

## 1) Commands **pwd, cd, mkdir, touch, more, less, head, tail, date, cal, rmdir, mv, rm, cp, echo, cls** .

1. `ls` [root@localhost ~]# `ls`
2. `mkdir` [root@localhost ~]# `mkdir nilesh`
3. `pwd` [root@localhost ~]# `pwd`  
/root
4. `cd` [root@localhost ~]# `cd nilesh`  
[root@localhost nilesh]# `pwd`  
/root/nilesh
5. `cal` [root@localhost nilesh]# `cal September 2024`  
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
6. `date` [root@localhost nilesh]# `date`  
Wed Sep 25 06:30:05 PDT 2024
7. `touch` [root@localhost nilesh]# `touch a.txt`  
[root@localhost nilesh]# `touch b.txt`
8. `cat` [root@localhost nilesh]# `cat>a.txt`  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20
9. `more` [root@localhost nilesh]# `more a.txt`  
1  
2

3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20

10. head [root@localhost nilesh]# head a.txt

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

11. tail [root@localhost nilesh]# tail a.txt

11  
12  
13  
14  
15  
16  
17  
18  
19  
20

12. less [root@localhost nilesh]# less a.txt

7  
8  
9  
10  
11  
12

13

```

14
15
16
17
18
19
20
13. cp [root@localhost nilesh]# cp a.txt b.txt
    [root@localhost nilesh]# ls a.txt b.txt
    nilesh
    [root@localhost nilesh]# pwd
    /root/nilesh
    [root@localhost nilesh]# more b.txt
    1
    2
    3
    4
    5
    6
    7
    8
    9
    10
    11
    12
    13
    14
    15
    16
    17
    18
    19
    20
14. rm [root@localhost nilesh]# rm b.txt rm:
    remove regular file `b.txt'? yes
    [root@localhost nilesh]# more b.txt b.txt: No
    such file or directory [root@localhost
    nilesh]# ls a.txt nilesh
15. rmdir [root@localhost nilesh]# rmdir nilesh
    [root@localhost nilesh]# ls a.txt
16. mv [root@localhost nilesh]# mv a.txt c.txt
    [root@localhost nilesh]# ls c.txt
17. echo [root@localhost nilesh]# echo "my self
    is nilesh shimpi" my self is nilesh Shimpi

```

## 2) Demonstration of cat and ls commands with options.

1. ls     [root@localhost ~]# ls  
          [root@localhost ~]# pwd  
          /root  
          [root@localhost ~]# mkdir Nilesh  
          [root@localhost ~]# cd  
          [root@localhost ~]# cd Nilesh  
          [root@localhost Nilesh]# ls
2. cat    [root@localhost Nilesh]# cat>a.txt  
          Demonstration of cat and ls commands with options Demonstration  
          of cat and ls commands.  
          [root@localhost Nilesh]# cat a.txt  
          Demonstration of cat and ls commands with options Demonstration  
          of cat and ls commands.

### 3) Write a Program for word count using shell scripting Linux. Using shell

```
[root@localhost ~]# ls nilesh
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi b
```



#### Output :-

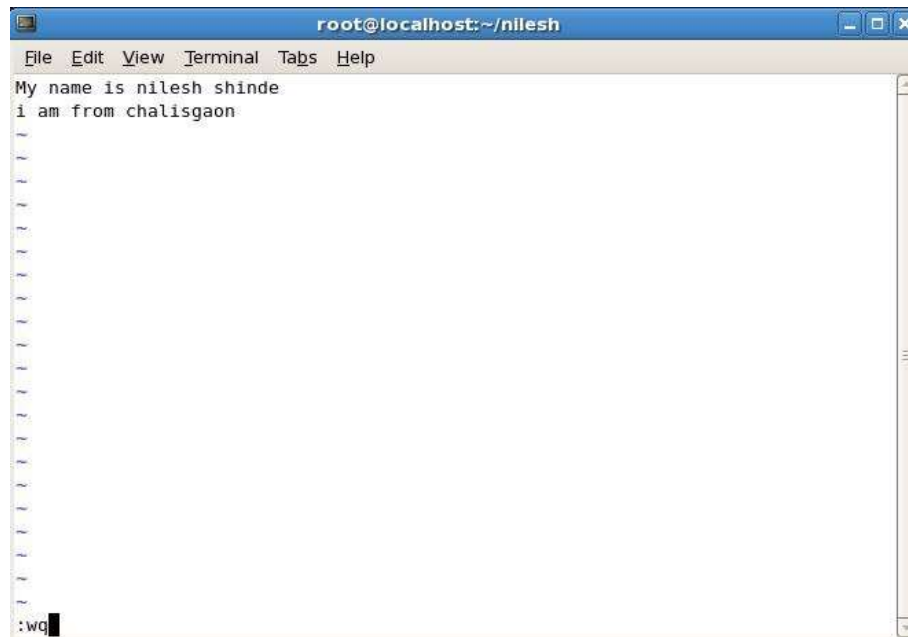
```
[root@localhost nilesh]# bash b
my name is nilesh shinde am from chlisgaon
[root@localhost nilesh]# wc b
 1  9 50 b
[root@localhost nilesh]#
```

