

OPERATING SYSTEMS

(PRACTICAL FILE)

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SUBJECT : OPERATING SYSTEMS

1. Usage of following commands: ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd.

```
pallavi@Ubuntu:~$ ls
Desktop  Downloads  Pictures  snap      t2.txt  t4.txt  Videos
Documents Music      Public   t1.txt  t3      Templates
```

```
pallavi@Ubuntu:~$ pwd
/home/pallavi
```

```
pallavi@Ubuntu:~$ tty
/dev/pts/0
```

```
pallavi@Ubuntu:~$ cat t1.txt
Hi there!
What's up
```

```
pallavi@Ubuntu:~$ who
pallavi  tty2          2022-11-30 09:54 (tty2)
```

```
pallavi@Ubuntu:~$ whoami
pallavi
```

```
pallavi@Ubuntu:~$ rm t4.txt
pallavi@Ubuntu:~$ ls
Desktop  Downloads  Pictures  snap      t2.txt  Templates
Documents Music      Public   t1.txt  t3      Videos
```

```
pallavi@Ubuntu:~$ mkdir sec
pallavi@Ubuntu:~$ ls
Desktop  Downloads  Pictures  sec      t1.txt  t3      Videos
Documents Music      Public   snap     t2.txt  Templates
```

```
pallavi@Ubuntu:~$ rmdir sec
pallavi@Ubuntu:~$ ls
Desktop  Downloads  Pictures  snap      t2.txt  Templates
Documents Music      Public   t1.txt  t3      Videos
```

```
pallavi@Ubuntu:~$ touch t5.txt
pallavi@Ubuntu:~$ ls
Desktop  Downloads  Pictures  snap      t2.txt  t5.txt  Videos
Documents Music      Public   t1.txt  t3      Templates
```

```
pallavi@Ubuntu:~$ cd snap
pallavi@Ubuntu:~/snap$
```

- Usage of following commands: cal, cat(append), cat(concatenate), mv, cp, man, date.

```
pallavi@Ubuntu:~$ cal 8 2023
      August 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 31
```

```
pallavi@Ubuntu:~$ cat t1.txt
Hi there!
What's up
pallavi@Ubuntu:~$ cat t2.txt
all good!
How about you?
pallavi@Ubuntu:~$ cat t2.txt >> t1.txt
pallavi@Ubuntu:~$ cat t1.txt
Hi there!
What's up
all good!
How about you?
```

```
pallavi@Ubuntu:~$ cat b1.txt
x
pallavi@Ubuntu:~$ cat b2.txt
y
pallavi@Ubuntu:~$ cat b1.txt b2.txt > b3.txt
pallavi@Ubuntu:~$ cat b3.txt
x
y
pallavi@Ubuntu:~$ cat b1.txt
x
pallavi@Ubuntu:~$ cat b2.txt
y
pallavi@Ubuntu:~$
```

```
pallavi@Ubuntu:~$ cat t3.txt
123
pallavi@Ubuntu:~$ cat t4.txt
a
pallavi@Ubuntu:~$ mv t3.txt t4.txt
pallavi@Ubuntu:~$ cat t4.txt
123
pallavi@Ubuntu:~$ cat t3.txt
cat: t3.txt: No such file or directory
```

```
pallavi@Ubuntu:~$ cp t4.txt t7.txt
pallavi@Ubuntu:~$ cat t7.txt
123
pallavi@Ubuntu:~$ cat t4.txt
123
```

```
pallavi@Ubuntu:~$ man mv
MV(1)                                User Commands                                MV(1)

NAME
    mv - move (rename) files

SYNOPSIS
    mv [OPTION]... [-T] SOURCE DEST
    mv [OPTION]... SOURCE... DIRECTORY
    mv [OPTION]... -t DIRECTORY SOURCE...

DESCRIPTION
    Rename SOURCE to DEST, or move SOURCE(s) to DIRECTORY.

    Mandatory arguments to long options are mandatory for
    short options too.

    --backup[=CONTROL]
        make a backup of each existing destination file

    -b          like --backup but does not accept an argument

    -f, --force
        do not prompt before overwriting

    -i, --interactive
        prompt before overwrite

    -n, --no-clobber
Manual page mv(1) line 1 (press h for help or q to quit)
```

```
pallavi@Ubuntu:~$ date
Wednesday 30 November 2022 02:36:43 PM IST
pallavi@Ubuntu:~$ █
```

