Assginment 1

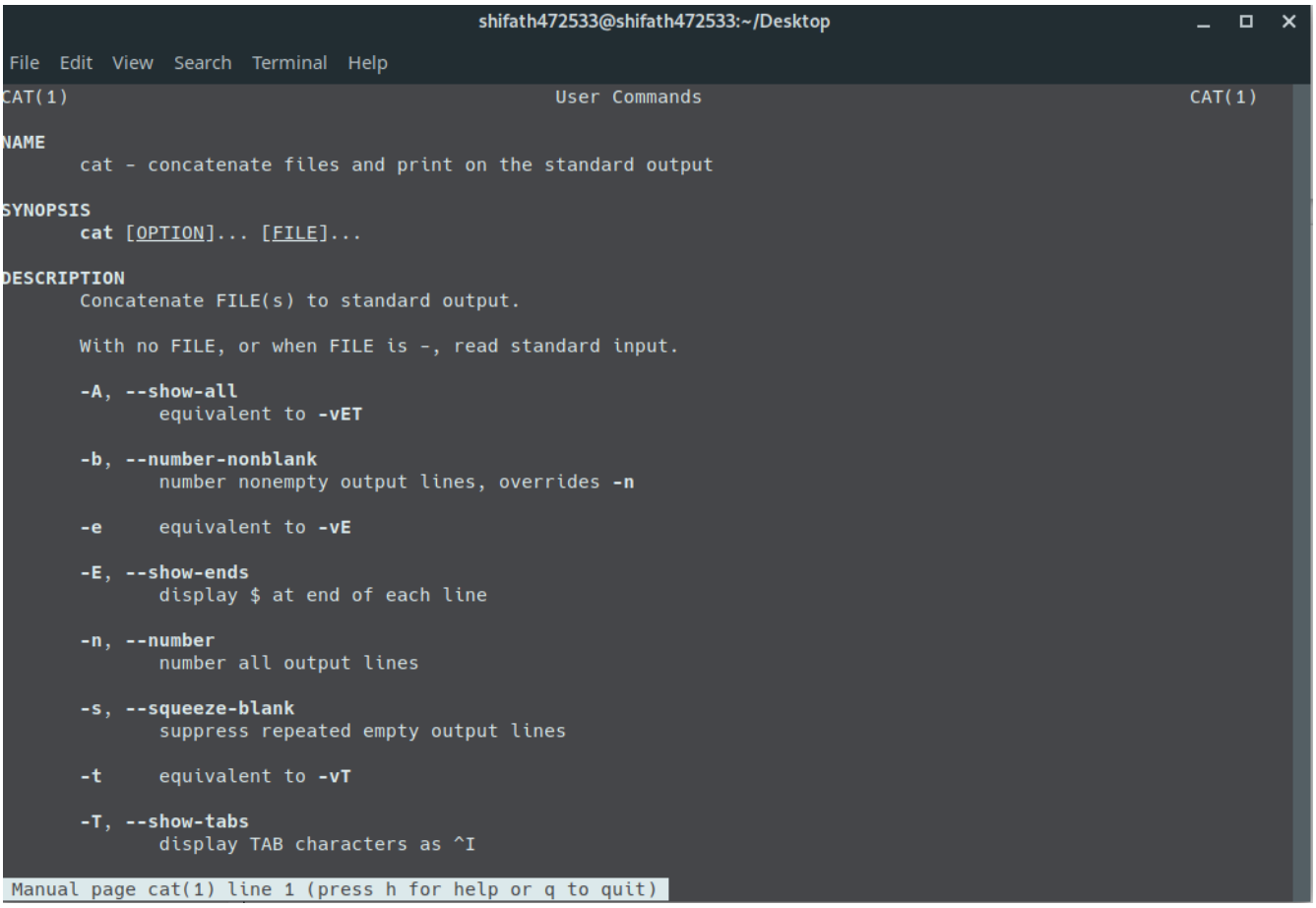
3. man – man command is used to display the manual of a command or function that we can run on the terminal of linux.It provides a detailed view of the command which includes Name, Synopsis,Description,options,exit,status,return values,errors,files,versions,examples,authors and see also.

Example:

If the following command is typed in linux command shell

$ man cat

Then the output is



who: This command is used to show the following informations.

1.Login name of the users .
2.Terminal line numbers
3.Login time of the users in to system
4.Remote host name of the user

If ‘who’ is run in the shell in this way

$who

then output will be

shifath472533 :1 2019-03-30 11:12 (:1)

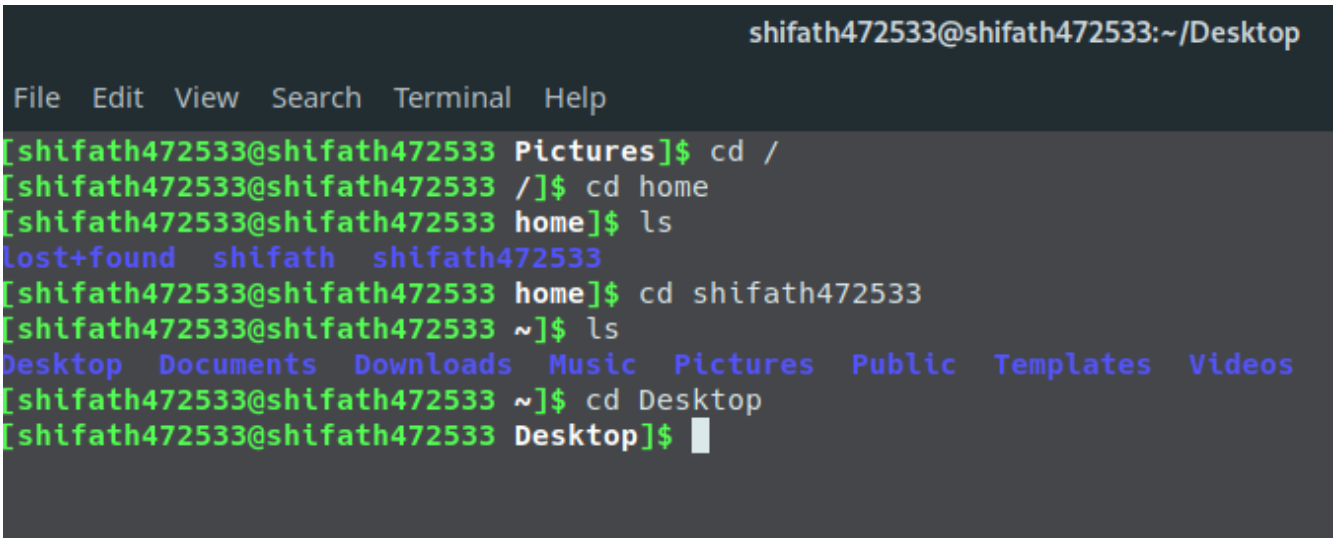
If the who command with other attribute is typed in the linux command shell then the following output is displayed.
In the command shell different formats of who commnd is displayed.

```
shifath472533@shifath472533:~/Desktop
File  Edit  View  Search  Terminal  Help
[shifath472533@shifath472533 Desktop]$ man cat
[shifath472533@shifath472533 Desktop]$ man who
[shifath472533@shifath472533 Desktop]$ who
shifath472533 :1           2019-03-30 11:12 (:1)
[shifath472533@shifath472533 Desktop]$ who -m -H
NAME     LINE         TIME             COMMENT
[shifath472533@shifath472533 Desktop]$ who -p -H
NAME     LINE         TIME                         PID COMMENT
[shifath472533@shifath472533 Desktop]$ who -T -H
NAME       LINE         TIME             COMMENT
shifath472533 ? :1           2019-03-30 11:12 (:1)
[shifath472533@shifath472533 Desktop]$ who -u
shifath472533 :1           2019-03-30 11:12   ?         17339 (:1)
[shifath472533@shifath472533 Desktop]$ who -b -H
NAME     LINE         TIME                         PID COMMENT
         system boot  2019-03-30 17:11
[shifath472533@shifath472533 Desktop]$ who -l -H
NAME     LINE         TIME             IDLE          PID COMMENT
[shifath472533@shifath472533 Desktop]$
```

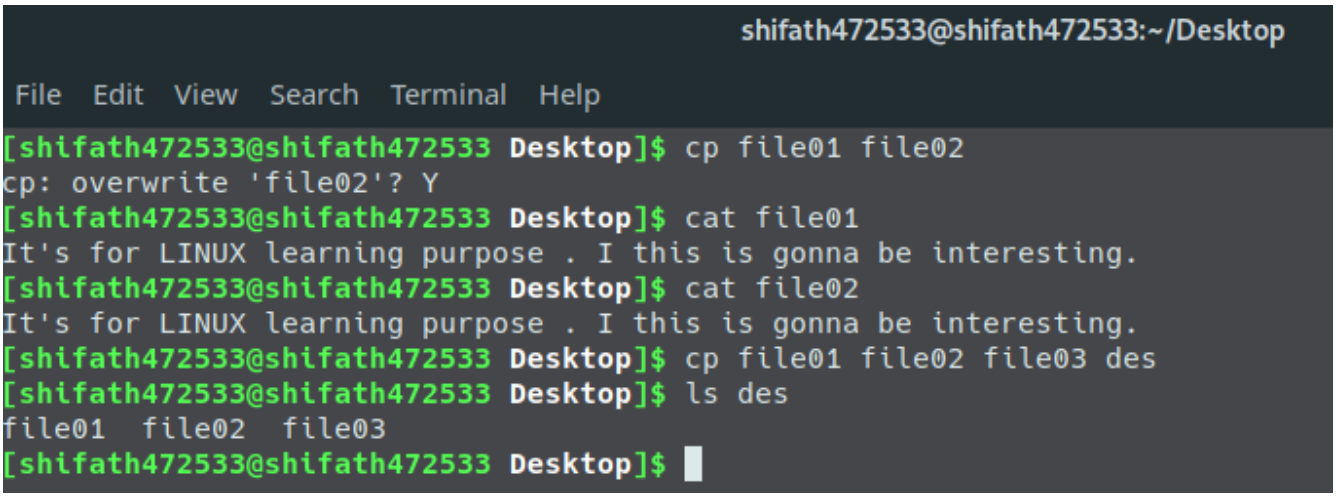
Cat:
This command reads data from the file and shows their contents as their output. It is used to create,view,concatenate files etc.
The output for cat command is displayed below -

```
shifath472533@shifath472533:~/Desktop
File  Edit  View  Search  Terminal  Help
[shifath472533@shifath472533 Desktop]$ cat file01
It's for LINUX learning purpose . I this is gonna be interesting.
[shifath472533@shifath472533 Desktop]$ cat file01 file02
It's for LINUX learning purpose . I this is gonna be interesting.
This another one.

[shifath472533@shifath472533 Desktop]$ cat -n file01
     1  It's for LINUX learning purpose . I this is gonna be interesting.
[shifath472533@shifath472533 Desktop]$ cat -n file02
     1  This another one.
     2  This is line 2.
     3
     4
[shifath472533@shifath472533 Desktop]$ cat file01 > file02
[shifath472533@shifath472533 Desktop]$ cat file02
It's for LINUX learning purpose . I this is gonna be interesting.
[shifath472533@shifath472533 Desktop]$ cat file01 >> file02
[shifath472533@shifath472533 Desktop]$ cat file02
It's for LINUX learning purpose . I this is gonna be interesting.
It's for LINUX learning purpose . I this is gonna be interesting.
[shifath472533@shifath472533 Desktop]$
```

