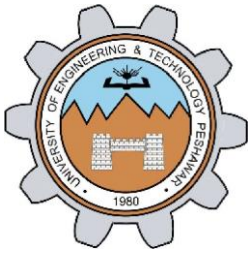
LAB #03
SHELL Programming (Part II)



Spring 2023

CSE-204L Operating Systems Lab

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Registration No.: 21PWCSE2028

Section: C

"On my honor, as a student of the University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work"

Submitted to:

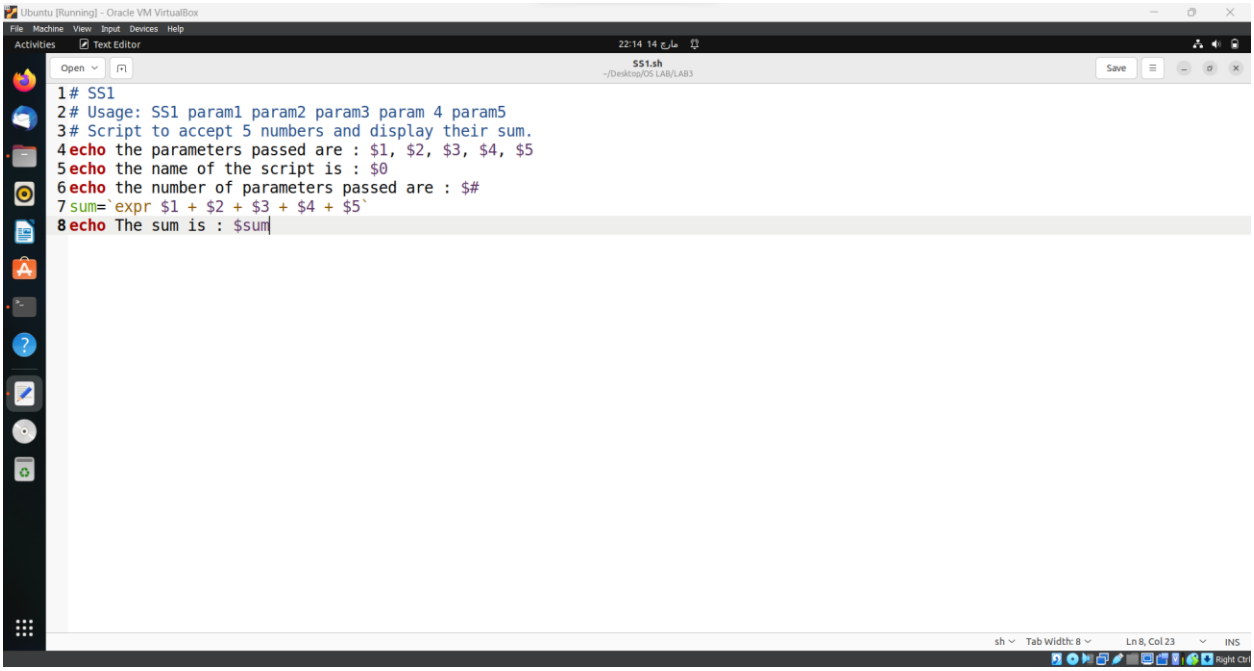
Engr. Madiha Sher

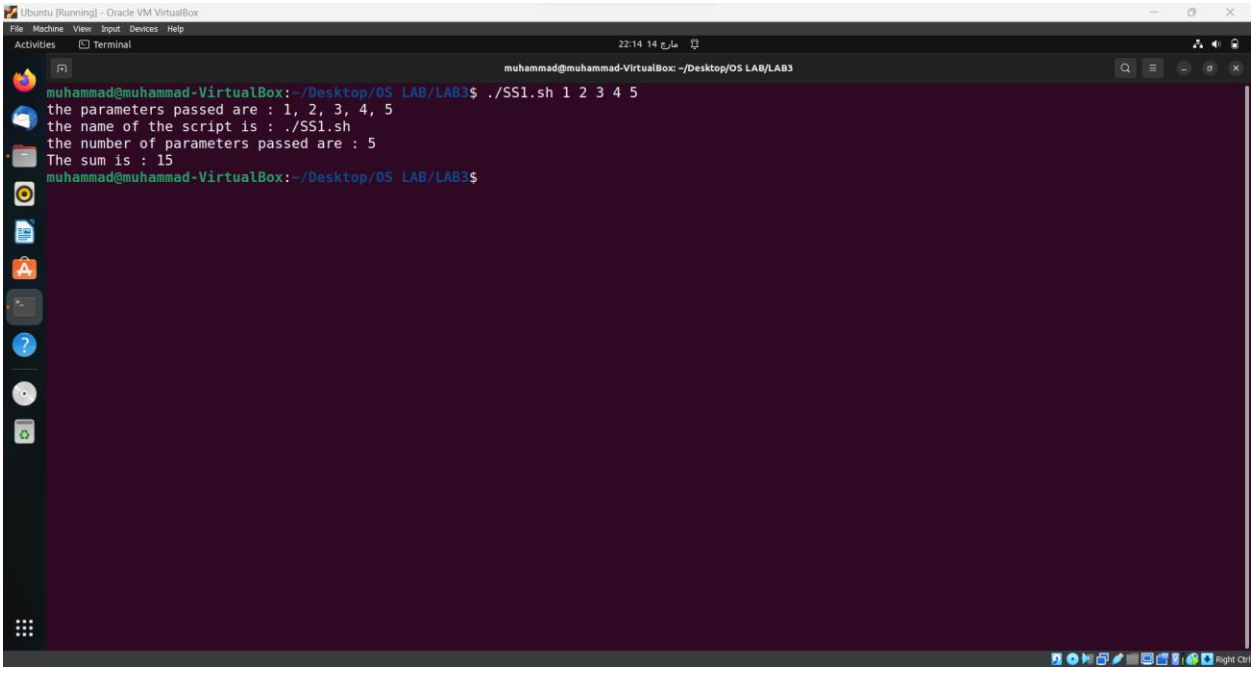
(13 Mar 2023)

Department of Computer systems engineering
University of Engineering and Technology,
Peshawar

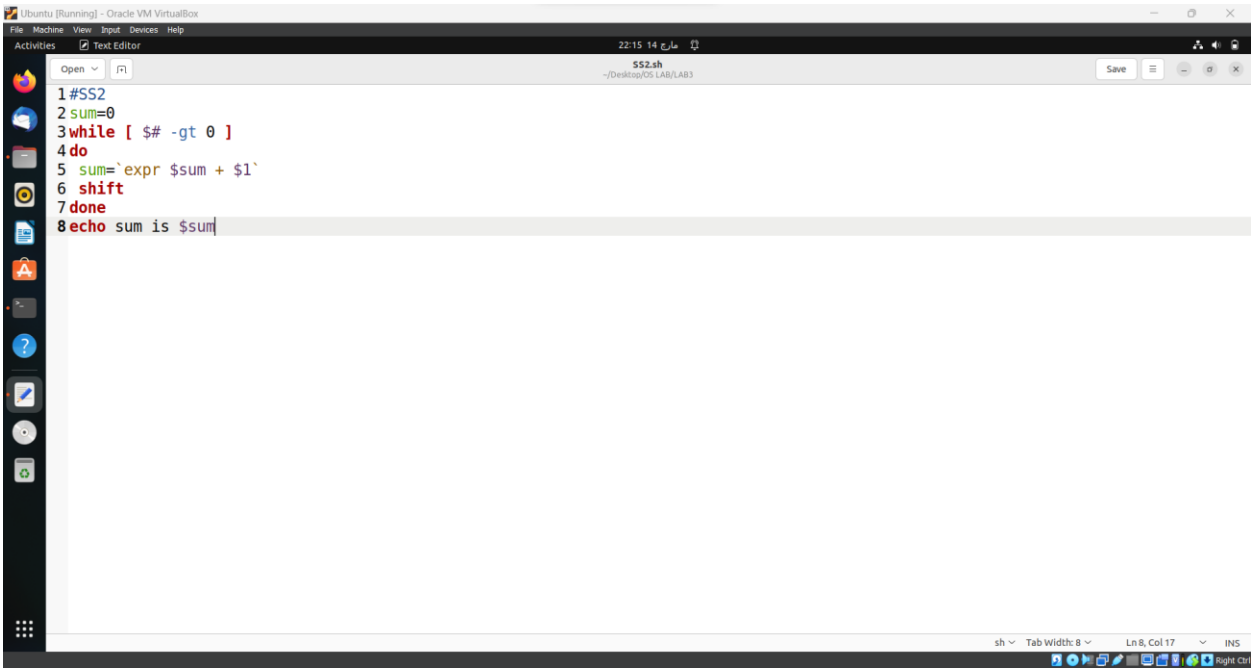
1. Run all the programs given in the Lab Notes, and observe the output for each program.

