

Shell Programming Assignment

1. Write a shell script to display your LOGIN NAME and HOME directory.

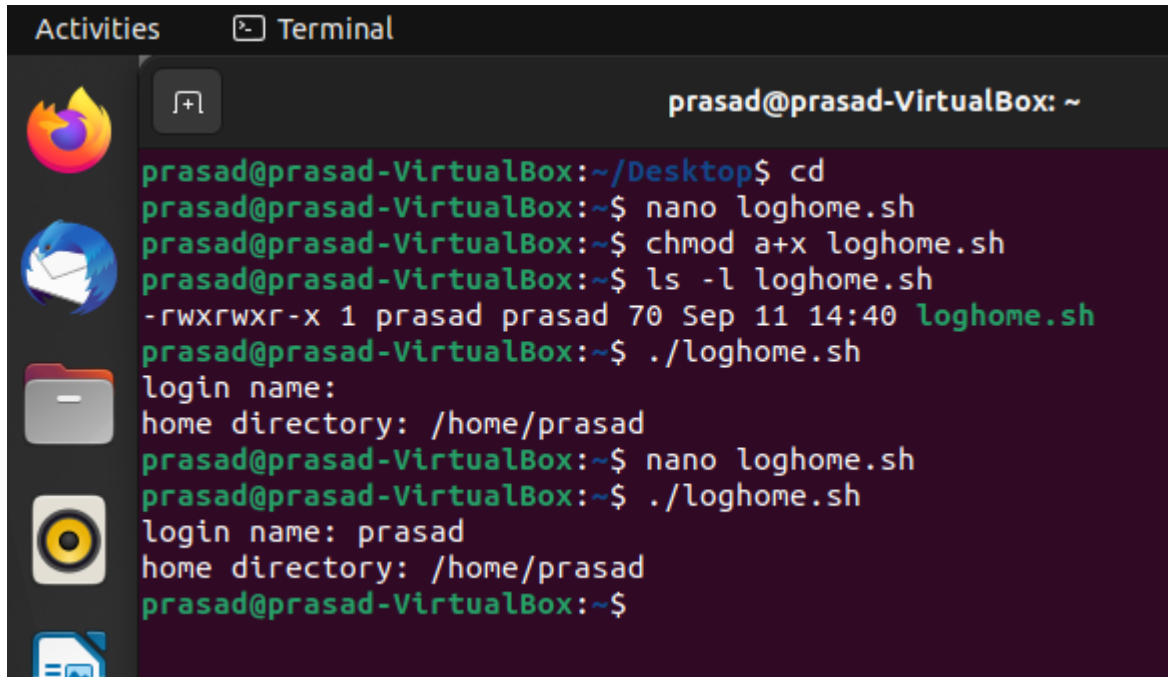
Ans:

```
#!/bin/bash
```

```
echo "Login Name: $LOGNAME"
```

```
echo "Home Directory: $HOME"
```

Output:



```
Activities Terminal
prasad@prasad-VirtualBox: ~

prasad@prasad-VirtualBox:~/Desktop$ cd
prasad@prasad-VirtualBox:~$ nano loghome.sh
prasad@prasad-VirtualBox:~$ chmod a+x loghome.sh
prasad@prasad-VirtualBox:~$ ls -l loghome.sh
-rwxrwxr-x 1 prasad prasad 70 Sep 11 14:40 loghome.sh
prasad@prasad-VirtualBox:~$ ./loghome.sh
login name:
home directory: /home/prasad
prasad@prasad-VirtualBox:~$ nano loghome.sh
prasad@prasad-VirtualBox:~$ ./loghome.sh
login name: prasad
home directory: /home/prasad
prasad@prasad-VirtualBox:~$
```

2. Write a shell script to display menu like “1. Date, 2. Cal, 3. Ls, 4. Pwd, 5. Exit” and execute the commands depending on user choice.

Ans:

```
#!/bin/bash
```

```
echo "select the option: 1.date 2.cal 3.ls 4.pwd 5.Exit"
```

```
read option
```

```
case $option in
```

```
    date)
```

```
        date
```

```
        ;;
```

```
    cal)
```

```
        cal
```

```
        ;;
```

```
    ls)
```

```
        ls
```