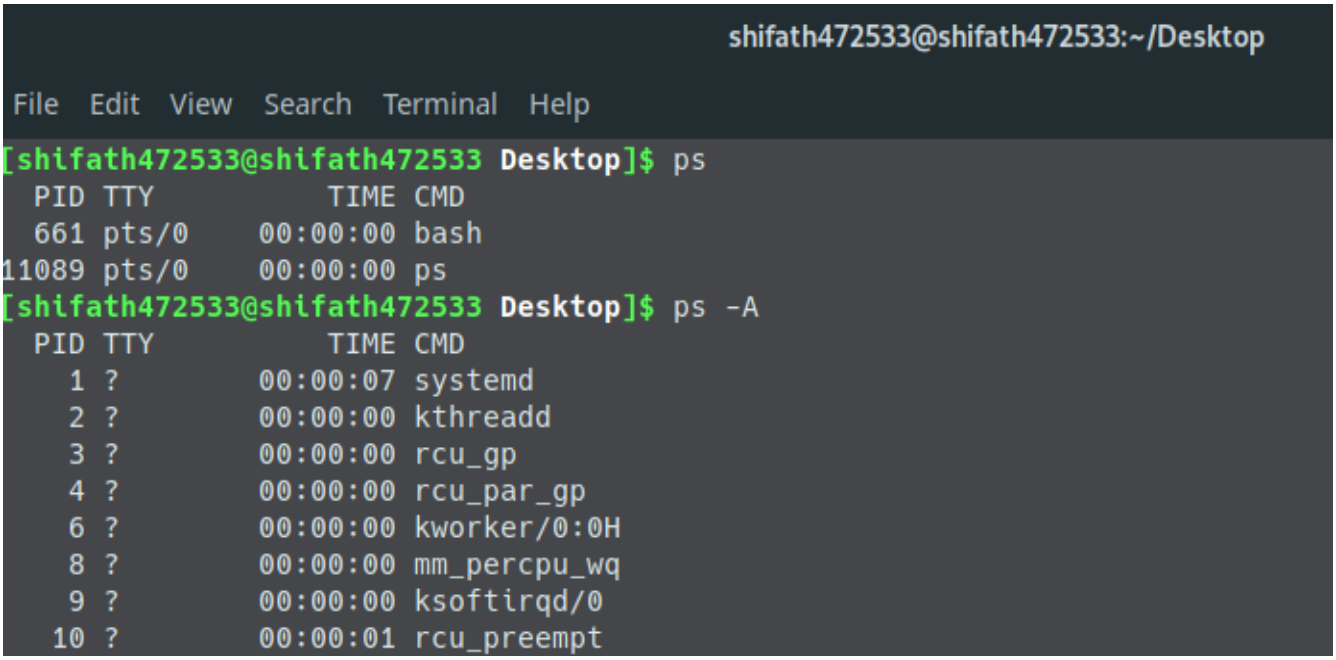
cd:
This command is used to change the current working directory.
The output of this command is displayed below.



cp:
cp is used to copy files or a group of files or directory.
The output of the cp command is given below

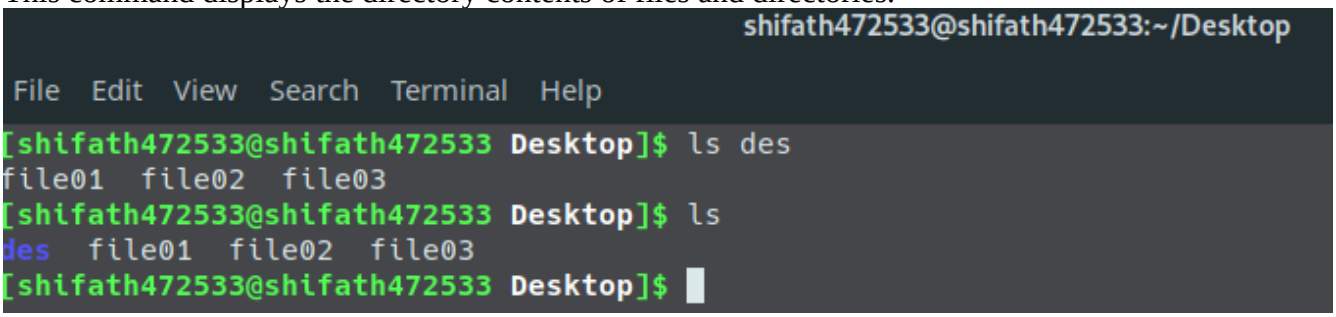


ps:
This command is used to show the currently running processes with their PIDs and some other details like TTY,TIME,CMD etc.



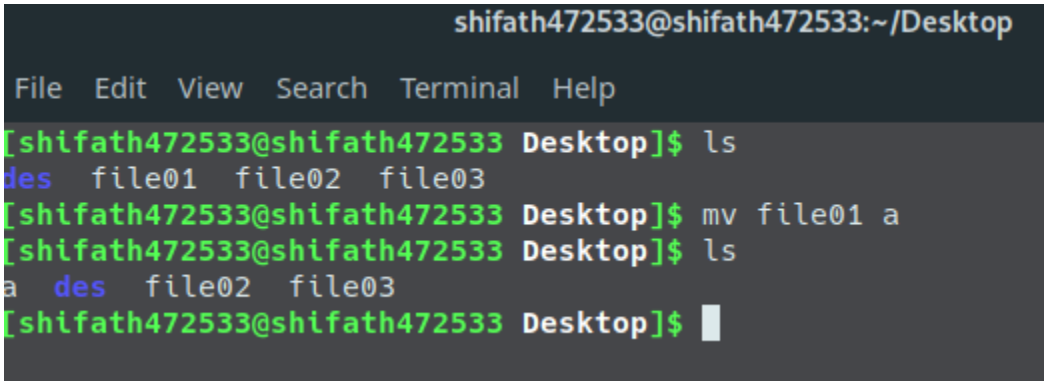
Here , ps -a command shows all the running processes.

ls:
This command displays the directory contents of files and directories.



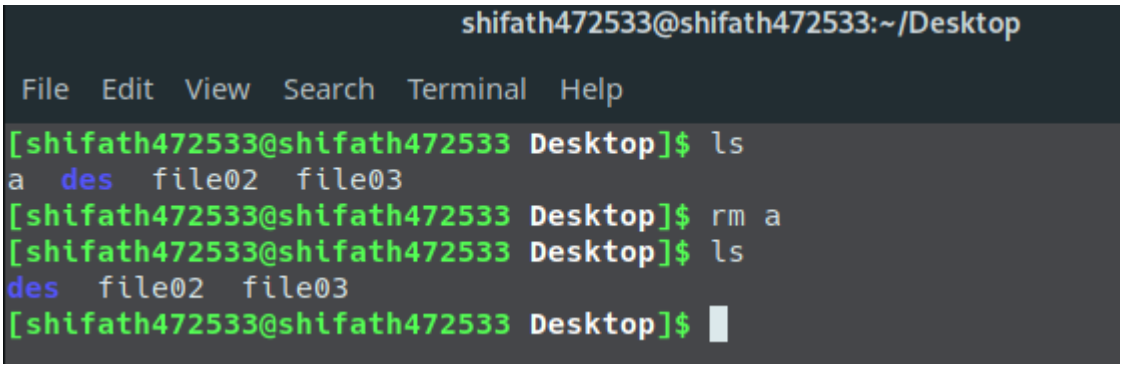
By using ‘ls des’ command we can see all the files in des directory.

mv:
This command renames a file or folder or moves group of files to different directories.
Output:

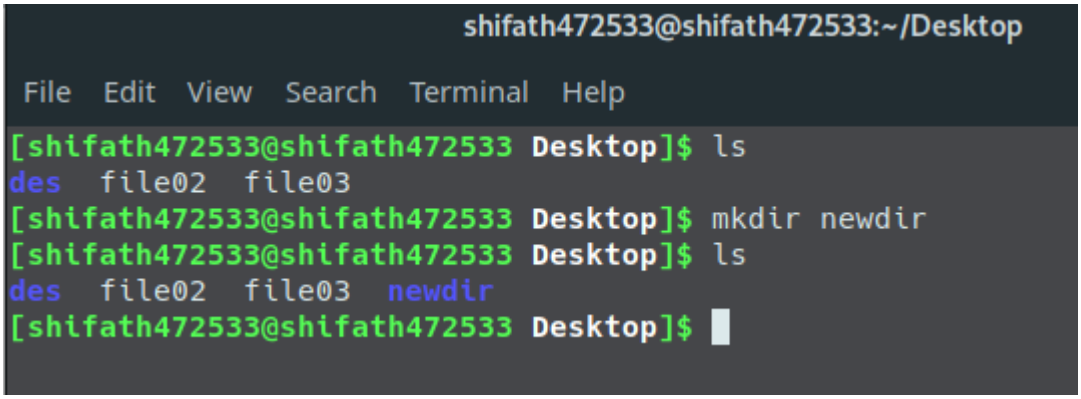


Here ‘file01’ is renamed to ‘a’.

