

1) Study of basic linux commands

1)ls

2) cd Desktop

3) pwd

3) cd ..

4) whoami

5) uname

6) ps

7) tty

8) date

9) history

10) who

```
Activities Terminal Aug 22 21:51 prashanth@prashanth-VirtualBox: ~
prashanth@prashanth-VirtualBox:~$ ls
anaconda2  Documents  fork      Pictures  Public    sum.sh
compare1.sh Downloads  fork.c    practice.sh reverse.sh swap.sh
compare.sh  folder     Music     program   revsum.sh Templates
Desktop     folder1    New       program.c src        Videos
prashanth@prashanth-VirtualBox:~$ cd Desktop
prashanth@prashanth-VirtualBox:~/Desktop$ pwd
/home/prashanth/Desktop
prashanth@prashanth-VirtualBox:~/Desktop$ cd ..
prashanth@prashanth-VirtualBox:~$ who am i
prashanth@prashanth-VirtualBox:~$ whoami
prashanth
prashanth@prashanth-VirtualBox:~$ uname
Linux
prashanth@prashanth-VirtualBox:~$ ps
  PID TTY          TIME CMD
 2056 pts/0    00:00:00 bash
 2169 pts/0    00:00:00 ps
prashanth@prashanth-VirtualBox:~$ tty
/dev/pts/0
prashanth@prashanth-VirtualBox:~$ date
Saturday 22 August 2020 09:49:28 PM IST
prashanth@prashanth-VirtualBox:~$ history
 1  2
 2  10
 3  sudo apt-get install mc
 4  mc
 5  ls
 6  mc --version
 7  gedit new.sh
 8  gedit fork.c
 9  c fork.c
10  sh fork.c
```

```
Activities Terminal Aug 22 21:51 prashanth@prashanth-VirtualBox: ~
66 var1="Pop"
67 var1
68 echo "$var1"
69 var1="$var1" | tr '[:upper:]' '[:lower:]'
70 var1=$var1 | tr '[:upper:]' '[:lower:]'
71 var1="$var1" | tr '[:upper:]' '[:lower:]'
72 var1
73 y='This is Best'
74 y
75 y="This is Best"
76 y
77 y="Prashanth"
78 y
79 gedit practice.sh
80 clear
81 bash practice.sh
82 bash compare.sh
83 sh compare.sh
84 ls
85 cd Desktop
86 pwd
87 cd ..
88 who am i
89 whoami
90 uname
91 ps
92 tty
93 date
94 history
prashanth@prashanth-VirtualBox:~$ who
prashanth :0                2020-08-22 21:45 (:0)
prashanth@prashanth-VirtualBox:~$
```

2) Write a shell command to swap two numbers without using the third variable

```
prashanth@prashanth-VirtualBox:~$ gedit swap.sh
```

```
prashanth@prashanth-VirtualBox:~$ sh swap.sh
```

Enter the first number :