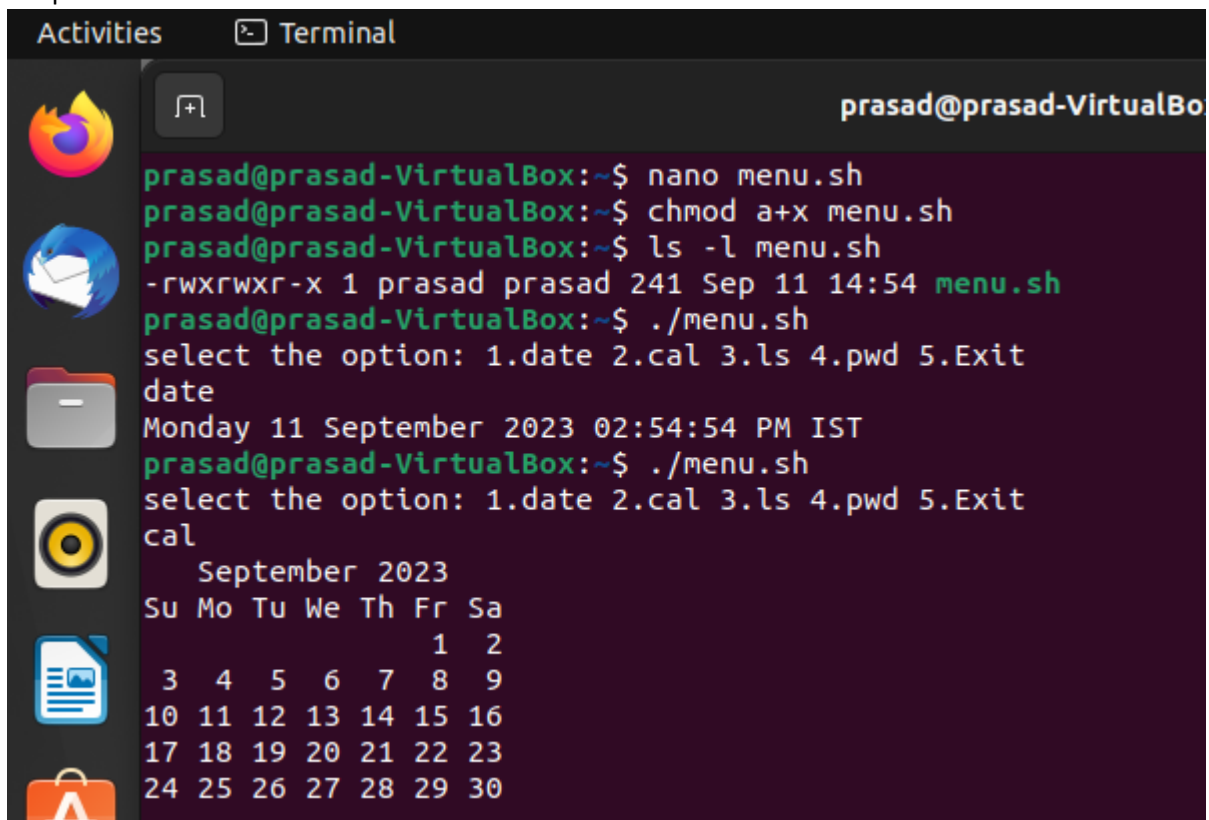
```
        ;;
```

```
    pwd)
```

```

        pwd
        ;;
Exit)
    echo "exit"
    break
    ;;
*)
    echo "invalid option"
    ;;
esac
Output:

```



```

prasad@prasad-VirtualBox:~$ nano menu.sh
prasad@prasad-VirtualBox:~$ chmod a+x menu.sh
prasad@prasad-VirtualBox:~$ ls -l menu.sh
-rwxrwxr-x 1 prasad prasad 241 Sep 11 14:54 menu.sh
prasad@prasad-VirtualBox:~$ ./menu.sh
select the option: 1.date 2.cal 3.ls 4.pwd 5.Exit
date
Monday 11 September 2023 02:54:54 PM IST
prasad@prasad-VirtualBox:~$ ./menu.sh
select the option: 1.date 2.cal 3.ls 4.pwd 5.Exit
cal
    September 2023
Su Mo Tu We Th Fr Sa
                1  2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30

```

3. Write a shell script to accept the name from the user and check whether user entered name is file or directory. If name is file display its size and if it is directory display its contents.