### □ Write a Program for word count using Without Shell.

#### 4) Program for case conversion (upper case) using shell scripting Linux.



```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir Nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd Nilesh
[root@localhost Nilesh]# vi a.sh
```

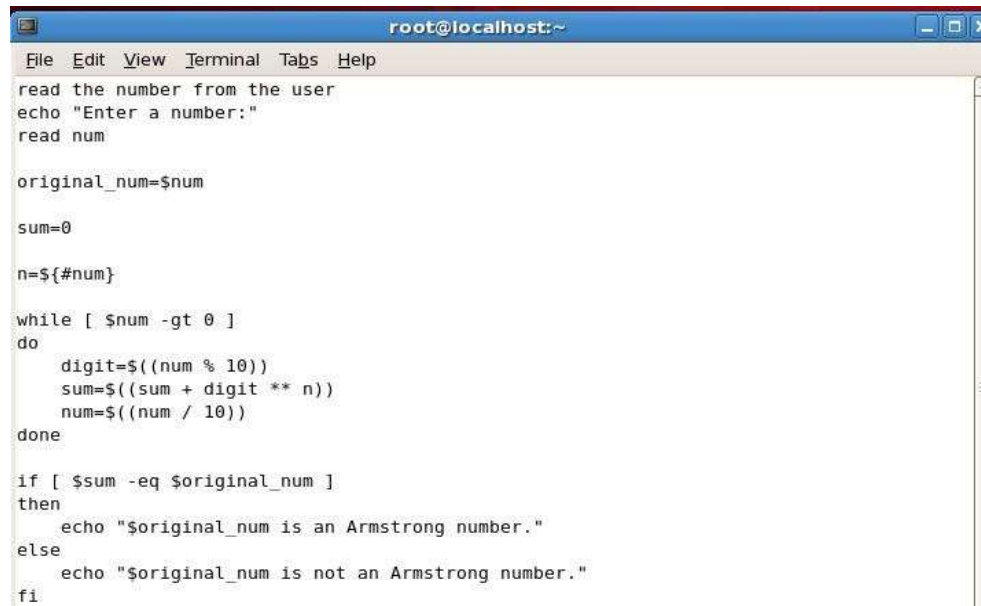


## Output :-

```
[root@localhost Nilesh]# more a.sh
My name is Nilesh Shinde
I am from Chalisgaon
[root@localhost Nilesh]# tr a-z A-Z<a.sh
MY NAME IS NILESH SHINDE
I AM FROM CHALISGAON
[root@localhost Nilesh]# tr A-Z a-z<a.sh
my name is Nilesh Shinde
I am from Chalisgaon
[root@localhost Nilesh]#
```

## 5) shell program for Armstrong number.

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi d.sh
```



```
root@localhost:~
File Edit View Terminal Tabs Help
read the number from the user
echo "Enter a number:"
read num

original_num=$num

sum=0

n=${#num}

while [ $num -gt 0 ]
do
    digit=$((num % 10))
    sum=$((sum + digit ** n))
    num=$((num / 10))
done

