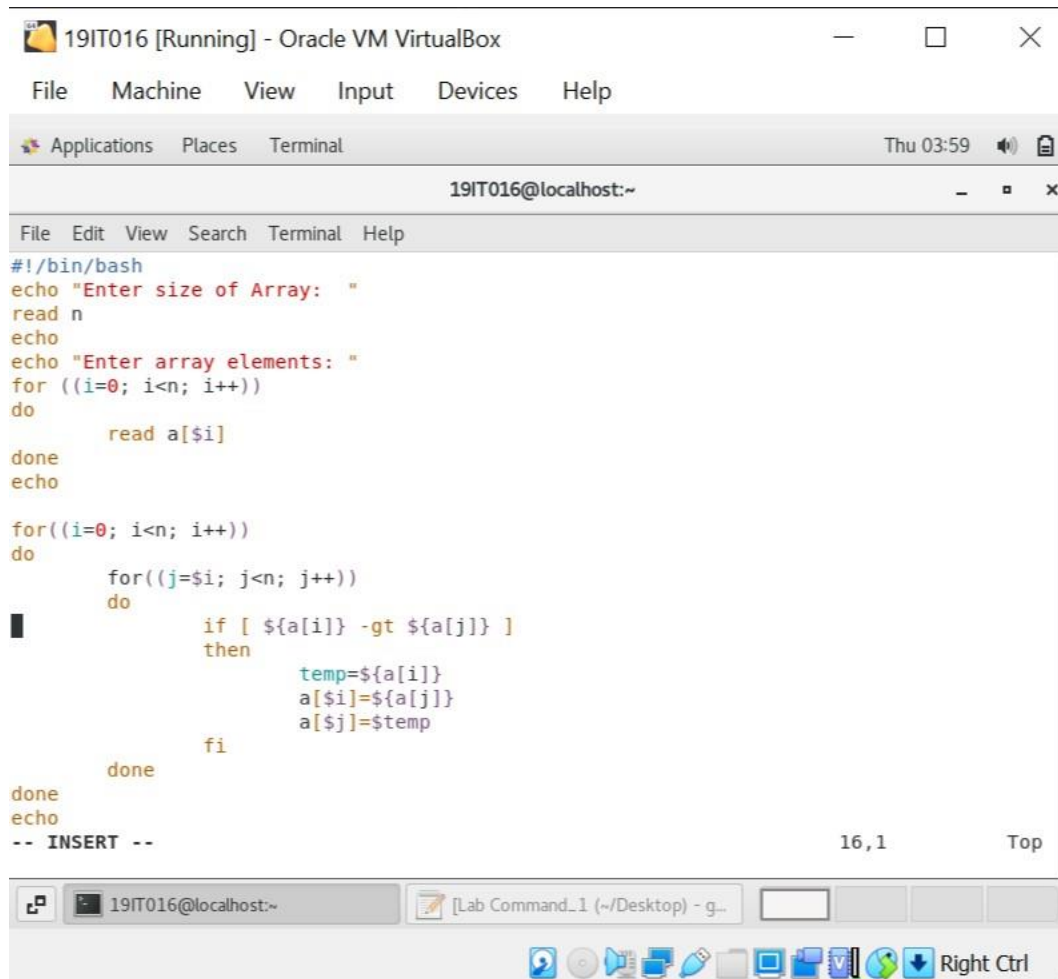
Enter n1
5

Enter n2
6

Result : 11
[19IT016@localhost ~]$
```

4. Write a shell script to sort the number in ascending order and also calculate the shell script run time. (Using array).

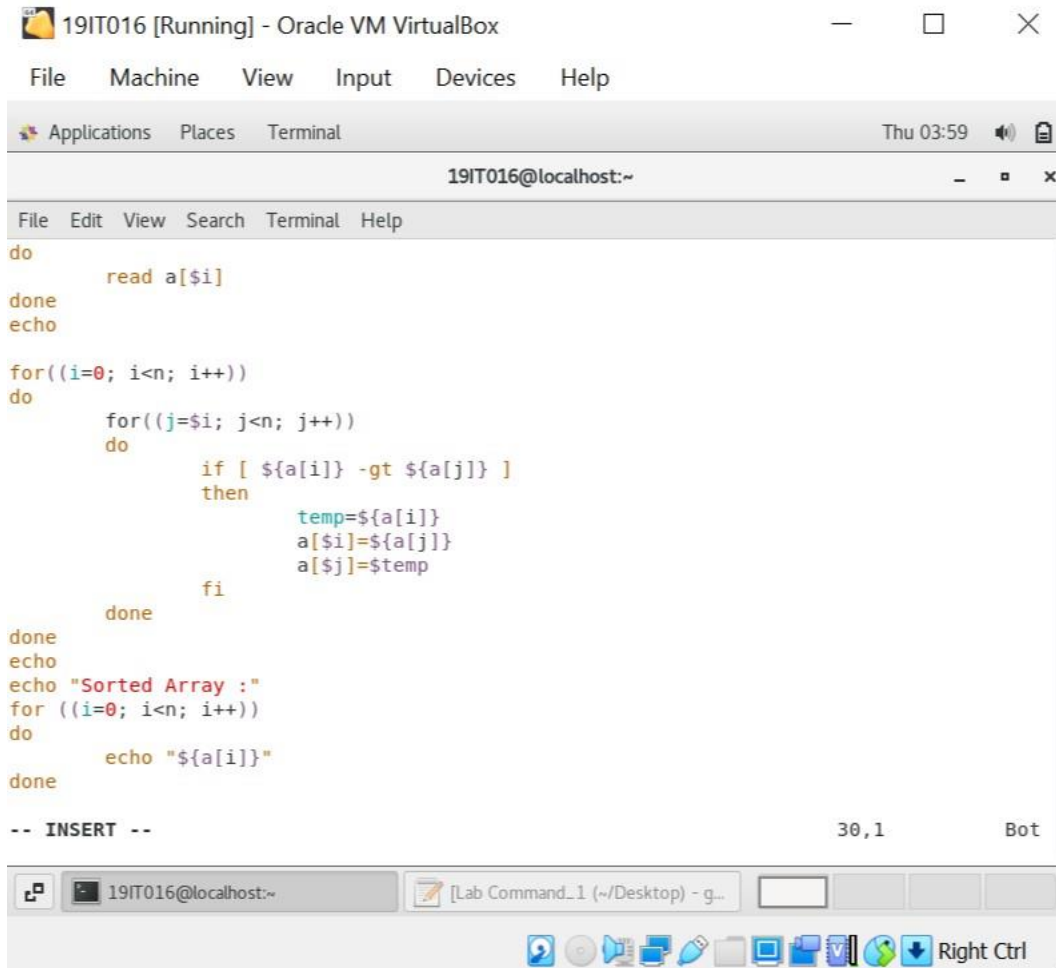
CODE:



The screenshot shows a terminal window titled "19IT016 [Running] - Oracle VM VirtualBox". The terminal displays a shell script for sorting an array in ascending order and calculating the run time. The script uses a bubble sort algorithm. The user has entered the size of the array as 16 and the elements as 1, 16, 1, 16, 1, 16, 1, 16, 1, 16, 1, 16, 1, 16, 1, 16. The script is currently at the "INSERT" prompt.