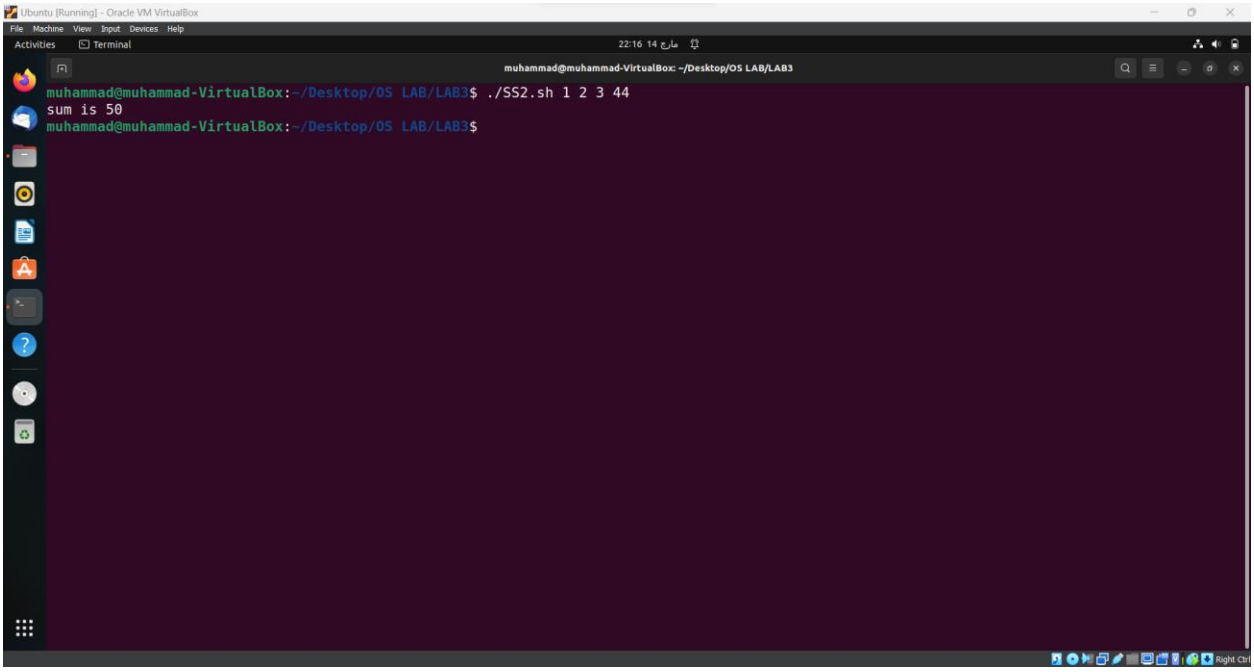
SS1



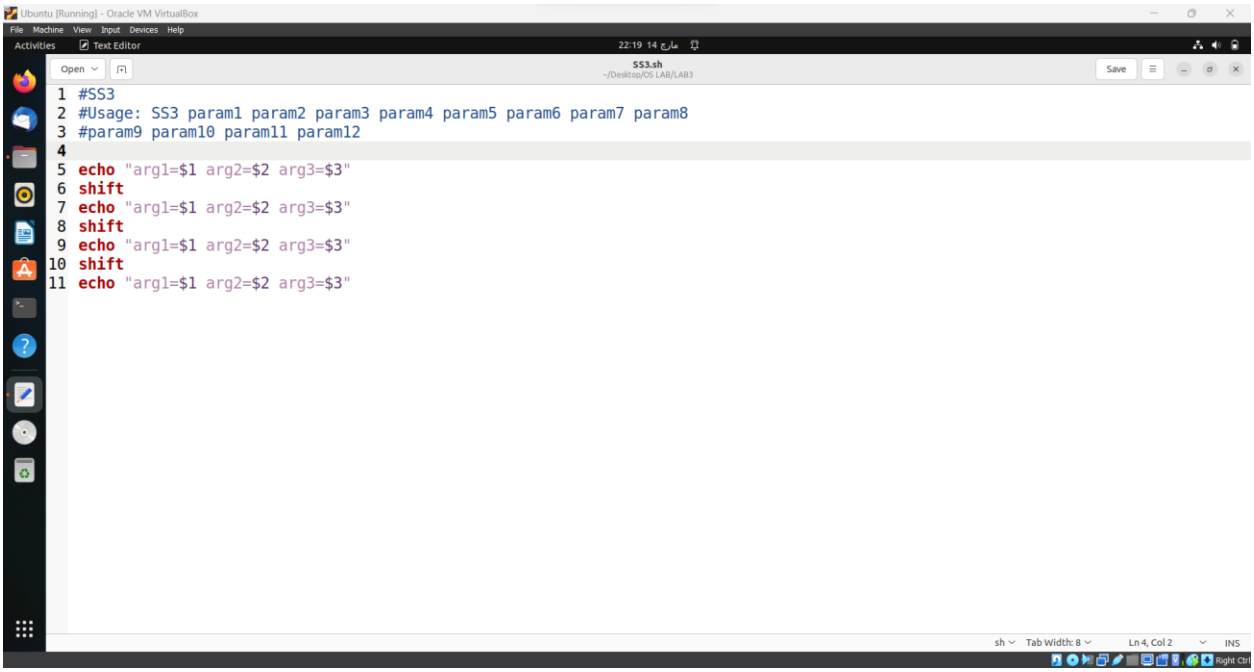


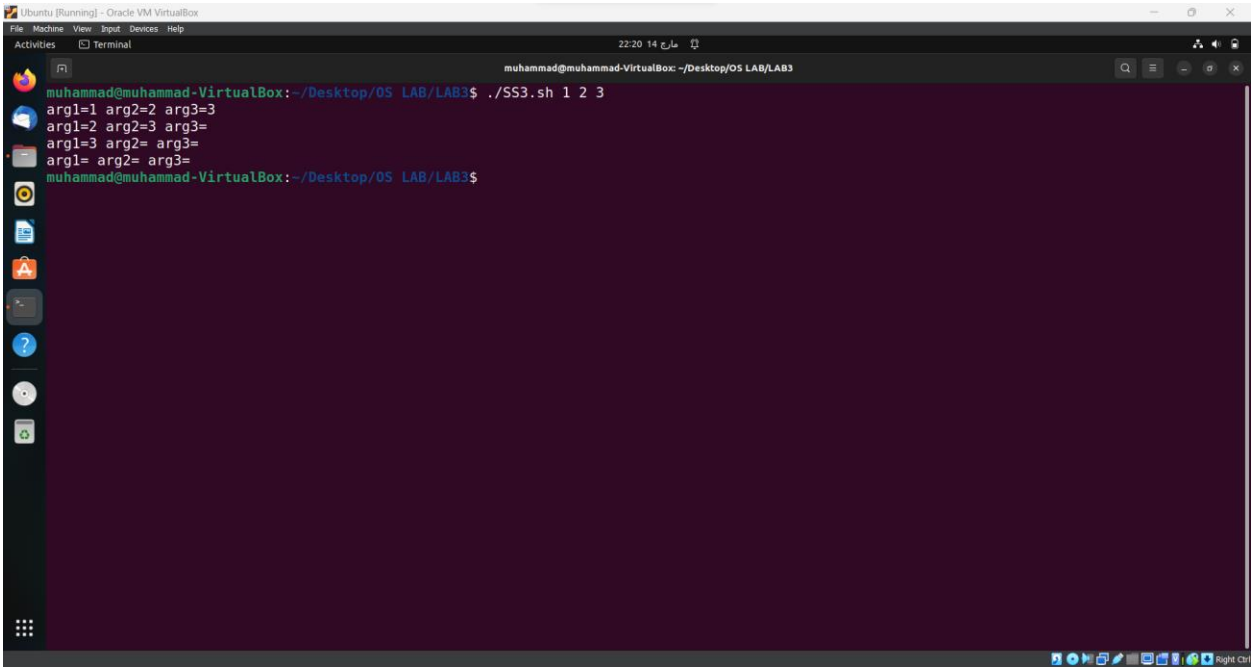
SS2


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:15 14 مارچ
Open
SS2.sh
~/Desktop/OS LAB/LAB3
Save
1 #SS2
2 sum=0
3 while [$# -gt 0]
4 do
5 sum=`expr $sum + $1`
6 shift
7 done
8 echo sum is $sum
sh
Tab Width: 8
Ln 8, Col 17
INS
Right Ctrl


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:16 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ./SS2.sh 1 2 3 44
sum is 50
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

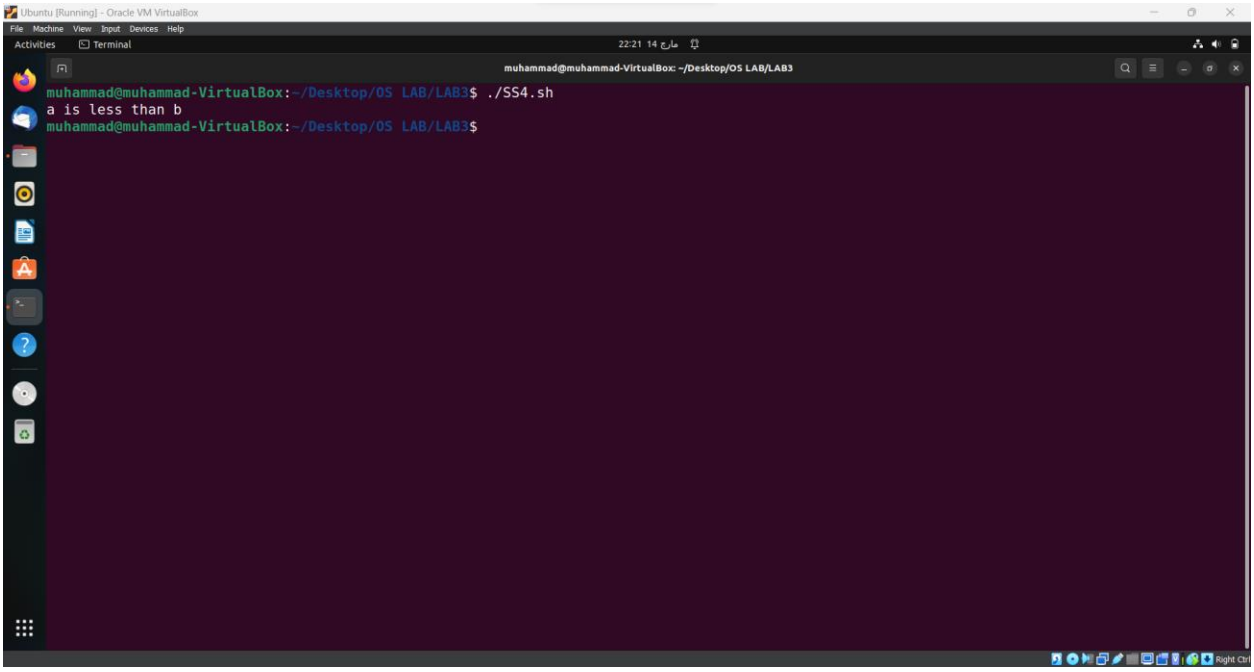
SS3


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:19 14 مارچ
Open
SS3.sh
~/Desktop/OS LAB/LAB3
Save
1 #SS3
2 #Usage: SS3 param1 param2 param3 param4 param5 param6 param7 param8
3 #param9 param10 param11 param12
4
5 echo "arg1=$1 arg2=$2 arg3=$3"
6 shift
7 echo "arg1=$1 arg2=$2 arg3=$3"
8 shift
9 echo "arg1=$1 arg2=$2 arg3=$3"
10 shift
11 echo "arg1=$1 arg2=$2 arg3=$3"
sh
Tab Width: 8
Ln 4, Col 2
INS
Right Ctrl