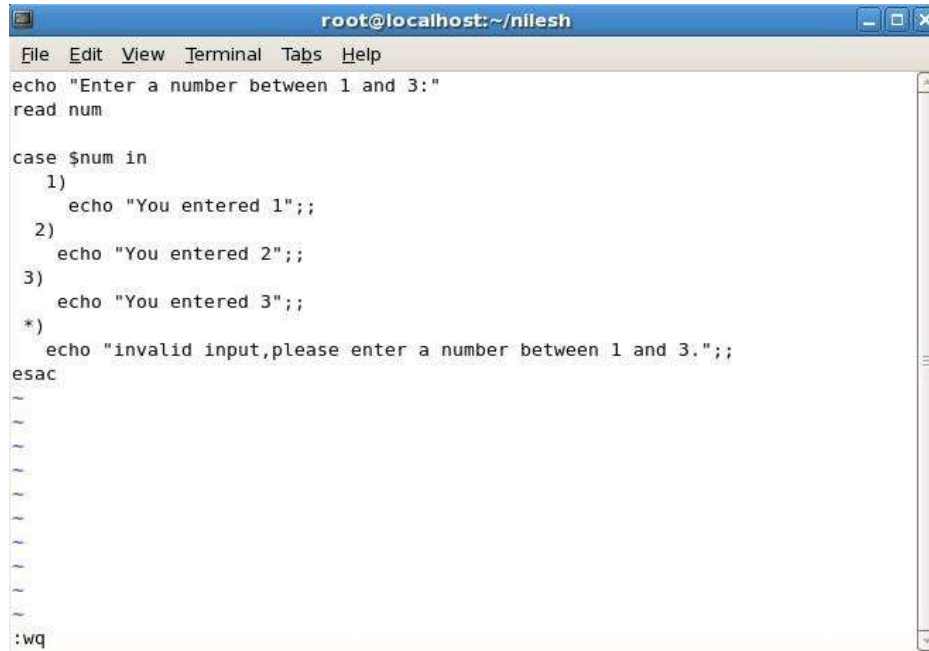
if [ $sum -eq $original_num ]
then
    echo "$original_num is an Armstrong number."
else
    echo "$original_num is not an Armstrong number."
fi
```

### Output :-

```
[root@localhost nilesh]# vi d.sh
[root@localhost nilesh]# bash d.sh
1
Enter a number:
2
2 is an Armstrong number.
[root@localhost nilesh]#
```

6) **Program to demonstrate a case statement using a shell script.**

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi c.sh
```



```
root@localhost:~/nilesh
File Edit View Terminal Tabs Help
echo "Enter a number between 1 and 3:"
read num
case $num in
  1)
    echo "You entered 1";;
  2)
    echo "You entered 2";;
  3)
    echo "You entered 3";;
  *)
    echo "invalid input,please enter a number between 1 and 3.";;
esac
~
~
~
~
~
~
~
~
:wq
```

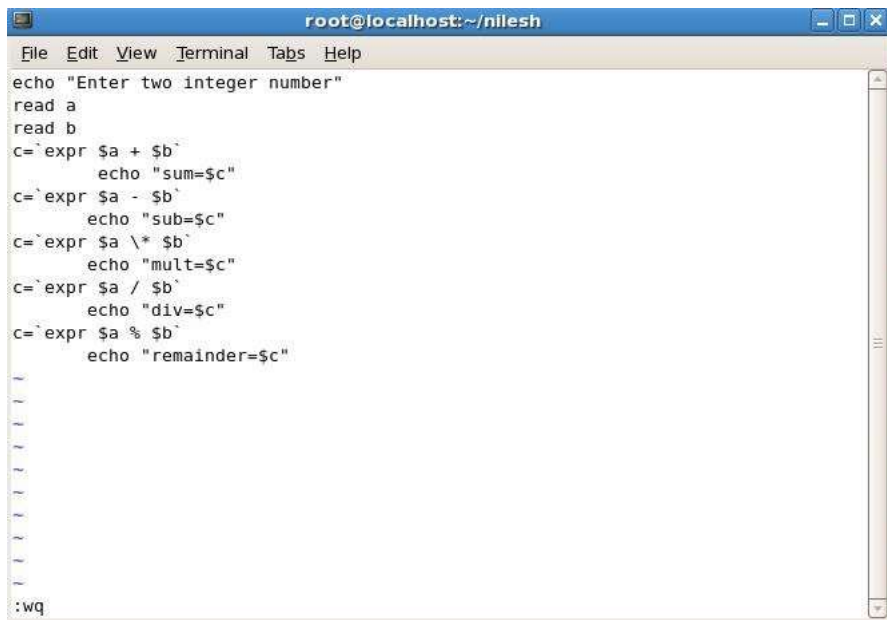
```
[root@localhost nilesh]# bash c.sh
Enter a number between 1 and 3:
1
You entered 1
[root@localhost nilesh]# bah c.sh
bash: bah: command not found
[root@localhost nilesh]# bash c.sh
Enter a number between 1 and 3:
3
You entered 3
[root@localhost nilesh]#
```



