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Shell Scripting Assignment

1. **Write a Shell Script to find maximum between two numbers**

```
#!/bin/bash
read -p "Enter first number : " n1
read -p "Enter second number : " n2
if [ $n1 -gt $n2 ]
then
echo "$n1 is greater than $n2"
else
echo "$n2 is greater than $n1"
fi
```

```
mehta@mehta:~/assignment$ nano a1.sh
mehta@mehta:~/assignment$ bash a1.sh
Enter first number : 3
Enter second number : 7
7 is greater than 3
```

2. **Write a Shell Script to find maximum between three numbers.**

```
#!/bin/bash
read -p "Enter first number : " n1
read -p "Enter second number : " n2
read -p "Enter third number : " n3
if [ $n1 -gt $n2 ] & [ $n1 -gt $n3 ]
then
echo "$n1 is greater than $n2 and $n3"
elif [ $n2 -gt $n1 ] & [ $n2 -gt $n3 ]
then
echo "$n2 is greater than $n1 and $n3"
else
echo "$n3 is greater than $n1 and $n2"
fi
```

```
mehta@mehta:~/assignment$ bash a2.sh
Enter first number : 1
Enter second number : 2
Enter third number : 3
3 is greater than 1 and 2
```

3. **Write a Shell Script to check whether a number is negative, positive or zero.**

```
#!/bin/bash
read -p "Enter the number : " n
if [ $n -gt 0 ]
then
echo "$n is a  positive number."
elif [ $n -lt 0 ]
then
echo "$n is a negative number."
else
echo "n is zero"
fi
```

```
mehta@mehta:~/assignment$ bash a3.sh
Enter the number : 3
3 is a  positive number.
mehta@mehta:~/assignment$ bash a3.sh
Enter the number : -1
-1 is a negative number.
mehta@mehta:~/assignment$ bash a3.sh
Enter the number : 0
n is zero
```

4. **Write a Shell Script to check whether a number is divisible by 5 and 11 or not.**

```
#!/bin/bash
read -p "Enter the number : " n
if [ $(($n%5)) -eq 0 ] && [ $(($n%11)) -eq 0 ]
then
echo "$n is divisible by 5 and 11."
else
echo "$n is not divisible by 5 and 11."
fi
```

```
mehta@mehta:~/assignment$ bash a4.sh
Enter the number : 33
33 is not divisible by 5 and 11.
mehta@mehta:~/assignment$ bash a4.sh
Enter the number : 55
55 is divisible by 5 and 11.
```

5. **Write a Shell Script to check whether a number is even or odd.**

```
#!/bin/bash
read -p "Enter the number : " n
if [ $(($n%2)) -eq 0 ]
then
echo "$n is even."
elif [ $(($n%2)) -ne 0 ]
then
echo "$n is odd."
fi
```

```
mehta@mehta:~/assignment$ bash a5.sh
Enter the number : 24
24 is even.
mehta@mehta:~/assignment$ bash a5.sh
Enter the number : 11
11 is odd.
mehta@mehta:~/assignment$ bash a5.sh
Enter the number : 0
0 is even.
```

6. **Write a Shell Script to check whether a year is leap year or not.**

```
#!/bin/bash
read -p "Enter the year : " y
if [ $(($y%4)) -eq 0 ] && [ $(($y%100)) -eq 0 ] && [ $(($y%400)) -eq 0 ]
then
echo "$y is a leap year."
else
echo "$y is not a leap year"
fi
```

```
mehta@mehta:~/assignment$ bash a6.sh
Enter the year : 2000
2000 is a leap year.
mehta@mehta:~/assignment$ bash a6.sh
Enter the year : 1996
1996 is not a leap year
```

7. **Shell Script to print number between 1 to 10 in character format using switch-case.**

```
#!/bin/bash
read -p "Enter the number : " n
case $n in
1) echo "One";;
2) echo "Two";;
3) echo "Three";;
4) echo "Four";;
5) echo "Five";;
6) echo "Six";;
7) echo "Seven";;
8) echo "Eight";;
9) echo "Nine";;
10) echo "Ten";;
*) echo "Error!";;
esac
```

```
mehta@mehta:~/assignment$ bash a7.sh
Enter the number : 7
Seven
mehta@mehta:~/assignment$ bash a7.sh
Enter the number : -1
Error!
```

8. **Shell Script to accept id from user to confirm department using switch-case.**

```
#!/bin/bash
read -p "Enter the department number : " deptno
case $deptno in
1) echo "DAC";;
2) echo "DBDA";;
3) echo "DITISS";;
esac
```

```
mehta@mehta:~/assignment$ bash a8.sh
Enter the department number : 3
DITISS
mehta@mehta:~/assignment$ bash a8.sh
Enter the department number : 2
DBDA
mehta@mehta:~/assignment$ bash a8.sh
Enter the department number : 1
DAC
```

9. **Shell Script to check password is correct or incorrect using switch-case.**

```
#!/bin/bash
read -p "Enter your password : " pass
case $pass in
mehta) echo "valid password";;
*) echo "invalid password";;
esac
```

```
mehta@mehta:~/assignment$ bash a9.sh
Enter your password : mehta
valid password
mehta@mehta:~/assignment$ bash a9.sh
Enter your password : soham
invalid password
```