```
#!/bin/bash
echo "Enter size of Array: "
read n
echo
echo "Enter array elements: "
for ((i=0; i<n; i++))
do
    read a[i]
done
echo

for((i=0; i<n; i++))
do
    for((j=i; j<n; j++))
    do
        if [ ${a[i]} -gt ${a[j]} ]
        then
            temp=${a[i]}
            a[i]=${a[j]}
            a[j]=$temp
        fi
    done
done
echo
-- INSERT --
```

19IT016 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Applications Places Terminal Thu 03:59

19IT016@localhost:~

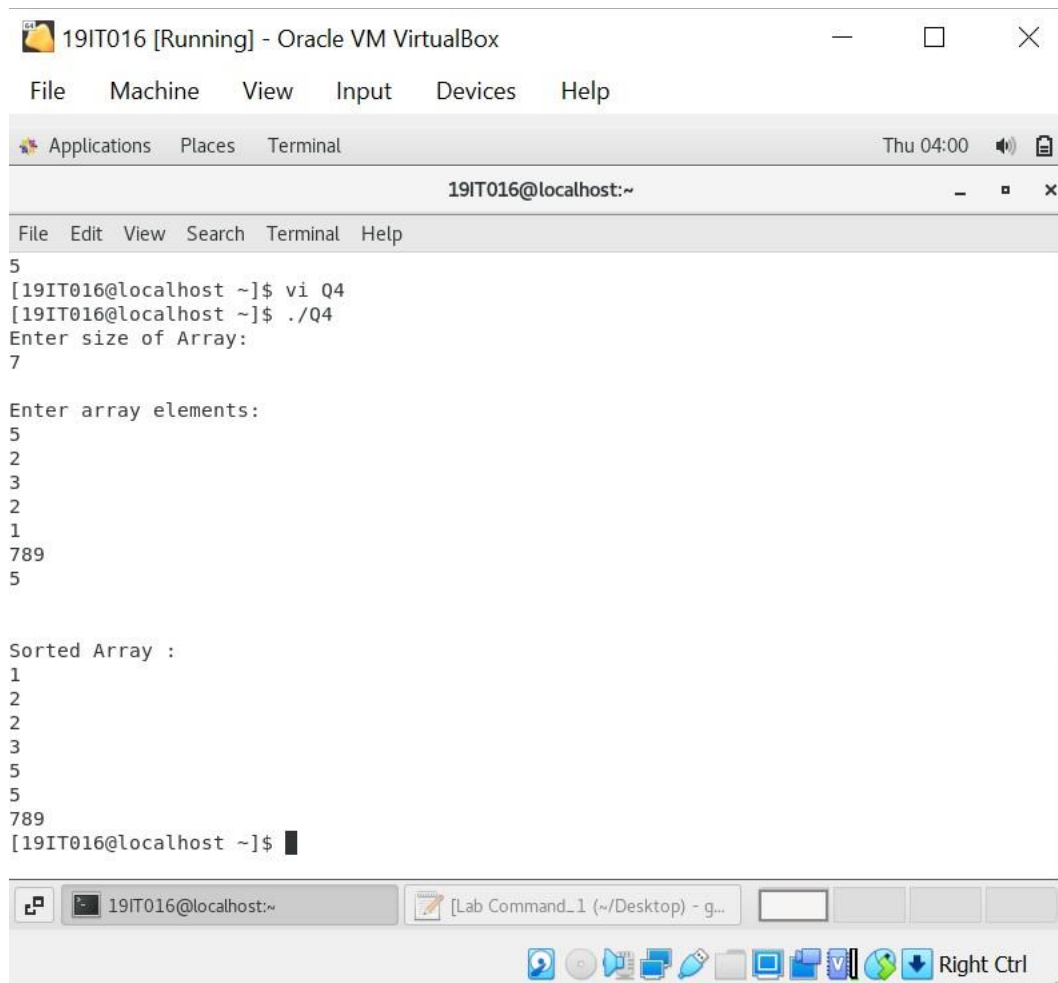
```
File Edit View Search Terminal Help
do
    read a[$i]
done
echo