Ans:

```

#!/bin/bash

echo "enter name: "
read name
if [ -d $name ]
then
    echo "$name is directory"
    echo `ls $name`
elif [ -f $name ]

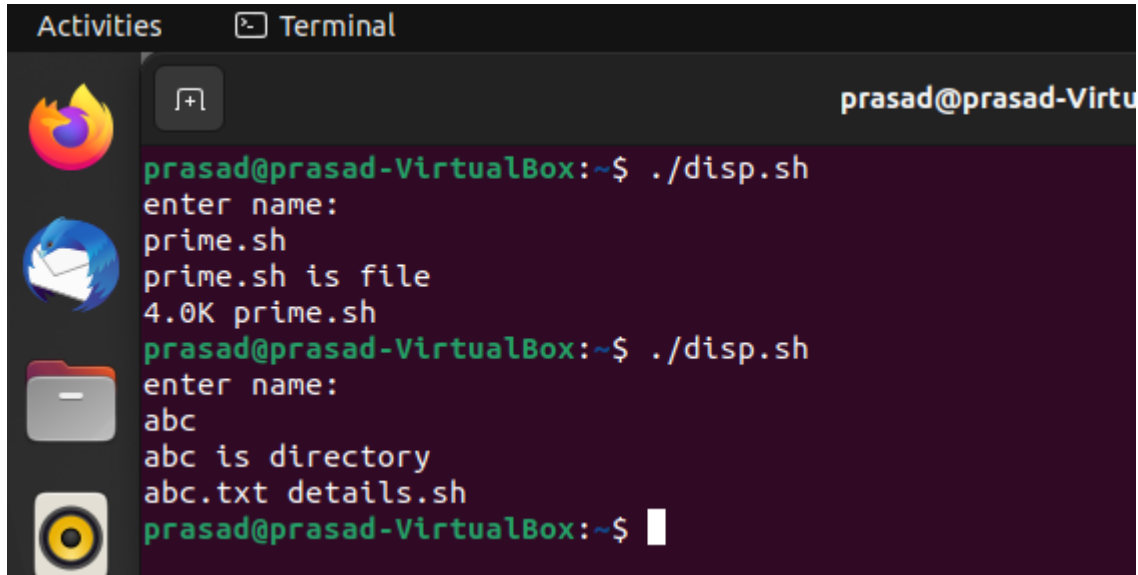
```

then

```
    echo "$name is file"
    echo `du -d $name`
```

fi

Output:



```
prasad@prasad-VirtualBox:~$ ./disp.sh
enter name:
prime.sh
prime.sh is file
4.0K prime.sh
prasad@prasad-VirtualBox:~$ ./disp.sh
enter name:
abc
abc is directory
abc.txt details.sh
prasad@prasad-VirtualBox:~$
```

4. Write a shell script to determine whether a given number is prime or not

Ans:

```
#!/bin/bash
```

```
echo "enter number:"
```

```
read number
```

```
i=2
```

```
p=1
```

```
if [ $number -lt 2 ];
```

```
then
```

```
    echo "number is not a prime "
```

```
    exit
```

```
fi
```

```
while [ $i -le $(( $number / 2 )) ]; do
```

```
    if [ $(( number % i )) -eq 0 ];
```

```
    then
```

```
        p=0
```

```
        break
```

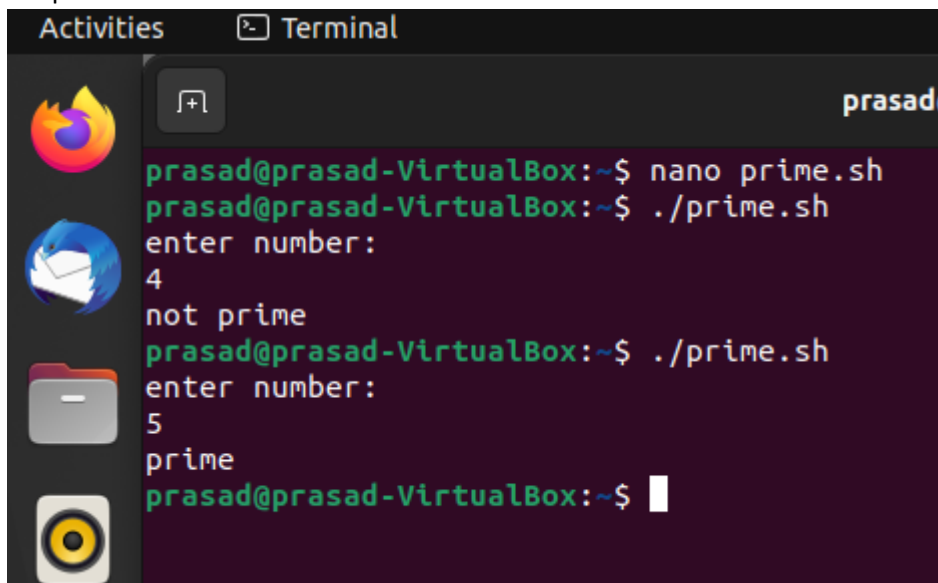
```
    fi
```

```
    i=$((i + 1))
```

done

```
if [ $p -eq 1 ]; then
    echo " prime "
else
    echo " not prime "
fi
```

Output:

A screenshot of a Linux terminal window. The window title is "Terminal" and it shows a user named "prasad" at a host named "prasad-VirtualBox". The user has created a file named "prime.sh" and is running it. The script prompts the user to "enter number:". The user enters "4", and the script outputs "not prime". The user then runs the script again, enters "5", and the script outputs "prime".

```
prasad@prasad-VirtualBox:~$ nano prime.sh
prasad@prasad-VirtualBox:~$ ./prime.sh
enter number:
4
not prime
prasad@prasad-VirtualBox:~$ ./prime.sh
enter number:
5
prime
prasad@prasad-VirtualBox:~$
```