3. Usage of following commands: chmod, grep, tput (clear, highlight), bc.

```

pallavi@Ubuntu:~$ ls -la
total 132
drwxr-x--- 16 pallavi pallavi 4096 Nov 30 14:37 .
drwxr-xr-x  3 root    root    4096 Nov 12 19:22 ..
-rw-----  1 pallavi pallavi  792 Nov 30 13:54 .bash_history
-rw-r--r--  1 pallavi pallavi  220 Nov 12 19:22 .bash_logout
-rw-r--r--  1 pallavi pallavi 3771 Nov 12 19:22 .bashrc
drwx----- 13 pallavi pallavi 4096 Nov 15 13:40 .cache
drwx----- 14 pallavi pallavi 4096 Nov 16 20:01 .config
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Desktop
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Documents
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Downloads
drwx-----  2 pallavi pallavi 4096 Nov 14 16:21 .gnupg
-rw-----  1 pallavi pallavi   20 Nov 30 14:37 .lessht
drwx-----  3 pallavi pallavi 4096 Nov 12 19:29 .local
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Music
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Pictures
-rw-r--r--  1 pallavi pallavi  807 Nov 12 19:22 .profile
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Public
drwx-----  4 pallavi pallavi 4096 Nov 12 20:08 snap
drwx-----  2 pallavi pallavi 4096 Nov 14 16:21 .ssh
-rw-r--r--  1 pallavi pallavi    0 Nov 14 23:58 .sudo_as_admin_successful
-rw-rw-r--  1 pallavi pallavi   47 Nov 30 13:49 t1.txt
-rw-rw-r--  1 pallavi pallavi   27 Nov 30 13:49 t2.txt
pallavi@Ubuntu:~$ chmod u+x t1.txt
pallavi@Ubuntu:~$ ls -la
total 132
drwxr-x--- 16 pallavi pallavi 4096 Nov 30 14:37 .
drwxr-xr-x  3 root    root    4096 Nov 12 19:22 ..
-rw-----  1 pallavi pallavi  792 Nov 30 13:54 .bash_history
-rw-r--r--  1 pallavi pallavi  220 Nov 12 19:22 .bash_logout
-rw-r--r--  1 pallavi pallavi 3771 Nov 12 19:22 .bashrc
drwx----- 13 pallavi pallavi 4096 Nov 15 13:40 .cache
drwx----- 14 pallavi pallavi 4096 Nov 16 20:01 .config
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Desktop
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Documents
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Downloads
drwx-----  2 pallavi pallavi 4096 Nov 14 16:21 .gnupg
-rw-----  1 pallavi pallavi   20 Nov 30 14:37 .lessht
drwx-----  3 pallavi pallavi 4096 Nov 12 19:29 .local
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Music
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Pictures
-rw-r--r--  1 pallavi pallavi  807 Nov 12 19:22 .profile
drwxr-xr-x  2 pallavi pallavi 4096 Nov 12 19:29 Public
drwx-----  4 pallavi pallavi 4096 Nov 12 20:08 snap
drwx-----  2 pallavi pallavi 4096 Nov 14 16:21 .ssh
-rw-r--r--  1 pallavi pallavi    0 Nov 14 23:58 .sudo_as_admin_successful
-rwxrw-r--  1 pallavi pallavi   47 Nov 30 13:49 t1.txt
-rw-rw-r--  1 pallavi pallavi   27 Nov 30 13:49 t2.txt

```

```
pallavi@Ubuntu:~$ cat t1.txt
Hi there!
What's up
all good!
How about you?
a
pallavi@Ubuntu:~$ grep "good" t1.txt
all good!
pallavi@Ubuntu:~$ grep "a" t1.txt
What's up
all good!
How about you?
a
```

```
pallavi@Ubuntu:~$ echo "3+5" | bc
8
```

```
pallavi@Ubuntu:~$ tput clear
pallavi@Ubuntu:~$
```

4. Write a shell script to display date in the mm/dd/yy format.

```
pallavi@Ubuntu:~$ vim t_4.sh
```

```
#!/bin/bash
echo $(date +%m/%d/%y)
```

```
pallavi@Ubuntu:~$ ./t_4.sh
12/04/22
pallavi@Ubuntu:~$
```