for((i=0; i<n; i++))
do
    for((j=$i; j<n; j++))
    do
        if [ ${a[i]} -gt ${a[j]} ]
        then
            temp=${a[i]}
            a[$i]=${a[j]}
            a[$j]=$temp
        fi
    done
done
echo
echo "Sorted Array : "
for ((i=0; i<n; i++))
do
    echo "${a[i]}"
done

-- INSERT -- 30,1 Bot
```

19IT016@localhost:~ [Lab Command_1 (~/.Desktop) - g...]

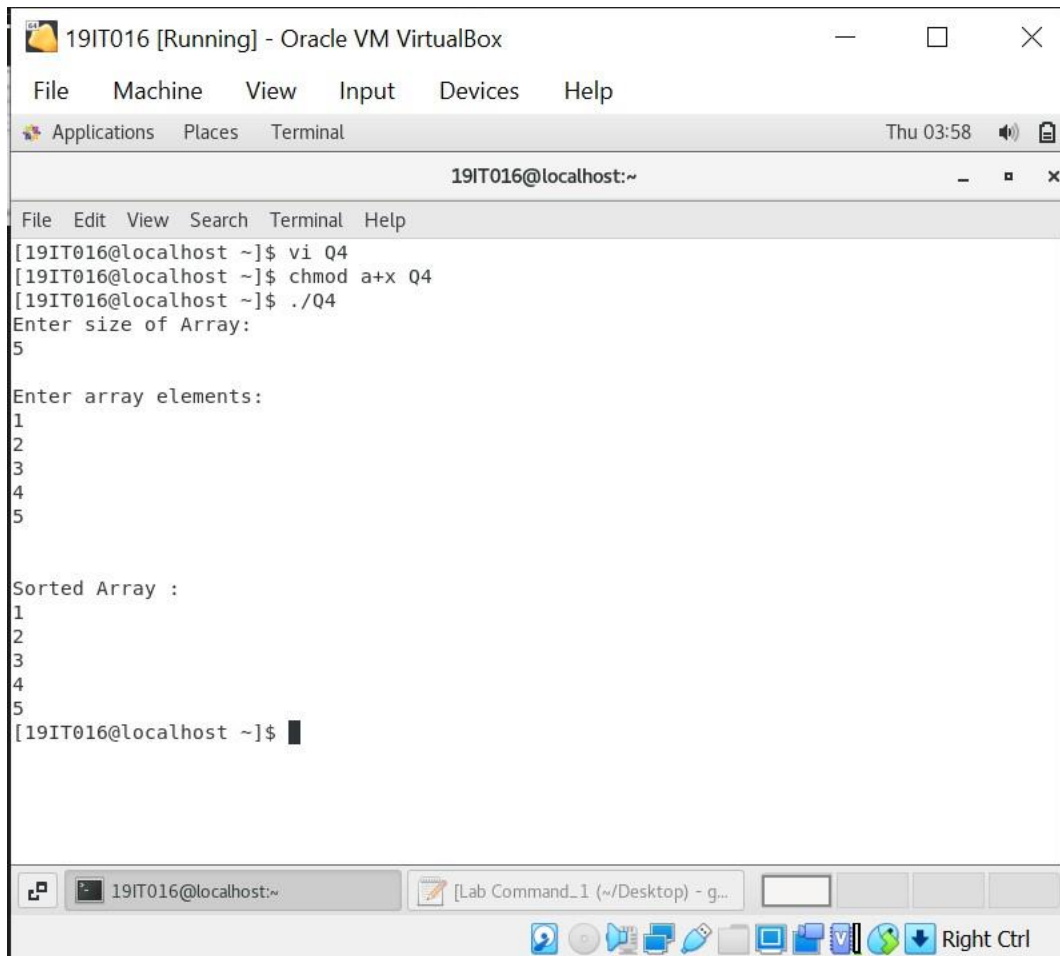
Right Ctrl

OUTPUT:

```
19IT016 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 04:00
19IT016@localhost:~
File Edit View Search Terminal Help
5
[19IT016@localhost ~]$ vi Q4
[19IT016@localhost ~]$ ./Q4
Enter size of Array:
7