rm:
This command is used to remove references to objects from the file system.
Output:

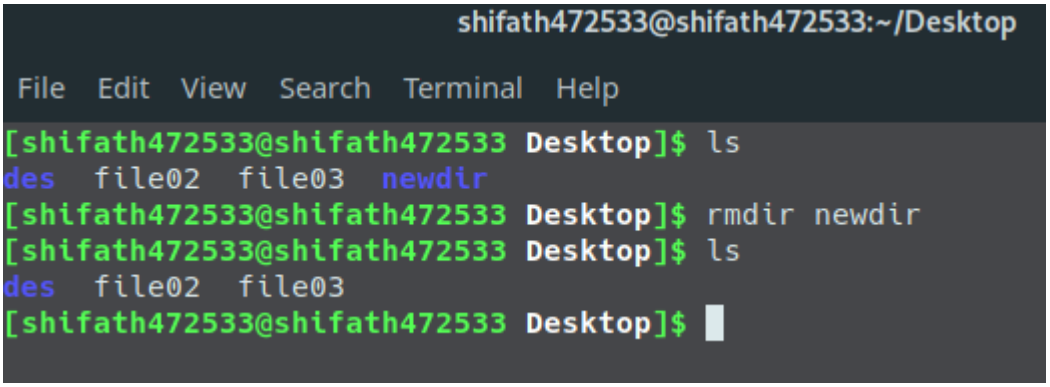


Here file ‘a’ is removed.
mkdir:
This command is used to create new directories.



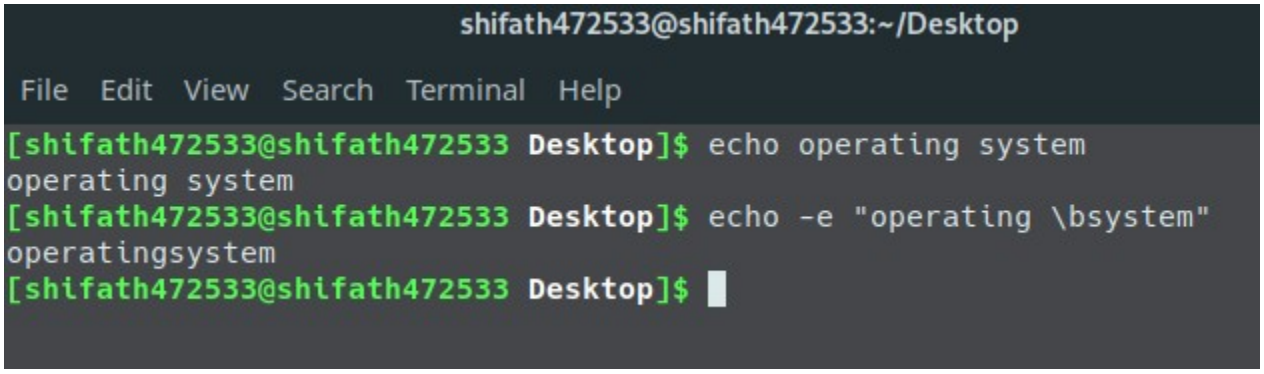
Here new directory ‘newdir’ has been created.

rmdir:
This command is used to remove empty directory. If there is another diectory inside the directory then it can’t be removed by this command.



Here the empty directory ‘newdir’ has been removed by this command.

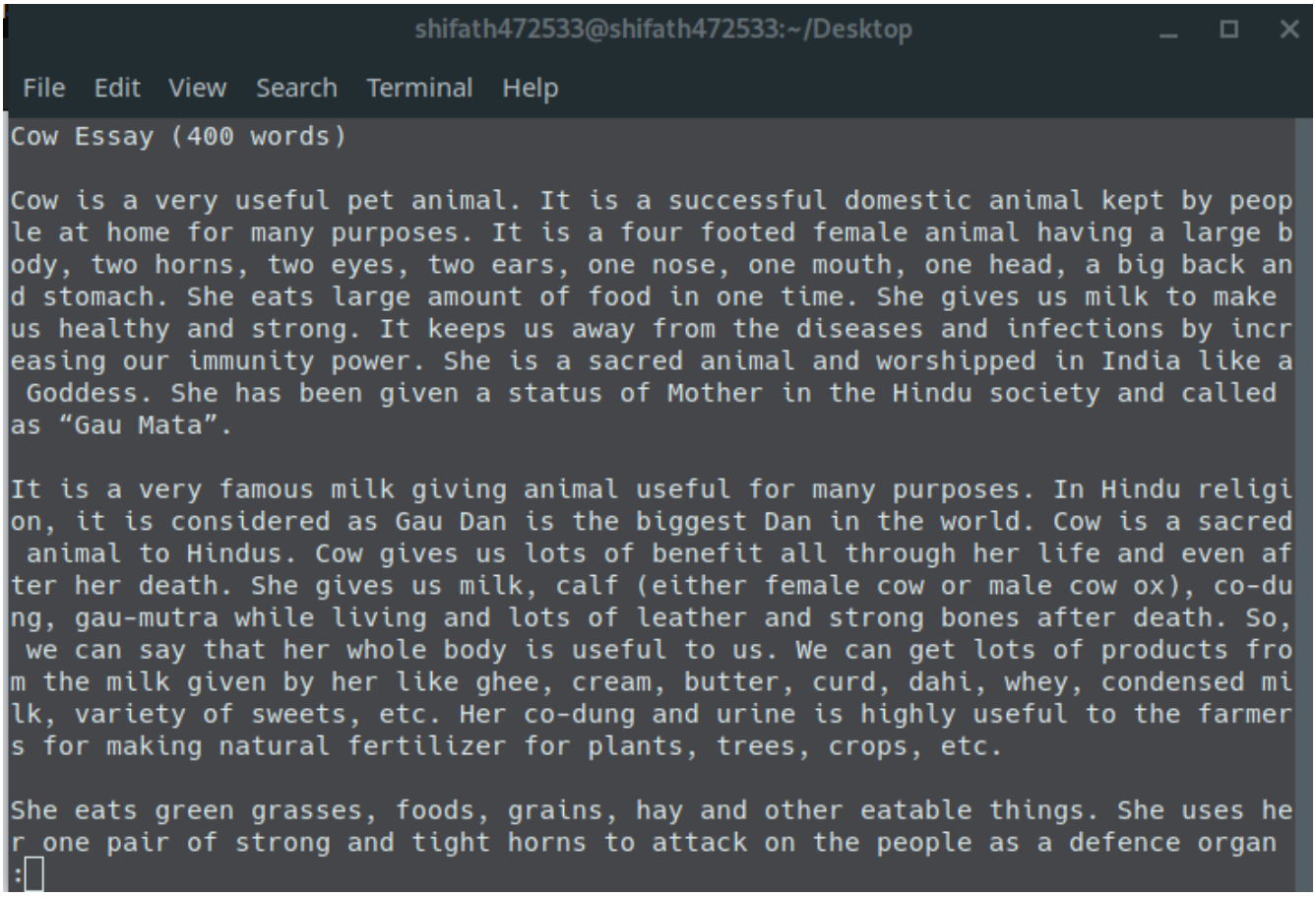
echo:
This command displays a line of text or string .
Output:



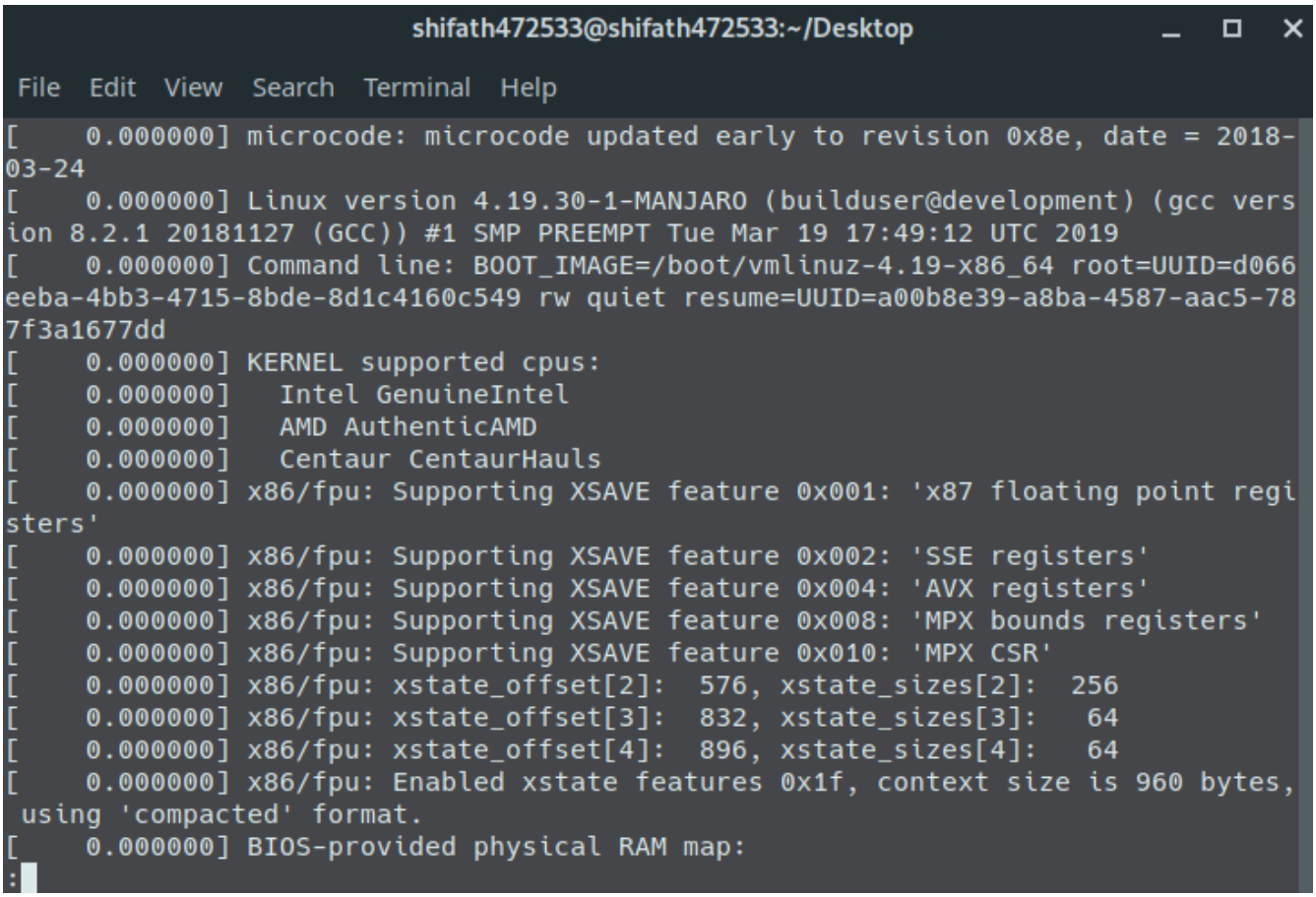
Here a string “operating system” has been displayed by this command.