3

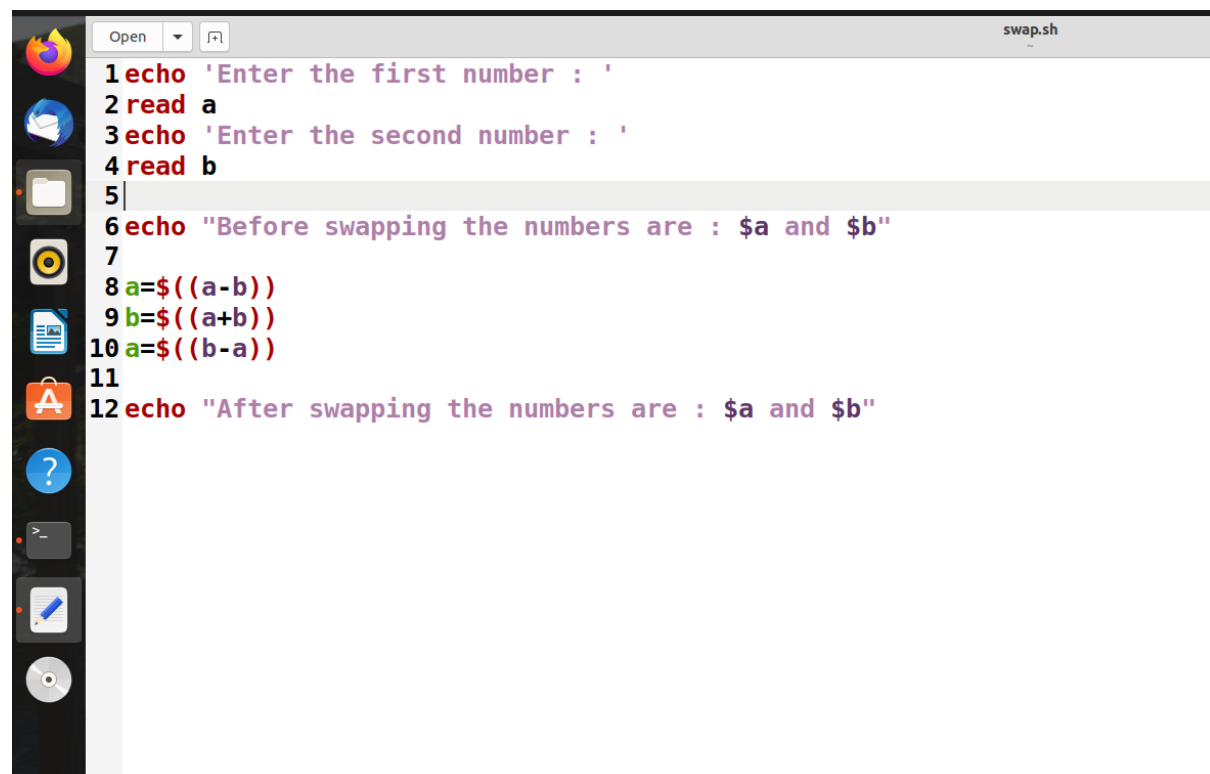
Enter the second number :

4

Before swapping the numbers are : 3 and 4

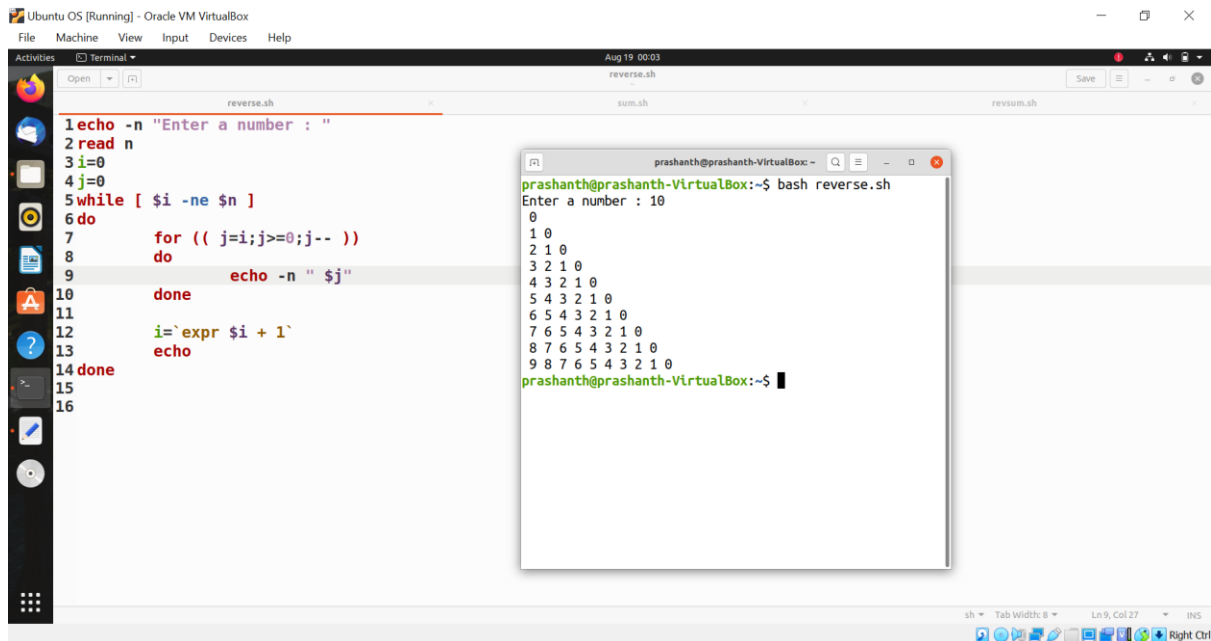
After swapping the numbers are : 4 and 3

```
prashanth@prashanth-VirtualBox:~$ █
```



```
1 echo 'Enter the first number : '
2 read a
3 echo 'Enter the second number : '
4 read b
5
6 echo "Before swapping the numbers are : $a and $b"
7
8 a=$((a-b))
9 b=$((a+b))
10 a=$((b-a))
11
12 echo "After swapping the numbers are : $a and $b"
```