5. Write a shell script to display the multiplication table of any number.

```
pallavi@Ubuntu:~$ vim t1.sh
```

```
#!/bin/bash
read -p 'enter a number: ' n
echo ''
i=1
while [ $i -le 10 ]
do
    echo "$n * $i = $(($n*i))"
    ((++i))
done
```

```
pallavi@Ubuntu:~$ chmod u+x t1.sh
pallavi@Ubuntu:~$ ./t1.sh
enter a number: 5

5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50
```

6. Write a shell script to find the factorial of a given number.

```
pallavi@Ubuntu:~$ vim t2.sh
```

```
#!/bin/bash
read -p 'Enter a no.: ' n
f=1
a=$n
while [ $n -gt 1 ]
do
    f=$((f*n))
    n=$((n-1))
done
echo ''
echo "Factorial of $a: $f"
```

```
pallavi@Ubuntu:~$ chmod u+x t2.sh
pallavi@Ubuntu:~$ ./t2.sh
Enter a no.: 5

Factorial of 5: 120
```

7. Program to show the pyramid of special character “*”.

```
pallavi@Ubuntu:~$ vim t3.sh
```

```
#!/bin/bash
read -p 'Enter a no.: ' n
for ((i=1; i<=n; i++))
do
    for((j=1; j<=n - i; j++))
    do
        echo -n " "
    done
    for ((j=1; j<=2*i - 1; j++))
    do
        echo -n '*'
    done
    echo
done
```

```
pallavi@Ubuntu:~$ chmod u+x t3.sh
pallavi@Ubuntu:~$ ./t3.sh
Enter a no.: 4
 *
 ***
*****
*****
```

8. Write a shell script to find the sum of digits of a given number.

```
pallavi@Ubuntu:~$ vim t4.sh
```

```
#!/bin/bash
read -p 'Enter a no.: ' n
sum=0
while [ $n -gt 0 ]
do
    mod=$((n%10))
    sum=$((sum+mod))
    n=$((n/10))
done
echo "Sum of all digits: $sum "
```

```
pallavi@Ubuntu:~$ chmod u+x t4.sh
pallavi@Ubuntu:~$ ./t4.sh
Enter a no.: 45
Sum of all digits: 9
```


9. Write a shell script to perform the tasks of basic calculator.

```
pallavi@Ubuntu:~$ chmod u+x t9.sh
```

```
#!/bin/bash
echo 'What do you want to perform: '
echo '1. Addition'
echo '2. Subtraction'
echo '3. Multiplication'
echo '4. Division'

read -p 'What do you want to perform: ' n
read -p 'Enter 1st no.: ' a
read -p 'Enter 2nd no.: ' b

if [ $n -eq 1 ]
then
    echo "$(($a+$b))"
elif [ $n -eq 2 ]
then
    echo "$(($a-$b))"
elif [ $n -eq 3 ]
then
    echo "$(($a*$b))"
elif [ $n -eq 4 ]
then
    echo "$(($a/$b))"
else
    echo "Option not available!"
fi
```

```
pallavi@Ubuntu:~$ ./t9.sh
What do you want to perform:
1. Addition
2. Subtraction
3. Multiplication
4. Division
What do you want to perform: 1
Enter 1st no.: 2
Enter 2nd no.: 3
5
pallavi@Ubuntu:~$ ./t9.sh
What do you want to perform:
1. Addition
2. Subtraction
3. Multiplication
4. Division
What do you want to perform: 2
Enter 1st no.: 4
Enter 2nd no.: 1
3
pallavi@Ubuntu:~$ ./t9.sh
What do you want to perform:
1. Addition
2. Subtraction
3. Multiplication
4. Division
What do you want to perform: 3
Enter 1st no.: 3
Enter 2nd no.: 4
12
pallavi@Ubuntu:~$ ./t9.sh
What do you want to perform:
1. Addition
2. Subtraction
3. Multiplication
4. Division
What do you want to perform: 4
Enter 1st no.: 6
Enter 2nd no.: 3
2
```

10. Write a shell script to find the nth power of a given number.

```
pallavi@Ubuntu:~$ vim t10.sh
```

```
#!/bin/bash
read -p 'Enter a no.: ' a
read -p 'Enter the nth power: ' n
echo "$(($a**$n))"
```

```
pallavi@Ubuntu:~$ chmod u+x t10.sh
pallavi@Ubuntu:~$ ./t10.sh
Enter a no.: 2
Enter the nth power: 3
8
```