5. Write a program to find the greatest of three numbers

Ans:

```
#!/bin/bash
echo "enter three numbers:"
read num1
read num2
read num3

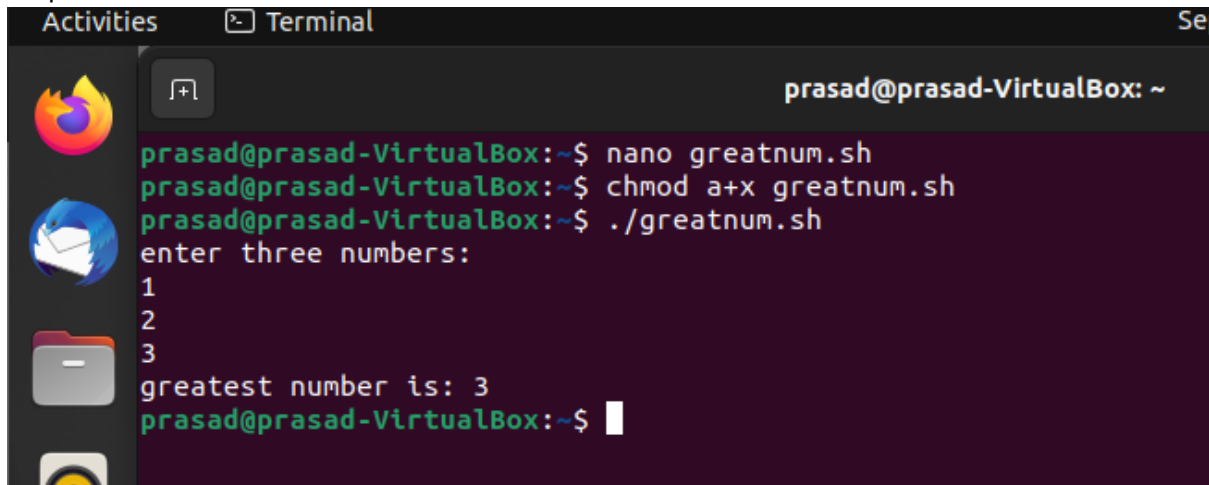
m=$num1

if [ $num2 -gt m ];
then
    m=$num2
fi

if [ $num3 -gt m ];
then
    m=$num3
fi

echo " greatest number is: $m"
```

output:

A terminal window titled 'Terminal' with a dark background. The prompt is 'prasad@prasad-VirtualBox: ~'. The user enters 'nano greatnum.sh', then 'chmod a+x greatnum.sh', and finally './greatnum.sh'. The script prompts 'enter three numbers:' and the user enters '1', '2', and '3' on separate lines. The script outputs 'greatest number is: 3'. The prompt returns to 'prasad@prasad-VirtualBox:~\$'.

```
prasad@prasad-VirtualBox:~$ nano greatnum.sh
prasad@prasad-VirtualBox:~$ chmod a+x greatnum.sh
prasad@prasad-VirtualBox:~$ ./greatnum.sh
enter three numbers:
1
2
3
greatest number is: 3
prasad@prasad-VirtualBox:~$
```

6. Write a program to find whether a given year is a leap year or not

Ans:

```
#!/bin/bash
```

```
echo "enter year:"
```

```
read year
```

```
if [  $\$(year \% 4) -eq 0$  ] && [  $\$(year \% 100) -ne 0$  ] || [  $\$(year \% 400) -eq 0$  ];
```

```
then
```

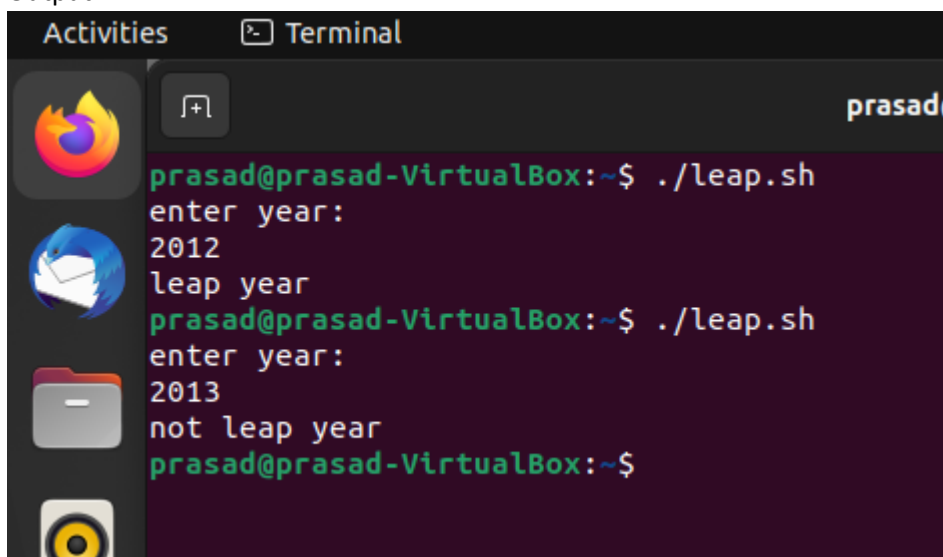
```
    echo "leap year."
```

```
else
```

```
    echo " not leap year."
```

```
fi
```