More:
This command is used to view large text files to display one screen at a time. It is also used sometimes with some other command after a pipe.

After writing the command “more -d cow” the output is like below. Here ‘cow’ is the text file.

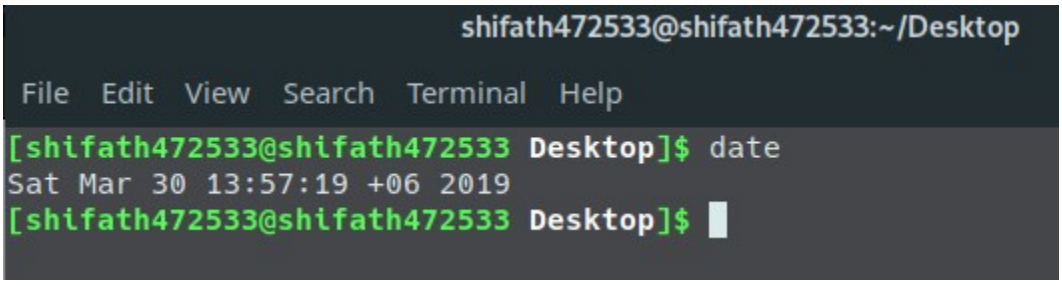


less:
This command is used to read contents of a text files one page per time.
If the “dmesg | less” command is typed then the output is as follows:

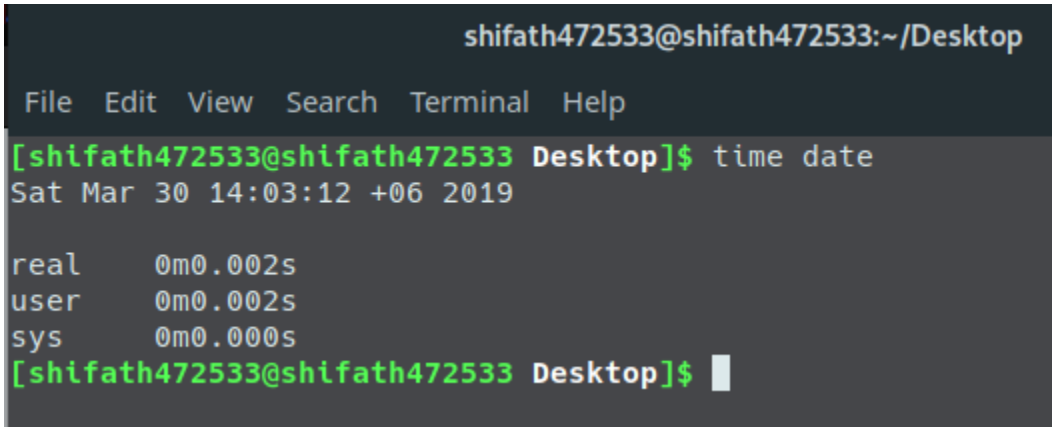


date:
This command is used to display system date and time.

Output:

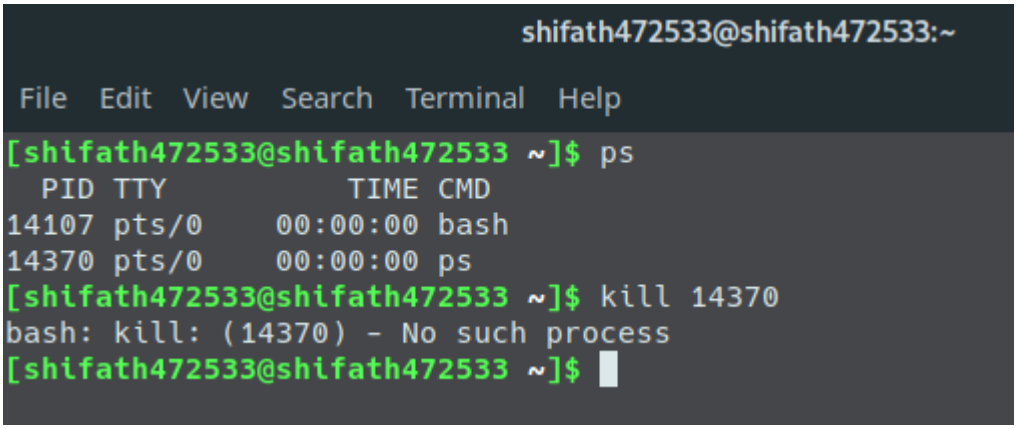


time:
This command is used to determine how long a given command takes to run.



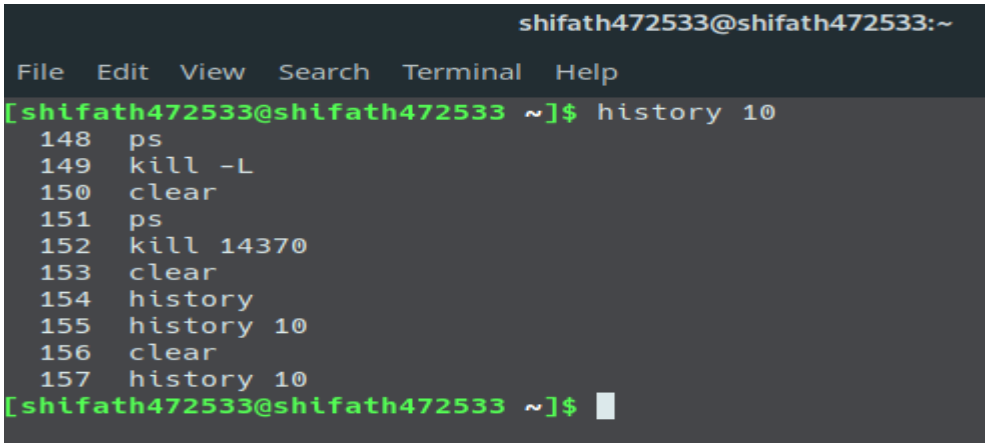
Here ‘real’ shows the total time to execute the call. And ‘user’ shows time in user mode and ‘sys’ shows the time in kernel mode.

kill:
This command is used to terminate process manually.
Output:



By this command process ps with PID - ‘14370’ has been terminated manually.

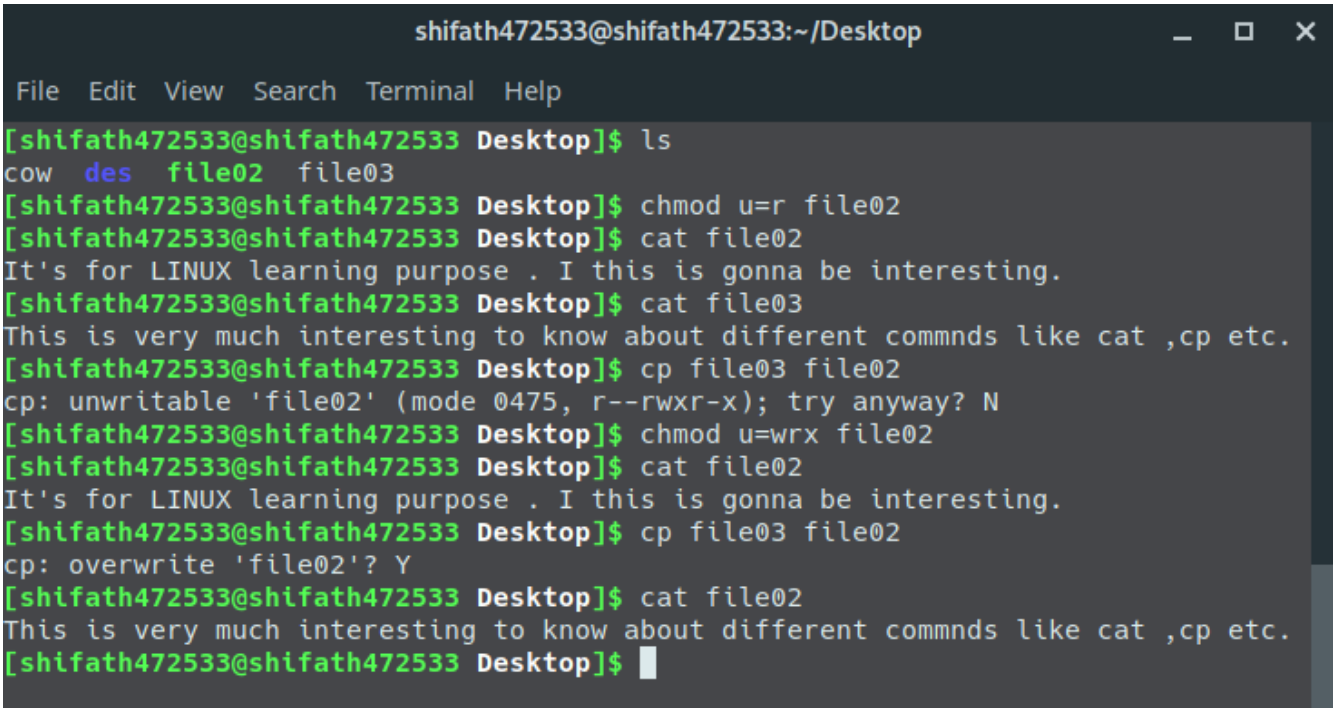
history:
This command is used to view the previously executed commands.