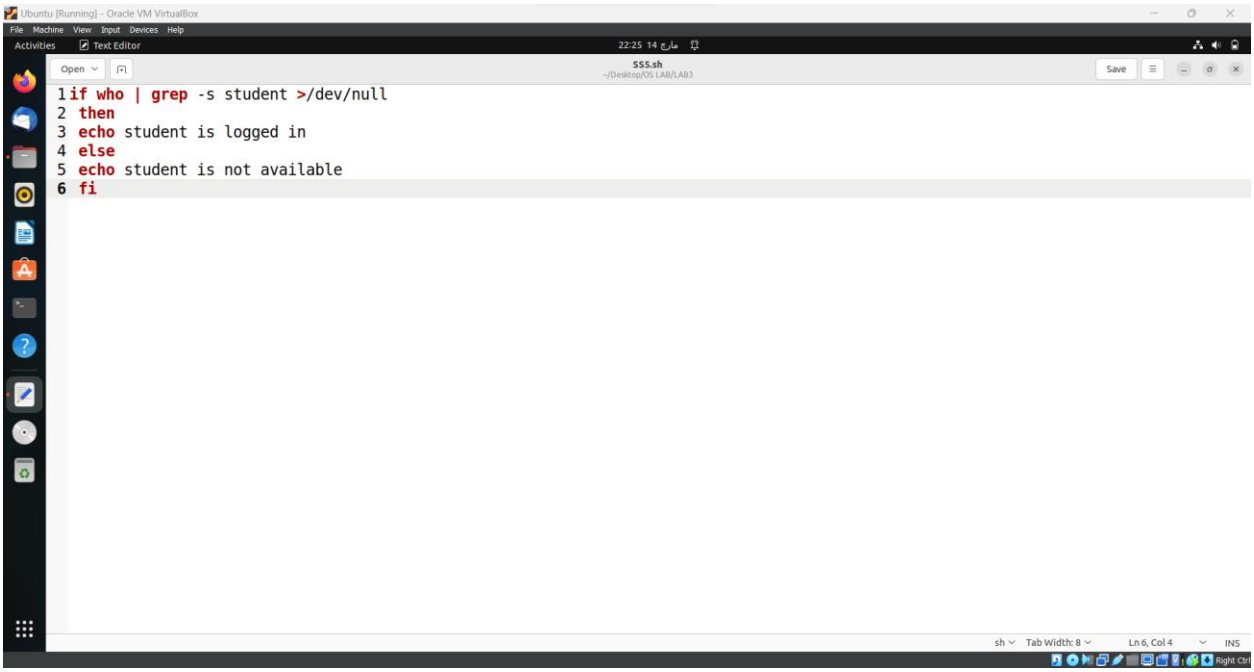

Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:20 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ./SS3.sh 1 2 3
arg1=1 arg2=2 arg3=3
arg1=2 arg2=3 arg3=
arg1=3 arg2= arg3=
arg1= arg2= arg3=
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

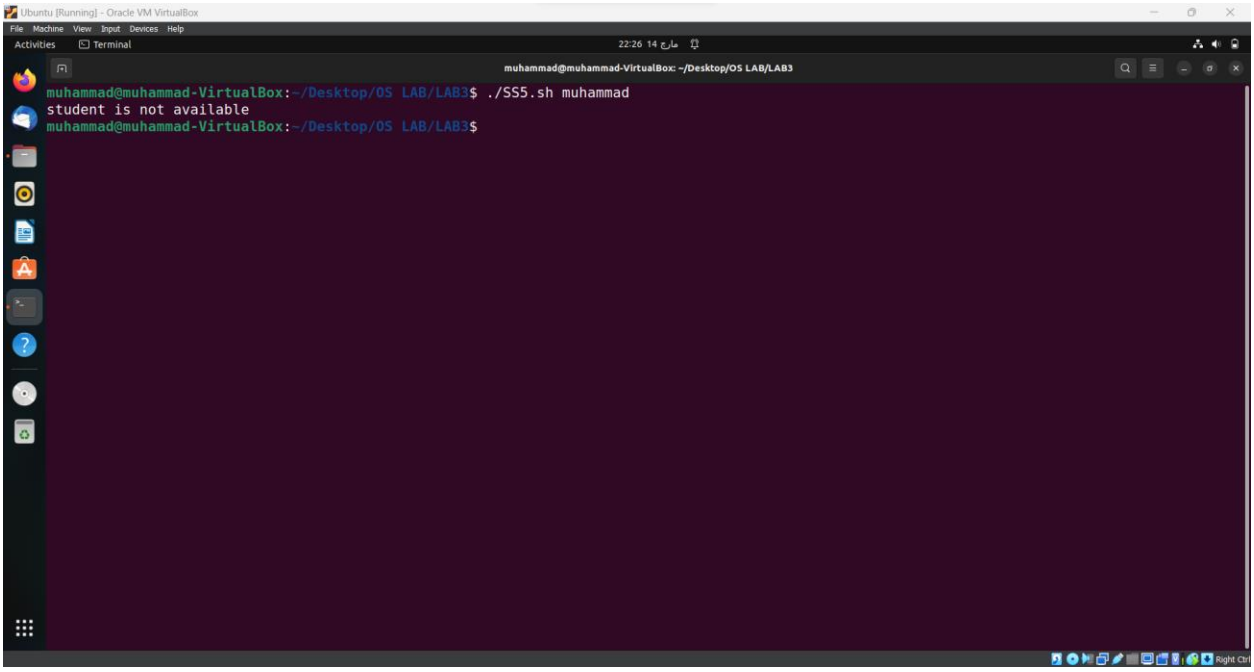
SS4


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:21 14 مارچ
Open
SS4.sh
~/Desktop/OS LAB/LAB3
Save
1 a=10
2 b=20
3 if [$a == $b]
4 then
5 echo "a is equal to b "
6 elif [$a -gt $b]
7 then
8 echo "a is greater than b "
9 elif [$a -lt $b]
10 then
11 echo "a is less than b "
12 else
13 echo "None of the condition met "
14 fi
sh Tab Width: 8 Ln 14, Col 4 INS
Right Ctrl


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:21 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ./SS4.sh
a is less than b
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

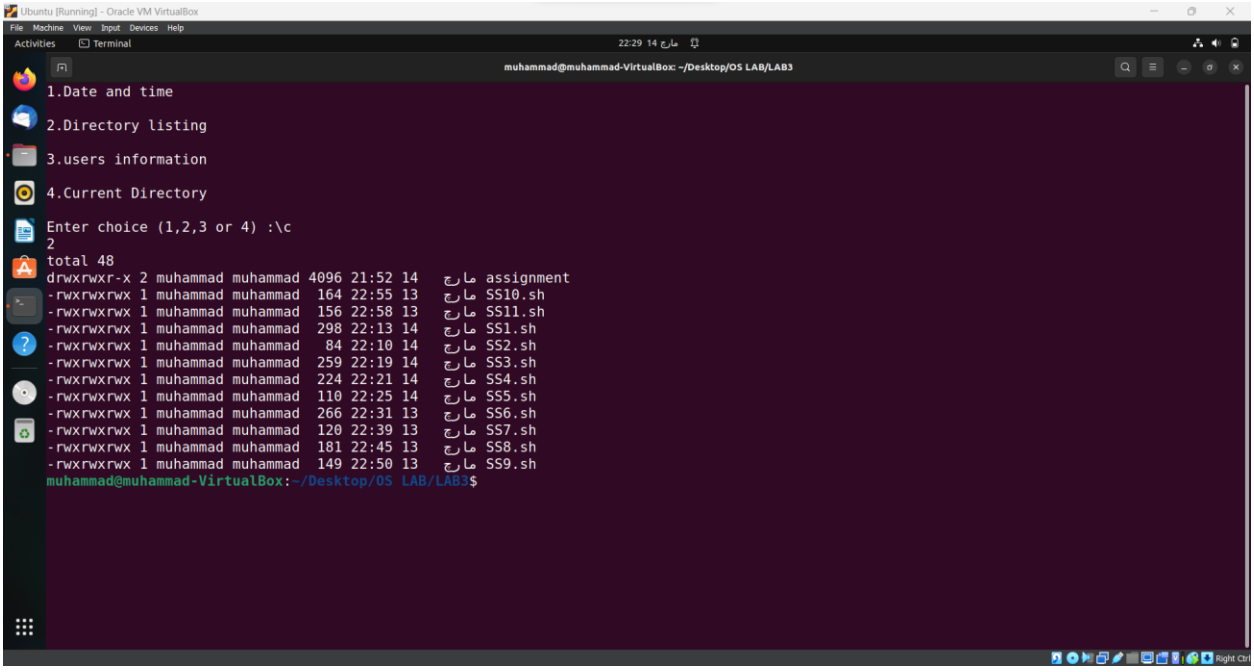
SS5


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:25 14 مارچ
Open
SS5.sh
~/Desktop/OS LAB/LAB3
Save
1 if who | grep -s student >/dev/null
2 then
3 echo student is logged in
4 else
5 echo student is not available
6 fi
sh
Tab Width: 8
Ln 6, Col 4
INS
Right Ctrl

