

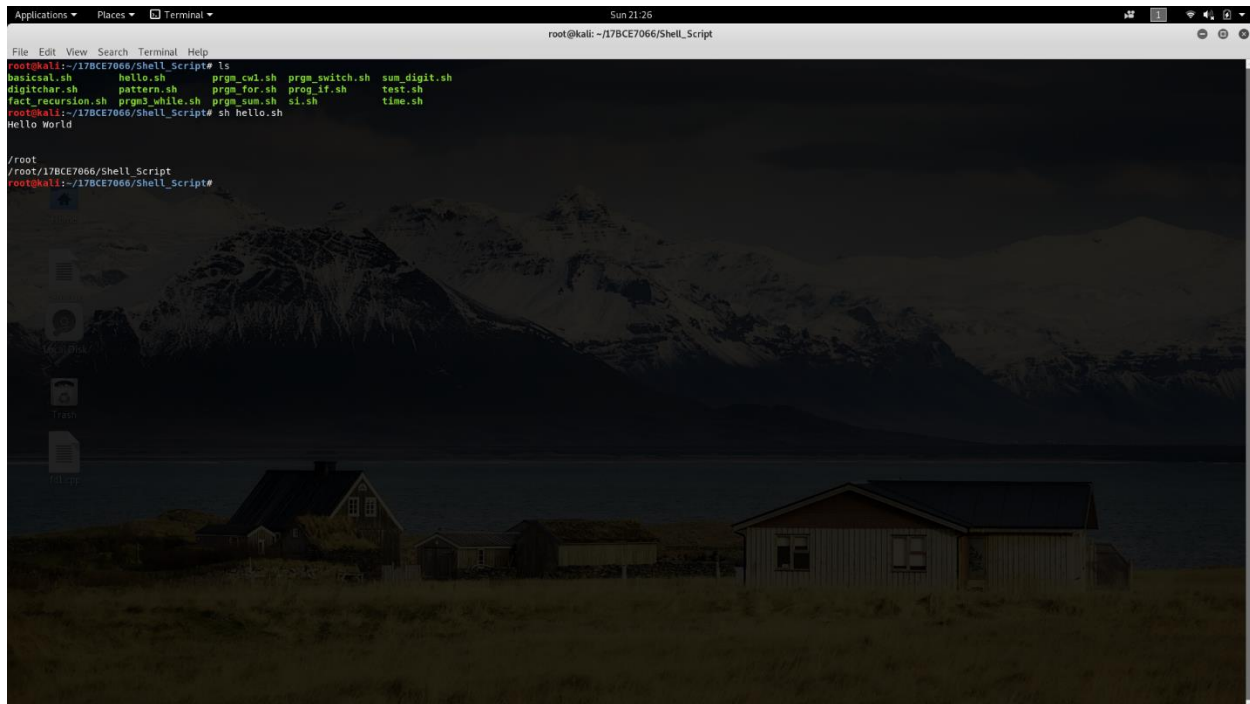
Shell-Scripting

Aditya Jain (17BCE7066)

Program 1: hello.sh

```
#!/bin/bash
#This is my first shell scripting program
echo "Hello World"
echo $BASH
echo $BASH_VERSION
echo $HOME
echo $PWD
```

Output:

A screenshot of a terminal window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Sun 21:26, root@kali: ~/17BCE7066/Shell_Script). The terminal shows the following commands and output:

```
root@kali:~/17BCE7066/Shell_Script# ls
basicsal.sh      hello.sh          prgm_cwl.sh      prgm_switch.sh   sum_digit.sh
digitchar.sh     pattern.sh        prgm_for.sh      prog_if.sh        test.sh
fact_recursion.sh prgm_while.sh     prgm_sum.sh      sl.sh             time.sh
root@kali:~/17BCE7066/Shell_Script# sh hello.sh
Hello World

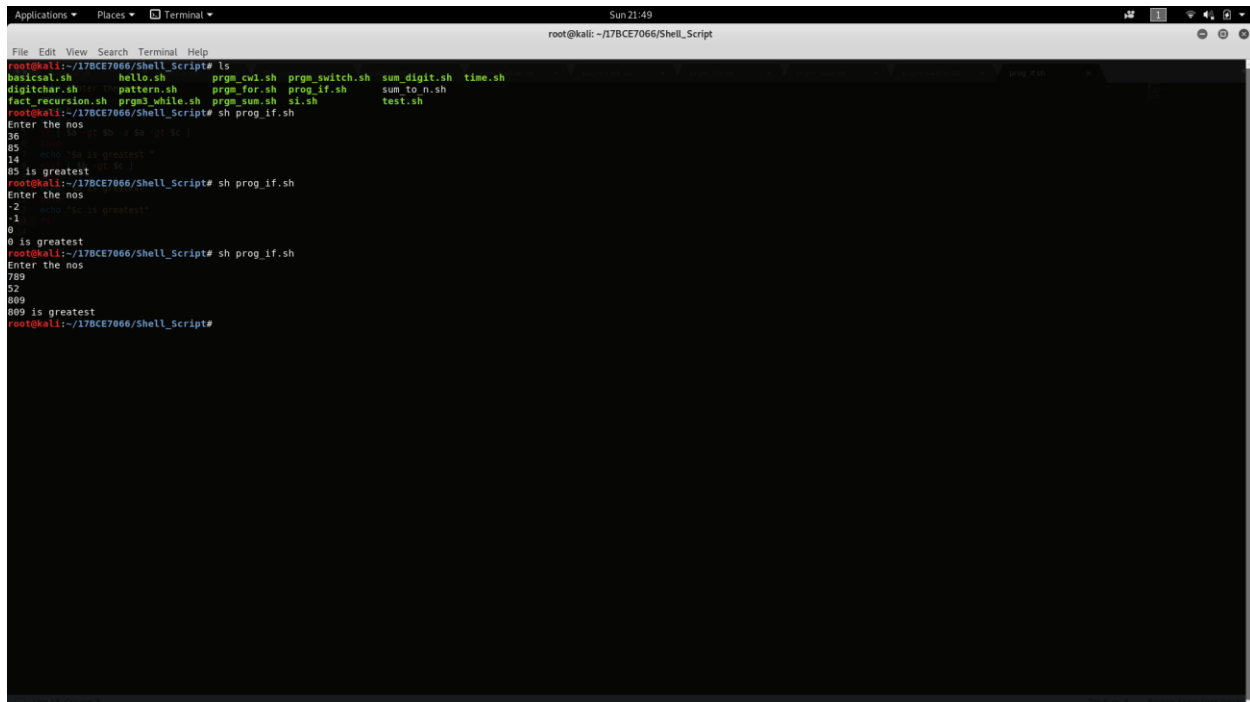
/root
/root/17BCE7066/Shell_Script
root@kali:~/17BCE7066/Shell_Script#
```

The terminal output is displayed over a desktop background featuring a dark, mountainous landscape with a small house in the foreground. On the left side of the desktop, there are icons for "Applications", "Places", "Trash", and "Recycle Bin".