Output:

A terminal window titled 'Terminal' with a dark background. The prompt is 'prasad@prasad-VirtualBox: ~'. The user enters './leap.sh'. The script prompts 'enter year:' and the user enters '2012'. The script outputs 'leap year'. The user enters './leap.sh' again. The script prompts 'enter year:' and the user enters '2013'. The script outputs 'not leap year'. The prompt returns to 'prasad@prasad-VirtualBox:~\$'.

```
prasad@prasad-VirtualBox:~$ ./leap.sh
enter year:
2012
leap year
prasad@prasad-VirtualBox:~$ ./leap.sh
enter year:
2013
not leap year
prasad@prasad-VirtualBox:~$
```

7. Write a program to find out the area of a circle

Ans:

```
#!/bin/bash
```

```
pi=3.14159
```

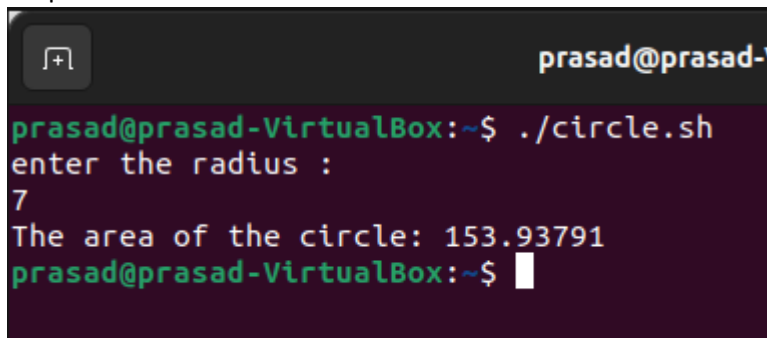
```
echo "enter the radius :"
```

```
read r
```

```
area=$(echo "$pi * $r * $r" | bc)
```

```
echo "The area of the circle: $area "
```

output:

A terminal window with a dark background. The prompt is 'prasad@prasad-VirtualBox:~\$'. The user enters './circle.sh'. The script prompts 'enter the radius :'. The user enters '7'. The script outputs 'The area of the circle: 153.93791'. The prompt returns to 'prasad@prasad-VirtualBox:~\$'.

```
prasad@prasad-VirtualBox:~$ ./circle.sh
enter the radius :
7
The area of the circle: 153.93791
prasad@prasad-VirtualBox:~$
```

8. Write a program to find out the area of a rectangle

Ans:

```
#!/bin/bash
```

```
echo "enter the length :"
```

```
read l
```

```
echo "enter the width :"
```

```
read w
```

```
area=`expr $l \* $w`
```

```
echo "The area of the rectangle: $area "
```

output:

```
prasad@prasad-VirtualBox:~$ ./rectangle.sh
enter the length :
5
enter the width :
6
The area of the rectangle: 30
prasad@prasad-VirtualBox:~$
```

9. Write a program to find whether a given number is positive or

Negative

Ans:

```
#!/bin/bash
```

```
echo "enter the number :"  
read number
```

```
if [ $number -gt 0 ]  
then  
    echo "positive number"  
else  
    echo "negetive number"  
fi
```

output:

```
prasad@prasad-VirtualBox:~$ ./posneg.sh
enter the number :
8
positive number
prasad@prasad-VirtualBox:~$ ./posneg.sh
enter the number :
-2
negetive number
prasad@prasad-VirtualBox:~$
```

10. Write a program to print the table of a given number.

Ans:

```
#!/bin/bash
```

```
echo "Enter a number: "
```

```
read number
```

```
cnt=1
```

```
while [ $cnt -le 10 ]
```

```
do
```