10.Shell Script to print day of week using switch-case.

```
#!/bin/bash
read -p "Enter the day of week : " day
case $day in
1) echo "Sunday";;
2) echo "Monday";;
3) echo "Tuesday";;
4) echo "Wednesday";;
5) echo "Thursday";;
6) echo "Friday";;
7) echo "Saturday";;
*) echo "Error!";;
esac
```

```
mehta@mehta:~/assignment$ bash a10.sh
Enter the day of week : 3
Tuesday
mehta@mehta:~/assignment$ bash a10.sh
Enter the day of week : 7
Saturday
mehta@mehta:~/assignment$ bash a10.sh
Enter the day of week : 9
Error!
```

11.Shell Script to create calculator using switch-case.

```
#!/bin/bash
read -p "Enter the first operand : " n1
read -p "Enter the operator : " op
read -p "Enter the second number : " n2
case $op in
'+') echo "$n1+$n2=" $(($n1+$n2));;
'-') echo "$n1-$n2=" $(($n1-$n2));;
'*') echo "$n1*$n2=" $(($n1*$n2));;
'/') if [ $n2 -ne 0 ]
     then
     echo "$n1/$n2=" $(($n1/$n2))
     fi;;
*) echo "Error- Enter a valid operator !";;
esac
```

```
mehta@mehta:~/assignment$ bash a11.sh
Enter the first operand : 6
Enter the operator : /
Enter the second number : 3
6/3= 2
mehta@mehta:~/assignment$ bash a11.sh
Enter the first operand : 2
Enter the operator : +
Enter the second number : 4
2+4= 6
mehta@mehta:~/assignment$ bash a11.sh
Enter the first operand : 6
Enter the operator : *
Enter the second number : 4
6*4= 24
mehta@mehta:~/assignment$ bash a11.sh
Enter the first operand : 7
Enter the operator : -
Enter the second number : 6
7-6= 1
```

Assignment1.txt

one

- **apple**
- **banana**
- **cat**
- **dog**
- **elephant**

two

- **fish**
- **gun**
- **horse**
- **icecream**

three

- **jelly**
- **kitkat**
- **lolipop**
- **marshmallow**

four

- **new**
- **oppo**
- **vivo**
- **china**

```
mehta@mehta:~$ sudo su
[sudo] password for mehta:
root@mehta:/home/mehta# useradd apple
root@mehta:/home/mehta# useradd banana
root@mehta:/home/mehta# useradd cat
root@mehta:/home/mehta# useradd dog
root@mehta:/home/mehta# useradd elephant
```

```
root@mehta:/home/mehta# cat /etc/passwd
apple:x:1005:1008::/home/apple:/bin/sh
banana:x:1006:1009::/home/banana:/bin/sh
cat:x:1007:1010::/home/cat:/bin/sh
dog:x:1008:1011::/home/dog:/bin/sh
elephant:x:1009:1012::/home/elephant:/bin/sh
```

```
root@mehta:/home/mehta# groupadd one
root@mehta:/home/mehta# usermod -G one apple
root@mehta:/home/mehta# usermod -G one banana
root@mehta:/home/mehta# usermod -G one cat
root@mehta:/home/mehta# usermod -G one dog
root@mehta:/home/mehta# usermod -G one elephant
```

```
root@mehta:/home/mehta# getent group
apple:x:1008:
banana:x:1009:
cat:x:1010:
dog:x:1011:
elephant:x:1012:
one:x:1013:apple,banana,cat,dog,elephant
```

```
root@mehta:/home/mehta# useradd fish
root@mehta:/home/mehta# useradd gun
root@mehta:/home/mehta# useradd horse
root@mehta:/home/mehta# useradd icecream
```

```
root@mehta:/home/mehta# groupadd two
root@mehta:/home/mehta# usermod -G two fish
root@mehta:/home/mehta# usermod -G two gun
root@mehta:/home/mehta# usermod -G two horse
root@mehta:/home/mehta# usermod -G two icecream
```

```
root@mehta:/home/mehta# getent group
fish:x:1014:
gun:x:1015:
horse:x:1016:
icecream:x:1017:
two:x:1018:fish,gun,horse,icecream
```

```
root@mehta:/home/mehta# useradd jelly
root@mehta:/home/mehta# useradd kitkat
root@mehta:/home/mehta# useradd lolipop
root@mehta:/home/mehta# useradd marshmallow
root@mehta:/home/mehta# groupadd three
root@mehta:/home/mehta# usermod -G three jelly
root@mehta:/home/mehta# usermod -G three kitkat
root@mehta:/home/mehta# usermod -G three lolipop
root@mehta:/home/mehta# usermod -G three marshmallow
```

```
root@mehta:/home/mehta# getent group
jelly:x:1019:
kitkat:x:1020:
lolipop:x:1021:
marshmallow:x:1022:
three:x:1023:jelly,kitkat,lolipop,marshmallow
```

```
root@mehta:/home/mehta# useradd new
root@mehta:/home/mehta# useradd oppo
root@mehta:/home/mehta# useradd vivo
root@mehta:/home/mehta# useradd china
root@mehta:/home/mehta# groupadd four
root@mehta:/home/mehta# usermod -G four new
root@mehta:/home/mehta# usermod -G four oppo
root@mehta:/home/mehta# usermod -G four vivo
root@mehta:/home/mehta# usermod -G four china
```

```
root@mehta:/home/mehta# getent group
new:x:1024:
oppo:x:1025:
vivo:x:1026:
china:x:1027:
four:x:1028:new,oppo,vivo,china
```

```
root@pradnya-VirtualBox:/home# sudo addgroup one
```

```
root@pradnya-VirtualBox:/home# adduser apple --gid 1008
root@pradnya-VirtualBox:/home# adduser banana --gid 1008
root@pradnya-VirtualBox:/home# adduser cat --gid 1008
root@pradnya-VirtualBox:/home# adduser dog --gid 1008
root@pradnya-VirtualBox:/home# adduser elephant --gid 1008
```

```
root@pradnya-VirtualBox:/home# sudo addgroup two
```

```
root@pradnya-VirtualBox:/home# adduser fish --gid 1009
root@pradnya-VirtualBox:/home# adduser gun --gid 1009
root@pradnya-VirtualBox:/home# adduser horse --gid 1009
root@pradnya-VirtualBox:/home# adduser icecream --gid 1009
```

```
root@pradnya-VirtualBox:/home# sudo addgroup three
```

```
root@pradnya-VirtualBox:/home# adduser jelly --gid 1010
root@pradnya-VirtualBox:/home# adduser kitkat --gid 1010
root@pradnya-VirtualBox:/home# adduser lolipop --gid 1010
root@pradnya-VirtualBox:/home# adduser marshmello --gid 1010
```

```
root@pradnya-VirtualBox:/home# sudo addgroup four
root@pradnya-VirtualBox:/home/pradnya# adduser new --gid 1011
root@pradnya-VirtualBox:/home/pradnya# adduser oppo --gid 1011
root@pradnya-VirtualBox:/home/pradnya# adduser vivo --gid 1011
root@pradnya-VirtualBox:/home/pradnya# adduser china --gid 1011
```