Program 2: To find the greatest of three numbers

```
echo "Enter the nos "  
read a  
read b  
read c  
if [ $a -gt $b -a $a -gt $c ]  
then  
echo "$a is greatest "  
elif [ $b -gt $c ]  
then  
echo "$b is greatest "  
else  
echo "$c is greatest "  
fi
```

Output:



```
Applications ▾ Places ▾ Terminal ▾ Sun 21:49  
root@kali: ~/17BCE7066/Shell_Script  
File Edit View Search Terminal Help  
root@kali:~/17BCE7066/Shell_Script# ls  
basical.sh      hello.sh      prgm_cw1.sh  prgm_switch.sh  sum_digit.sh  time.sh  
digitchar.sh    pattern.sh    prgm_for.sh  prog_if.sh      sum_to_n.sh  
fact_recursion.sh prgm3_while.sh prgm_sum.sh  si.sh          test.sh  
root@kali:~/17BCE7066/Shell_Script# sh prog_if.sh  
Enter the nos  
36  
14  
85  
85 is greatest  
root@kali:~/17BCE7066/Shell_Script# sh prog_if.sh  
Enter the nos  
2  
-1  
0  
0 is greatest  
root@kali:~/17BCE7066/Shell_Script# sh prog_if.sh  
Enter the nos  
789  
52  
809  
809 is greatest  
root@kali:~/17BCE7066/Shell_Script#
```

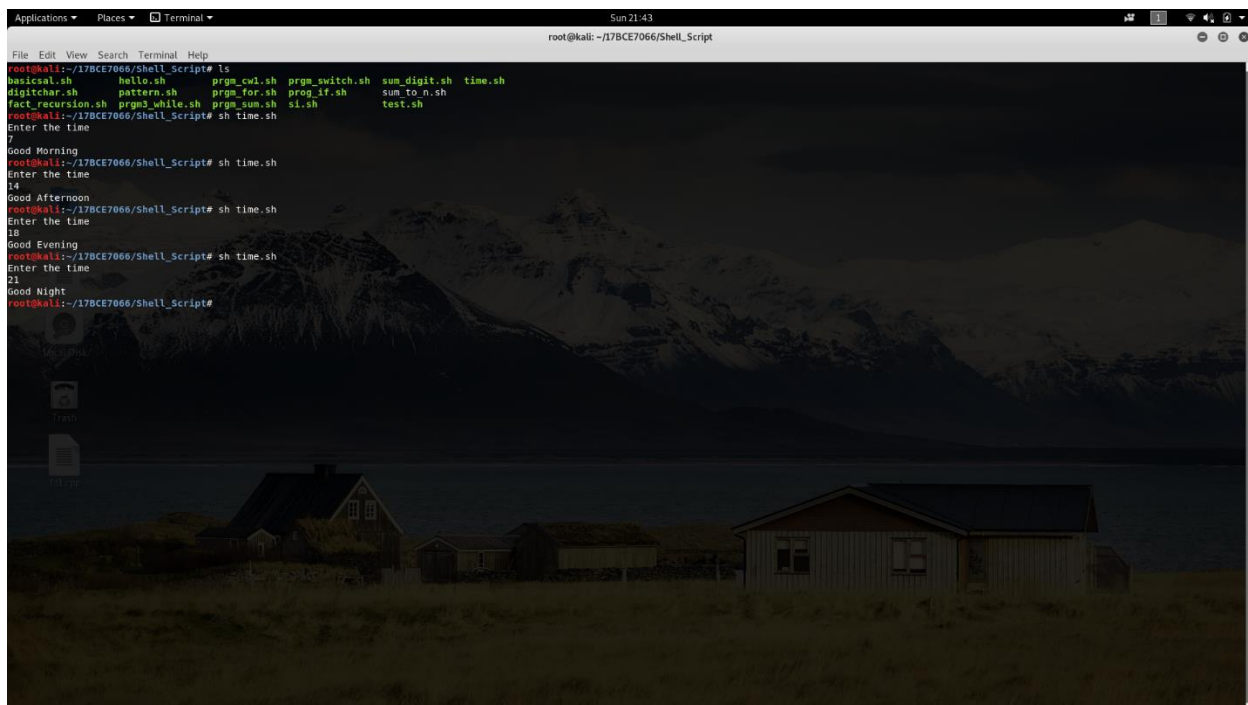
```
echo $$ $*
shift
echo $$ $*
shift
echo $$ $*
shift
echo $$ $*
shift
echo $$ $*
shift
echo $$ $*
```

The image is a composite of two parts. On the left is a terminal window titled 'root@kali: ~/7BCE7066/Shell_Script'. The terminal shows a list of scripts: 'basic.sh', 'digitchar.sh', 'fact_recursion.sh', 'prgm3_while.sh', 'prgm_switch.sh', 'prgm_for.sh', 'prgm_sum.sh', 'sum_digit.sh', 'time.sh', 'sum to n.sh', and 'test.sh'. Below this, a directory listing shows files like '5 4 3 2 1', '4 3 2 1', '3 2 1', '2 1', '1', and '0'. Then, the command 'sh pattern.sh 5 4 3 2 1' is executed, resulting in a series of messages: 'Good Morning', 'Good Afternoon', 'Good Night', and 'Good Night!'. On the right is a photograph of a small, light-colored wooden cabin with a dark roof, situated in a field with mountains in the background.