Enter array elements:
5
2
3
2
1
789
5

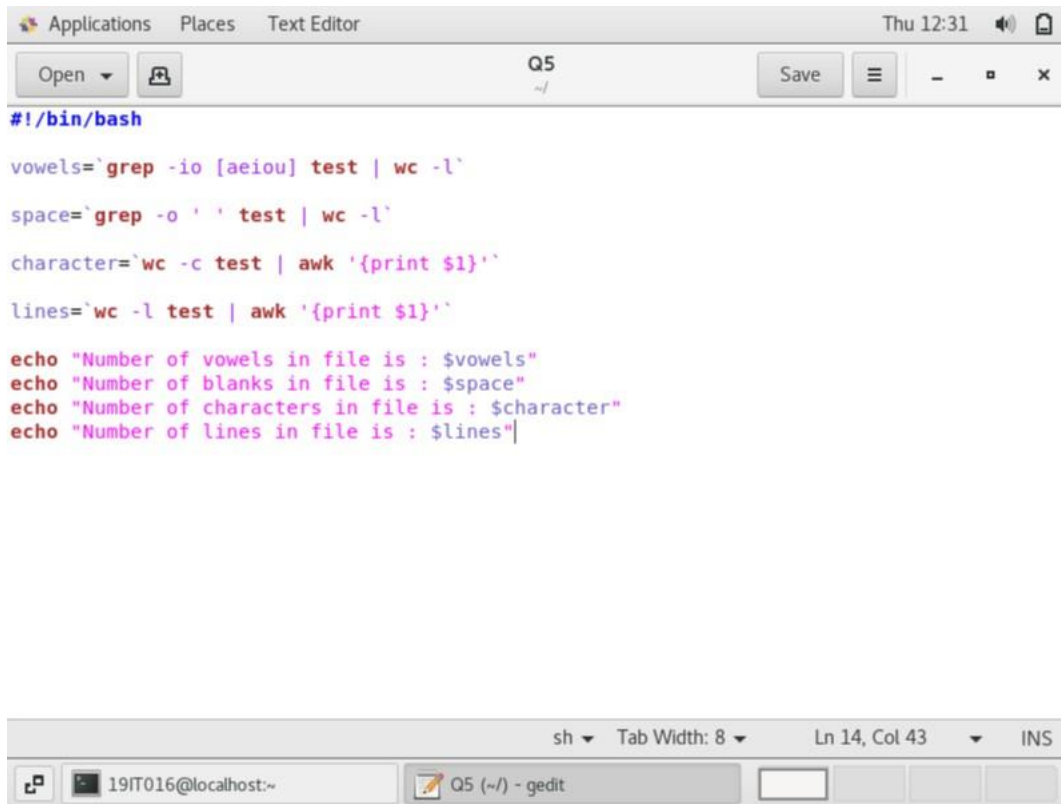
Sorted Array :
1
2
2
3
5
5
789
[19IT016@localhost ~]$
```



```
19IT016 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 03:58
19IT016@localhost:~
File Edit View Search Terminal Help
[19IT016@localhost ~]$ vi Q4
[19IT016@localhost ~]$ chmod a+x Q4
[19IT016@localhost ~]$ ./Q4
Enter size of Array:
5
Enter array elements:
1
2
3
4
5
Sorted Array :
1
2
3
4
5
[19IT016@localhost ~]$
```

5. Write a shell program to count the following in a text file:
- The number of vowels in a given text file.
 - The number of blank spaces.
 - The number of characters.
 - The number of symbols.
 - The number of lines.

CODE:



```
#!/bin/bash

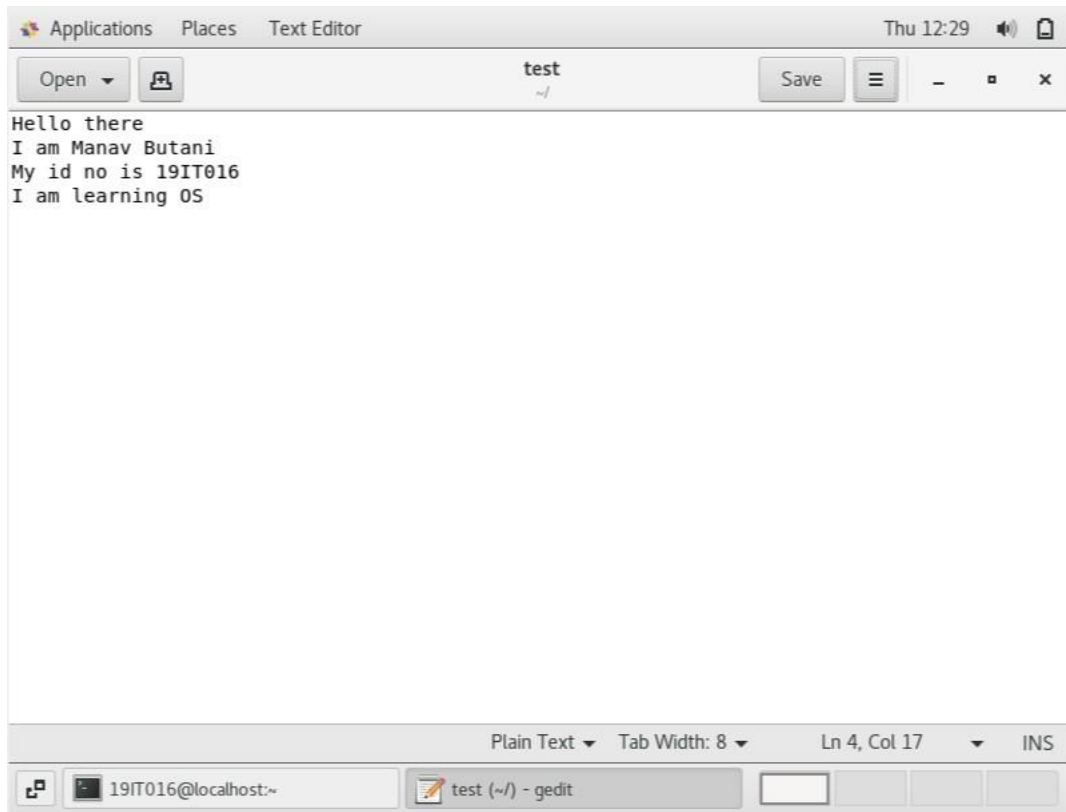
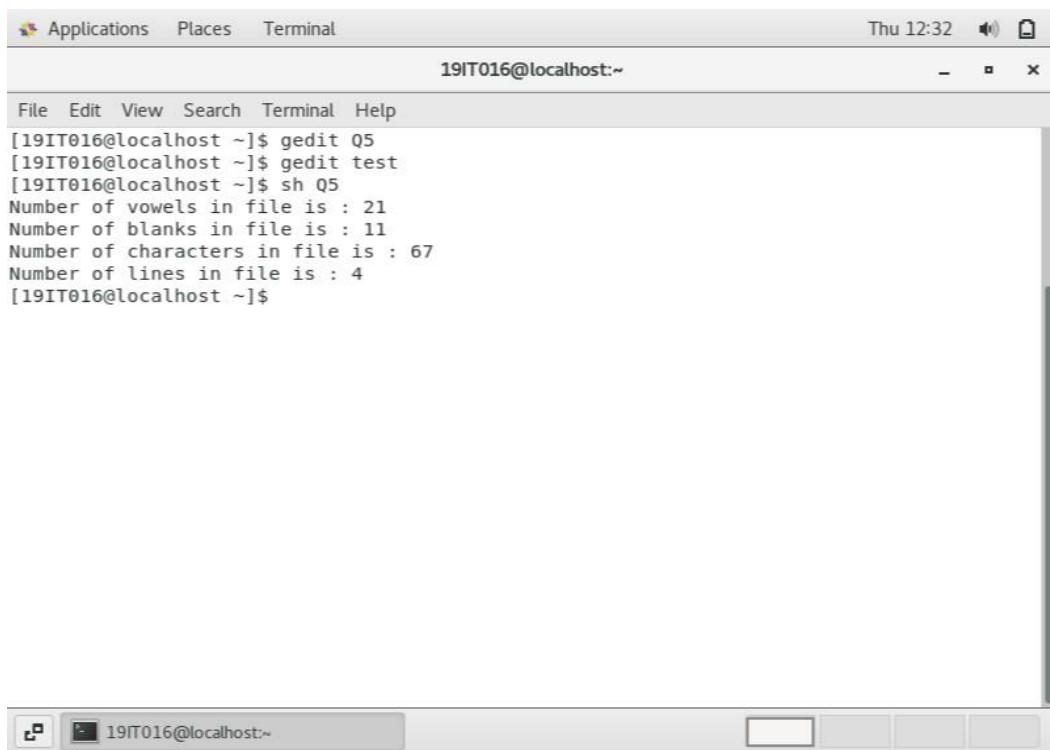
vowels=`grep -io [aeiou] test | wc -l`