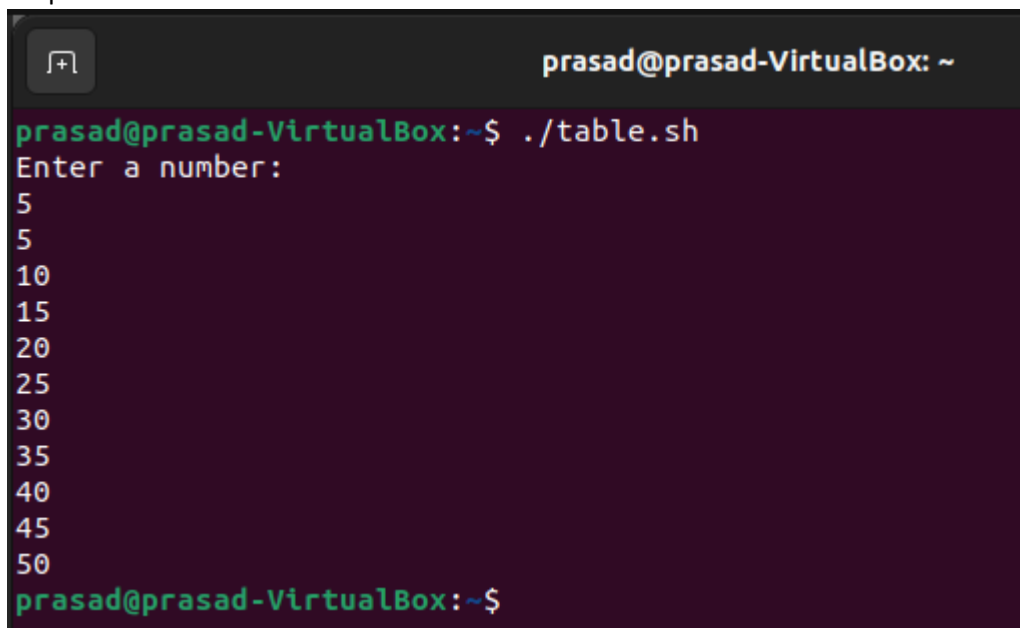
```
    result=$((number * cnt))
```

```
    echo "$result"
```

```
    cnt=$((cnt + 1))
```

```
done
```

output:

A terminal window titled 'prasad@prasad-VirtualBox: ~' shows the execution of a script './table.sh'. The prompt is 'prasad@prasad-VirtualBox:~\$./table.sh'. The script prompts 'Enter a number:' and the user enters '5'. The script then prints the multiplication table for 5, with each result on a new line: 5, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50. The prompt returns to 'prasad@prasad-VirtualBox:~\$'.

11. Write a program to find the factorial of given number.

Ans:

```
#!/bin/bash
```

```
echo "enter number: "
```

```
read num
```

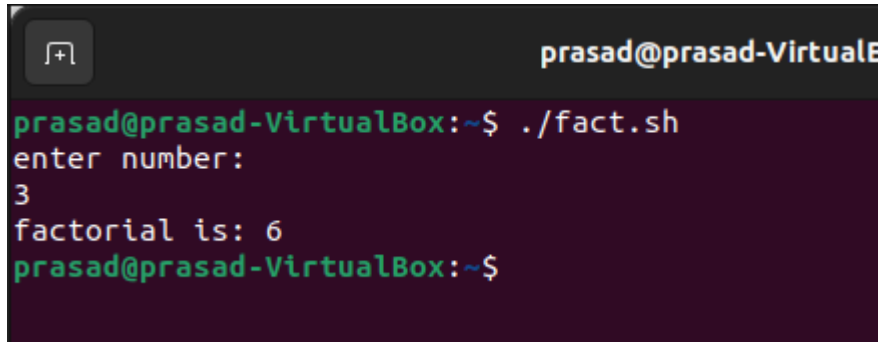
```
fact=1
```



```
while [ $num -gt 1 ]
do
    fact=$((fact * num))
    num=$((num - 1))
done

echo "factorial is: $fact"
```

output:

A terminal window with a dark background. The prompt is 'prasad@prasad-VirtualE'. The user enters './fact.sh'. The prompt changes to 'prasad@prasad-VirtualBox:~\$'. The user enters '3'. The output is 'factorial is: 6'. The prompt returns to 'prasad@prasad-VirtualBox:~\$'.

12. Write a program to find given number of terms in the Fibonacci series.

Ans:

```
#!/bin/bash
```

```
echo "Enter the number of terms:"
read num
```

```
a=0
b=1
```

```
echo "$a"
echo "$b"
```

```
for ((i=3; i<=num; i++)); do
    c=$((a + b))
    echo "$c"
    a=$b
    b=$c
done
```

```
echo
```

output:

```
prasad@prasad-VirtualBox: ~  
prasad@prasad-VirtualBox:~$ ./fibo.sh  
Enter the number of terms:  
6  
0  
1  
1  
2  
3  
5  
  
prasad@prasad-VirtualBox:~$
```

13. Write a program to calculate gross salary if the DA is 40%, HRA is 20% of basic salary. Accept basic salary form user and display gross salary (Result can be floating point value).