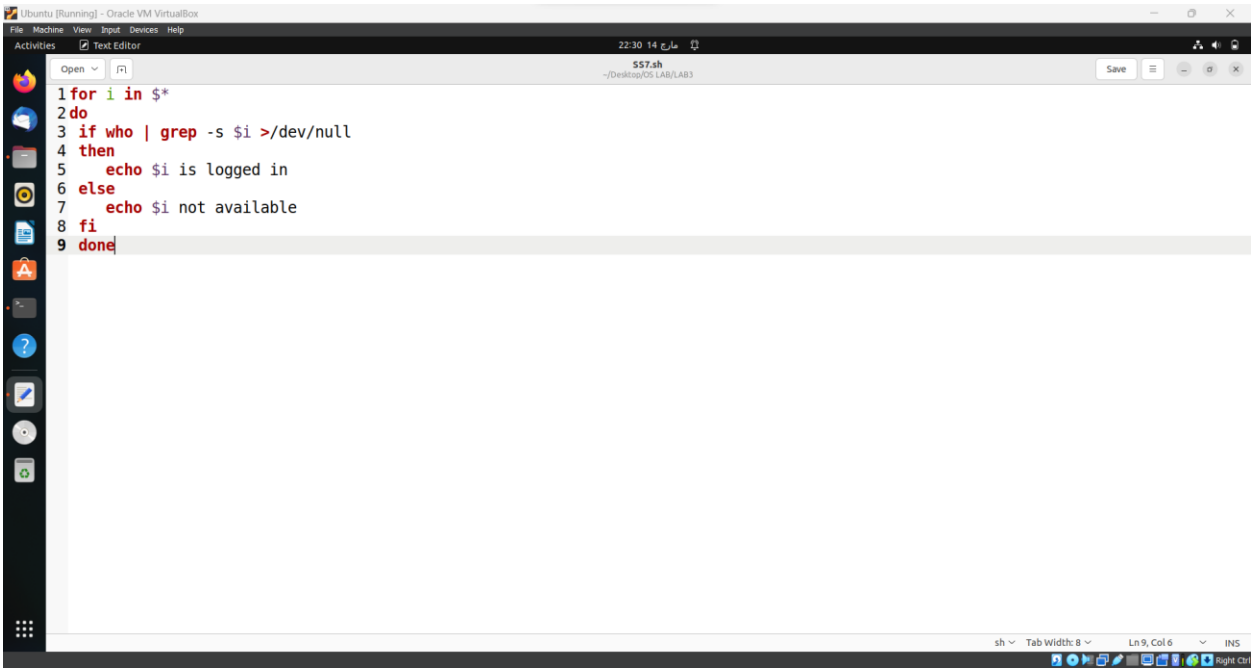

Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:26 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ./SS5.sh muhammad
student is not available
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

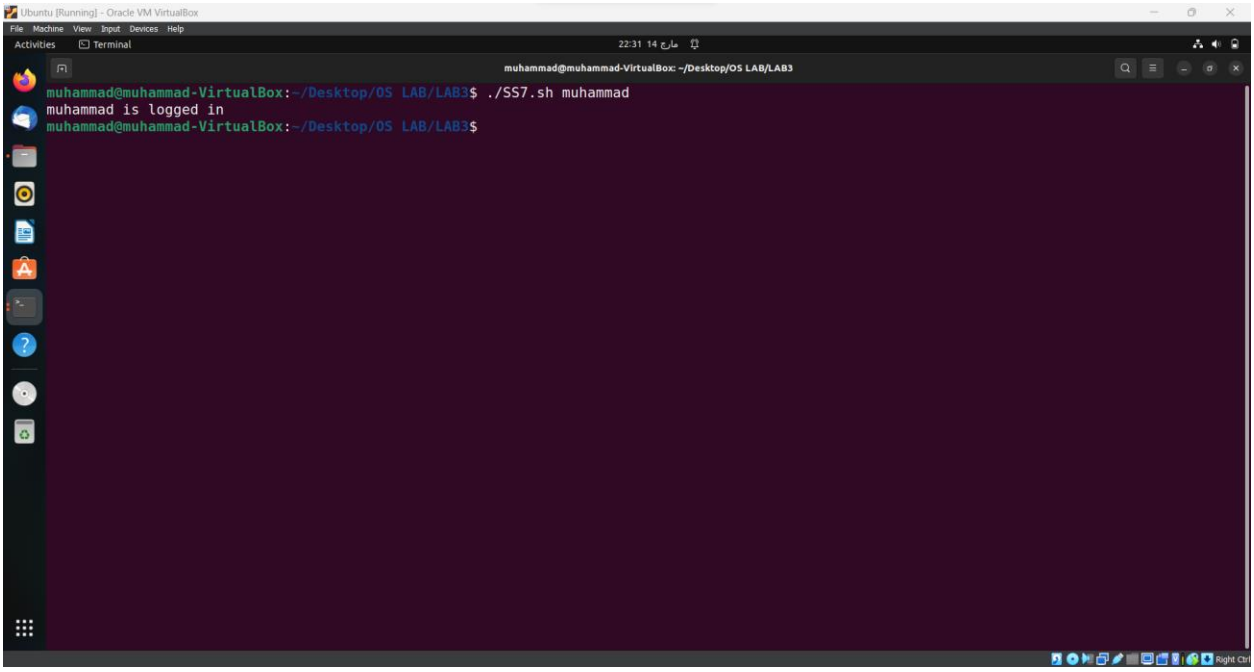
SS6


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:28 14 مارچ
Open
SS6.sh
~/Desktop/OS LAB/LAB3
Save
1 clear
2 echo "1.Date and time "
3 echo
4 echo "2.Directory listing "
5 echo
6 echo "3.users information "
7 echo
8 echo "4.Current Directory "
9 echo
10 echo "Enter choice (1,2,3 or 4) :\c"
11 read choice
12 case $choice in
13 1) date;;
14 2) ls -l;;
15 3) who;;
16 4) pwd;;
17 *) echo wrong choice;;
18 esac
sh
Tab Width: 8
Ln 18, Col 5
INS
Right Ctrl

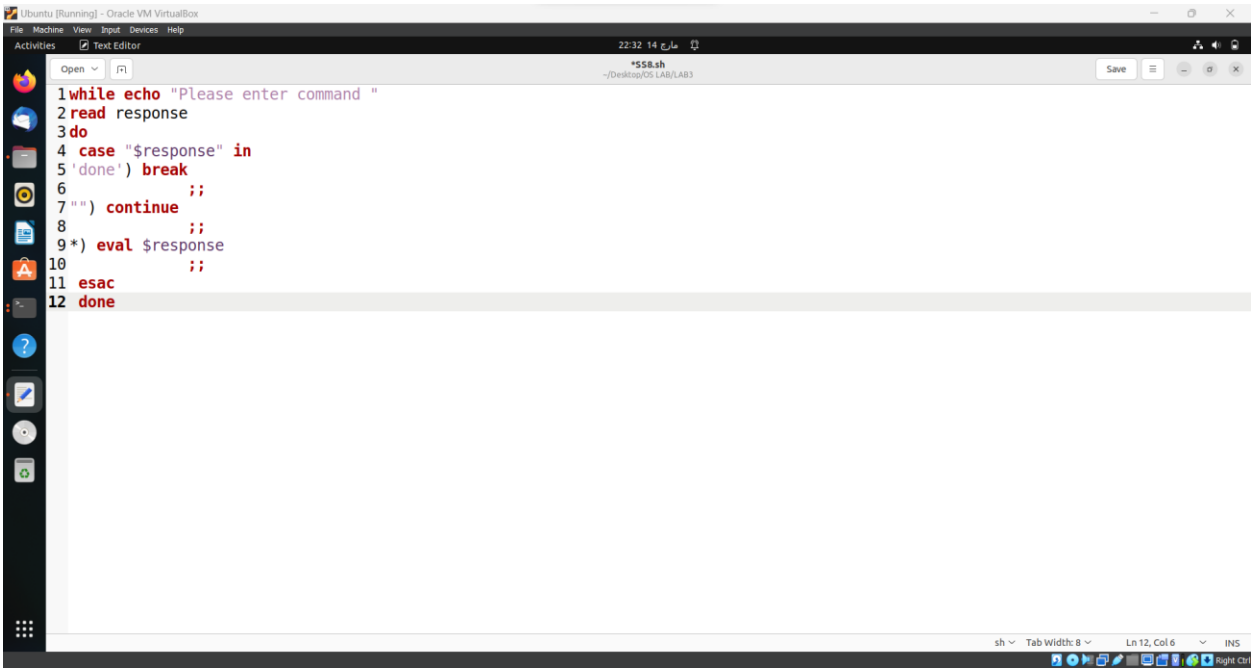

Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:29 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
1.Date and time
2.Directory listing
3.users information
4.Current Directory
Enter choice (1,2,3 or 4) :\c
2
total 48
drwxrwxr-x 2 muhammad muhammad 4096 21:52 14 مارچ assignment
-rwxrwxrwx 1 muhammad muhammad 164 22:55 13 مارچ SS10.sh
-rwxrwxrwx 1 muhammad muhammad 156 22:58 13 مارچ SS11.sh
-rwxrwxrwx 1 muhammad muhammad 298 22:13 14 مارچ SS1.sh
-rwxrwxrwx 1 muhammad muhammad 84 22:10 14 مارچ SS2.sh
-rwxrwxrwx 1 muhammad muhammad 259 22:19 14 مارچ SS3.sh
-rwxrwxrwx 1 muhammad muhammad 224 22:21 14 مارچ SS4.sh
-rwxrwxrwx 1 muhammad muhammad 110 22:25 14 مارچ SS5.sh
-rwxrwxrwx 1 muhammad muhammad 266 22:31 13 مارچ SS6.sh
-rwxrwxrwx 1 muhammad muhammad 120 22:39 13 مارچ SS7.sh
-rwxrwxrwx 1 muhammad muhammad 181 22:45 13 مارچ SS8.sh
-rwxrwxrwx 1 muhammad muhammad 149 22:50 13 مارچ SS9.sh
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