/home -> mkdir EVERYONE

```
root@pradnya-VirtualBox:/home/pradnya# mkdir EVERYONE
```

chmod 777 EVERYONE

```
root@pradnya-VirtualBox:/home/pradnya# chmod 777 EVERYONE
```

Create a file with every user (whoami >> username.txt)

```
pradnya@pradnya-VirtualBox:/home$ bash user.sh
pradnya@pradnya-VirtualBox:/home$ cat user.txt
root
pradnya
pradnya@pradnya-VirtualBox:/home$ su apple
Password:
apple@pradnya-VirtualBox:/home$ bash user.sh
apple@pradnya-VirtualBox:/home$ cat user.txt
root
pradnya
apple
apple@pradnya-VirtualBox:/home$ su banana
Password:
banana@pradnya-VirtualBox:/home$ bash user.sh
banana@pradnya-VirtualBox:/home$ cat user.txt
root
pradnya
apple
banana
```

oppo -> primary group change -> one
vivo -> primary group change -> two

```
root@pradnya-VirtualBox:/home# chgrp one oppo
root@pradnya-VirtualBox:/home# chgrp two vivo
```

```
drwxr-x---  2 oppo       one     4096 Oct  5 07:52 oppo
drwxr-x---  2 vivo       two     4096 Oct  5 07:54 vivo
```

jelly,kitkat, lolipop, marshmallow -> add these users to sudo group

```
root@pradnya-VirtualBox:/home# usermod -aG sudo jelly
root@pradnya-VirtualBox:/home# usermod -aG sudo kitkat
root@pradnya-VirtualBox:/home# usermod -aG sudo lolipop
root@pradnya-VirtualBox:/home# usermod -aG sudo marshmello
```

```
sudo:x:27:pradnya,jelly,kitkat,lolipop,marshmello
```

fish,gun -> add these users to one group as well (secondary group)

```
root@pradnya-VirtualBox:/home# sudo usermod -G one fish
root@pradnya-VirtualBox:/home# sudo usermod -G one gun
```

```
one:x:1008:fish,gun
```

Loops Assignment

1. **Shell Script to display the first 10 natural numbers.**

Expected Output :
1 2 3 4 5 6 7 8 9 10

```
mehta@mehta:~/assignment/assn2$ nano a1.sh
```

```
#!/bin/bash
i=1
while [ $i -le 10 ]
do
echo -n "$i "
i=$(($i+1))
done
echo
```

```
mehta@mehta:~/assignment/assn2$ bash a1.sh
1 2 3 4 5 6 7 8 9 10
```

2. **Shell Script to compute the sum of the first 10 natural numbers.**

Expected Output :
The first 10 natural number is :
1 2 3 4 5 6 7 8 9 10
The Sum is : 55

```
mehta@mehta:~/assignment/assn2$ nano a2.sh
```

```
#!/bin/bash
i=1
sum=0
echo "The First 10 Natural numbers are :"
while [ $i -le 10 ]
do
echo -n "$i "
sum=$(($sum+$i))
i=$(($i+1))
done
echo
echo "The sum is : $sum"
```

```
mehta@mehta:~/assignment/assn2$ bash a2.sh
The First 10 Natural numbers are :
1 2 3 4 5 6 7 8 9 10
The sum is : 55
```

3. Shell Script to display n terms of natural numbers and their sum.
Test Data : 7
Expected Output :
The first 7 natural number is :