Program 4: To demonstrate else-if construct

```
echo "Enter the time"
read time
if [ $time -lt 10 ]
then
echo "Good Morning"
elif [ $time -lt 15 ]
then
echo "Good Afternoon"
elif [ $time -lt 19 ]
then
echo "Good Evening"
else
echo "Good Night"
fi
```

Output:

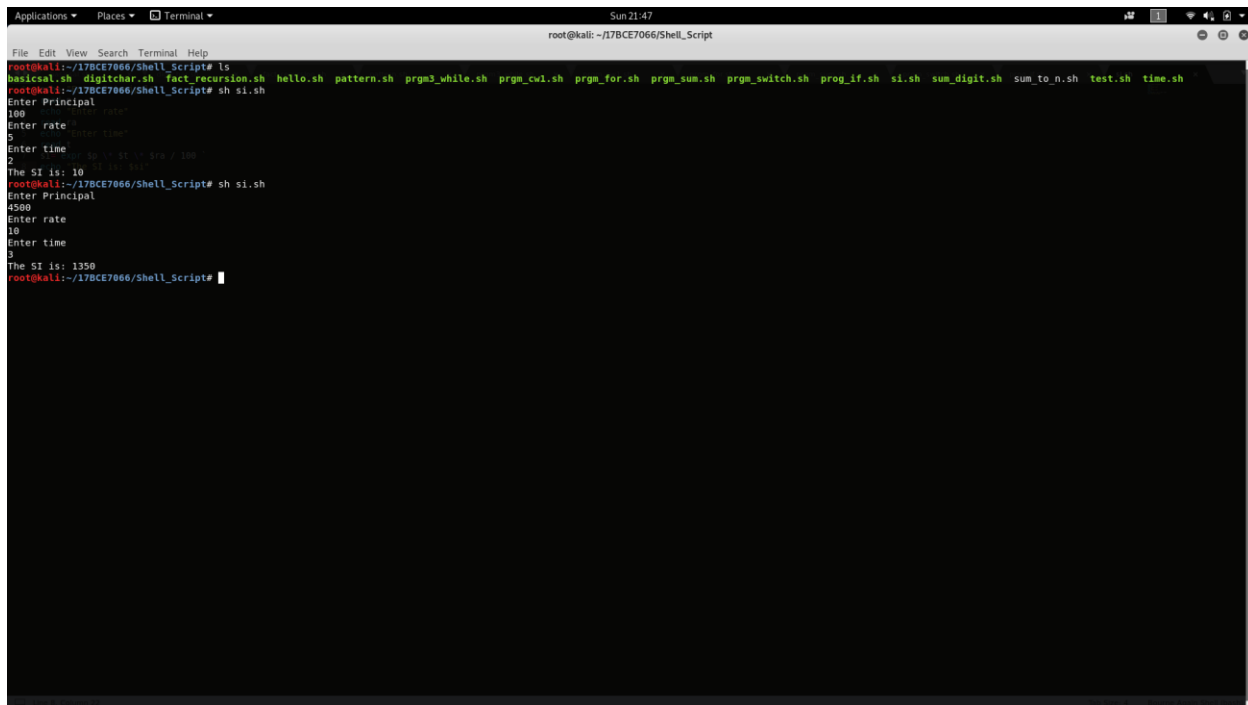


```
root@kali: ~/178CE7066/Shell_Script# ls
basical.sh      hello.sh        prgm_cw1.sh    prgm_switch.sh  sum_digit.sh    time.sh
digitchar.sh    pattern.sh      prgm_for.sh    prog_if.sh       sum_to_n.sh
fact_recursion.sh prgm_while.sh  prgm_sum.sh    si.sh            test.sh
root@kali: ~/178CE7066/Shell_Script# sh time.sh
Enter the time
7
Good Morning
root@kali: ~/178CE7066/Shell_Script# sh time.sh
Enter the time
14
Good Afternoon
root@kali: ~/178CE7066/Shell_Script# sh time.sh
Enter the time
18
Good Evening
root@kali: ~/178CE7066/Shell_Script# sh time.sh
Enter the time
21
Good Night
root@kali: ~/178CE7066/Shell_Script#
```

Program 5: To calculate simple interest

```
echo "Enter Principal"
read p
echo "Enter rate"
read ra
echo "Enter time"
read t
si=`expr $p \* $t \* $ra / 100 `
echo "The SI is: $si"
```

Output:



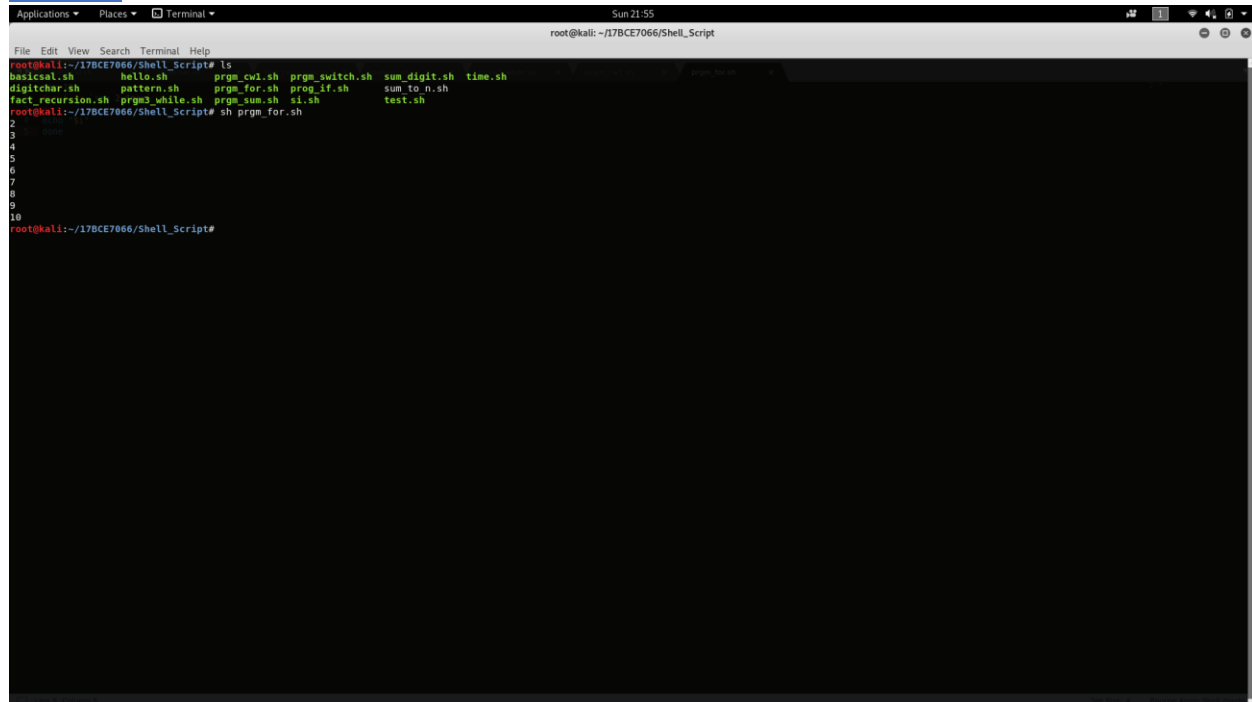
The screenshot shows a terminal window with a menu bar (Applications, Places, Terminal) and a title bar (Sun 21:47, root@kali: ~/17BCE7066/Shell_Script). The terminal displays the following commands and output:

```
root@kali:~/17BCE7066/Shell_Script# ls
basical.sh  digitchar.sh  fact_recursion.sh  hello.sh  pattern.sh  prgm3_while.sh  prgm_cw1.sh  prgm_for.sh  prgm_sun.sh  prgm_switch.sh  prog_if.sh  si.sh  sum_digit.sh  sum_to_n.sh  test.sh  time.sh
root@kali:~/17BCE7066/Shell_Script# sh si.sh
Enter Principal
100
Enter rate
5
Enter time
2
The SI is: 10
root@kali:~/17BCE7066/Shell_Script# sh si.sh
Enter Principal
4500
Enter rate
10
Enter time
3
The SI is: 1350
root@kali:~/17BCE7066/Shell_Script#
```