space=`grep -o ' ' test | wc -l`

character=`wc -c test | awk '{print $1}'`

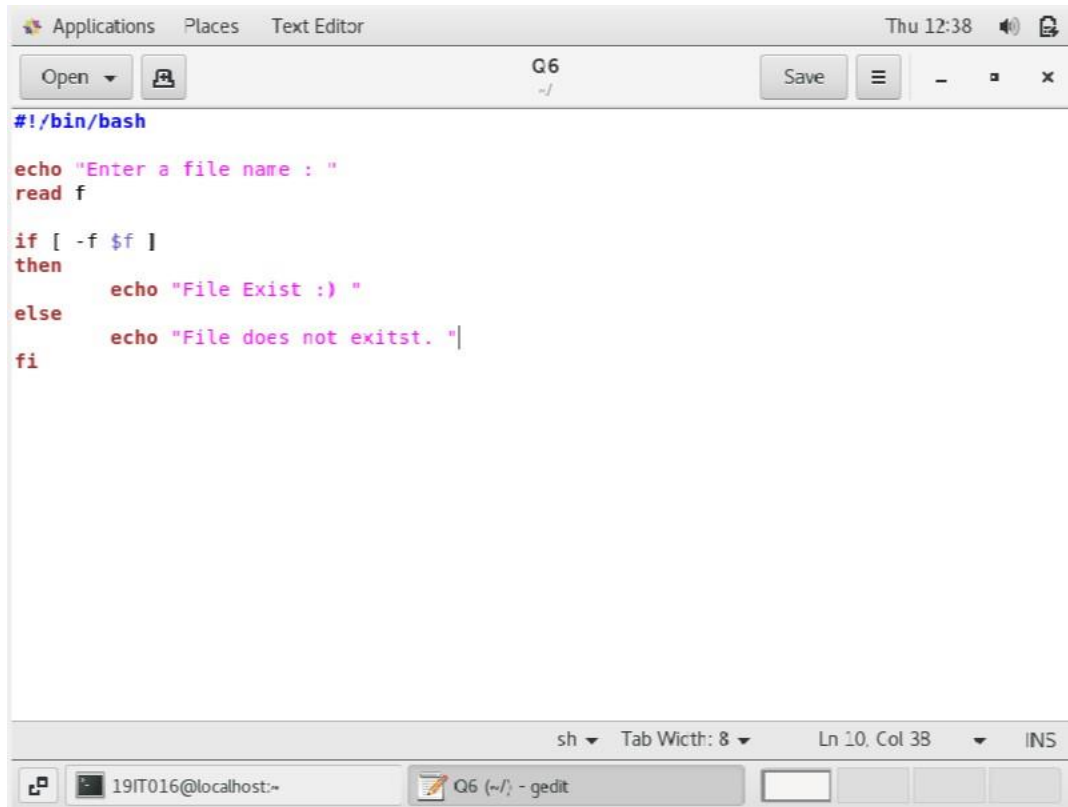
lines=`wc -l test | awk '{print $1}'`

echo "Number of vowels in file is : $vowels"
echo "Number of blanks in file is : $space"
echo "Number of characters in file is : $character"
echo "Number of lines in file is : $lines"
```

**OUTPUT:**

6. Write a shell script that will take a file name from the user and finds that whether the file is there or not in a current working directory and displays the appropriate message.

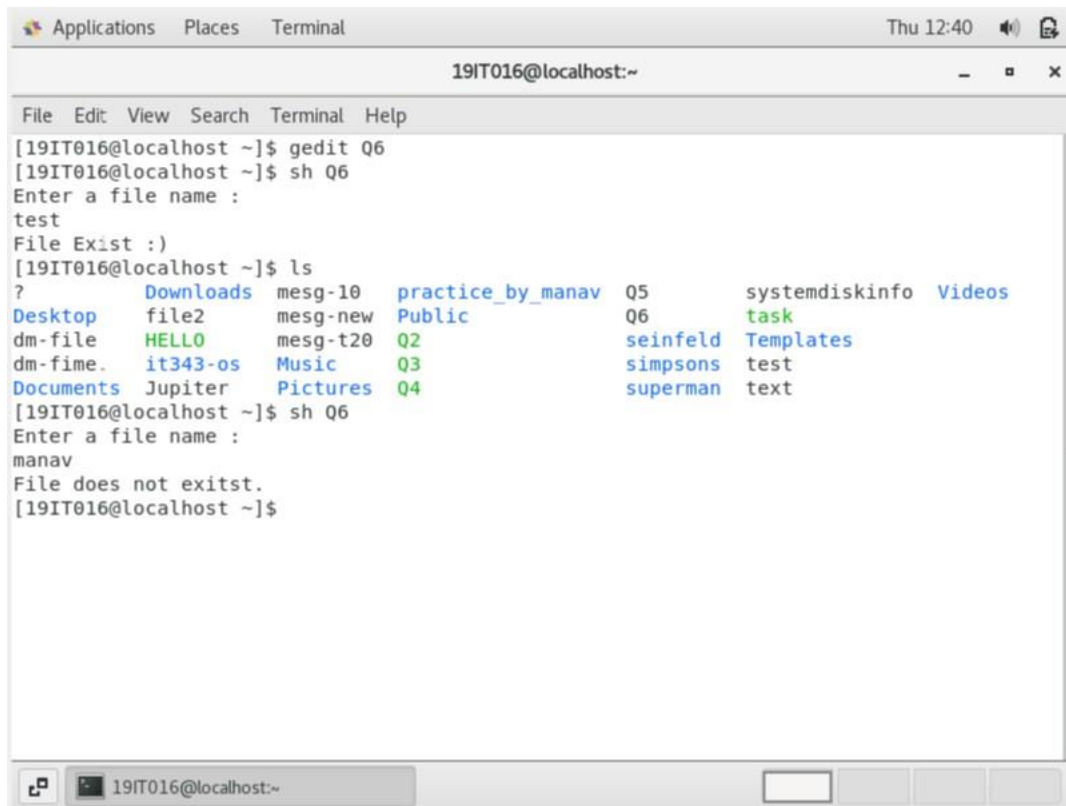
CODE:



The screenshot shows a Linux desktop environment with a terminal window titled 'Q6' and a file editor window titled 'Q6 (~/) - gedit'. The terminal window displays a shell script that prompts the user to enter a file name, checks if the file exists in the current directory, and prints an appropriate message. The script is as follows:

```
#!/bin/bash
echo "Enter a file name : "
read f
if [ -f $f ]
then
    echo "File Exist :) "
else
    echo "File does not exist. "|
fi
```

The terminal window also shows the prompt '19IT016@localhost:~' and the file editor window shows the file 'Q6 (~/) - gedit'.

OUTPUT:

The screenshot shows a terminal window titled "19IT016@localhost:~". The window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal output is as follows:

```
[19IT016@localhost ~]$ gedit Q6
[19IT016@localhost ~]$ sh Q6
Enter a file name :
test
File Exist :)
[19IT016@localhost ~]$ ls
?      Downloads  mesg-10  practice_by_manav  Q5      systemdiskinfo  Videos
Desktop  file2      mesg-new Public           Q6      task
dm-file  HELLO     mesg-t20 Q2
dm-fime. it343-os  Music    Q3
Documents Jupiter  Pictures Q4
seinfeld Templates
simpsons test
superman text
```

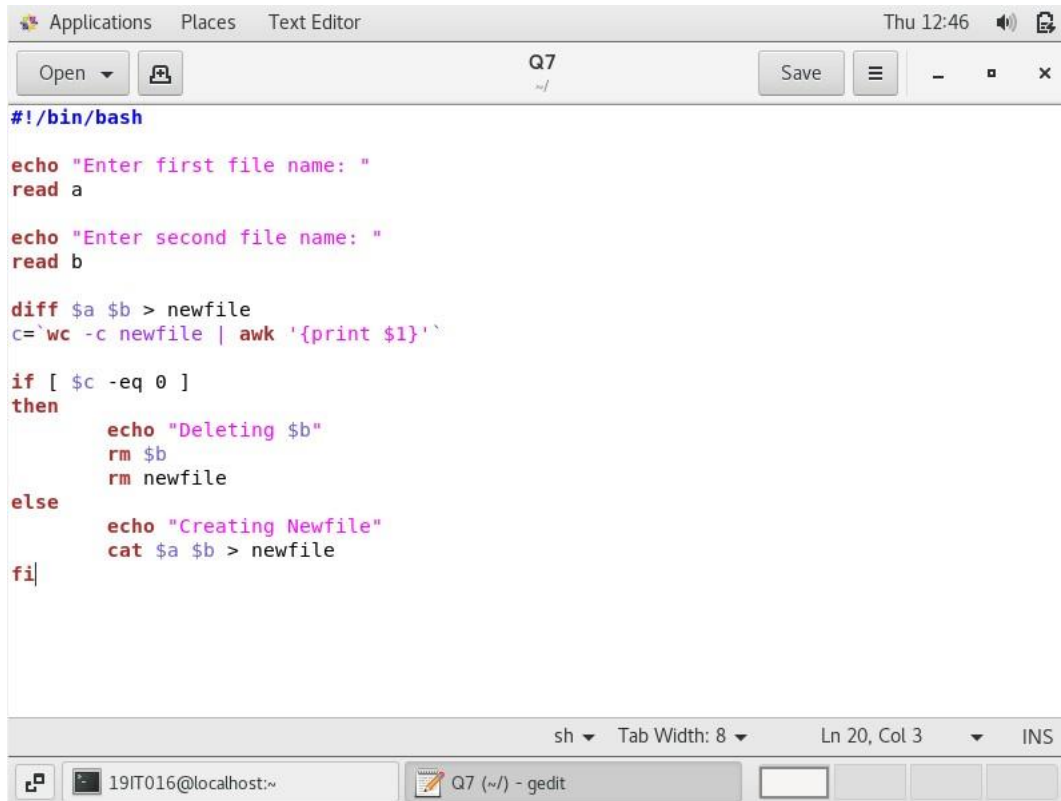
After the `ls` command, the terminal displays a list of files and directories in a color-coded format. The files are listed in columns, with some files having a corresponding question number (Q1-Q6). The files are: Downloads, file2, HELLO, it343-os, Jupiter, Pictures, mesg-10, mesg-new, mesg-t20, Public, Q2, Q3, Q4, Q5, Q6, practice_by_manav, seinfeld, simpsons, superman, systemdiskinfo, task, Templates, test, Videos.

Following the `ls` command, the user enters `manav` as a file name, and the terminal responds with "File does not existst." and returns to the prompt.

```
[19IT016@localhost ~]$
```

7. Write a shell script that compares two files given by the user and if both files are the same then delete the second one, if not then merge the two files in a new file.

CODE:



```
#!/bin/bash

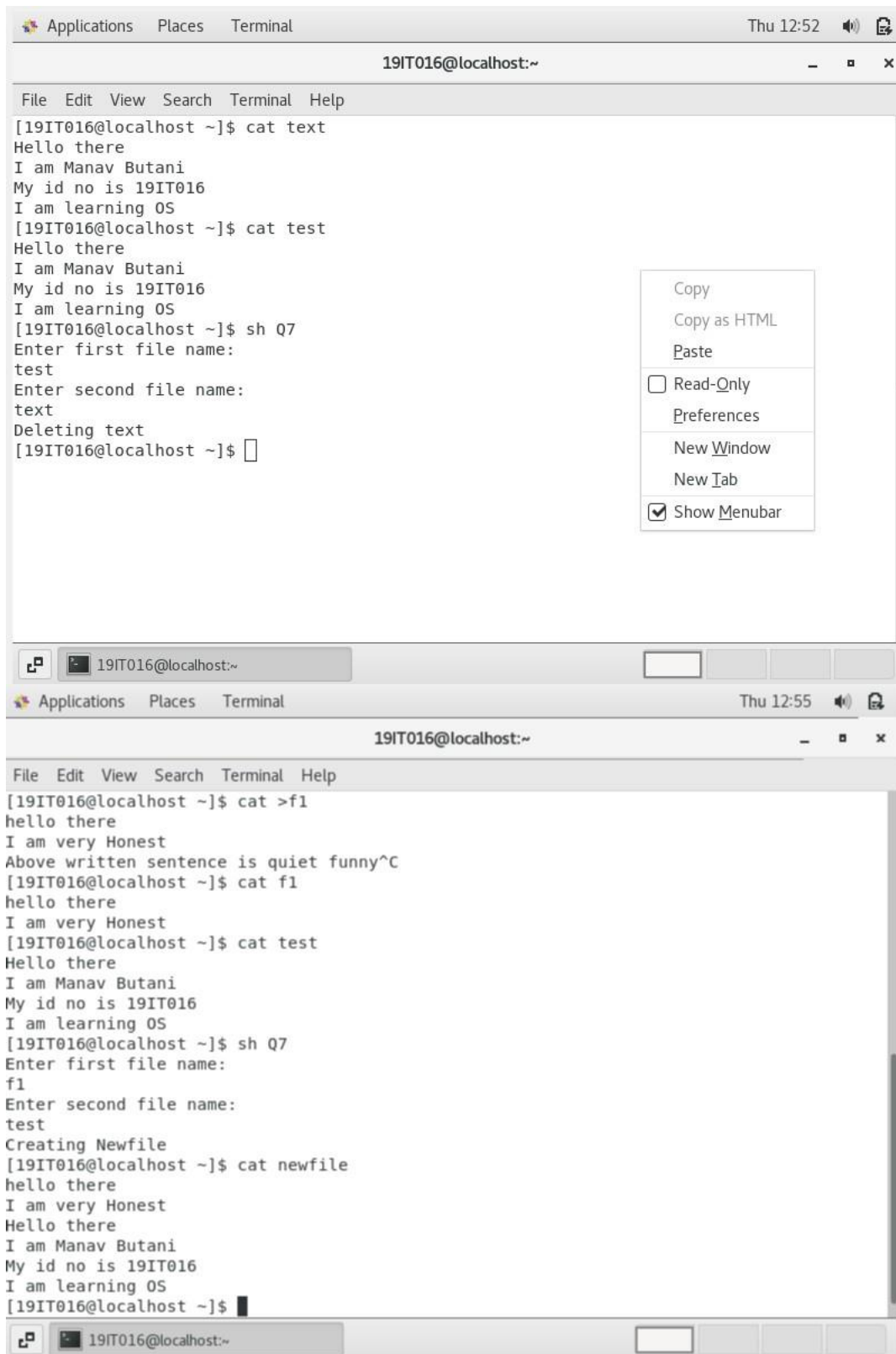
echo "Enter first file name: "
read a

echo "Enter second file name: "
read b

diff $a $b > newfile
c=`wc -c newfile | awk '{print $1}'`

if [ $c -eq 0 ]
then
    echo "Deleting $b"
    rm $b
    rm newfile
else
    echo "Creating Newfile"
    cat $a $b > newfile
fi
```

The screenshot shows a gedit text editor window titled 'Q7 (~/) - gedit'. The window contains a shell script that prompts the user for two file names, compares them using 'diff', and either deletes the second file and the temporary 'newfile' or merges them into 'newfile'. The script uses 'read' for input, 'diff' for comparison, 'wc' and 'awk' for file size checking, and 'rm' or 'cat' for file manipulation. The status bar at the bottom indicates the shell is 'sh', tab width is 8, and the cursor is at line 20, column 3 in insert mode.

OUTPUT:

The image displays two screenshots of a Linux terminal window. The top screenshot shows a user named 19IT016@localhost performing several commands: `cat text`, `cat test`, and `sh Q7`. The output of these commands is displayed in the terminal. A context menu is visible on the right side of the terminal window, showing options like Copy, Copy as HTML, Paste, Read-Only, Preferences, New Window, New Tab, and Show Menubar. The bottom screenshot shows the same user performing a series of commands: `cat >f1`, `cat f1`, `cat test`, `sh Q7`, and `cat newfile`. The output of these commands is displayed in the terminal.

```
[19IT016@localhost ~]$ cat text
Hello there
I am Manav Butani
My id no is 19IT016
I am learning OS
[19IT016@localhost ~]$ cat test
Hello there
I am Manav Butani
My id no is 19IT016
I am learning OS
[19IT016@localhost ~]$ sh Q7
Enter first file name:
test
Enter second file name:
test
Deleting text
[19IT016@localhost ~]$
```

```
[19IT016@localhost ~]$ cat >f1
hello there
I am very Honest
Above written sentence is quiet funny^C
[19IT016@localhost ~]$ cat f1
hello there
I am very Honest
[19IT016@localhost ~]$ cat test
Hello there
I am Manav Butani
My id no is 19IT016
I am learning OS
[19IT016@localhost ~]$ sh Q7
Enter first file name:
f1
Enter second file name:
test
Creating Newfile
[19IT016@localhost ~]$ cat newfile
hello there
I am very Honest
Hello there
I am Manav Butani
My id no is 19IT016
I am learning OS
[19IT016@localhost ~]$
```