**Output :-**

**7) shell script to evaluate arithmetic operations.**

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi k
```

A screenshot of a terminal window titled "root@localhost:~/nilesh". The window contains a shell script that prompts the user to enter two integers and then performs addition, subtraction, multiplication, division, and modulus operations. The script uses 'read' to get input, 'expr' for calculations, and 'echo' to display results. The terminal shows the script content with line numbers 1 through 15. At the bottom, the command ':wq' is entered, indicating the end of the file in vi editor.

```
File Edit View Terminal Tabs Help
1 echo "Enter two integer number"
2 read a
3 read b
4 c=`expr $a + $b`
5     echo "sum=$c"
6 c=`expr $a - $b`
7     echo "sub=$c"
8 c=`expr $a \* $b`
9     echo "mult=$c"
10 c=`expr $a / $b`
11     echo "div=$c"
12 c=`expr $a % $b`
13     echo "remainder=$c"
14
15
:wq
```

**Output :-**

```
[root@localhost nilsh]# bash k
Enter two integer number
22
6
sum=28
sub=16
mult=132
div=3
remainder=4
[root@localhost nilsh]#
```

8) **Program for even or odd using shell scripts in Linux.**

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi w
```

```
root@localhost:~/nilesh
File Edit View Terminal Tabs Help
echo "Enter number :"
```

```
read n
res=$(( $n % 2 ))
if [ $res -eq 0 ]
then
    echo "$n is even number"
else
    echo "$n is odd number"
fi
```

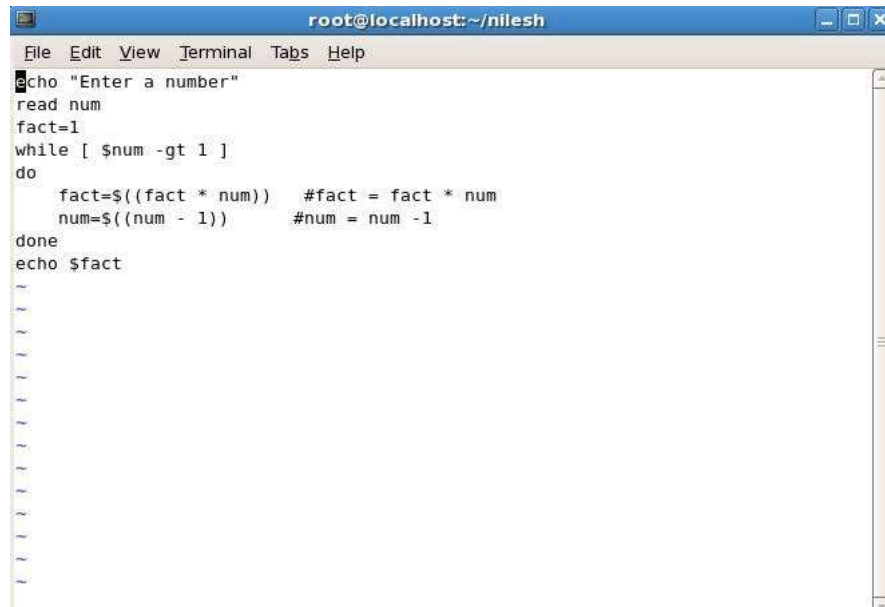
```
:wq
```

**Output :-**

```
[root@localhost nilesh]# bash w
Enter number :
5
5 is odd number
[root@localhost nilesh]# bash w
Enter number :
20
20 is even number
[root@localhost nilesh]# vi w
[root@localhost nilesh]#
```