11. Write a shell script to check whether the number is Armstrong or not.

```
pallavi@Ubuntu:~$ vim t11.sh
```

```
#!/bin/bash
read -p 'Enter a no.: ' n

x=$n
s=0
while [ $n -gt 0 ]
do
    r=$((n%10))
    s=$((s+r*r*r))
    n=$((n/10))
done
if [ $s -eq $x ]
then
    echo 'It is an Armstrong no.'
else
    echo 'It is not an Armstrong no.'
fi
```

```
pallavi@Ubuntu:~$ chmod u+x t11.sh
pallavi@Ubuntu:~$ ./t11.sh
Enter a no.: 153
It is an Armstrong no.
pallavi@Ubuntu:~$ ./t11.sh
Enter a no.: 135
It is not an Armstrong no.
pallavi@Ubuntu:~$
```

12. Write a shell script to find the GCD (greatest common divisor) of two numbers.

```
pallavi@Ubuntu:~$ vim t12.sh
```

```
#!/bin/bash
read -p 'Enter 2 numbers ( with space in b/w ): ' a b
m=$a
if [ $b -lt $m ]
then
    m=$b
fi
while [ $m -ne 0 ]
do
    x=$((m % m))
    y=$((b % m))
    if [ $x -eq 0 -a $y -eq 0 ]
    then
        echo gcd of $a and $b is $m
        break
    fi
    m=$((m-1))
done
```

```
pallavi@Ubuntu:~$ chmod u+x t12.sh
pallavi@Ubuntu:~$ ./t12.sh
Enter 2 numbers ( with space in b/w ): 4 12
gcd of 4 and 12 is 4
pallavi@Ubuntu:~$
```

13. Write a shell script to check if the number entered at the command line is prime or not.

```
pallavi@Ubuntu:~$ vim t13.sh
```

```
#!/bin/bash
read -p 'Enter a number: ' n

for ((i=2; i<=$n/2; i++))
do
    if [ $((n%i)) -eq 0 ]
    then
        echo "$n is not a prime number!"
        exit
    fi
done
echo "n is a prime number!"
```

```
pallavi@Ubuntu:~$ chmod u+x t13.sh
pallavi@Ubuntu:~$ ./t13.sh
Enter a number: 13
n is a prime number!
pallavi@Ubuntu:~$ ./t13.sh
Enter a number: 6
6 is not a prime number!
```