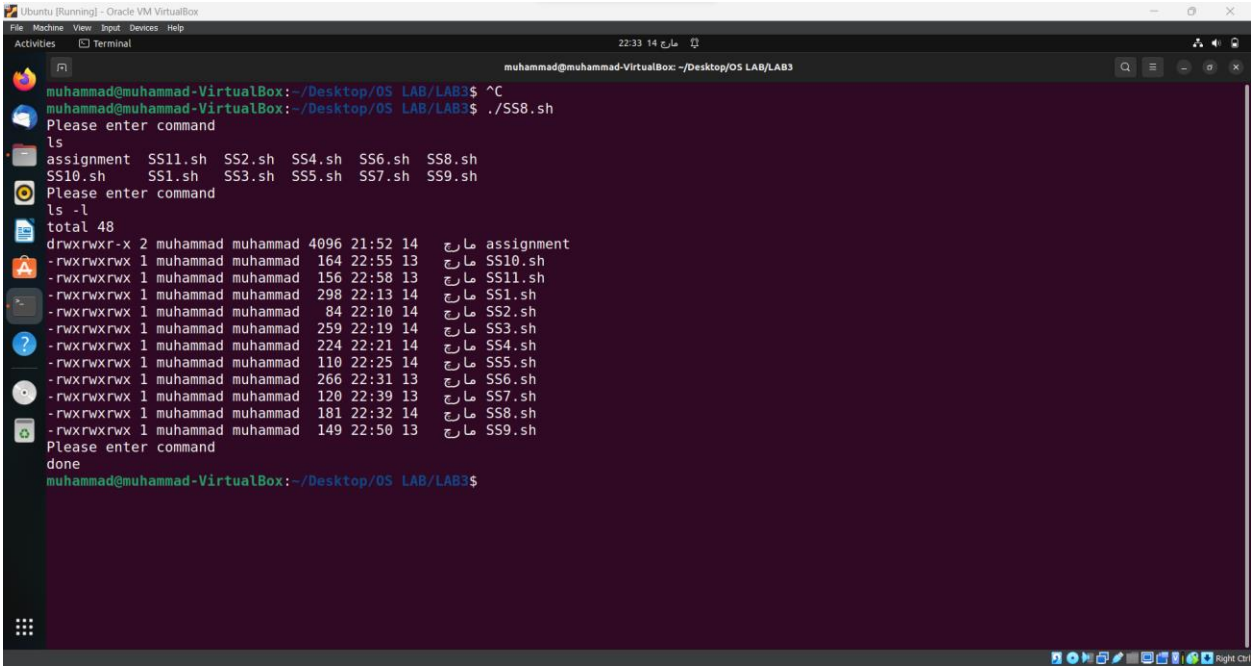
SS7


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:30 14 مارچ
Open
SS7.sh
~/Desktop/OS LAB/LAB3
Save
1 for i in $*
2 do
3 if who | grep -s $i >/dev/null
4 then
5 echo $i is logged in
6 else
7 echo $i not available
8 fi
9 done
sh
Tab Width: 8
Ln 9, Col 6
INS
Right Ctrl

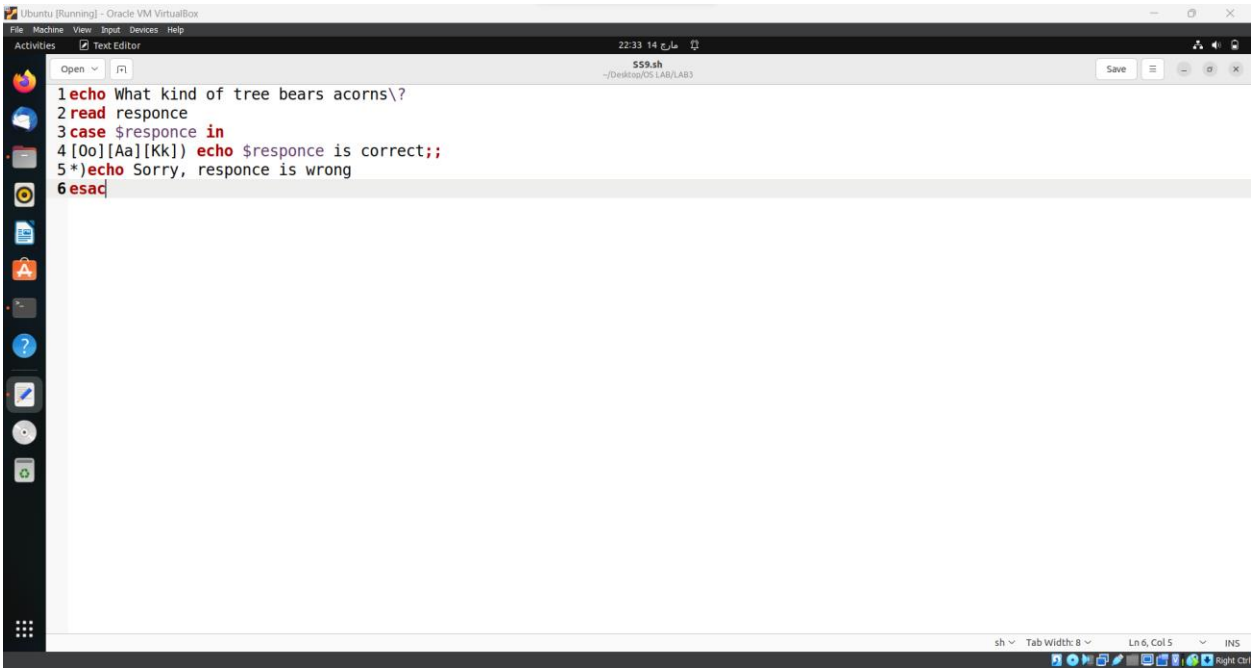

Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:31 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ./SS7.sh muhammad
muhammad is logged in
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

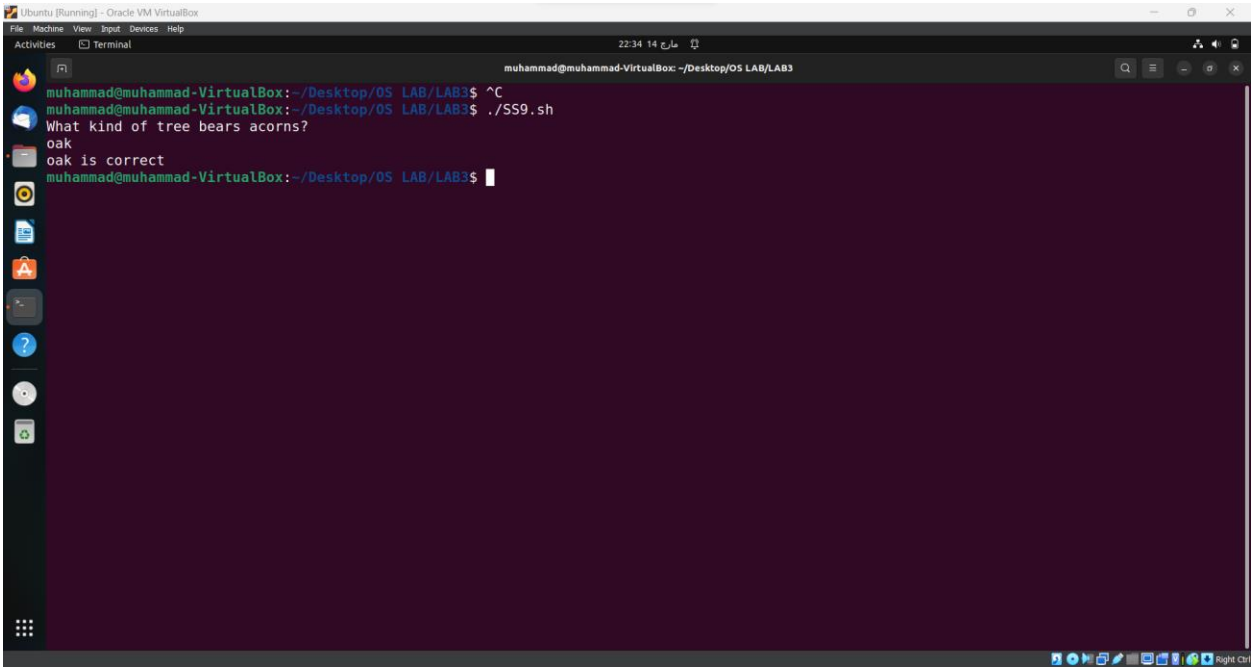
SS8


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:32 14 مارچ
Open
*SS8.sh
~/Desktop/OS LAB/LAB3
Save
1 while echo "Please enter command "
2 read response
3 do
4 case "$response" in
5 'done') break
6 ;;
7 "") continue
8 ;;
9 *) eval $response
10 ;;
11 esac
12 done
sh
Tab Width: 8
Ln 12, Col 6
INS


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:33 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ^C
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ./SS8.sh
Please enter command
ls
assignment SS11.sh SS2.sh SS4.sh SS6.sh SS8.sh
SS10.sh SS1.sh SS3.sh SS5.sh SS7.sh SS9.sh
Please enter command
ls -l
total 48
drwxrwxr-x 2 muhammad muhammad 4096 21:52 14 مارچ assignment
-rwxrwxrwx 1 muhammad muhammad 164 22:55 13 مارچ SS10.sh
-rwxrwxrwx 1 muhammad muhammad 156 22:58 13 مارچ SS11.sh
-rwxrwxrwx 1 muhammad muhammad 298 22:13 14 مارچ SS1.sh
-rwxrwxrwx 1 muhammad muhammad 84 22:10 14 مارچ SS2.sh
-rwxrwxrwx 1 muhammad muhammad 259 22:19 14 مارچ SS3.sh
-rwxrwxrwx 1 muhammad muhammad 224 22:21 14 مارچ SS4.sh
-rwxrwxrwx 1 muhammad muhammad 110 22:25 14 مارچ SS5.sh
-rwxrwxrwx 1 muhammad muhammad 266 22:31 13 مارچ SS6.sh
-rwxrwxrwx 1 muhammad muhammad 120 22:39 13 مارچ SS7.sh
-rwxrwxrwx 1 muhammad muhammad 181 22:32 14 مارچ SS8.sh
-rwxrwxrwx 1 muhammad muhammad 149 22:50 13 مارچ SS9.sh
Please enter command
done
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$