**9) Program for factorial of given number by using shell script.**

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi d
```



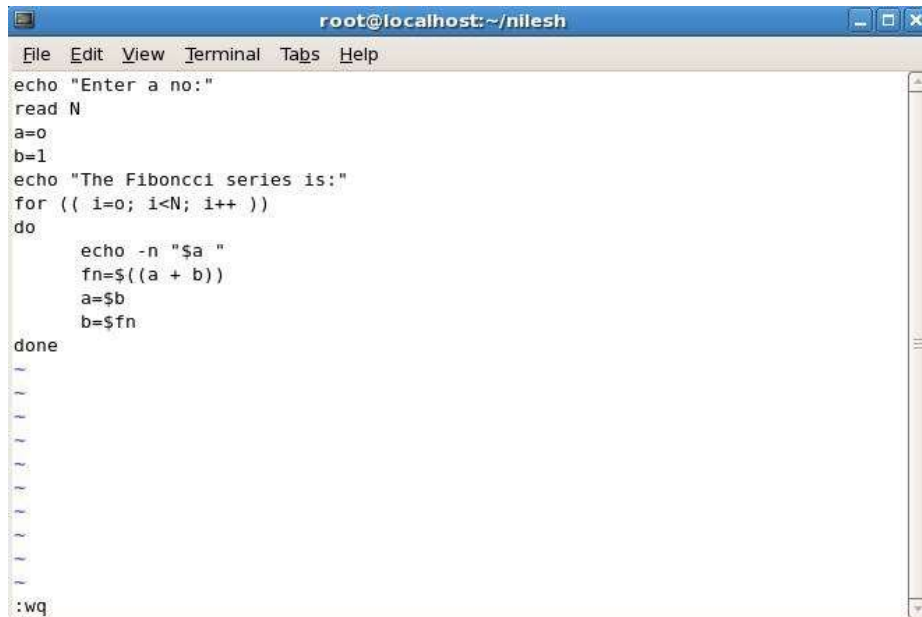
```
root@localhost: ~/.nilesh
File Edit View Terminal Tabs Help
echo "Enter a number"
read num
fact=1
while [ $num -gt 1 ]
do
    fact=$((fact * num)) #fact = fact * num
    num=$((num - 1))    #num = num - 1
done
echo $fact
~
~
~
~
~
~
~
~
~
~
```

### Output :-

```
[root@localhost nilesh]# bash d
Enter a number
6
d: line 9: echo720: command not found
[root@localhost nilesh]# vi d
[root@localhost nilesh]# bash d
Enter a number
4
24
[root@localhost nilesh]# bash d
Enter a number
5
120
[root@localhost nilesh]# vi d
[root@localhost nilesh]#
```

## 10) Program for Fibonacci series by using shell script.

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir Nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd Nilesh
[root@localhost Nilesh]# vi n
```



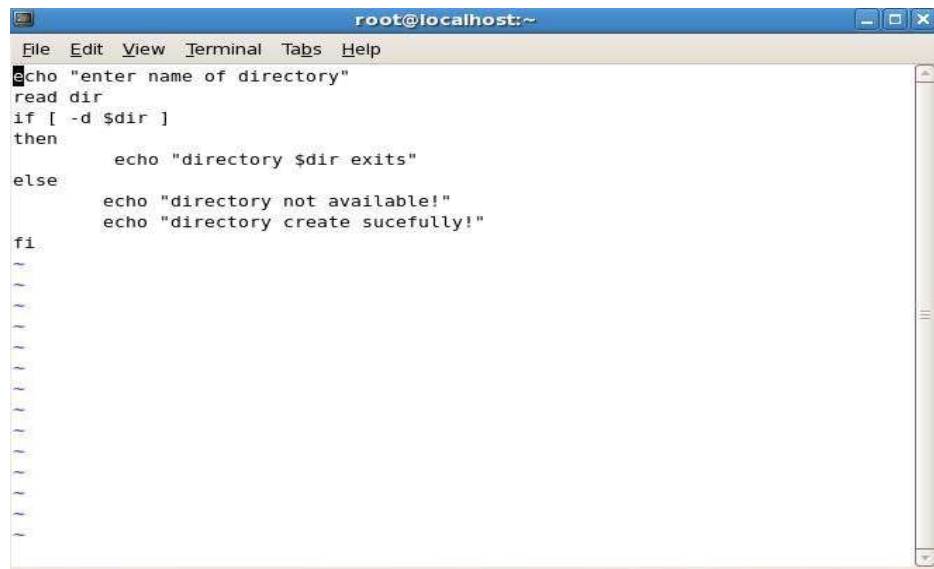
```
root@localhost: ~/.Nilesh
File Edit View Terminal Tabs Help
echo "Enter a no:"
read N
a=0
b=1
echo "The Fibonacci series is:"
for (( i=0; i<N; i++ ))
do
    echo -n "$a "
    fn=$((a + b))
    a=$b
    b=$fn
done
~
~
~
~
~
~
~
~
:wq
```