Program 6: To demonstrate for-loop

```
max=10
for i in `seq 2 $max`
do
echo "$i"
done
```

Output:

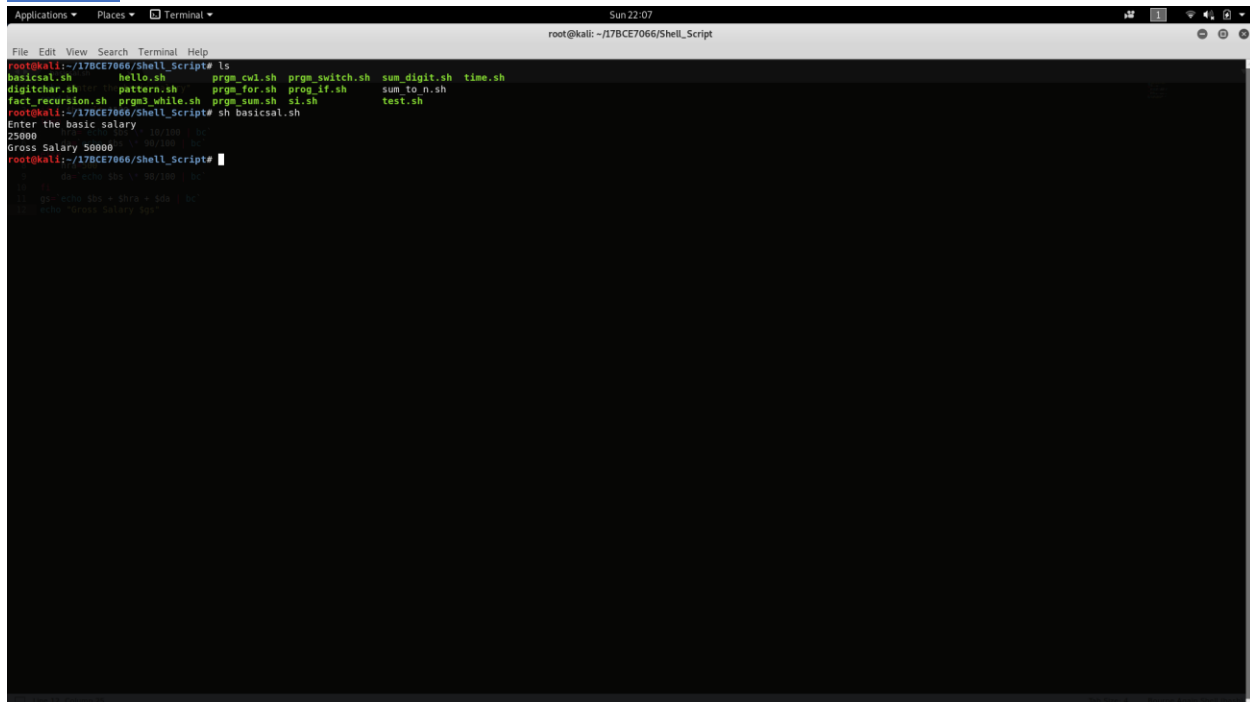
A terminal window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Sun 21:55, root@kali: ~/17BCE7066/Shell_Script). The terminal shows a directory listing of shell scripts, followed by the execution of "prgm_for.sh". The output displays numbers 2 through 10, each on a new line.

```
root@kali:~/17BCE7066/Shell_Script# ls
basical.sh      hello.sh      prgm_cw1.sh  prgm_switch.sh  sum_digit.sh  time.sh
digitchar.sh    pattern.sh    prgm_for.sh  prog_if.sh      sum_to_n.sh
fact_recursion.sh prgm_while.sh prgm_sum.sh  si.sh           test.sh
root@kali:~/17BCE7066/Shell_Script# sh prgm_for.sh
2
3
4
5
6
7
8
9
10
root@kali:~/17BCE7066/Shell_Script#
```

Program 7: To calculate gross salary

```
echo "Enter the basic salary"
read bs
if [ $bs -lt 1500 ]
then
    hra=`echo $bs \* 10/100 | bc`
    da=`echo $bs \* 90/100 | bc`
else
    hra=500
    da=`echo $bs \* 98/100 | bc`
fi
gs=`echo $bs + $hra + $da | bc`
echo "Gross Salary $gs"
```

Output:



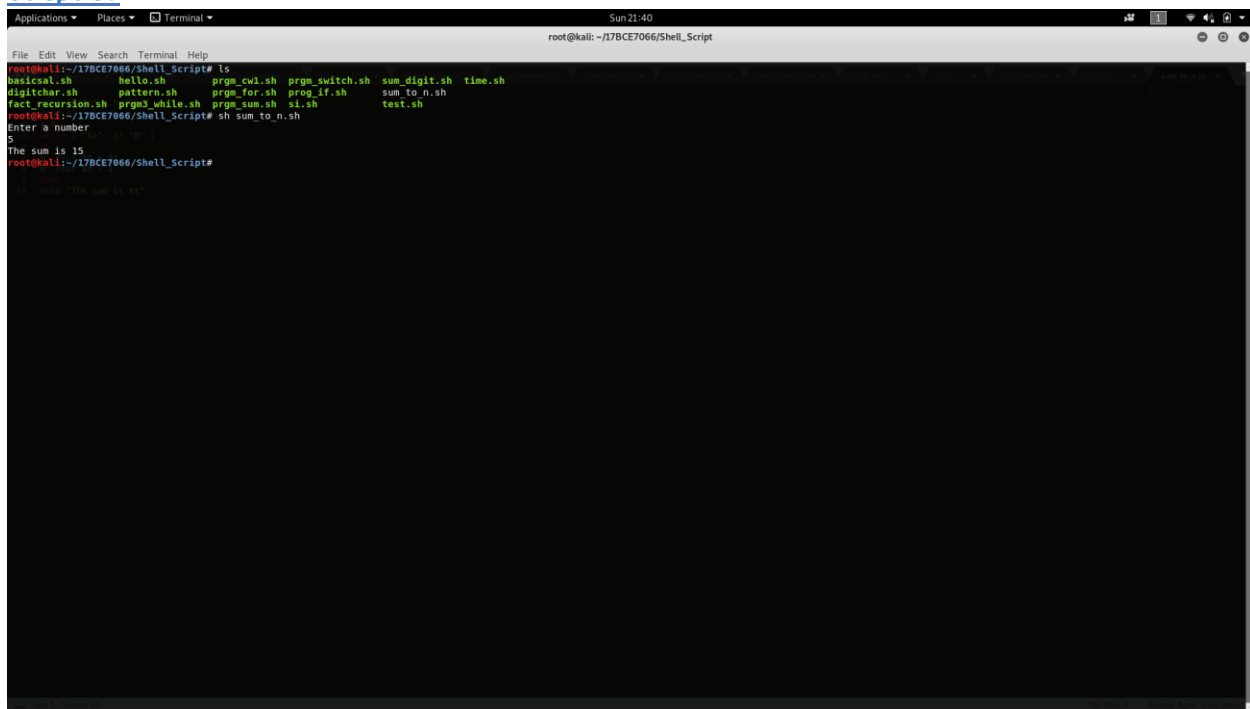
The screenshot shows a terminal window titled "root@kali: ~/17BCE7066/Shell_Script". The terminal displays the following output:

```
root@kali:~/17BCE7066/Shell_Script# ls
basical.sh  hello.sh  prgm_cw1.sh  prgm_switch.sh  sum_digit.sh  time.sh
digitchar.sh  pattern.sh  prgm_for.sh  prog_if.sh  sum_to_n.sh
fact_recursion.sh  prgm3_while.sh  prgm_sum.sh  si.sh  test.sh
root@kali:~/17BCE7066/Shell_Script# sh basical.sh
Enter the basic salary
25000
Gross Salary 50000
root@kali:~/17BCE7066/Shell_Script#
```

Program 8: To calculate the sum of natural numbers from 1 to n

```
#!/bin/sh
echo "Enter a number"
read n
s=0
while [ "$n" -gt "0" ]
do
s=`expr $n + $s`
n=`expr $n - 1`
done
echo "The sum is $s"
```

Output:

A terminal window screenshot showing the execution of a shell script. The window title is "root@kali: ~ /17BCE7066/Shell_Script". The terminal content shows a directory listing of various shell scripts, followed by the command to run "sum_to_n.sh". The user enters "5", and the script outputs "The sum is 15".

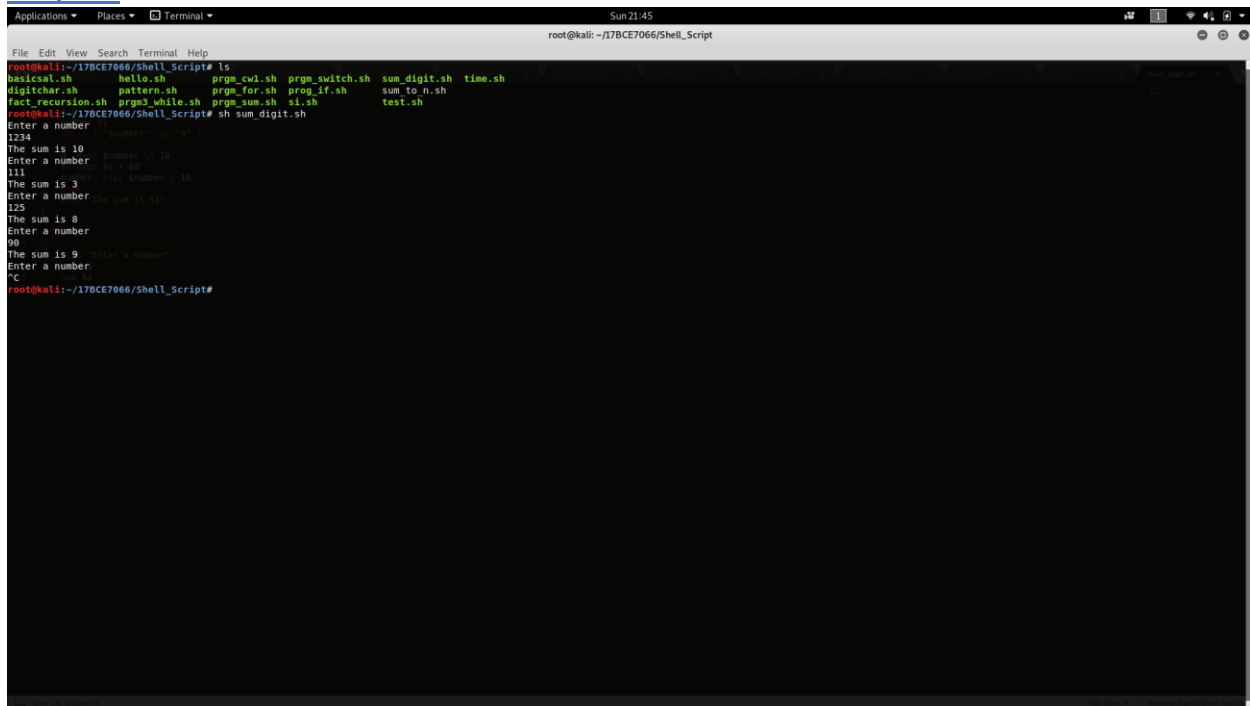
```
root@kali:~/17BCE7066/Shell_Script# ls
basical.sh      hello.sh      prgm_cw1.sh  prgm_switch.sh  sum_digit.sh  time.sh
digitchar.sh   pattern.sh    prgm_for.sh  prog_if.sh      sum_to_n.sh
fact_recursion.sh prgm3_while.sh prgm_sum.sh  si.sh          test.sh
root@kali:~/17BCE7066/Shell_Script# sh sum_to_n.sh
Enter a number
5
The sum is 15
root@kali:~/17BCE7066/Shell_Script#
```