Here the historyof last 10 processes executed has been shown.

chmod:
This command is used to change the permissions of a file or directory.

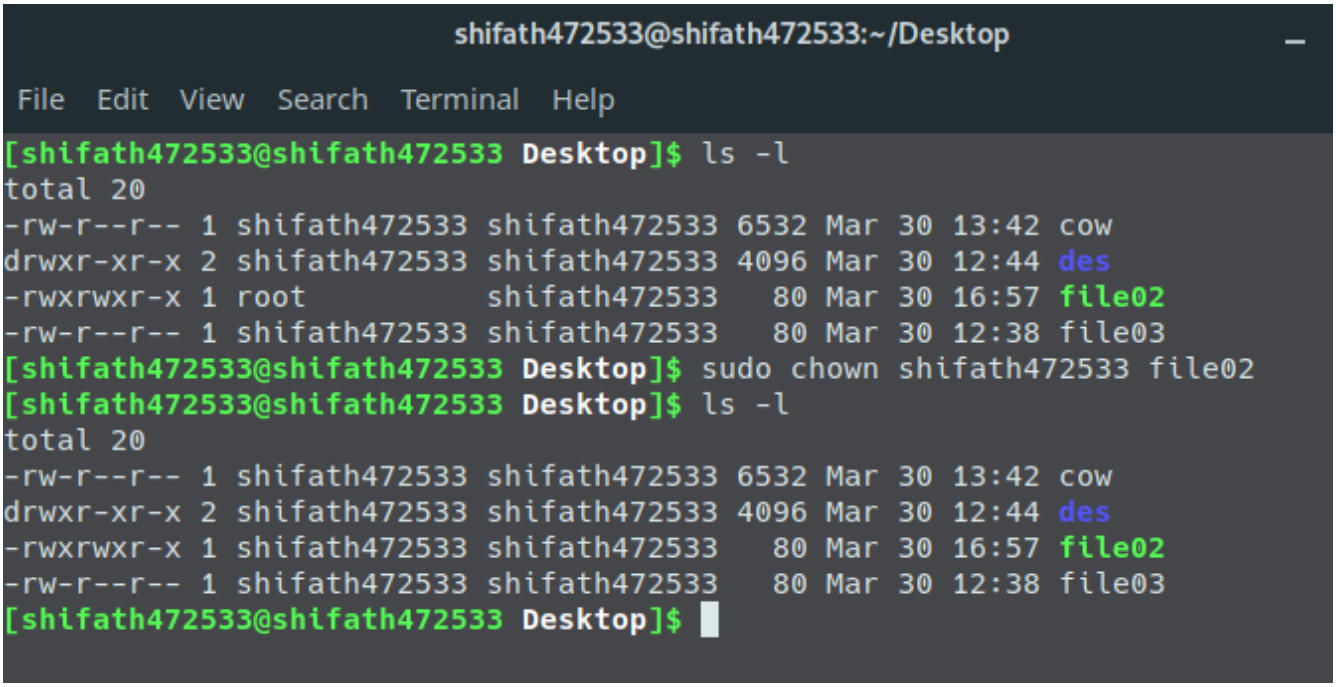
Example output:



Here the user permission has been changed.

chown:
This command changes the owner of a file or dieectory. It is faster and easier than changing permission.

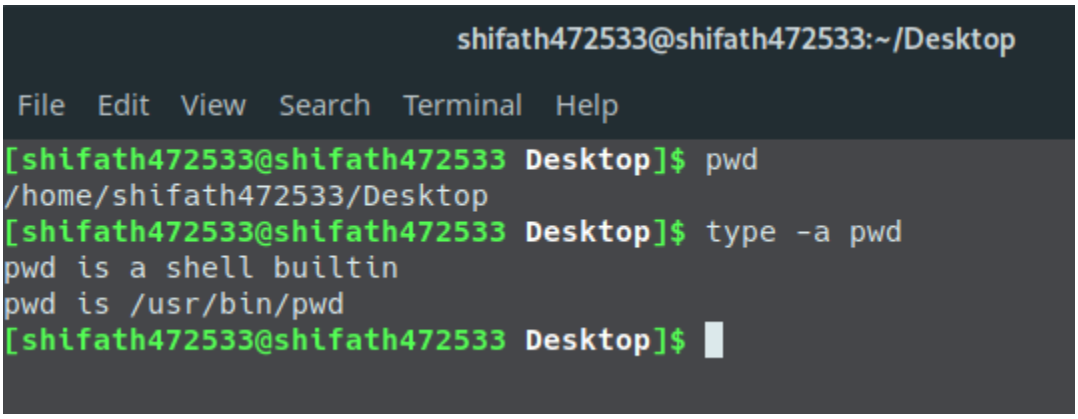
Example Output:



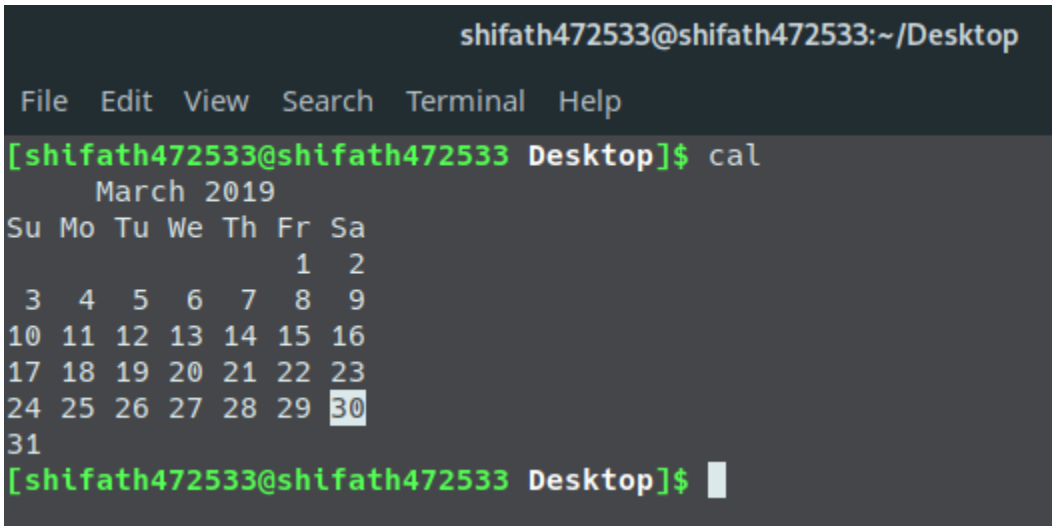
Here in the beginning, we can see by “ls -l” command that the owner of the file “file02” is “root”. By |”chown” command we have changed the owner and set to “shifath472533”. Again by “ls -l” command we can see that the owner of “file02” has been changed.

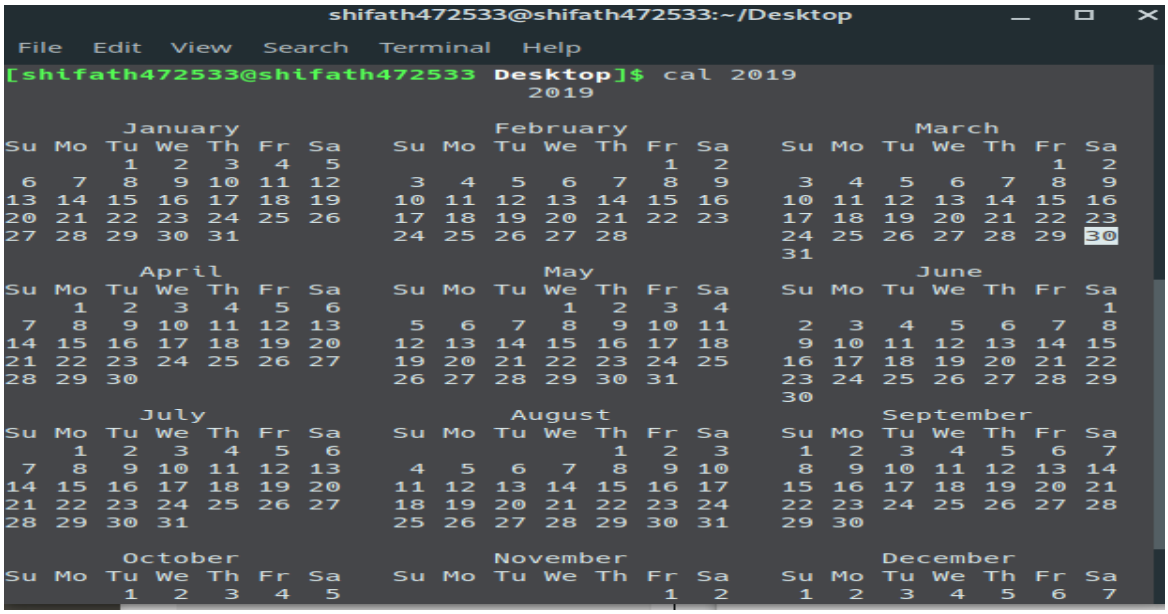
finger :
This command is used to display informations about users.

pwd:
This command print the name of the current working directory.
Eample output:



Here, the by this command the current directory is displayed.
cal:
This command is used to display the calender of a specific month or a whole year.
For only “cal|” command the calender of current month is displayed.
Example output:



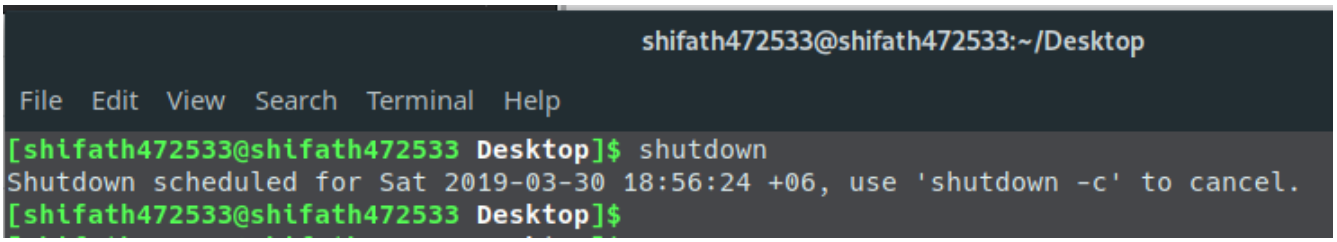


Here , by’cal’ command the calender of the current month has been dispalyed and in 2nd case calender by”cal 2019” command the calender of whole year is displayed.