3) Write the shell script using while loop to print the following structure

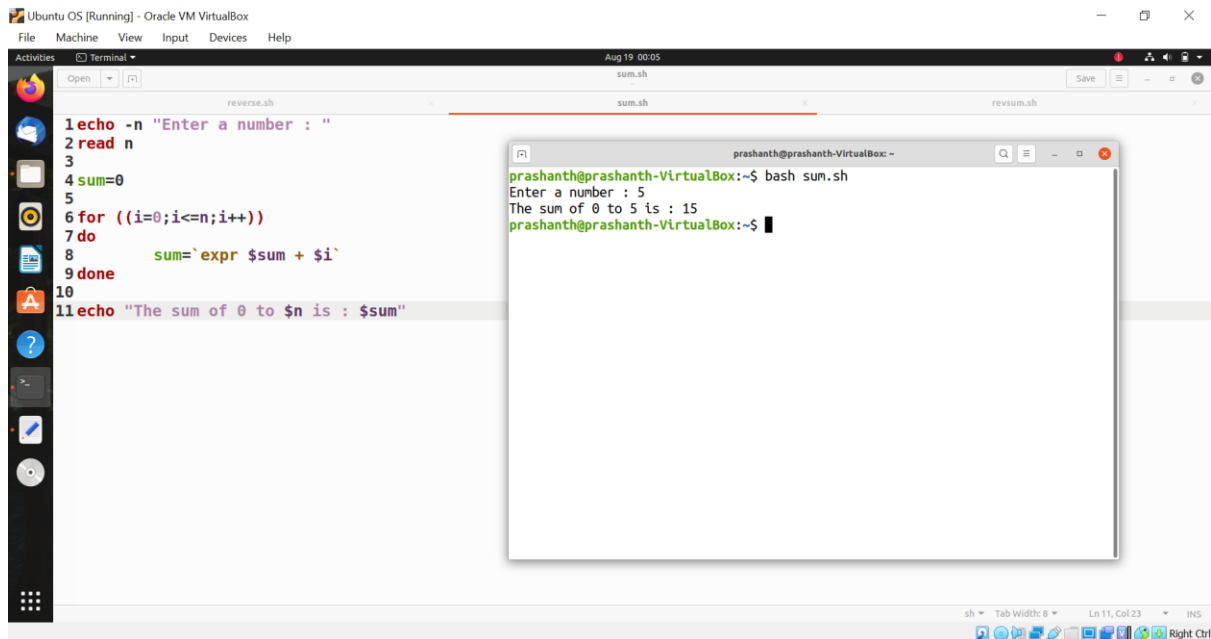


The screenshot shows a terminal window with a shell script named `reverse.sh` and its output. The script uses a `while` loop to print a pyramid of numbers. The output shows the numbers 0 through 9 printed in a pyramid shape, with each row containing one more number than the previous row, starting from 0 at the top and ending with 9 at the bottom.

```
1 echo -n "Enter a number : "  
2 read n  
3 i=0  
4 j=0  
5 while [ $i -ne $n ]  
6 do  
7     for (( j=i;j>=0;j-- ))  
8     do  
9         echo -n " $j"  
10    done  
11    i=`expr $i + 1`  
12    echo  
13 done  
14  
15  
16
```

```
prashanth@prashanth-VirtualBox:~$ bash reverse.sh  
Enter a number : 10  
0  
1 0  
2 1 0  
3 2 1 0  
4 3 2 1 0  
5 4 3 2 1 0  
6 5 4 3 2 1 0  
7 6 5 4 3 2 1 0  
8 7 6 5 4 3 2 1 0  
9 8 7 6 5 4 3 2 1 0  
prashanth@prashanth-VirtualBox:~$
```

4) Write the shell script to print the sum of first n natural numbers (use for loop)