### Output :-

```
[root@localhost Nilesh]# bash n
Enter a no:
5
The Fibonacci series is:
0 1 1 2 3 [root@localhost Nilesh]#
[root@localhost Nilesh]#
[root@localhost Nilesh]# vi n
[root@localhost Nilesh]# █
```

- 11) Write a shell script to read and check whether the directory exists or not, if not make a directory.

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi a
```



```
root@localhost:~
File Edit View Terminal Tabs Help
echo "enter name of directory"
read dir
if [ -d $dir ]
then
    echo "directory $dir exists"
else
    echo "directory not available!"
    echo "directory create sucefully!"
fi
~
~
~
~
~
~
~
~
~
~
```

## Output :-

```
[root@localhost ~]# bash a
enter name of directory
nilesh
directory nilesh exists
[root@localhost ~]# bash a
enter name of directory
pq
directory not available!
directory create sucefully!
[root@localhost ~]# vi a
[root@localhost ~]# █
```

**12) shell script that demonstrates the use of the chmod command.**

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd sagar
[root@localhost sagar]# vi nice
```



**Output :-**

```
[root@localhost sagar]# bash nice
ok
[root@localhost sagar]# chmod +x nice
[root@localhost sagar]# ./nice
ok
[root@localhost sagar]# chmod -x nice
[root@localhost sagar]# ./nice
bash: ./nice: Permission denied
[root@localhost sagar]#
```

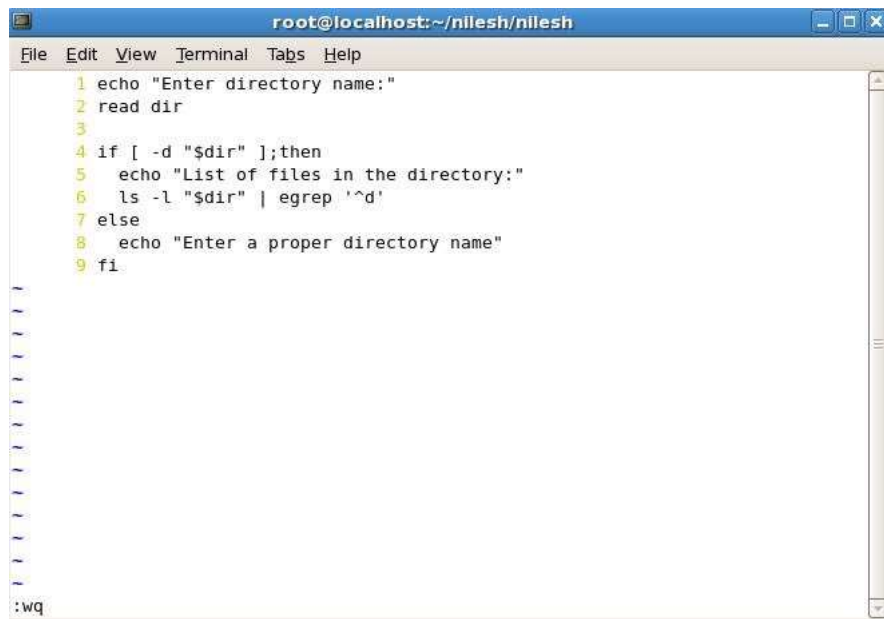
**13) Shell Script to check entered number is negative, positive, or zero.**