1 2 3 4 5 6 7
The Sum of Natural Number upto 7 terms : 28

```
  GNU nano 6.2                          que3.sh
#!/bin/bash

read -p "Enter number upto which you want sum : " num

echo "First "$((num)) " natural numbers : "
for((i=1;i<((num+1));i++))
do
echo -n $((i)) " "
done
echo ""
sum=0
for((i=1;i<((num+1));i++))
do
sum=$((sum))+$((i))
done
echo "Sum of first "$((num))" natural numbers : "$((sum))
```

```
pradnya@pradnya-VirtualBox:~/loop$ bash que3.sh
Enter number upto which you want sum : 15
First 15  natural numbers :
1  2  3  4  5  6  7  8  9  10  11  12  13  14  15
Sum of first 15 natural numbers : 120
```

3. **Shell Script to read 10 numbers from the keyboard and find their sum and average.**

Expected Output :
The sum of 10 no is : 55
The Average is : 5.500000

```
mehta@mehta:~/assignment/assn2$ nano a4.sh
```

```
#!/bin/bash
echo "Input the 10 numbers : "
i=1
while [ $i -le 10 ]
do
read -p "number $i=" n
sum=$(($sum+$n))
avg=$(($sum/10))
i=$((i+1))
done
echo "The sum of 10 no. is : "$sum
echo "The average is : "$avg
```

```
mehta@mehta:~/assignment/assn2$ bash a4.sh
Input the 10 numbers :
number 1=1
number 2=2
number 3=1
number 4=2
number 5=1
number 6=2
number 7=1
number 8=2
number 9=1
number 10=2
The sum of 10 no. is : 15
The average is : 1
```

5. Shell Script to display the cube of the number up to an integer.
Test Data :
Input number of terms : 5
Expected Output :
Number is : 1 and cube of the 1 is :1
Number is : 2 and cube of the 2 is :8
Number is : 3 and cube of the 3 is :27
Number is : 4 and cube of the 4 is :64
Number is : 5 and cube of the 5 is :125

```
mehta@mehta:~/assignment/assn2$ nano a5.sh
#!/bin/bash
read -p "Input the no. of terms : " n
i=1
while [ $i -le $n ]
do
echo "Number is : $i and the cube of $i is $((i*i*i))"
i=$((i+1))
done
```

```
mehta@mehta:~/assignment/assn2$ bash a5.sh
Input the no. of terms : 5
Number is : 1 and the cube of 1 is 1
Number is : 2 and the cube of 2 is 8
Number is : 3 and the cube of 3 is 27
Number is : 4 and the cube of 4 is 64
Number is : 5 and the cube of 5 is 125
```

6. Shell Script to display the multiplication table for a given integer.
Test Data :
Input the number (Table to be calculated) : 15
Expected Output :
15 X 1 = 15
...
...
15 X 10 = 150

```
mehta@mehta:~/assignment/assn2$ nano a6.sh
```

```
#!bin/bash
read -p "Input the number (Table to be calculated) :" n
for((i=1;i<=10;i++))
do
echo "$n x $i = $((n*i))"
done
```

```
mehta@mehta:~/assignment/assn2$ bash a6.sh
Input the number (Table to be calculated) :9
9 x 1 = 9
9 x 2 = 18
9 x 3 = 27
9 x 4 = 36
9 x 5 = 45
9 x 6 = 54
9 x 7 = 63
9 x 8 = 72
9 x 9 = 81
9 x 10 = 90
```

```
#!/bin/bash
read -p "Input upto the table no. starting from 1:" n
i=1
j=1
while [ $i -le 10 ]
do
echo "outer loop $i"
        while [ $j -le $n ]
        do
echo "inner loop $j"
                echo -n "$j x $i = $((i*j))"
                j=$(($j+1))
                if [ $j -ne $(($n+1)) ]
                then
                echo -n ","
                else
                echo
                fi
        done
i=$((i+1))
```

7. Shell Script to display the multiplier table vertically from 1 to n.
Test Data :
Input upto the table number starting from 1 : 8
Expected Output :
Multiplication table from 1 to 8

1x1 = 1, 2x1 = 2, 3x1 = 3, 4x1 = 4, 5x1 = 5, 6x1 = 6, 7x1 = 7, 8x1 = 8
...
1x10 = 10, 2x10 = 20, 3x10 = 30, 4x10 = 40, 5x10 = 50, 6x10 = 60, 7x10 = 70, 8x10 = 80

```
mehta@mehta:~/assn1$ nano a7.sh
```

```
#!/bin/bash
read -p "Enter number upto wich u want tables : " num
for((i=1;i<$((num+1));i++))
do
for((j=1;j<11;j++))
do
echo -n $i"*"$j"="$((i*j))" "
done
echo ""
done
```

```
mehta@mehta:~/assn1$ bash a7.sh
Enter number upto wich u want tables : 10
1*1=1 1*2=2 1*3=3 1*4=4 1*5=5 1*6=6 1*7=7 1*8=8 1*9=9 1*10=10
2*1=2 2*2=4 2*3=6 2*4=8 2*5=10 2*6=12 2*7=14 2*8=16 2*9=18 2*10=20
3*1=3 3*2=6 3*3=9 3*4=12 3*5=15 3*6=18 3*7=21 3*8=24 3*9=27 3*10=30
4*1=4 4*2=8 4*3=12 4*4=16 4*5=20 4*6=24 4*7=28 4*8=32 4*9=36 4*10=40
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*1=6 6*2=12 6*3=18 6*4=24 6*5=30 6*6=36 6*7=42 6*8=48 6*9=54 6*10=60
7*1=7 7*2=14 7*3=21 7*4=28 7*5=35 7*6=42 7*7=49 7*8=56 7*9=63 7*10=70
8*1=8 8*2=16 8*3=24 8*4=32 8*5=40 8*6=48 8*7=56 8*8=64 8*9=72 8*10=80
9*1=9 9*2=18 9*3=27 9*4=36 9*5=45 9*6=54 9*7=63 9*8=72 9*9=81 9*10=90
10*1=10 10*2=20 10*3=30 10*4=40 10*5=50 10*6=60 10*7=70 10*8=80 10*9=90 10*10=100
```