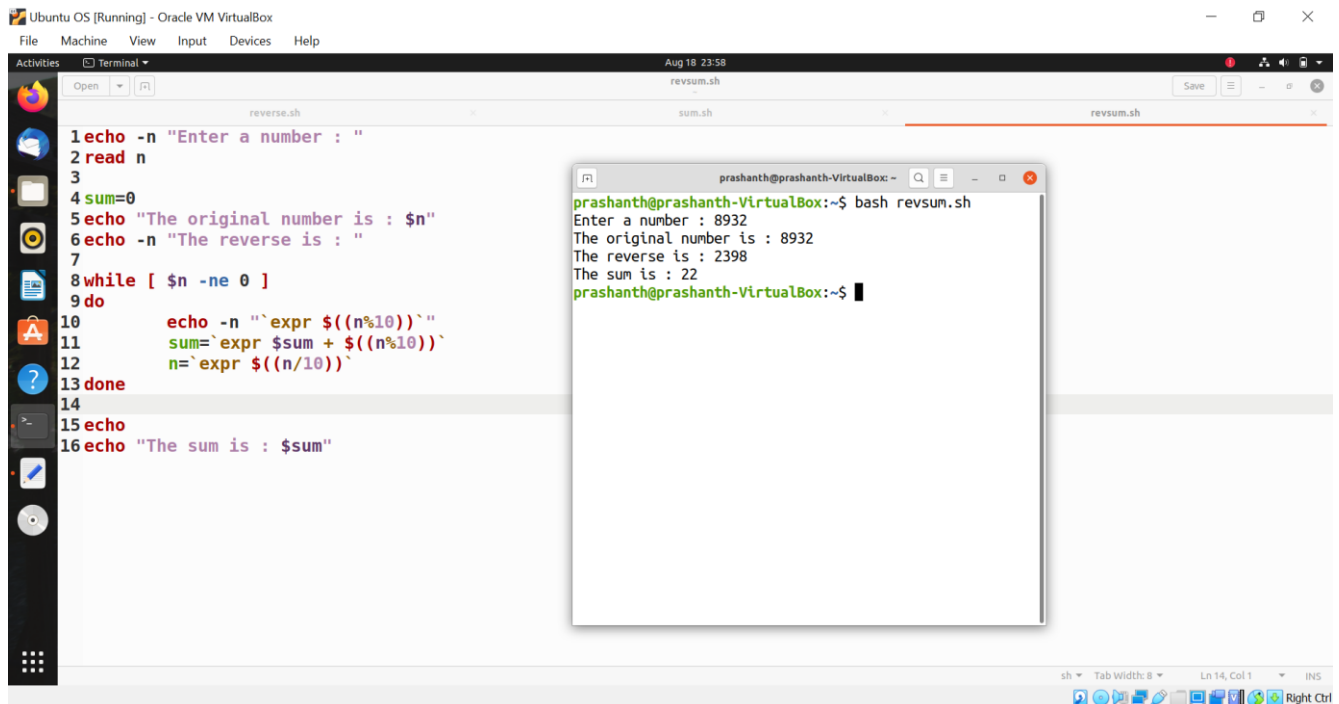


The screenshot shows a terminal window with a shell script named `sum.sh` and its output. The script uses a `for` loop to calculate the sum of the first `n` natural numbers. The output shows the sum of the first 5 natural numbers, which is 15.

```
1 echo -n "Enter a number : "  
2 read n  
3  
4 sum=0  
5  
6 for (( i=0;i<=n;i++))  
7 do  
8     sum=`expr $sum + $i`  
9 done  
10  
11 echo "The sum of 0 to $n is : $sum"
```

```
prashanth@prashanth-VirtualBox:~$ bash sum.sh  
Enter a number : 5  
The sum of 0 to 5 is : 15  
prashanth@prashanth-VirtualBox:~$
```