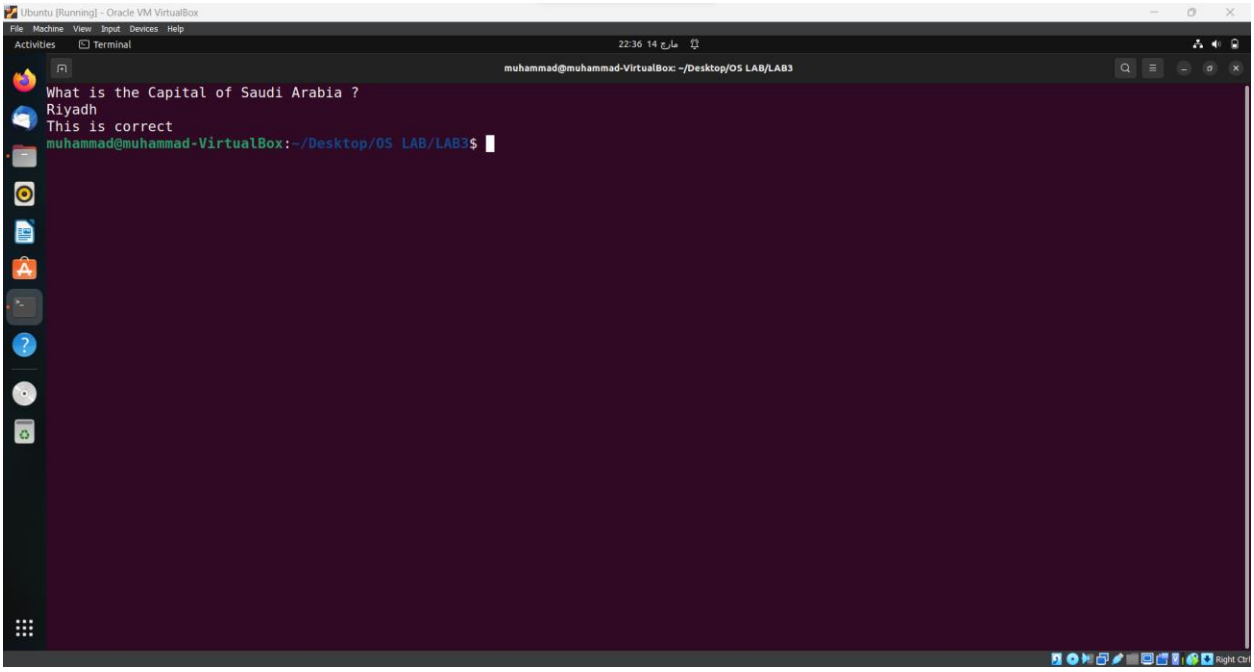
SS9


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:33 14 مارچ
Open
SS9.sh
~/Desktop/OS LAB/LAB3
Save
1 echo What kind of tree bears acorns\?
2 read responce
3 case $responce in
4 [Oo][Aa][Kk]) echo $responce is correct;;
5 *)echo Sorry, responce is wrong
6 esac
sh
Tab Width: 8
Ln 6, Col 5
INS
Right Ctrl

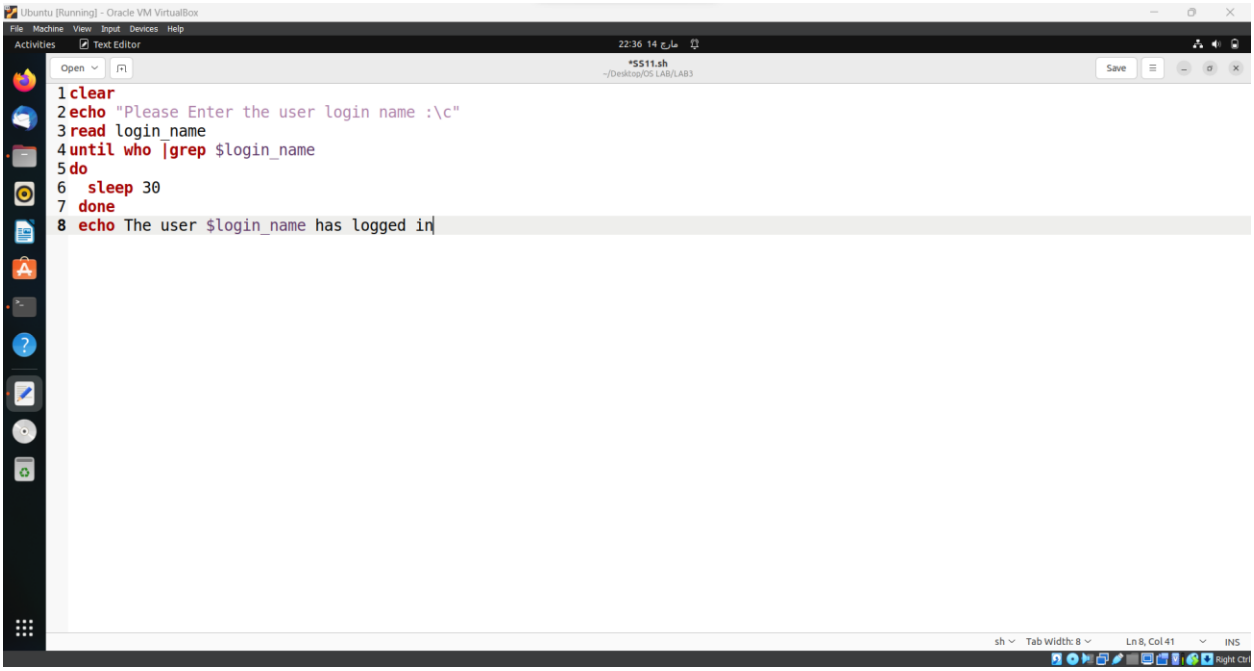

Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:34 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ^C
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$ ./SS9.sh
What kind of tree bears acorns?
oak
oak is correct
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

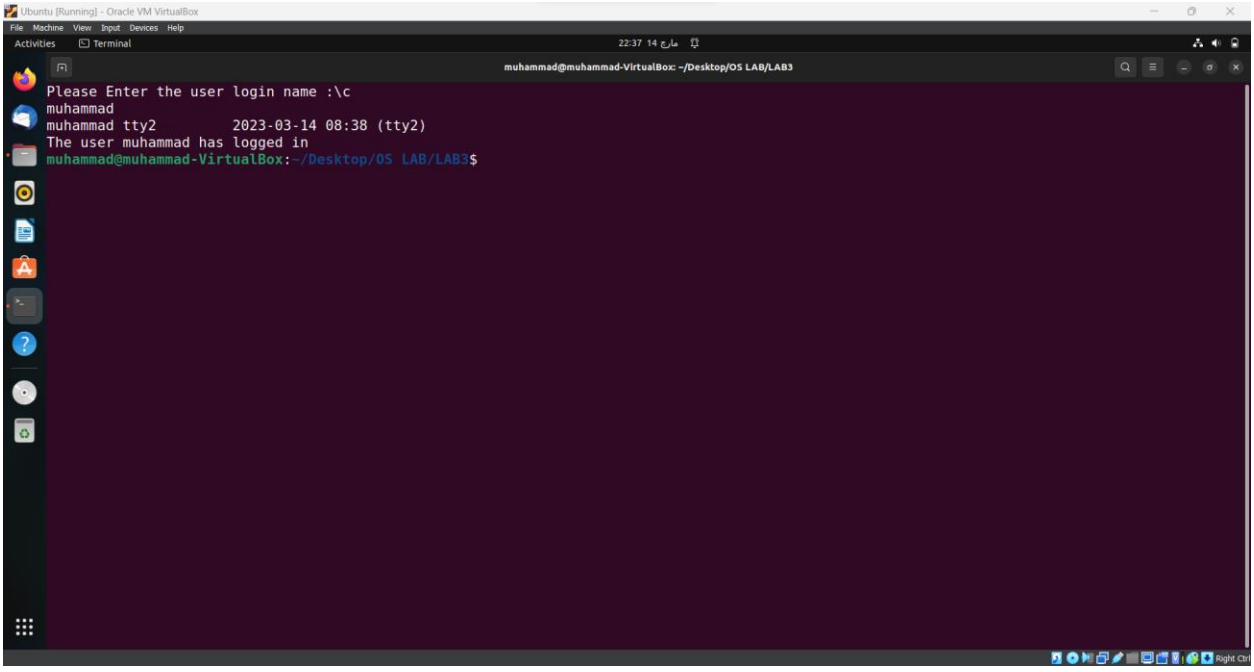
SS10


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:35 14 مارح
Open
SS10.sh
~/Desktop/OS LAB/LAB3
Save
1 clear
2 echo What is the Capital of Saudi Arabia \?
3 read answer
4 while test $answer != Riyadh
5 do
6 echo No,Wrong please try again
7 read answer
8 done
9 echo This is correct
sh
Tab Width: 8
Ln 9, Col 21
INS
Right Ctrl


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:36 14 مارح
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
What is the Capital of Saudi Arabia ?
Riyadh
This is correct
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