8. Shell Script to display the n terms of odd natural numbers and their sum.
Test Data
Input number of terms : 10
Expected Output :
The odd numbers are :1 3 5 7 9 11 13 15 17 19
The Sum of odd Natural Number upto 10 terms : 100

```
mehta@mehta:~/assignment/assn2$ nano a8.sh
```

```
#!/bin/bash
read -p "Input number of terms : " n
i=1
j=1
sum=0
echo "The odd numbers are :"
while [ $j -le $n ]
do
echo $i
i=$(($i+2))
sum=$(($sum+$i))
j=$(($j+1))
done
echo "The sum of odd natural number upto $n is $sum"
```

```
mehta@mehta:~/assignment/assn2$ bash a8.sh
Input number of terms : 11
The odd numbers are :
1
3
5
7
9
11
13
15
17
19
21
The sum of odd natural number upto 11 is 143
```

9. Shell Script to display a pattern like a right angle triangle using an asterisk.

The pattern like :

*
**
***
****

```
mehta@mehta:~/assignment/assn2$ nano a9.sh
```

```
#!/bin/bash
read -p "Enter number : " n
i=1
while [ $i -lt $n ]
do
j=1

        while [ $j -le $i ]
        do
        echo -n "*"
        j=$(($j+1))
        done
echo
i=$(($i+1))
done
```

```
mehta@mehta:~/assignment/assn2$ bash a9.sh
Enter number : 4
*
**
***
```

10. Shell Script to display a pattern like a right angle triangle with a number.

The pattern like :

1
12
123
1234

```
mehta@mehta:~/assignment/assn2$ nano a10.sh
```

```
#!/bin/bash
read -p "Enter number : " n
i=1
while [ $i -le $n ]
do
j=1
        while [ $j -le $i ]
        do
        echo -n $j
        j=$(($j+1))
        done
i=$(($i+1))
echo
done
```

```
mehta@mehta:~/assignment/assn2$ bash a10.sh
Enter number : 4
1
12
123
1234
```

11. Shell Script to make such a pattern like a right angle triangle with a number which will repeat a number in a row.

The pattern like :

1
22
333
4444

```
mehta@mehta:~/assignment/assn2$ nano a11.sh
```

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

```
mehta@mehta:~/assignment/assn2$ bash a11.sh
enter number : 4
1
22
333
4444
```

12. Shell Script to make such a pattern like a right angle triangle with the number increased by 1.

The pattern like :

1
2 3
4 5 6
7 8 9 10

```
mehta@mehta:~/assignment/assn2$ nano a12.sh
```

```
#!/bin/bash
read -p "Enter the number of rows: " n
i=1
x=1
while [ $i -le $n ]
do
j=1
        while [ $j -le $i ]
        do
        echo -n $x
        x=$(($x+1))
        j=$(($j+1))
        done
i=$(($i+1))
echo
done
```

```
mehta@mehta:~/assignment/assn2$ bash a12.sh
Enter the number of rows : 4
1
23
456
78910
```

Assignment 1/2

1. In your home directory, create sets of empty practice files

- **Create 6 files with names of the form songsX.mp3.**
- **Create 6 files with names of the form snapX.jpg.**
- **Create 6 files with names of the form filmX.avi.**

In each set, replace X with the numbers 1 through 6.

```
pradnya@pradnya-VirtualBox:~/home$ touch songs{1..6}.mp3
pradnya@pradnya-VirtualBox:~/home$ touch snap{1..6}.jpg
pradnya@pradnya-VirtualBox:~/home$ touch film{1..6}.avi
pradnya@pradnya-VirtualBox:~/home$ ls -l
```

2. From your home directory,

- **Move songs file into your Music subdirectory.**
- **Move snap file into your Pictures subdirectory.**
- **Move your movie files into Videos subdirectory**

```
pradnya@pradnya-VirtualBox:~/home$ mv song{1..6}.mp3 MUSIC
pradnya@pradnya-VirtualBox:~/home$ mv snap{1..6}.jpg PICTURES
pradnya@pradnya-VirtualBox:~/home$ mv film{1..6}.avi VIDEOS
pradnya@pradnya-VirtualBox:~/home$ ls
```

3. Create 3 subdirectories for organizing your files named friends,family,work

```
pradnya@pradnya-VirtualBox:~/home$ mkdir FRIENDS
pradnya@pradnya-VirtualBox:~/home$ mkdir FAMILY
pradnya@pradnya-VirtualBox:~/home$ mkdir WORK
pradnya@pradnya-VirtualBox:~/home$ ls
```