Program 9: To find the sum of digits of the number

```
num()
{
    s=0
    number=$1
    while [ "$number" -gt "0" ]
    do
        d=`expr $number \% 10`
        s=`expr $s + $d`
        number=`expr $number / 10`
    done
    echo "The sum is $s"
}
```

```
while :
do
    echo "Enter a number"
    read a
    num $a
done
```

Output:

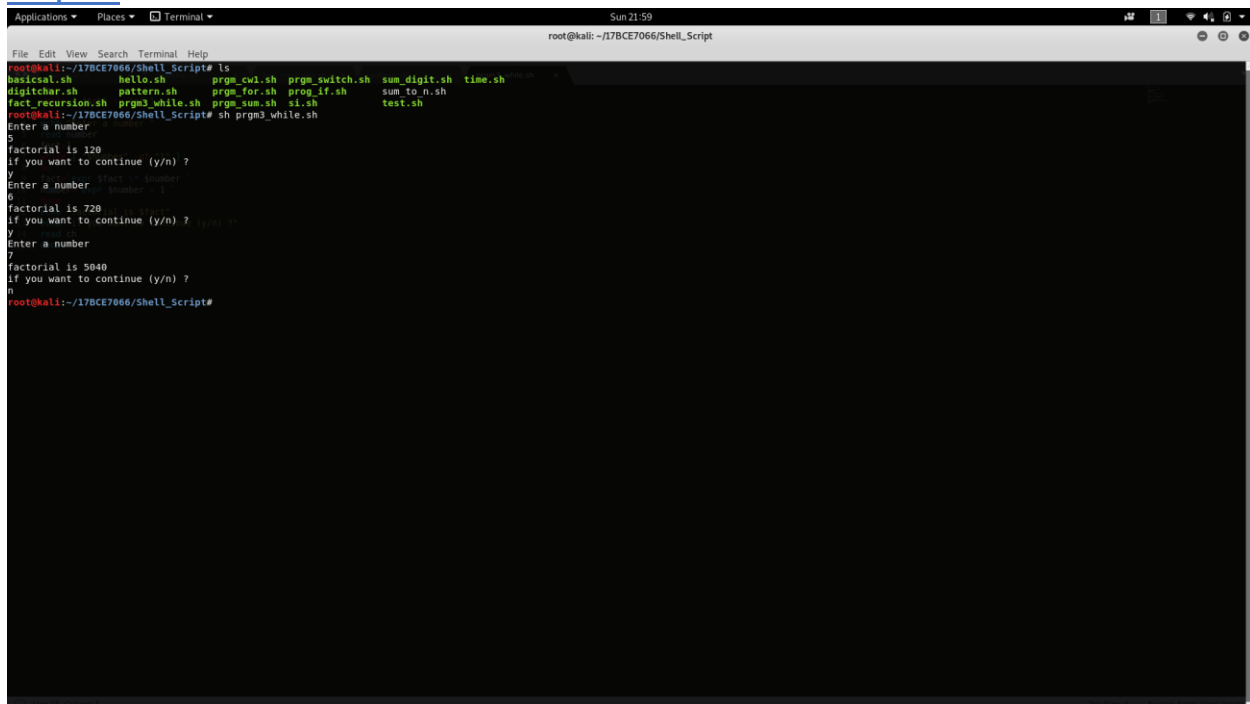


```
root@kali: ~/17BCE7066/Shell_Script
File Edit View Search Terminal Help
root@kali:~/17BCE7066/Shell_Script# ls
basical.sh  hello.sh  prgm_cw1.sh  prgm_switch.sh  sum_digit.sh  time.sh
digitchar.sh  pattern.sh  prgm_for.sh  prog_if.sh  sum_to_n.sh
fact_recursion.sh  prgm3_while.sh  prgm_sum.sh  sl.sh  test.sh
root@kali:~/17BCE7066/Shell_Script# sh sum_digit.sh
Enter a number
1234
The sum is 10
Enter a number
111
The sum is 3
Enter a number
125
The sum is 8
Enter a number
99
The sum is 9
Enter a number
c
root@kali:~/17BCE7066/Shell_Script#
```

Program 10: To demonstrate while-loop

```
ch=y
while [ "$ch" != "n" ]
do
echo "Enter a number "
read number
fact=1
while [ "$number" -gt "1" ]
do
fact=`expr $fact \* $number `
number=`expr $number - 1 `
done
echo "factorial is $fact"
echo "if you want to continue (y/n) ?"
read ch
done
```

Output:



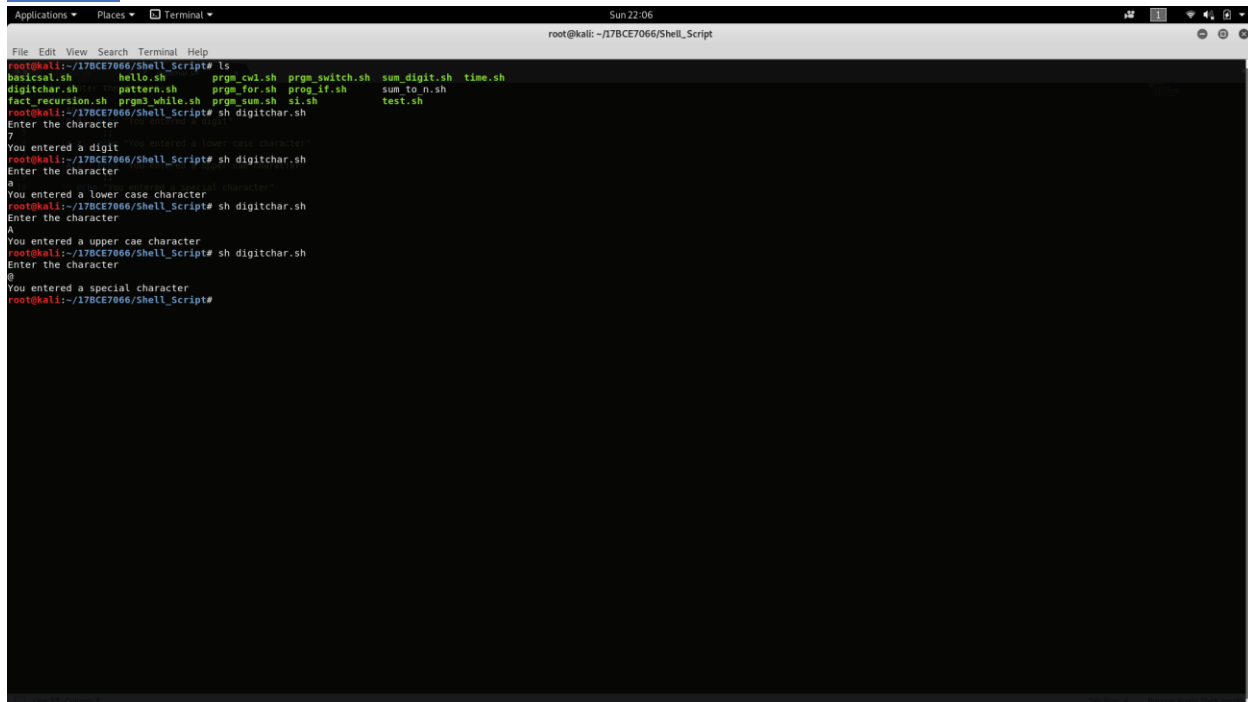
```
Applications ▾ Places ▾ Terminal ▾ Sun 21:59
root@kali: ~/17BCE7066/Shell_Script

File Edit View Search Terminal Help
root@kali:~/17BCE7066/Shell_Script# ls
basical.sh      hello.sh        prgm_cw1.sh  prgm_switch.sh  sum_digit.sh  time.sh
digitchar.sh    pattern.sh      prgm_for.sh  prog_if.sh      sum_to_n.sh
fact_recursion.sh prgm3_while.sh  prgm_sum.sh  si.sh          test.sh
root@kali:~/17BCE7066/Shell_Script# sh prgm3_while.sh
Enter a number
5
factorial is 120
if you want to continue (y/n) ?
y
Enter a number
6
factorial is 720
if you want to continue (y/n) ?
y
Enter a number
7
factorial is 5040
if you want to continue (y/n) ?
n
root@kali:~/17BCE7066/Shell_Script#
```

Program 11: To demonstrate switch-case

```
echo "Enter the character"
read num
case $num in
    [0-9]) echo "You entered a digit"
            ;;
    [a-z]) echo "You entered a lower case character"
            ;;
    [A-Z]) echo "You entered a upper cae character"
            ;;
    *) echo "You entered a special character"
        ;;
esac
```

Output:

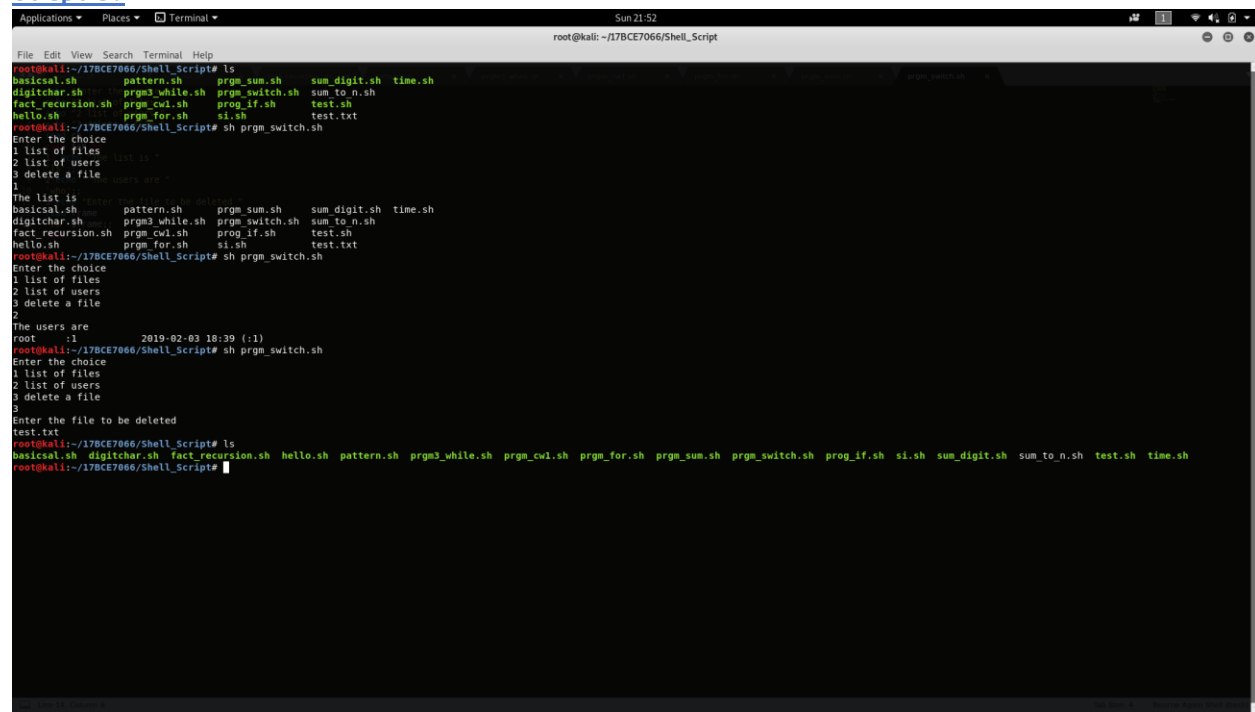


```
root@kali:~/17BCE7066/Shell_Script# ls
basical.sh      hello.sh       prgm_cw1.sh   prgm_switch.sh  sum_digit.sh  time.sh
digitchar.sh    pattern.sh     prgm_for.sh   prog_if.sh      sum_to_n.sh
fact_recursion.sh prgm3_while.sh prgm_sum.sh   si.sh           test.sh
root@kali:~/17BCE7066/Shell_Script# sh digitchar.sh
Enter the character
7
You entered a digit
root@kali:~/17BCE7066/Shell_Script# sh digitchar.sh
Enter the character
a
You entered a lower case character
root@kali:~/17BCE7066/Shell_Script# sh digitchar.sh
Enter the character
A
You entered a upper cae character
root@kali:~/17BCE7066/Shell_Script# sh digitchar.sh
Enter the character
@
You entered a special character
root@kali:~/17BCE7066/Shell_Script#
```