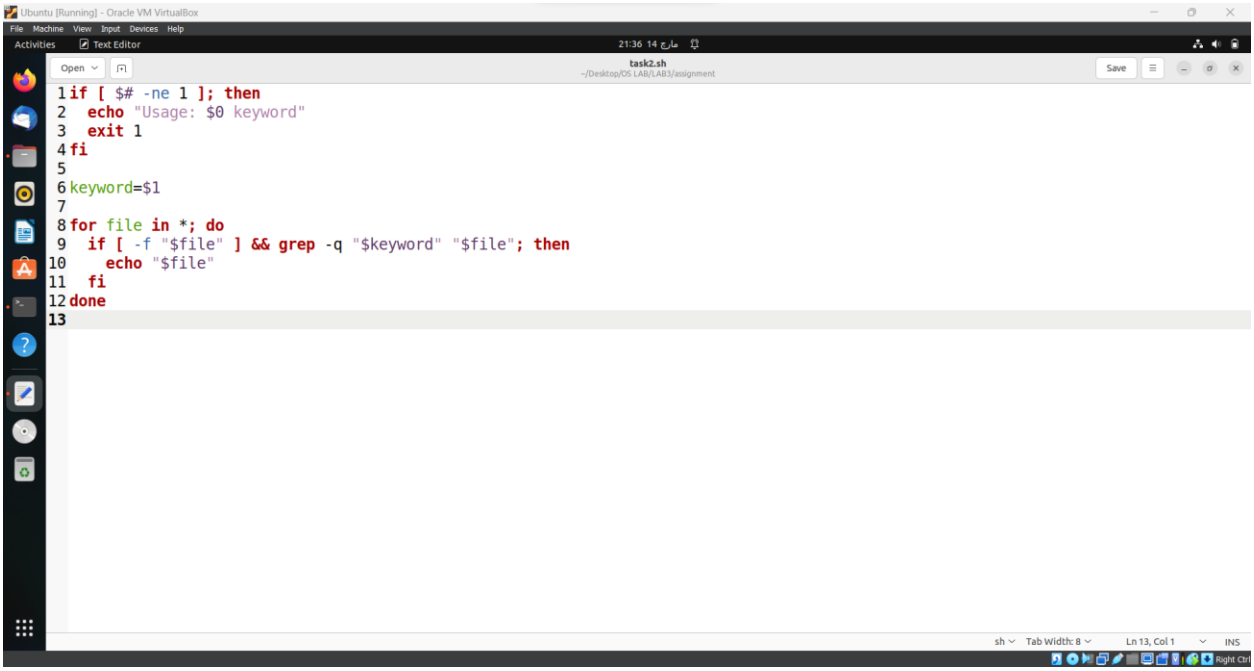
SS11


Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Text Editor
22:36 14 مارچ
Open
*SS11.sh
~/Desktop/OS LAB/LAB3
Save
1 clear
2 echo "Please Enter the user login name :\c"
3 read login_name
4 until who |grep $login_name
5 do
6 sleep 30
7 done
8 echo The user $login_name has logged in
sh
Tab Width: 8
Ln 8, Col 41
INS
Right Ctrl

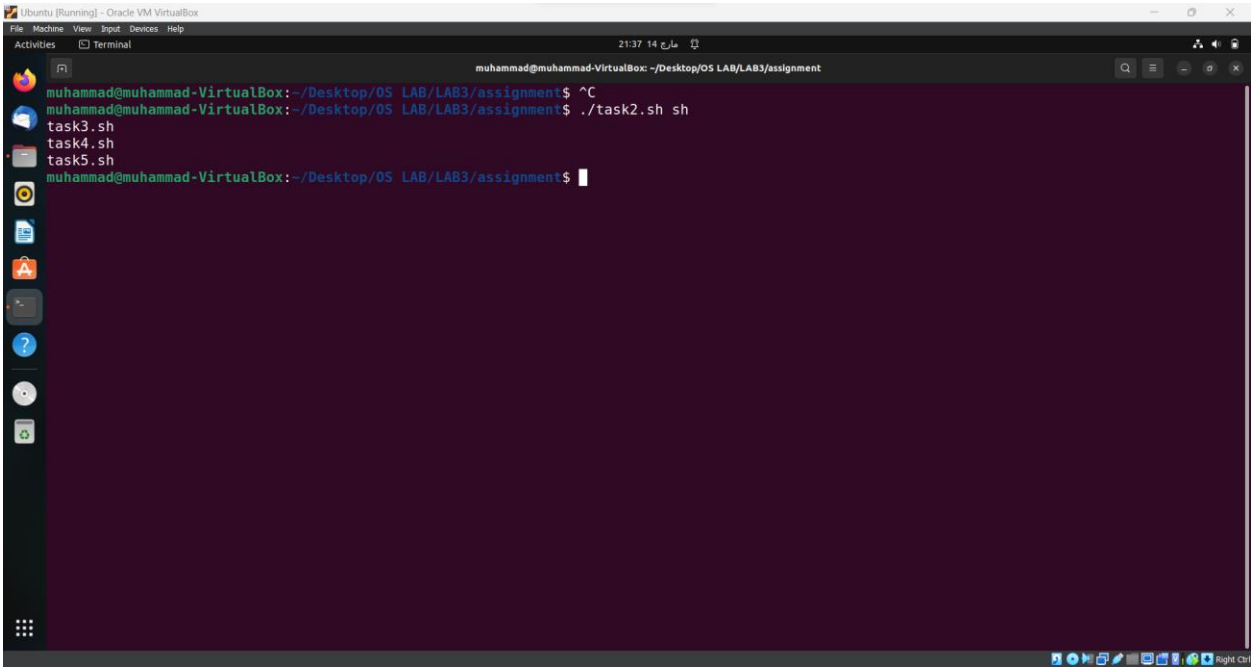

Ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
22:37 14 مارچ
muhammad@muhammad-VirtualBox: ~/Desktop/OS LAB/LAB3
Please Enter the user login name :\c
muhammad
muhammad tty2 2023-03-14 08:38 (tty2)
The user muhammad has logged in
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3$
Right Ctrl

2. Write a shell script that takes a keyword as a command line argument and lists the filenames containing the keyword

Code:



Output:



3. Write a shell script that takes a command line argument and reports whether it is a directory, or a file or a link.

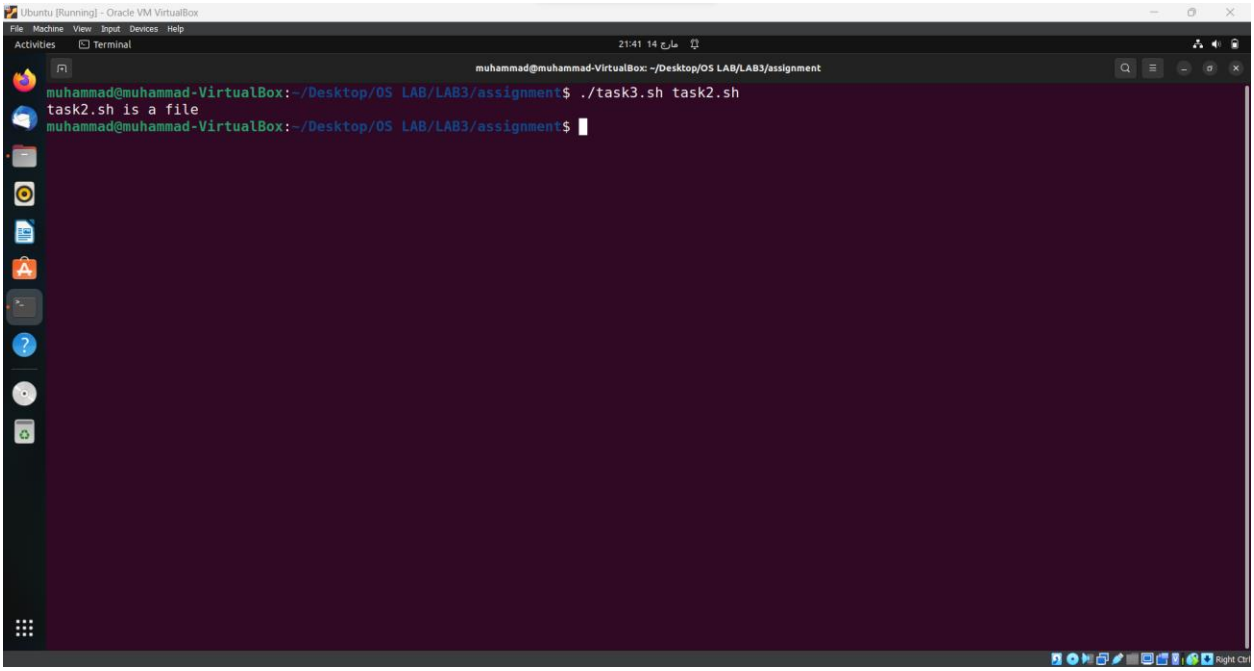
Code:

```
if [ $# -ne 1 ]; then
  echo "Usage: $0 file_or_directory_or_link"
  exit 1
fi

path=$1

if [ -d "$path" ]; then
  echo "$path is a directory"
elif [ -f "$path" ]; then
  echo "$path is a file"
elif [ -L "$path" ]; then
  echo "$path is a symbolic link"
else
  echo "$path is not a valid file, directory, or link"
  exit 1
fi
```

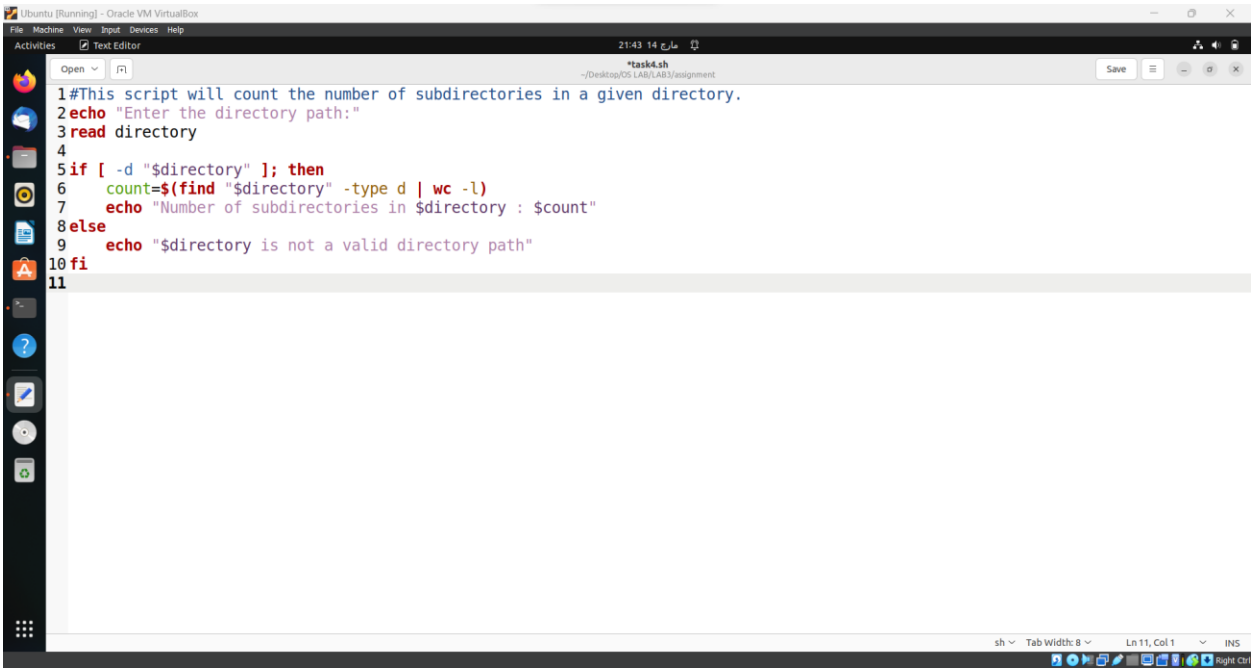
Output:



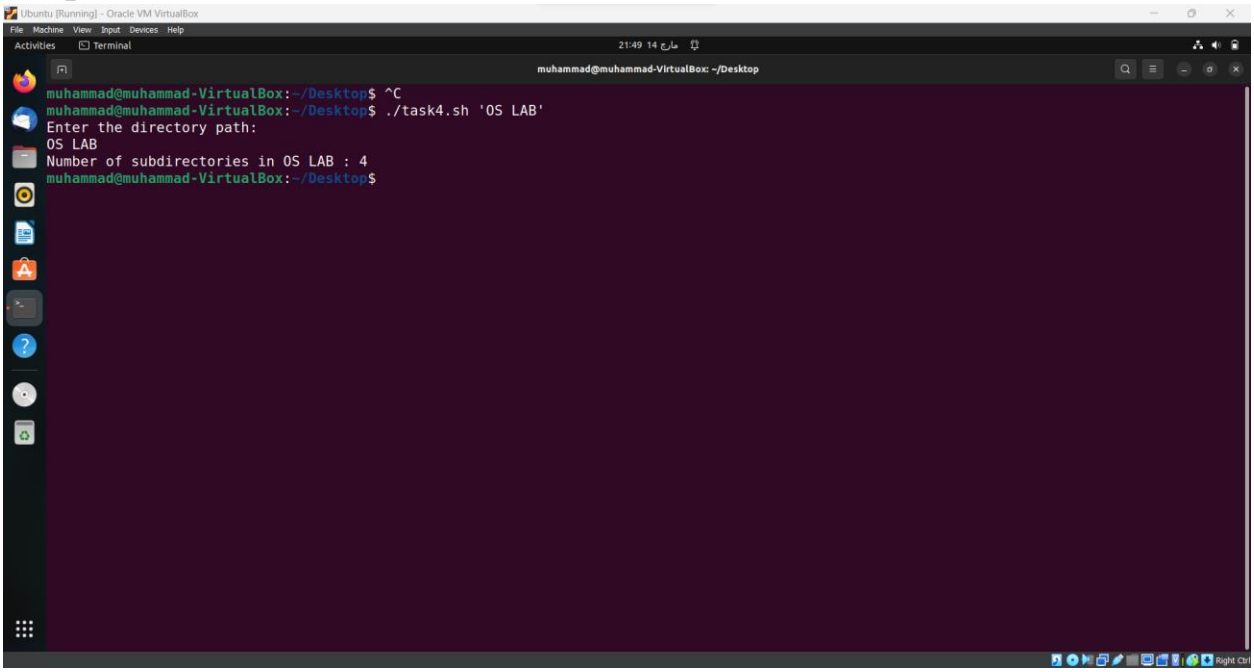
```
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3/assignment$ ./task3.sh task2.sh
task2.sh is a file
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3/assignment$
```

4. Write a script to find the number of sub directories in a given directory.

Code:



Output:

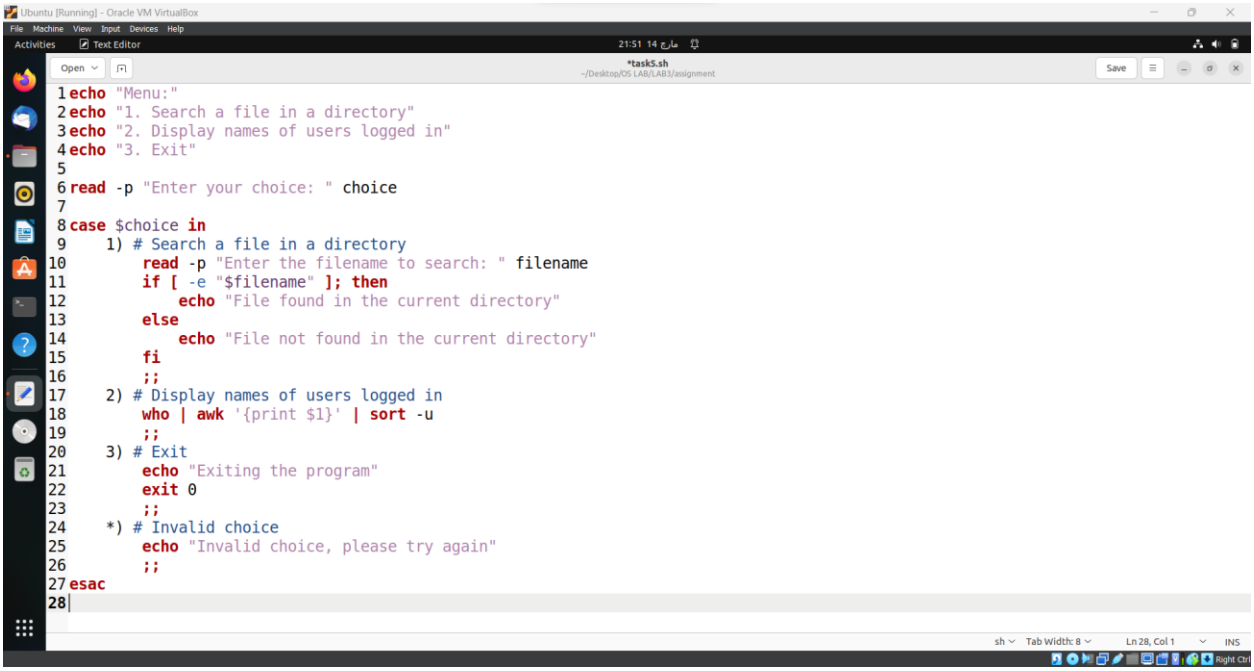


5. Write a menu driven program that has the following options.

5.1. Search a given file is in the directory or not.

5.2. Display the names of the users logged in.

Code:

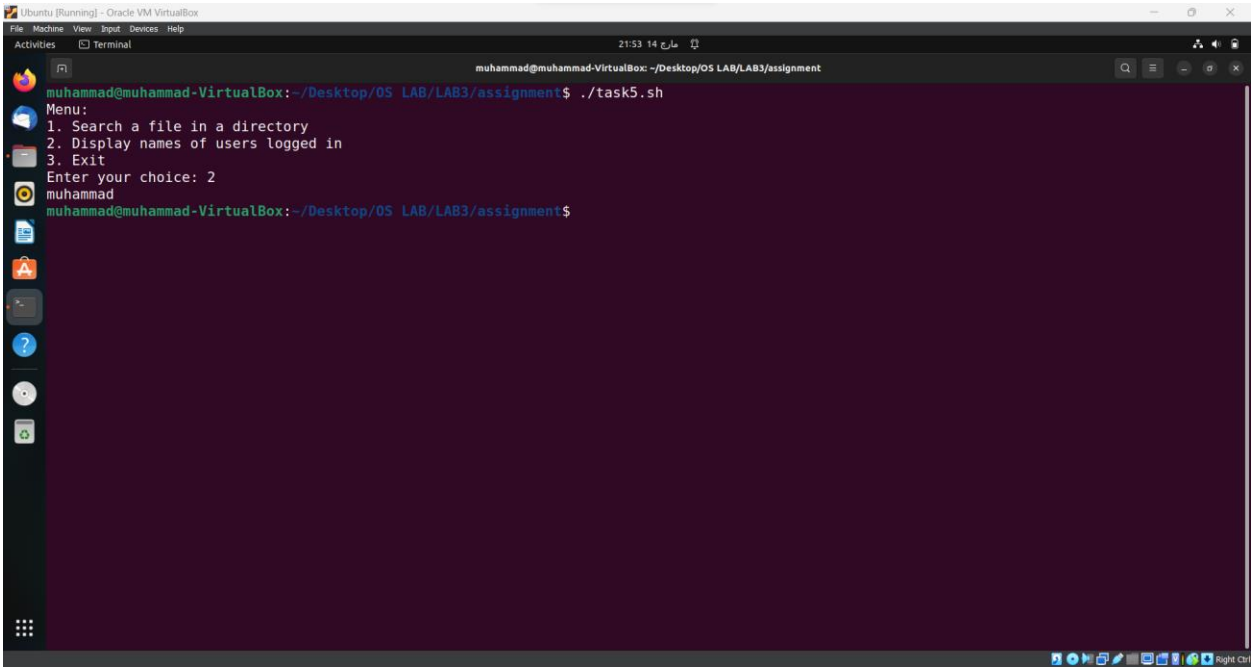


```
echo "Menu:"
echo "1. Search a file in a directory"
echo "2. Display names of users logged in"
echo "3. Exit"

read -p "Enter your choice: " choice

case $choice in
    1) # Search a file in a directory
        read -p "Enter the filename to search: " filename
        if [ -e "$filename" ]; then
            echo "File found in the current directory"
        else
            echo "File not found in the current directory"
        fi
        ;;
    2) # Display names of users logged in
        who | awk '{print $1}' | sort -u
        ;;
    3) # Exit
        echo "Exiting the program"
        exit 0
        ;;
    *) # Invalid choice
        echo "Invalid choice, please try again"
        ;;
esac
```

Output:



```
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3/assignment$ ./task5.sh
Menu:
1. Search a file in a directory
2. Display names of users logged in
3. Exit
Enter your choice: 2
muhammad
muhammad@muhammad-VirtualBox:~/Desktop/OS LAB/LAB3/assignment$
```