Logout:
This command allows to logout from a session.

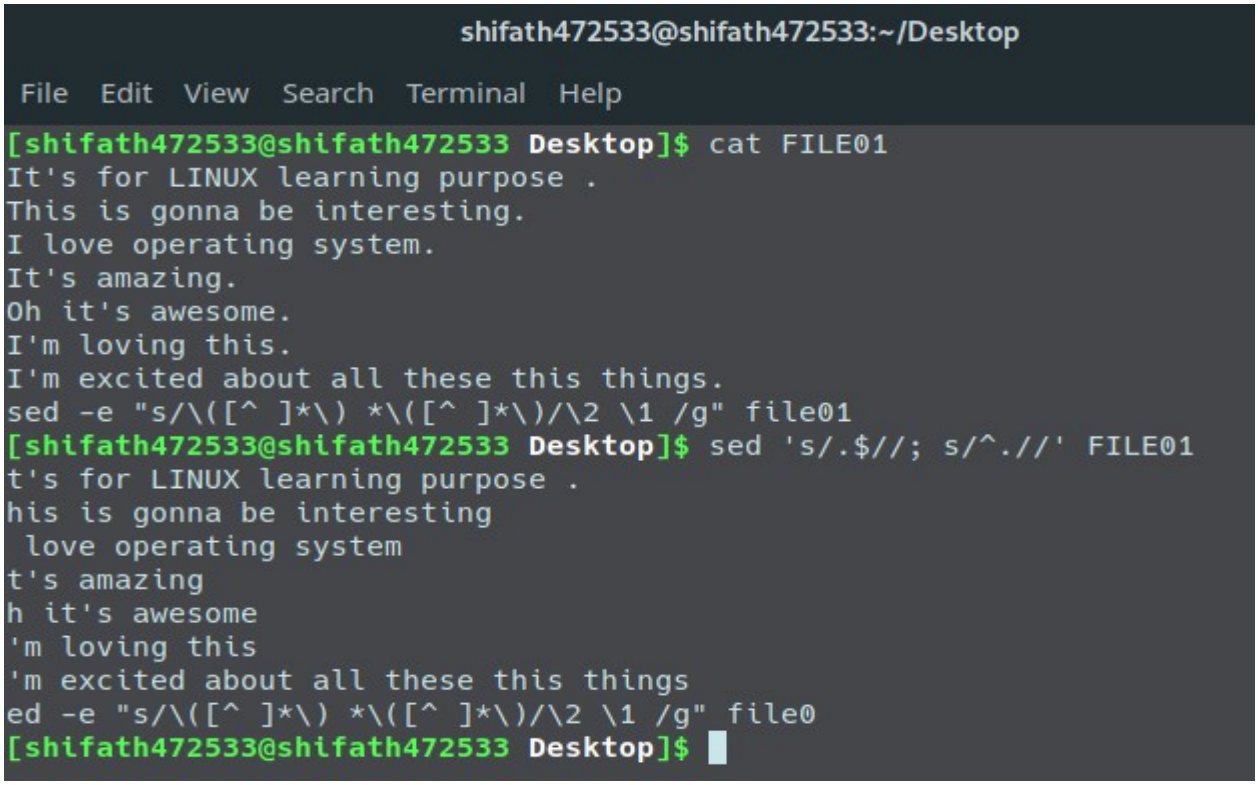
shutdown:

This command shuts down the machine. It can controlled by time in HH:MM format or “+m” (here, m is no. of minutes).
Example output:

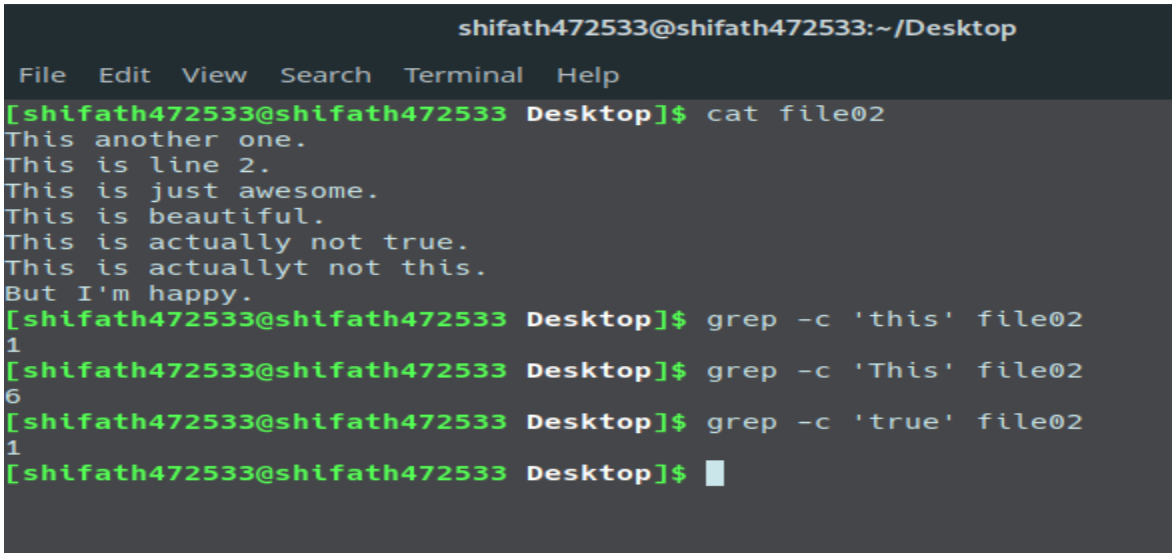


Here , after entering shutdown command the pc shuts down after 1 minute.

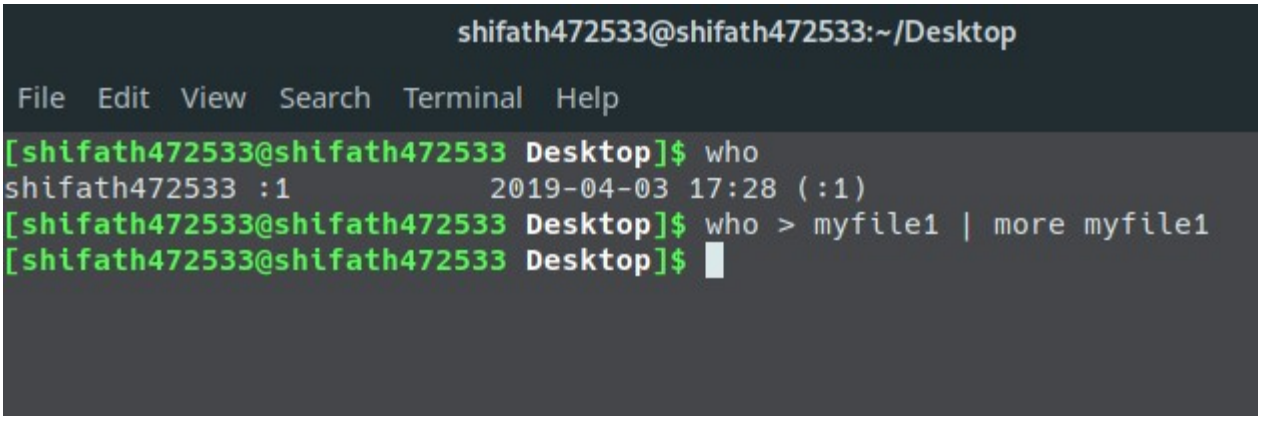
4.sed command is used to delete the first and last character in each line of a file .
Output:

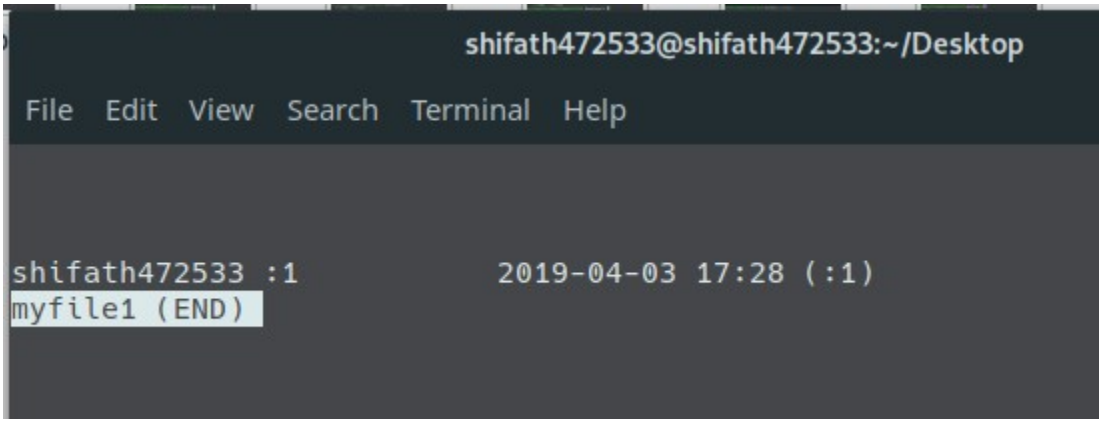


grep command is used to find how many lines of a file contain a given word. Here the file name and the word are provided as inputs.
Output:

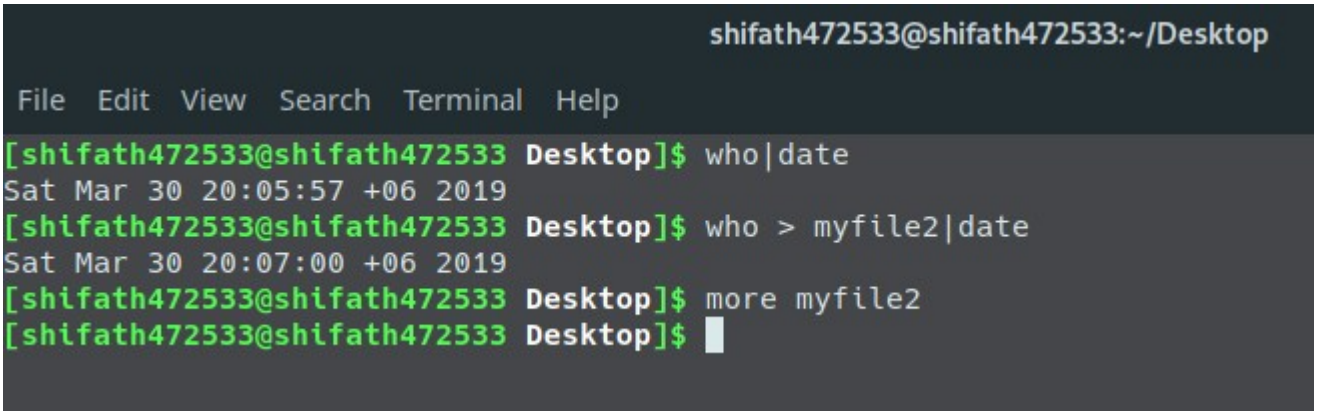


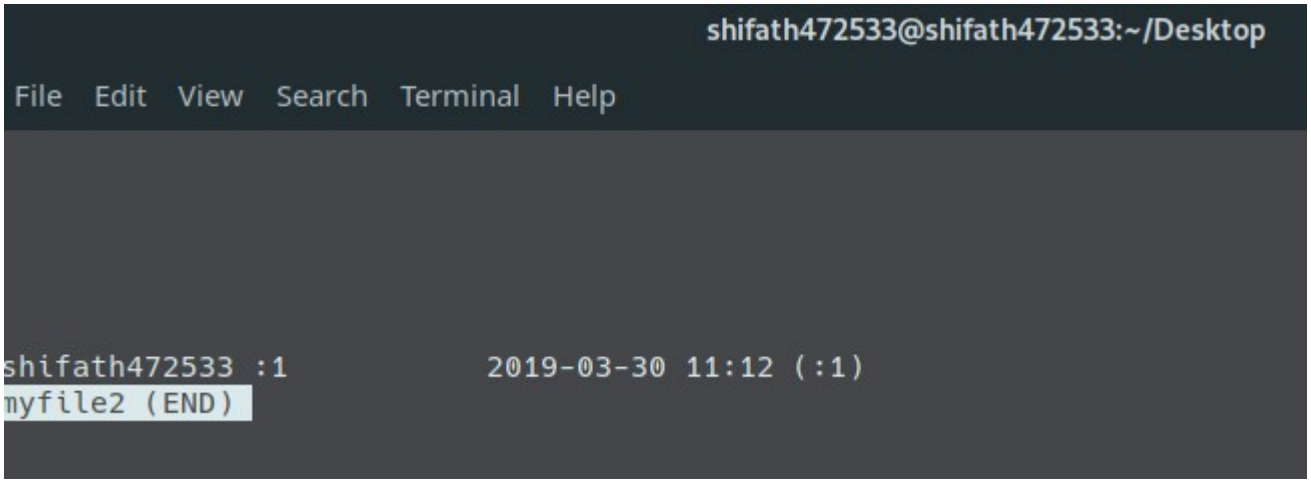
5.who command was used and redirected to a file myfile1 and more command was used to see the contents of myfile1.Output is given below.





6.The date and who command was used in sequence such that the output of date is displayed and the output of who command is redirected to a file myfile2 and more command was used to display myfile2. Output is given below:

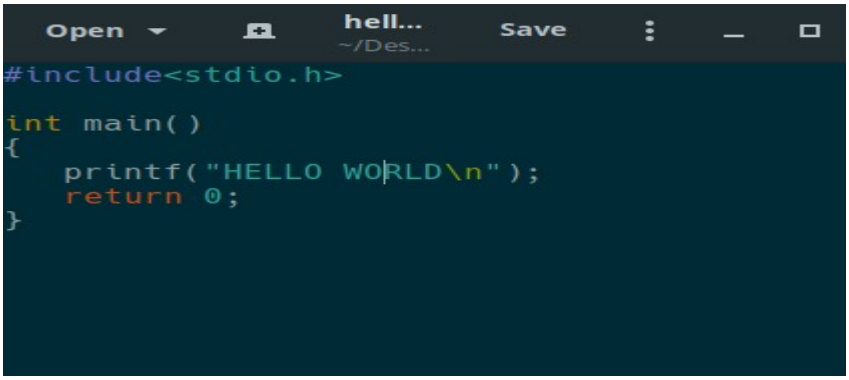




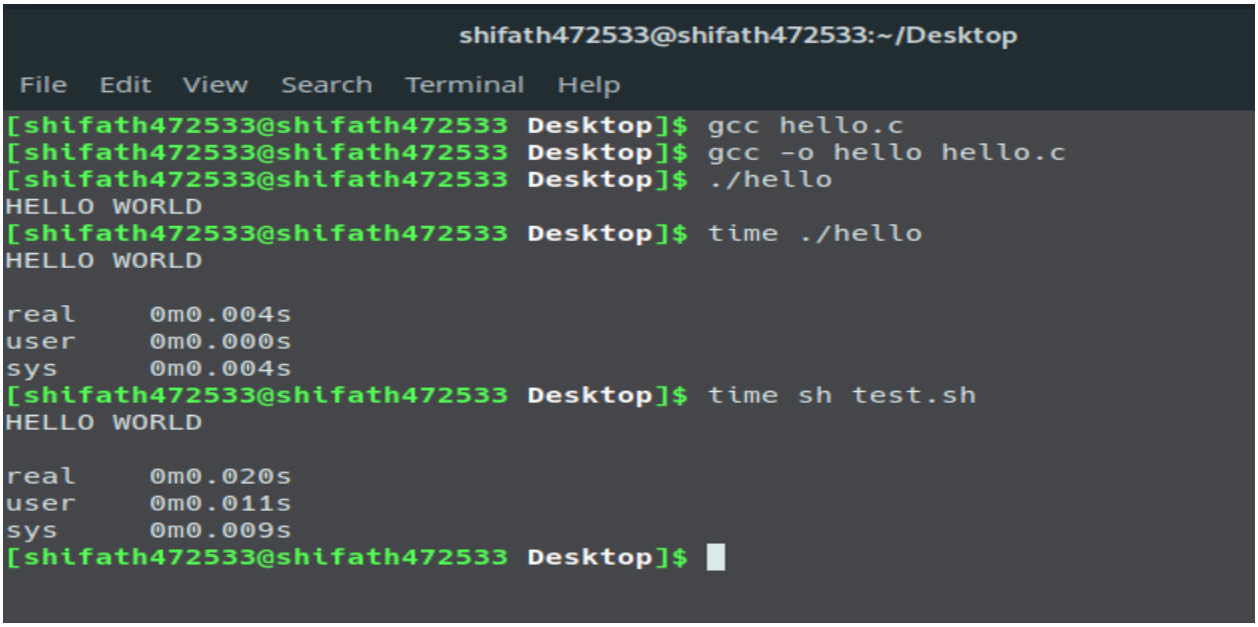
7.sed command is used to swap the first and second words in each line in a file.Output is given below

```
shifath472533@shifath472533:~/Desktop
File  Edit  View  Search  Terminal  Help
[shifath472533@shifath472533 Desktop]$ cat file01
It's for LINUX learning purpose .
This is gonna be interesting.
I love operating system.
It's amazing.
[shifath472533@shifath472533 Desktop]$ sed -e "s/\([^ ]*\) *\([^ ]*\)/\2 \1 /g" file01
for It's LINUX  learning  purpose  .
is This gonna  be  interesting.
love I operating  system.
amazing. It's
[shifath472533@shifath472533 Desktop]$
```

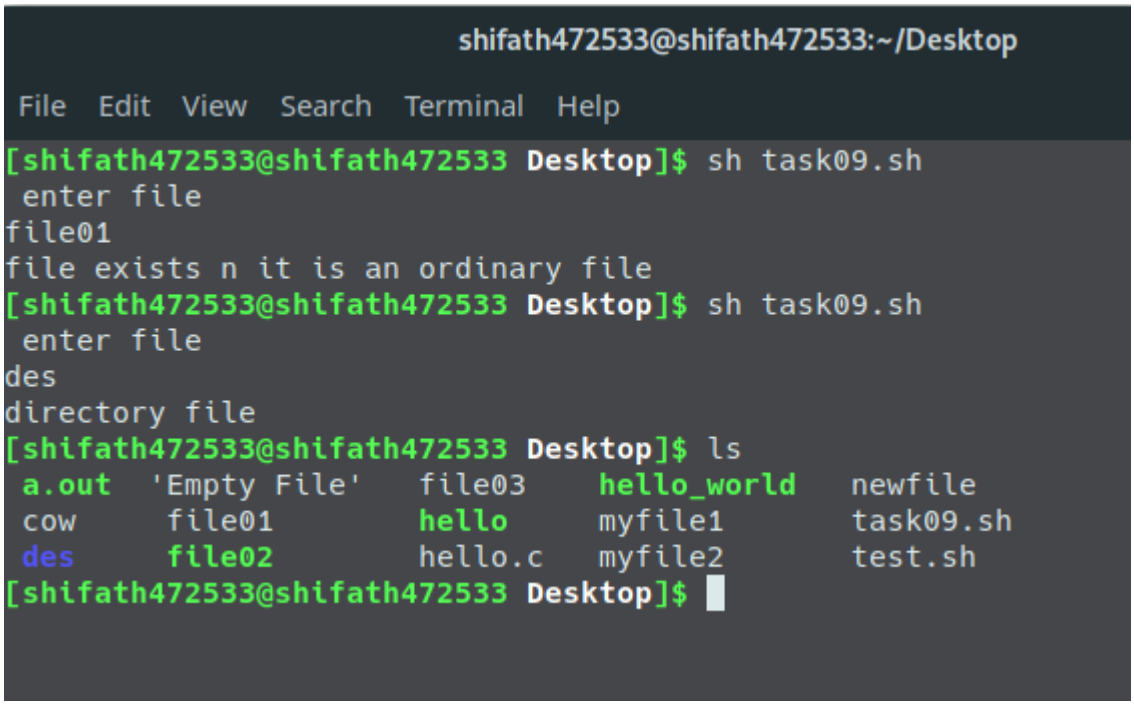
8.A shell script program and a c progaram has been written to display hello world and their time is compared.