4. Copy files (all types) containing numbers 1 and 2 to the friends folder.
Copy files (all types) containing numbers 3 and 4 to the family folder.
Copy files (all types) containing numbers 5 and 6 to the work folder.

```
pradnya@pradnya-VirtualBox:~/home$ cp -r snap{1..2}.* FRIENDS
pradnya@pradnya-VirtualBox:~/home$ cp -r film{1..2}.* FRIENDS
pradnya@pradnya-VirtualBox:~/home$ cp -r song{1..2}.* FRIENDS
```

```
pradnya@pradnya-VirtualBox:~/home$ cp -r snap{3..4}.* FAMILY
pradnya@pradnya-VirtualBox:~/home$ cp -r film{3..4}.* FAMILY
pradnya@pradnya-VirtualBox:~/home$ cp -r song{3..4}.* FAMILY
```

```
pradnya@pradnya-VirtualBox:~/home$ cp snap{5..6}.* WORK
pradnya@pradnya-VirtualBox:~/home$ cp film{5..6}.* WORK
pradnya@pradnya-VirtualBox:~/home$ cp song{5..6}.* WORK
```

6.Delete all files in family subdirectory.

```
pradnya@pradnya-VirtualBox:~/home/FAMILY$ ls -l
total 0
-rw-rw-r-- 1 pradnya pradnya 0 Sep 27 22:17 film3.avi
-rw-rw-r-- 1 pradnya pradnya 0 Sep 27 22:17 film4.avi
-rw-rw-r-- 1 pradnya pradnya 0 Sep 27 22:17 snap3.jpg
-rw-rw-r-- 1 pradnya pradnya 0 Sep 27 22:17 snap4.jpg
-rw-rw-r-- 1 pradnya pradnya 0 Sep 27 22:18 song3.mp3
-rw-rw-r-- 1 pradnya pradnya 0 Sep 27 22:18 song4.mp3
pradnya@pradnya-VirtualBox:~/home/FAMILY$ rm *
pradnya@pradnya-VirtualBox:~/home/FAMILY$ ls -l
total 0
```

7. Delete friends subdirectory

```
pradnya@pradnya-VirtualBox:~/home$ rm -r FRIENDS
pradnya@pradnya-VirtualBox:~/home$ ls -l
total 20
```

8. Create user tom , bob , sam , prince

```
pradnya@pradnya-VirtualBox:~$ sudo -s
[sudo] password for pradnya:
root@pradnya-VirtualBox:/home/pradnya# adduser tom
Adding user `tom' ...
Adding new group `tom' (1001) ...
Adding new user `tom' (1001) with group `tom' ...
Creating home directory `/home/tom' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
Sorry, passwords do not match.
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for tom
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
```

```
root@pradnya-VirtualBox:/home/pradnya# adduser bob
```

```
root@pradnya-VirtualBox:/home/pradnya# adduser sam
```

```
root@pradnya-VirtualBox:/home/pradnya# adduser prince
```

9. Create Group dac , dbda ,ditiss

```
root@pradnya-VirtualBox:/home/pradnya# addgroup dac
Adding group `dac' (GID 1005) ...
Done.
root@pradnya-VirtualBox:/home/pradnya# addgroup dbda
Adding group `dbda' (GID 1006) ...
Done.
root@pradnya-VirtualBox:/home/pradnya# addgroup ditiss
Adding group `ditiss' (GID 1007) ...
Done.
```

10. add user

Tom in dac
Bob in dbda
Sam in ditiss

```
root@pradnya-VirtualBox:/home/pradnya# sudo usermod tom -G dac
root@pradnya-VirtualBox:/home/pradnya# sudo usermod bob -G dbda
root@pradnya-VirtualBox:/home/pradnya# sudo usermod sam -G ditiss
```

11. login as prince and create iacsd directory in /tmp and create 4 files in iacsd with name project-1 project-2 upto 4

```
prince@pradnya-VirtualBox:/$ mkdir /tmp/iacsd
prince@pradnya-VirtualBox:/$ cd tmp
prince@pradnya-VirtualBox:/tmp$ ls -l
total 56
drwxrwxr-x 2 prince  prince  4096 Sep 28 21:25 iacsd
```

```
prince@pradnya-VirtualBox:/tmp/iacsd$ touch project{1..4}.txt
prince@pradnya-VirtualBox:/tmp/iacsd$ ls -l
total 0
-rw-rw-r-- 1 prince prince 0 Sep 28 21:28 project1.txt
-rw-rw-r-- 1 prince prince 0 Sep 28 21:28 project2.txt
-rw-rw-r-- 1 prince prince 0 Sep 28 21:28 project3.txt
-rw-rw-r-- 1 prince prince 0 Sep 28 21:28 project4.txt
```

12. assign permissions to project files as below

Project-1 – tom should be owner of this

```
root@pradnya-VirtualBox:/tmp/iacsd# chown tom project1.txt
root@pradnya-VirtualBox:/tmp/iacsd# ls -l
total 0
-rwxrw---x 1 tom    prince 0 Sep 28 21:28 project1.txt
-rwxrw---x 1 prince prince 0 Sep 28 21:28 project2.txt
-rwxrw---x 1 prince prince 0 Sep 28 21:28 project3.txt
-rwxrw---x 1 prince prince 0 Sep 28 21:28 project4.txt
```