Ans:

```
#!/bin/bash  
Echo "Enter basic salary: "  
read bsal  
  
da=$(echo " $bsal * 0.4" | bc)  
hra=$(echo " $bsal * 0.2" | bc)  
  
gsal=$(echo " $bsal + $da + $hra" | bc)  
  
echo "Gross salary: $gsal"  
output:
```

```
prasad@prasad-VirtualBox: ~  
prasad@prasad-VirtualBox:~$ ./gsal.sh  
Enter basic salary:  
9999  
Gross salary: 15998.4  
prasad@prasad-VirtualBox:~$
```

14. Write a shell script to accept a filename as argument and displays the last modification time if the file exists and a suitable message if it doesn't exist.

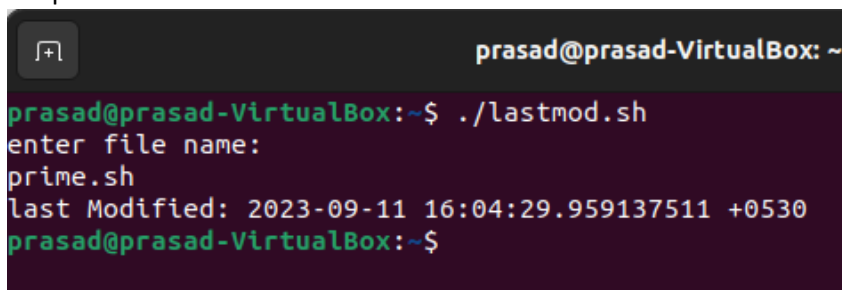
Ans:

```
#!/bin/bash

echo "enter file name:"
read filename

if [ -e "$filename" ];
then
    lastmod=$(stat -c "%y" "$filename")
    echo "last Modified: $lastmod"
else
    echo "Error: File does not exist."
fi
```

Output:

A terminal window titled 'prasad@prasad-VirtualBox: ~' showing the execution of a script. The prompt is 'prasad@prasad-VirtualBox:~\$' and the command entered is './lastmod.sh'. The output shows 'enter file name:', followed by the input 'prime.sh', and then 'last Modified: 2023-09-11 16:04:29.959137511 +0530'. The prompt returns to 'prasad@prasad-VirtualBox:~\$'.

```
prasad@prasad-VirtualBox:~$ ./lastmod.sh
enter file name:
prime.sh
last Modified: 2023-09-11 16:04:29.959137511 +0530
prasad@prasad-VirtualBox:~$
```

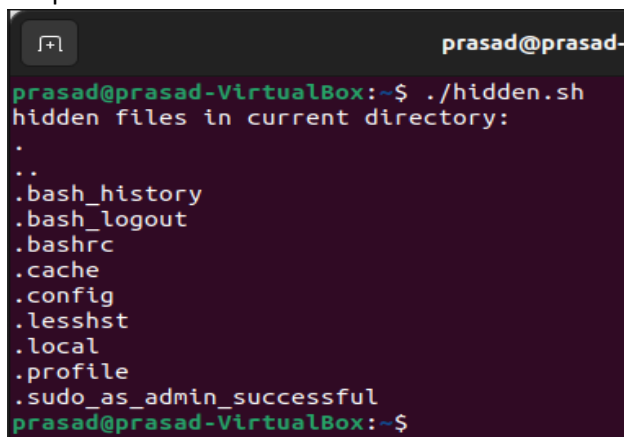
15. Write a shell script to display only hidden file of current directory.

Ans:

```
#!/bin/bash

echo "hidden files in current directory:"
ls -a | grep "^\."
```

Output:

A terminal window titled 'prasad@prasad-VirtualBox: ~' showing the execution of a script. The prompt is 'prasad@prasad-VirtualBox:~\$' and the command entered is './hidden.sh'. The output shows 'hidden files in current directory:' followed by a list of hidden files: '.', '..', '.bash_history', '.bash_logout', '.bashrc', '.cache', '.config', '.lessht', '.local', '.profile', and '.sudo_as_admin_successful'. The prompt returns to 'prasad@prasad-VirtualBox:~\$'.

```
prasad@prasad-VirtualBox:~$ ./hidden.sh
hidden files in current directory:
.
..
.bash_history
.bash_logout
.bashrc
.cache
.config
.lessht
.local
.profile
.sudo_as_admin_successful
prasad@prasad-VirtualBox:~$
```