Output is given below



9.A shell script is written which takes a command line as argument and reports whether it is directory, a file or something else. Output is given below



10. A shell script is written that determines the period for which a specified user is working on the system is given below

Open

Task10.sh
~/Desktop

task10.sh

```
#!/bin/bash
if [ $# -eq 0 ]
then
    echo "Enter File Name : "
else
    for i in $*
    do
       if [ -f $i ]
       then
           a=`echo $i | tr '[a-z]' '[A-Z]'`
           mv $i $a
           echo "new file name: $a"
       else
           echo "FileName $i does not exist"
       fi
    done
fi
```

output :

```
shifath472533@shifath472533:~/Desktop
File  Edit  View  Search  Terminal  Help
[shifath472533@shifath472533 Desktop]$ ls
 a.out          file01   hello.c       myfile3     task10.sh   task13.sh
 cow            file02   hello_world   newfile     Task10.sh   task14.sh
 des            file03   myfile1       newline     task11.sh   test.sh
'Empty File'    hello    myfile2       task09.sh   task12.sh   upper.sh
[shifath472533@shifath472533 Desktop]$ sh task10.sh file01
new file name: FILE01
[shifath472533@shifath472533 Desktop]$
```

11. A shell script is written that determines the period for which a specified user is working on the system is given below

Open

task11.sh
~/Desktop

```
echo -e "enter the user name :\c"
read usr
tuser=`who | tr -s " " | head -1 | cut -d " " -f1`
if [ "$tuser" = "$usr" ]
then
tm=`who | tr -s " " | head -1 | cut -d " " -f4`
uhr=`echo $tm | cut -d ":" -f1`
umin=`echo $tm | cut -d ":" -f2`
shr=`date "+%H"`
smin=`date "+%M"`
if [ $smin -lt $umin ]
then
shr=`expr $shr - 1`
smin=`expr $smin + 60`
fi
h=`expr $shr - $uhr`
m=`expr $smin - $umin`
echo "user name : $usr"
echo "login period : $h : $m"
else
echo "Invalid User"
fi
```

Output:

shifath472533@shifath472533:~/Desktop

File Edit View Search Terminal Help

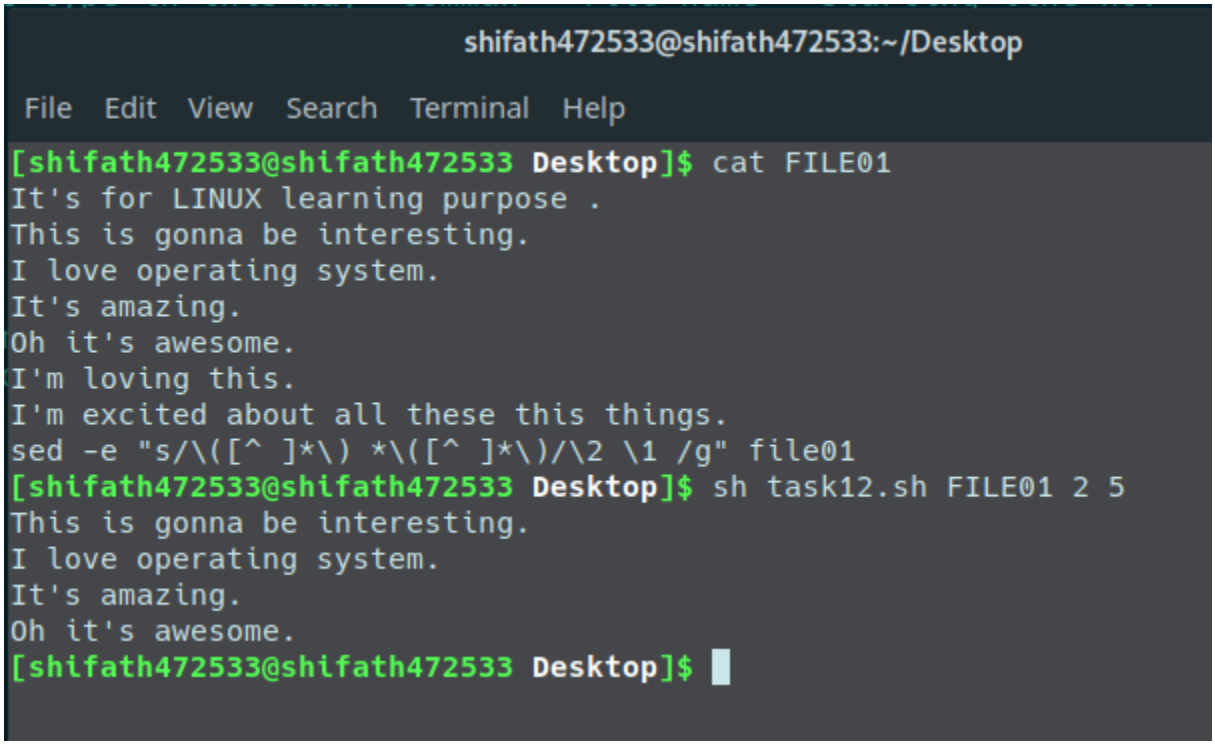
```
[shifath472533@shifath472533 Desktop]$ sh task11.sh
enter the user name :shifath472533
user name : shifath472533
login period : 0 : 58
[shifath472533@shifath472533 Desktop]$
```

12.A shell script is written that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers is given below

Open *task12.sh ~/Desktop Save

```
if [ $# -lt 3 ]
then
	echo "Argument missing!!! "
	echo "Try to type in this way 'comman' 'file name' 'starting line no.' 'end line no.' "
	exit 1
fi
if [ $# -gt 3 ]

then
	echo "Warning !!! : Extra arguments !!!"
	echo "Try to type in this way 'command' 'file name' 'starting line no.' 'end line no.' "
	exit 1
fi
file_name=$1
start_line_num=$2
end_line_num=$3

if [ ! -f $file_name ]
then
	echo "File $file_name does not exist"
	exit 2
fi

if ! [[ $start_line_num =~ ^[0-9]+$ ]]
then
	echo "Starting line number should be an integer"
	exit 3
fi

if ! [[ $end_line_num =~ ^[0-9]+$ ]]
then
	echo "Ending line number should be an integer"
	exit 3
fi

exec 3<&0
exec 0<$file_name

i=0

while read line
do

	i=`expr $i + 1`
	if ( [ $i -ge $start_line_num ] && [ $i -le $end_line_num ] )
	then
		echo $line
	fi
done

exec 0<&3
```

Output:



13.A shell script that deletes all lines conatining a specified word in one or more files supplied as a arguments to it is given below

```
word=$1
cnt=0

for i in $*
do
    if [ $cnt -eq 0 ]
    then
        cnt=1
        continue
    elif [ -f $i ]
    then
        echo "After deleting lines containing '$word' in '$i' "
        grep -v "$word" $i
    else
        echo "FileName $i does not exist"
        continue
    fi
done
```

Output:

```
shifath472533@shifath472533:~/Desktop
File  Edit  View  Search  Terminal  Help
[shifath472533@shifath472533 Desktop]$ cat FILE02
This another one.
This is line 2.
This is just awesome.
This is beautiful.
This is actually not true.
This is actuallyt not this.
But I'm happy.


[shifath472533@shifath472533 Desktop]$ sh task13.sh This FILE02
After deleting lines containing 'This' in 'FILE02'
But I'm happy.


[shifath472533@shifath472533 Desktop]$
```

14 A shell script is written that extract a sub-string from a given string is given below

task14.1.sh

```
echo "Enter string :"
read str
len=$(echo ${#str})

echo "Length of the given string is " $len
```

Output:

```
shifath472533@shifath472533:~/Desktop
File  Edit  View  Search  Terminal  Help
[shifath472533@shifath472533 Desktop]$ sh task14.1.sh
Enter string :
Operating system is very much interesting.
Length of the given string is  42
[shifath472533@shifath472533 Desktop]$
```

A shell script that find the length of a given string is given below

Open

task14.2.sh
~/Desktop

```
echo "Enter string : "
read str
echo "Enter the starting position of the substring:"
read pos
echo "Enter the length of the substring :"
read len
st=$(echo ${str:pos:len})

echo "The required substring is : '"$st"'"
```

Output:

shifath472533@shifath472533:~/Desktop

File Edit View Search Terminal Help

```
[shifath472533@shifath472533 Desktop]$ sh task14.2.sh
Enter string :
Operating system is very much interesting.
Enter the starting position of the substring:
3
Enter the length of the substring :
15
The required substring is : 'rating system i'
[shifath472533@shifath472533 Desktop]$
```