Project-2 – dac should be owner of this

```
root@pradnya-VirtualBox:/tmp/iacsd# chgrp dac project2.txt
root@pradnya-VirtualBox:/tmp/iacsd# ls -l
total 0
-rwxrw---x 1 tom    prince 0 Sep 28 21:28 project1.txt
-rwxrw---x 1 prince dac    0 Sep 28 21:28 project2.txt
-rwxrw---x 1 prince prince 0 Sep 28 21:28 project3.txt
-rwxrw---x 1 prince prince 0 Sep 28 21:28 project4.txt
```

Project-3 --- others should not have any permission but tom should have rw access

```
root@pradnya-VirtualBox:/tmp/iacsd# chown tom project3.txt
root@pradnya-VirtualBox:/tmp/iacsd# chmod 600 project3.txt
root@pradnya-VirtualBox:/tmp/iacsd# ls -l
total 0
-rwxrw---x 1 tom    prince 0 Sep 28 21:28 project1.txt
-rwxrw---x 1 prince dac    0 Sep 28 21:28 project2.txt
-rw------- 1 tom    prince 0 Sep 28 21:28 project3.txt
-rwxrw---x 1 prince prince 0 Sep 28 21:28 project4.txt
```

Project-4 – dbda group should have rwx permissions.

```
root@pradnya-VirtualBox:/tmp/iacsd# chgrp dbda project4.txt
root@pradnya-VirtualBox:/tmp/iacsd# chmod 770 project4.txt
root@pradnya-VirtualBox:/tmp/iacsd# ls -l
total 0
-rwxrw---x 1 tom    prince 0 Sep 28 21:28 project1.txt
-rwxrw---x 1 prince dac    0 Sep 28 21:28 project2.txt
-rw------- 1 tom    prince 0 Sep 28 21:28 project3.txt
-rwxrwx--- 1 prince dbda   0 Sep 28 21:28 project4.txt
```

Assignment 4

1) Write a shell script to print

- **you are logged in as which user**
- **in which directory you are**
- **and in which terminal you are working**
- **total number of files and directories in current directory**

```
#!/bin/bash
echo "1. You are logged in as which user"
echo "2. In which directory you are"
echo "3. In which terminal you're working"
echo "4. Total number of files and directories in current terminal"
echo "5. Exit"
read -p "select your choice" ch
case $ch in
1)echo "You're loggend in as "
  whoami;;
2)echo "Present working directory is "
  pwd;;
3)echo "Current terminal details"
  ps -p $$;;
4)echo "Total number of files and directories in current terminal are "
  ls | wc -l;;
5)echo "Exiting the shell program ... !"
  exit 0;;
*)echo "Error- Enter valid choice!";;
esac
```

```
mehta@mehta:~/assn4$ bash a1.sh
1. You are logged in as which user
2. In which directory you are
3. In which terminal you're working
4. Total number of files and directories in current terminal
5. Exit
select your choice1
You're loggend in as
mehta
mehta@mehta:~/assn4$ bash a1.sh
1. You are logged in as which user
2. In which directory you are
3. In which terminal you're working
4. Total number of files and directories in current terminal
5. Exit
select your choice2
Present working directory is
/home/mehta/assn4
mehta@mehta:~/assn4$ bash a1.sh
1. You are logged in as which user
2. In which directory you are
3. In which terminal you're working
4. Total number of files and directories in current terminal
5. Exit
```

```
select your choice3
Current terminal details
    PID TTY          TIME CMD
   2199 pts/0    00:00:00 bash
mehta@mehta:~/assn4$ bash a1.sh
1. You are logged in as which user
2. In which directory you are
3. In which terminal you're working
4. Total number of files and directories in current terminal
5. Exit
select your choice4
Total number of files and directories in current terminal are
5
mehta@mehta:~/assn4$ bash a1.sh
1. You are logged in as which user
2. In which directory you are
3. In which terminal you're working
4. Total number of files and directories in current terminal
5. Exit
select your choice5
Exiting the shell program ... !
mehta@mehta:~/assn4$ bash a1.sh
1. You are logged in as which user
2. In which directory you are
3. In which terminal you're working
4. Total number of files and directories in current terminal
5. Exit
select your choice6
Error- Enter valid choice!
```

2).Write a shell script to create a menu driven program for adding, deletion or finding a record in a database. Database should have the field like rollno, name, semester and marks of three subjects. Last option of the menu should be to exit the menu.

```
#!/bin/bash
declare -a database
while true
do
echo "--- database menu ---"
echo "1. Add record"
echo "2. Delete record"
echo "3. Find record"
echo "4. Exit"
read -p "Enter your choice : " ch
case $ch in
1) echo "Enter the details"
   read -p "Roll no : " rno
   read -p "Name : " name
   read -p "Semester : " sem
   echo "Enter marks (space_seperated) : "
   read -a marks
   database["$rno"]="$name $sem ${marks[*]}"
   echo "Record added !";;
2) read -p "Enter rollno : " rno
   if [ -n "${database[$rno]}" ]
   then
   unset database["$rno"]
   echo "record deleted !"
   else
   echo "record not found !"
   fi;;
3) read -p "Enter rollno : " rno
   if [ -n "${database[$rno]}" ]
   then
   echo "${database[$rno]}"
   else
   echo "Record not found"
   fi;;
4) echo "Exit menu ... !"
   exit;;
*) echo "Error";;
esac
done
```

```
mehta@mehta:~/assn4$ bash a2.sh
--- database menu ---
1. Add record
2. Delete record
3. Find record
4. Exit
Enter your choice : 1
Enter the details
Roll no : 1
Name : Soham
Semester : 8
Enter marks (space_seperated) :
89 90 99
Record added !
--- database menu ---
1. Add record
2. Delete record
3. Find record
4. Exit
Enter your choice : 2
Enter rollno : 1
record deleted !
--- database menu ---
1. Add record
2. Delete record
3. Find record
4. Exit
Enter your choice : 3
Enter rollno : 1
Soham 8 89 90 99
--- database menu ---
1. Add record
2. Delete record
3. Find record
4. Exit
Enter your choice : 4
Exit menu ... !
mehta@mehta:~/assn4$
```