Program 12: To use switch case to make a program which list files, users and deletes the file asked by the user

```
echo "Enter the choice "  
echo "1 list of files "  
echo "2 list of users "  
echo "3 delete a file "  
read ch  
case $ch in  
1) echo "The list is "  
'ls';;  
2)echo "The users are "  
'who';;  
3)echo "Enter the file to be deleted "  
read frame  
'rm' $frame;;  
esac
```

Output:



```
root@kali: ~/178CE7066/Shell_Script
root@kali:~/178CE7066/Shell_Script# ls
basical.sh  pattern.sh  prgm_sum.sh  sum_digit.sh  time.sh
digitchar.sh  prgm3_while.sh  prgm_switch.sh  sum_to_n.sh
fact_recursion.sh  prgm_cwl.sh  prog_if.sh  test.sh
hello.sh  prgm_for.sh  si.sh  test.txt
root@kali:~/178CE7066/Shell_Script# sh prgm_switch.sh
Enter the choice
1 list of files
2 list of users
3 delete a file
1
The list is
basical.sh  pattern.sh  prgm_sum.sh  sum_digit.sh  time.sh
digitchar.sh  prgm3_while.sh  prgm_switch.sh  sum_to_n.sh
fact_recursion.sh  prgm_cwl.sh  prog_if.sh  test.sh
hello.sh  prgm_for.sh  si.sh  test.txt
root@kali:~/178CE7066/Shell_Script# sh prgm_switch.sh
Enter the choice
1 list of files
2 list of users
3 delete a file
2
The users are
root    :1                2019-02-03 18:39 (:1)
root@kali:~/178CE7066/Shell_Script# sh prgm_switch.sh
Enter the choice
1 list of files
2 list of users
3 delete a file
3
Enter the file to be deleted
test.txt
root@kali:~/178CE7066/Shell_Script# ls
basical.sh  digitchar.sh  fact_recursion.sh  hello.sh  pattern.sh  prgm3_while.sh  prgm_cwl.sh  prgm_for.sh  prgm_sum.sh  prgm_switch.sh  prog_if.sh  si.sh  sum_digit.sh  sum_to_n.sh  test.sh  time.sh
root@kali:~/178CE7066/Shell_Script#
```

Program 13: To make a program using switch case to reverse a number or convert it to binary or print Fibonacci series to n terms

```
echo "Enter a number "
read number
echo "1 for reverse"
echo "2 for binary "
echo "3 for fibonacci"
read ch
case $ch in
1) r=0 #this is reversing
while [ "$number" -gt "0" ]
do
d=`expr $number \% 10 `
r=`expr $r \* 10 `
r=`expr $r \+ $d `
number=`expr $number / 10`
done
echo "The reverse is $r ";;

2)bin=0 #this is binary
i=1
while [ "$number" -gt "0" ]
do
d=`expr $number \% 2 `
t=`expr $i \* $d `
bin=`expr $bin \+ $t `
i=`expr $i \* 10 `
number=`expr $number / 2 `
done
echo "The binary is $bin";;

3)a=0 #this is fibonacci
b=1
c=0
echo $a
echo $b
while [ "$number" -gt "2" ]
do
c=`expr $a + $b `
a=$b
b=$c
echo $c
number=`expr $number \- 1 `
done;;
esac
```

Output:

```
Applications ▾ Places ▾ Terminal ▾ Sun 21:57
root@kali: ~/17BCE7066/Shell_Script
File Edit View Search Terminal Help
root@kali:~/17BCE7066/Shell_Script# ls
basical.sh      hello.sh        prgm_cw1.sh     prgm_switch.sh  sum_digit.sh    time.sh
digitchar.sh    pattern.sh      prgm_for.sh     prog_if.sh      sum_to_n.sh
fact_recursion.sh prgm3_while.sh prgm_sum.sh     si.sh           test.sh
root@kali:~/17BCE7066/Shell_Script# sh prgm_cw1.sh
Enter a number
25
1 for reverse
2 for binary
3 for fibonacci
1
The reverse is 52
root@kali:~/17BCE7066/Shell_Script# sh prgm_cw1.sh
Enter a number
25
1 for reverse
2 for binary
3 for fibonacci
2
The binary is 11001
root@kali:~/17BCE7066/Shell_Script# sh prgm_cw1.sh
Enter a number
25
1 for reverse
2 for binary
3 for fibonacci
3
The binary is 11001
1
1
2
3
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Output:

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Applications ▾ Places ▾ Terminal ▾ Sun 22:04
root@kali: ~/178CE7066/Shell_Script
File Edit View Search Terminal Help
root@kali:~/178CE7066/Shell_Script# ls
basical.sh      hello.sh        prgm_cw1.sh    prgm_switch.sh  sum_digit.sh    time.sh
digitchar.sh    pattern.sh      prgm_for.sh    prog_if.sh      sum_to_n.sh
fact_recursion.sh prgm_while.sh  prgm_sum.sh    si.sh           test.sh
root@kali:~/178CE7066/Shell_Script# sh fact_recursion.sh
Enter a number
5
5! = 120
Enter a number
120
120 = 5!
Enter a number
6
6! = 720
Enter a number
720
720 = 6!
Enter a number
7
7! = 5040
Enter a number
5040
5040 = 7!
root@kali:~/178CE7066/Shell_Script#
```