16. Write a shell script to display only executable files of current directory.

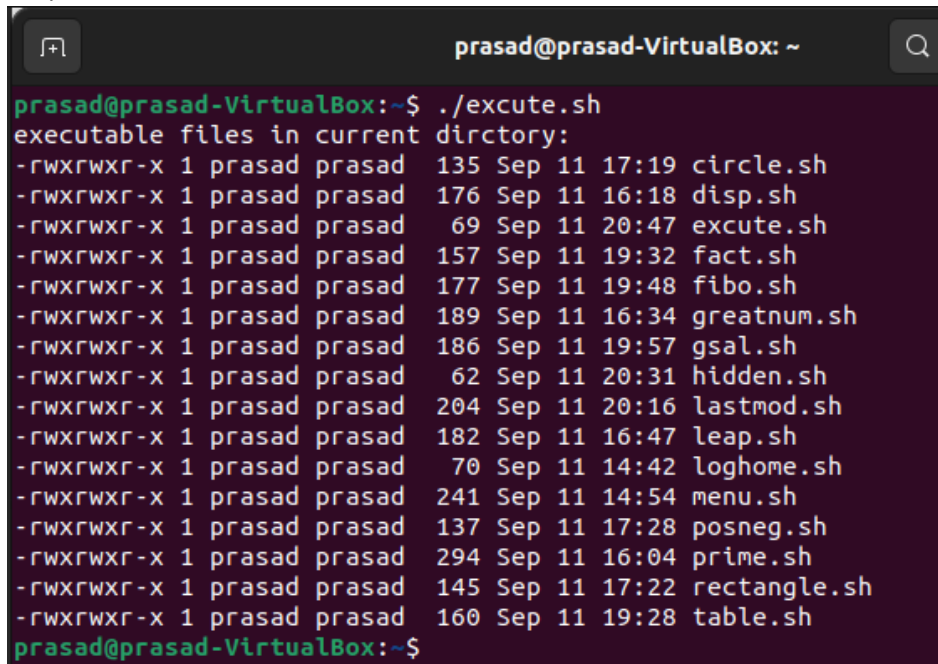
Ans:

```
#!/bin/bash
```

```
echo "executable files in current directory:"
```

```
ls -l | grep -E '^-..x'
```

output:



```
prasad@prasad-VirtualBox:~$ ./excute.sh
executable files in current directory:
-rwxrwxr-x 1 prasad prasad 135 Sep 11 17:19 circle.sh
-rwxrwxr-x 1 prasad prasad 176 Sep 11 16:18 disp.sh
-rwxrwxr-x 1 prasad prasad 69 Sep 11 20:47 excute.sh
-rwxrwxr-x 1 prasad prasad 157 Sep 11 19:32 fact.sh
-rwxrwxr-x 1 prasad prasad 177 Sep 11 19:48 fibo.sh
-rwxrwxr-x 1 prasad prasad 189 Sep 11 16:34 greatnum.sh
-rwxrwxr-x 1 prasad prasad 186 Sep 11 19:57 gsal.sh
-rwxrwxr-x 1 prasad prasad 62 Sep 11 20:31 hidden.sh
-rwxrwxr-x 1 prasad prasad 204 Sep 11 20:16 lastmod.sh
-rwxrwxr-x 1 prasad prasad 182 Sep 11 16:47 leap.sh
-rwxrwxr-x 1 prasad prasad 70 Sep 11 14:42 loghome.sh
-rwxrwxr-x 1 prasad prasad 241 Sep 11 14:54 menu.sh
-rwxrwxr-x 1 prasad prasad 137 Sep 11 17:28 posneg.sh
-rwxrwxr-x 1 prasad prasad 294 Sep 11 16:04 prime.sh
-rwxrwxr-x 1 prasad prasad 145 Sep 11 17:22 rectangle.sh
-rwxrwxr-x 1 prasad prasad 160 Sep 11 19:28 table.sh
prasad@prasad-VirtualBox:~$
```

17. Accept the two file names from user and append the contents in reverse case of first file into second file.

Ans:

```
#!/bin/bash
```

```
echo "enter first file name: "
```

```
read file1
```

```
echo "enter second file name: "
```

```
read file2
```

```
echo "content in first file: "
```

```
cat $file1
```

```
echo "content in second file: "
```

```
cat $file2
```

```
tr a-z A-Z < $file1 >> $file2
```

```
echo "after changing the case and then appending the first file content to second: "
```

```
cat $file2
```

output:

```
prasad@prasad-VirtualBox: ~  
prasad@prasad-VirtualBox:~$ ./append.sh  
enter first file name:  
name.txt  
enter second file name:  
name1.txt  
content in first file:  
abc  
content in second file:  
xyz  
after changing the case and then appending the first file content to second:  
xyz  
ABC  
prasad@prasad-VirtualBox:~$
```

18. Print the following pattern.

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

Ans:

```
#!/bin/bash
```

```
cnt=1
```

```
maxrows=5
```

```
while [ $cnt -le $maxrows ];
```

```
do
```

```
    i=1
```

```
    while [ $i -le $cnt ];
```

```
    do
```

```
        echo -n "* "
```

```
        i=$((i + 1))
```

```
    done
```

```
    echo ""
```

```
    cnt=$((cnt + 1))
```

```
done
```

output:

```
prasad@prasad-VirtualBox:~$ ./pattern.sh
*
* *
* * *
* * * *
* * * * *
prasad@prasad-VirtualBox:~$
```