14. Write a shell script to display on the screen sorted output of "ls -l" command along with the total number of files and directories.

```
pallavi@Ubuntu:~$ vim t14.sh
```

```
#!/bin/bash
echo "Sorted output of 'ls -l' command: " sort $(ls -l)
echo ''
echo 'Total no. of directories: ' $(ls -l | grep ^d | wc -l)
echo ''
echo 'Total no. of files: ' $(ls -l | wc -l)
```

```
pallavi@Ubuntu:~$ ./t14.sh
Sorted output of 'ls -l' command:  sort total 156 -rw-rw-r-- 1 pa
llavi pallavi 20 Dec 3 15:34 a1.txt -rw-rw-r-- 1 pallavi pallavi
11 Dec 3 15:34 a2.txt -rw-rw-r-- 1 pallavi pallavi 6 Dec 3 15:35
a3.txt -rw-rw-r-- 1 pallavi pallavi 37 Dec 3 15:37 a4.txt -rw-rw-
r-- 1 pallavi pallavi 2 Dec 4 21:23 b1.txt -rw-rw-r-- 1 pallavi p
allavi 2 Dec 4 21:23 b2.txt -rw-rw-r-- 1 pallavi pallavi 4 Dec 4
21:23 b3.txt drwxr-xr-x 2 pallavi pallavi 4096 Nov 12 19:29 Deskt
op drwxr-xr-x 2 pallavi pallavi 4096 Nov 12 19:29 Documents drwxr
-xr-x 2 pallavi pallavi 4096 Dec 4 18:39 Downloads drwxr-xr-x 2 p
allavi pallavi 4096 Nov 12 19:29 Music drwxr-xr-x 2 pallavi palla
vi 4096 Nov 12 19:29 Pictures drwxr-xr-x 2 pallavi pallavi 4096 N
ov 12 19:29 Public drwx----- 5 pallavi pallavi 4096 Dec 3 20:53
snap -rw-rw-r-- 1 pallavi pallavi 0 Dec 3 15:07 ss.sh -rwxrw-r--
1 pallavi pallavi 91 Nov 30 23:12 t10.sh -rwxrw-r-- 1 pallavi pal
lavi 214 Dec 3 16:53 t11.sh -rwxrw-r-- 1 pallavi pallavi 246 Dec
3 17:16 t12.sh -rwxrw-r-- 1 pallavi pallavi 180 Dec 2 23:10 t13.s
h -rwxrw-r-- 1 pallavi pallavi 195 Dec 4 21:33 t14.sh -rw-rw-r--
1 pallavi pallavi 1408 Dec 4 16:35 t14.txt -rwxrw-r-- 1 pallavi p
allavi 142 Dec 3 17:31 t15.sh -rwxrw-r-- 1 pallavi pallavi 568 De
c 4 18:58 t16.sh -rwxrw-r-- 1 pallavi pallavi 0 Dec 3 16:36 t17.s
h -rwxrw-r-- 1 pallavi pallavi 245 Dec 3 15:06 t18.sh -rwxrw-r--
1 pallavi pallavi 190 Dec 4 18:41 t19.sh -rwxrw-r-- 1 pallavi pal
lavi 117 Nov 30 17:03 t1.sh -rwxrw-r-- 1 pallavi pallavi 47 Nov 3
0 13:49 t1.txt -rwxrw-r-- 1 pallavi pallavi 443 Dec 4 21:22 t20.s
h -rw-rw-r-- 1 pallavi pallavi 27 Nov 30 13:49 t2.txt -rw-rw-r--
1 pallavi pallavi 0 Nov 13 10:22 t3 -rwxrw-r-- 1 pallavi pallavi
182 Nov 30 19:18 t3.sh -rwxrw-r-- 1 pallavi pallavi 35 Dec 3 17:5
```

15. Write a shell script to accept vim a login name. If not a valid login name display message – “Entered login name is invalid”.

```
pallavi@Ubuntu:~$ vim t15.sh
```

```
#!/bin/bash
user="$(whoami)"
read -p 'Enter username: ' u
if [[ $u == $user ]]
then
    echo 'Valid username!'
else
    echo 'Invalid username!'
fi
```

```
pallavi@Ubuntu:~$ chmod u+x t15.sh
pallavi@Ubuntu:~$ ./t15.sh
Enter username: hello
Invalid username!
pallavi@Ubuntu:~$ ./t15.sh
Enter username: pallavi
Valid username!
pallavi@Ubuntu:~$
```

16. Write a shell script to compare two files and if found equal asks the user to delete the duplicate file.

```
pallavi@Ubuntu:~$ vim t16.sh
```

```
#!/bin/bash
function compare()
{
    cmp $fname1 $fname2
    val=$?
    if [ $val -eq 0 ]
    then
        echo -e "\n The files are same. "
        rm $fname2
        echo "$fname2 has been deleted. "
    else
        echo -e "The file are different hence no action r
equied. "
    fi
}
echo -e "\n Enter first filename"
read fname1
echo -e "\n Enter second filename"
read fname2
if [ -f $fname1 ] && [ -f $fname2 ]
then
    if [ "$fname1" = "$fname2" ]
    then
        echo -e "\n Both file have same name.Invailid inp
ut."
    else
        compare
    fi
else
    @@@

```



```
pallavi@Ubuntu:~$ chmod u+x t16.sh
pallavi@Ubuntu:~$ ./t16.sh

Enter first filename
a1.txt

Enter second filename
a2.txt
a1.txt a2.txt differ: byte 1, line 1
The file are different hence no action requied.
pallavi@Ubuntu:~$ ./t16.sh

Enter first filename
a2.txt

Enter second filename
a2.txt

Both file have same name.Invailid input.
pallavi@Ubuntu:~$ cp a1.txt a11.txt
pallavi@Ubuntu:~$ ./t16.sh

Enter first filename
a1.txt

Enter second filename
a11.txt

The files are same.
a11.txt has been deleted.
pallavi@Ubuntu:~$
```