3) Write a Linux shell script to accept 10 number and tell how many are +tive, -tive and zero.

```
mehta@mehta:~/assn4$ nano a3.sh
```

```
#!/bin/bash
i=1
positive=0
negative=0
zero=0
read -p "How many numbers you want to enter : " m
echo "Enter $m numbers : "
while [ $i -le $m ]
do
read -p "number $i: " n
if [ $n -gt 0 ]
then
positive=$(($positive+1))
fi
if [ $n -eq 0 ]
then
zero=$(($zero+1))
fi
if [ $n -lt 0 ]
then
negative=$(($negative+1))
fi
i=$(($i+1))
done
echo "Positive=$positive "
echo "Negative=$negative"
echo "Zero=$zero"
```

```
mehta@mehta:~/assn4$ bash a3.sh
How many numbers you want to enter : 10
Enter 10 numbers :
number 1: 7
number 2: 1
number 3: -2
number 4: -8
number 5: -8
number 6: 0
number 7: -1
number 8: 0
number 9: 6
number 10: -2
Positive=3
Negative=5
Zero=2
```

4) Write a shell script to accept five number and display max and min value.

```
mehta@mehta:~/assn4$ nano a4.sh
```

```
#!/bin/bash
i=1
while [ $i -le 5 ]
do
read -p "num $i: " n
if [ $i -eq 1 ]
then
max=$n
min=$n
fi
if [ $n -gt $max ]
then
max=$n
fi
if [ $n -lt $min ]
then
min=$n
fi
i=$(($i+1))
done
echo "min=$min"
echo "max=$max"
```

5) Write a script to find out String is palindrome or not.

```
mehta@mehta:~/assn4$ nano a5.sh
```

```
#!/bin/bash
read -p "Input string : " string
if [[ "$(echo "$string" | rev)" == "$string" ]];
then
echo "Palindrome"
else
echo "Not palindrome"
fi
```

```
mehta@mehta:~/assn4$ bash a5.sh
Input string : mom
Palindrome
```

```
mehta@mehta:~/assn4$ bash a5.sh
Input string : ram
Not palindrome
```

6) Write a shell script to print given number's sum of all digits (eg. If number is 123, then it's sum of all digits will be 1+2+3=6)

```
mehta@mehta:~/assn4$ nano a6.sh
```

```
#!/bin/bash
read -p "Enter the number : " n
m=$n
while [ $n -ne 0 ]
do
rem=$(($n%10))
sum=$(($sum+$rem))
n=$(($n/10))
done
echo "Sum of digits of $m = $sum"
```

```
mehta@mehta:~/assn4$ bash a6.sh
Enter the number : 123
Sum of digits of 123 = 6
```

7) Create a script to

Create user , Delete user , Create group , delete Group using case

```
#!/bin/bash
while true
do
echo "--- Menu ---"
echo "1. Create user"
echo "2. Delete user"
echo "3. Create group"
echo "4. Delete group"
echo "5. Exit"
read ch
case $ch in
1) read -p "Enter the username : " username
   sudo adduser "$username"
   echo "user created";;
2) read -p "Enter the username : " username
   sudo deluser "$username"
   echo "user deleted";;
3) read -p "Enter the groupname : " grpname
   sudo addgroup "$grpname"
   echo "group created";;
4) read -p "enter the groupname : " grpname
   sudo delgroup "$grpname"
   echo "group deleted";;
5) echo "Exiting menu !"
   exit 0;;
*) echo "Error ... !";;
esac
done
```

```
mehta@mehta:~/assn4$ bash a7.sh
--- Menu ---
1. Create user
2. Delete user
3. Create group
4. Delete group
5. Exit
1
Enter the username : bashsoham
Adding user `bashsoham' ...
Adding new group `bashsoham' (1029) ...
Adding new user `bashsoham' (1022) with group `bashsoham' ...
Creating home directory `/home/bashsoham' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for bashsoham
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
user created
```

```
--- Menu ---
1. Create user
2. Delete user
3. Create group
4. Delete group
5. Exit
2
Enter the username : bashsoham
Removing user `bashsoham' ...
Warning: group `bashsoham' has no more members.
Done.
user deleted
```

```
--- Menu ---
1. Create user
2. Delete user
3. Create group
4. Delete group
5. Exit
3
Enter the groupname : bashsoham
Adding group `bashsoham' (GID 1029) ...
Done.
group created
--- Menu ---
1. Create user
2. Delete user
3. Create group
4. Delete group
5. Exit
4
enter the groupname : bashsoham
Removing group `bashsoham' ...
Done.
group deleted
```

```
--- Menu ---
1. Create user
2. Delete user
3. Create group
4. Delete group
5. Exit
5
Exiting menu !
```