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilesh
[root@localhost ~]# cd
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi d
```





```
[root@localhost nilsh]# vi t
```



A screenshot of a text editor window titled "root@localhost:~/nilsh/nilsh". The window contains a shell script with the following lines:

```
1 echo "Enter directory name:"
2 read dir
3
4 if [ -d "$dir" ];then
5     echo "List of files in the directory:"
6     ls -l "$dir" | egrep '^d'
7 else
8     echo "Enter a proper directory name"
9 fi
```

The status bar at the bottom of the editor shows ":wq".

**Output :-**



A screenshot of a terminal window showing the execution of the script. The prompt is [root@localhost nilsh]#. The user enters 'bash t'. The script prompts "Enter in the directory name:" and the user enters 'nilsh'. The script then outputs "List of files in the directory:" followed by the output of 'ls -l "\$dir" | egrep '^d' for the directory 'nilsh'.

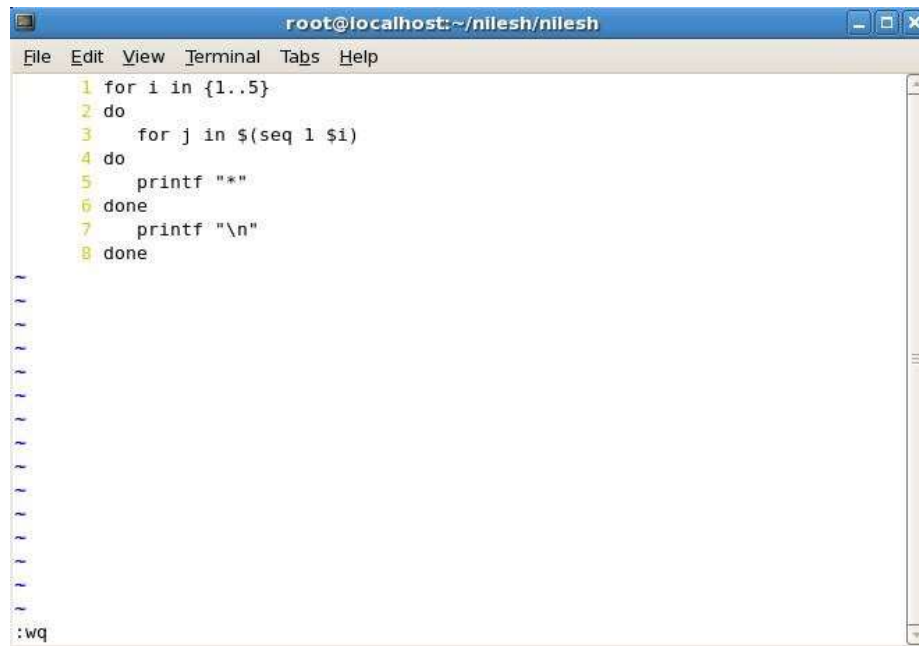
```
[root@localhost nilsh]# bash t
Enter in the directory name:
nilsh
List of files in the directory:
drwxr-xr-x 3 root root 4096 Sep 25 23:35 nilsh
drwxr-xr-x 2 root root 4096 Sep 25 23:09 sagar
drwxr-xr-x 2 root root 4096 Sep 25 22:37 sweta
[root@localhost nilsh]#
```

**15) shell script to print the following pattern.**

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

```
[root@localhost ~]# ls
[root@localhost ~]# pwd
/root
[root@localhost ~]# mkdir nilsh
```

```
[root@localhost ~]# cd
[root@localhost ~]# cd nilesh
[root@localhost nilesh]# vi sd
```



```
root@localhost: ~/nilesh/nilesh
File Edit View Terminal Tabs Help
1 for i in {1..5}
2 do
3   for j in $(seq 1 $i)
4   do
5     printf "*"
6   done
7   printf "\n"
8 done
:wq
```

**Output :-**



```
root@localhost: ~/nilesh/nilesh
File Edit View Terminal Tabs Help
[root@localhost nilesh]# vi sd
[root@localhost nilesh]# bash sd
*
**
***
****
*****
[root@localhost nilesh]#
```