17. Write a shell script to merge the contents of three files, sort the contents and then display them page by page.

```
pallavi@Ubuntu:~$ vim t17.sh
```

```
#!/bin/bash

echo 'Enter file names below:'
echo ''
read -p '1st file: ' f1
read -p '2nd file: ' f2
read -p '3rd file: ' f3
echo ''

if [[ -f $f1 ]] && [[ -f $f2 ]] && [[ -f $f3 ]]
then
    echo 'All files exist!'
    read -p 'Enter a new file name to merge the contents of above 3 files into it: ' n
    echo '!'
    cat $f1 $f2 $f3 > $n

    echo 'Sorted content of new file:'
    sort $n
    echo ''
    echo "New file's content page by page:"
    more $n
else
    echo "One or more files don't exist!"
fi
```

```
pallavi@Ubuntu:~$ chmod u+x t17.sh
pallavi@Ubuntu:~$ cat a1.txt
Pallavi
Raghuvanshi
pallavi@Ubuntu:~$ cat a2.txt
5
3
75
3
7
pallavi@Ubuntu:~$ cat a3.txt
f
w
a
pallavi@Ubuntu:~$ ./t17.sh
Enter file names below:

1st file: a1.txt
2nd file: a2.txt
3rd file: a3.txt

All files exist!
Enter a new file name to merge the contents of above 3 files into
it: a4.txt
Sorted content of new file:
3
3
5
7
75
a
f
Pallavi
Raghuvanshi
w

New file's content page by page:
Pallavi
Raghuvanshi
5
3
75
3
7
f
w
a
pallavi@Ubuntu:~$
```

18. Write a shell script to check whether the file have all the permissions or not.

```
pallavi@Ubuntu:~$ vim t18.sh
```

```
#!/bin/bash
read -p 'Enter file name: ' f

[ -w $f ] && w='Write=yes' || w='Write=NO'
[ -x $f ] && x='Execute = yes' || x='Execute = No'
[ -r $f ] && r='Read = yes' || r='Read = No'
echo ''
echo $f permissions:
echo ''
echo "$w"
echo "$x"
echo "$r"
```

```
pallavi@Ubuntu:~$ chmod u+x t18.sh
```

```
pallavi@Ubuntu:~$ touch ss.sh
```

```
pallavi@Ubuntu:~$ ./t18.sh
```

```
Enter file name: ss.sh
```

```
ss.sh permissions:
```

```
Write=yes
```

```
Execute = No
```

```
Read = yes
```

19. Write a shell script to modify "cal" command to display calendars of the specified months.

```
pallavi@Ubuntu:~$ vim t19.sh
```

```
#!/bin/bash

year=2001
read -p "Enter Month: " month
if [[ $month -le 12 ]] && [[ $month -ge 0 ]]
then
    echo "Calender of the entered month ($month) is "
    cal $month $year
fi
```

```
pallavi@Ubuntu:~$ chmod u+x t19.sh
pallavi@Ubuntu:~$ ./t19.sh
Enter Month: 3
Calender of the entered month (3) is
    March 2001
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 31
```

20. Write a shell script to modify “cal” command to display calendars of the specified range of months.

```
pallavi@Ubuntu:~$ vim t20.sh
```

```
#!/bin/bash
echo "1 - Jan      ,      7 - July"
echo "2 - Feb      ,      8 - Aug"
echo "3 - March    ,      9 - Sept"
echo "4 - April    ,     10 - Oct"
echo "5 - May      ,     11 - Nov"
echo "6 - June     ,     12 - Dec"

read -p 'Enter year: ' y
read -p 'Enter starting series no.: ' m
read -p 'Enter ending series no.: ' n

for (( i=$m; i<=$n; i++ ))
do
    if [[ $i -ge $m ]] && [[ $i -le $n ]]
    then
        cal $i $y
    else
        echo 'Invalid month!'
    fi
done
```

```
pallavi@Ubuntu:~$ chmod u+x t20.sh
```

```
pallavi@Ubuntu:~$ ./t20.sh
```

```
1 - Jan      ,      7 - July  
2 - Feb      ,      8 - Aug  
3 - March    ,      9 - Sept  
4 - April    ,     10 - Oct  
5 - May      ,     11 - Nov  
6 - June     ,     12 - Dec
```

```
Enter year: 2013
```

```
Enter starting series no.: 3
```

```
Enter ending series no.: 5
```

```
March 2013
```

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
31						

```
April 2013
```

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				

```
May 2013
```

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	31	

```
pallavi@Ubuntu:~$ █
```