5) Write a shell script to print the given number in reverse order and the sum of individual digits



```

1 echo -n "Enter a number : "
2 read n
3
4 sum=0
5 echo "The original number is : $n"
6 echo -n "The reverse is : "
7
8 while [ $n -ne 0 ]
9 do
10     echo -n "`expr ${n%10}`"
11     sum=`expr $sum + ${n%10}`
12     n=`expr ${n/10}`
13 done
14
15 echo
16 echo "The sum is : $sum"

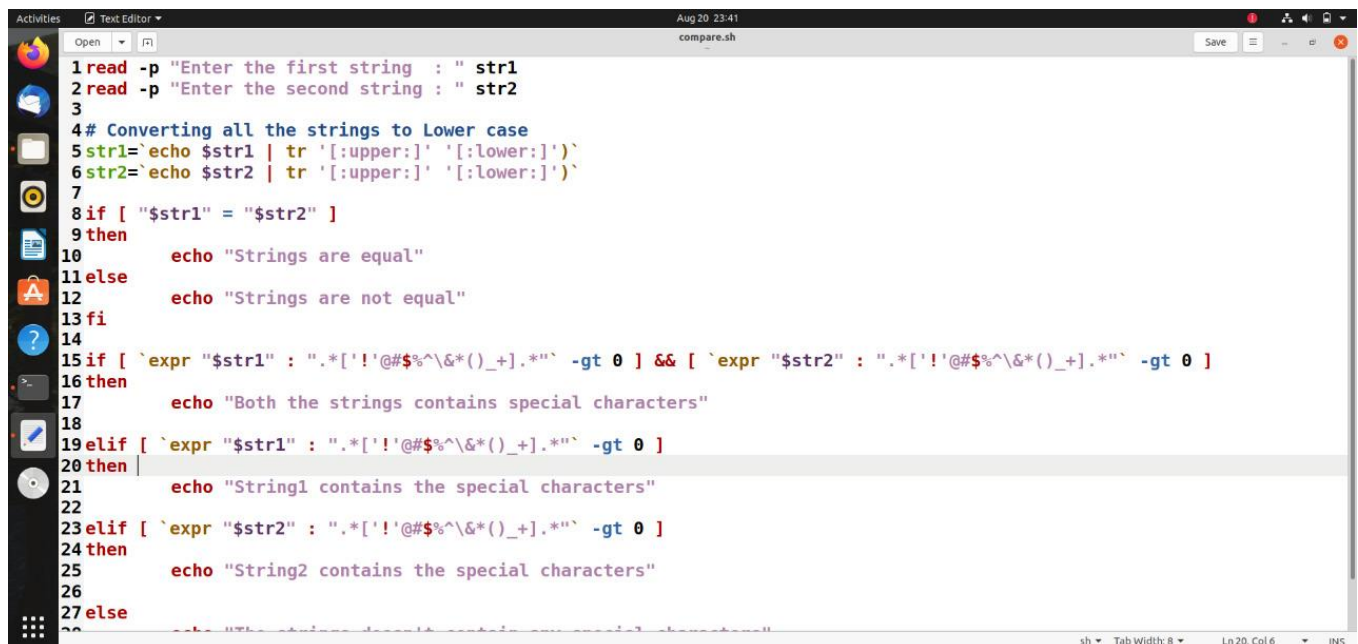
```

```

prashanth@prashanth-VirtualBox:~$ bash revsum.sh
Enter a number : 8932
The original number is : 8932
The reverse is : 2398
The sum is : 22
prashanth@prashanth-VirtualBox:~$

```

6) Write a shell script to read two strings and display whether it is equal, not equal , null strings (or) string with special characters



```

1 read -p "Enter the first string : " str1
2 read -p "Enter the second string : " str2
3
4 # Converting all the strings to Lower case
5 str1=`echo $str1 | tr '[:upper:]' '[:lower:]'`
6 str2=`echo $str2 | tr '[:upper:]' '[:lower:]'`
7
8 if [ "$str1" = "$str2" ]
9 then
10     echo "Strings are equal"
11 else
12     echo "Strings are not equal"
13 fi
14
15 if [ `expr "$str1" : ".*[!'\@#\$%\&*()_+].*"` -gt 0 ] && [ `expr "$str2" : ".*[!'\@#\$%\&*()_+].*"` -gt 0 ]
16 then
17     echo "Both the strings contains special characters"
18
19 elif [ `expr "$str1" : ".*[!'\@#\$%\&*()_+].*"` -gt 0 ]
20 then
21     echo "String1 contains the special characters"
22
23 elif [ `expr "$str2" : ".*[!'\@#\$%\&*()_+].*"` -gt 0 ]
24 then
25     echo "String2 contains the special characters"
26
27 else
28     echo "The strings doesn't contain any special characters"
29 fi

```

```
Activities Terminal Aug 20 23:41 prashanth@prashanth-VirtualBox:~$ sh compare.sh
Enter the first string : prashANTH
Enter the second string : PRashanth
Strings are equal
The strings doesn't contain any special characters
prashanth@prashanth-VirtualBox:~$ sh compare.sh
Enter the first string : #Ch@nd!er
Enter the second string : Chandler
Strings are not equal
String1 contains the special characters
prashanth@prashanth-VirtualBox:~$ sh compare.sh
Enter the first string : #Ch@nd!er
Enter the second string : #Ch@nd!er
Strings are equal
Both the strings contains special characters
prashanth@prashanth-VirtualBox:~$
```