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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.

```
  GNU nano 6.2                                                  switch
#! /bin/bash

choice=1
while  [ $choice != 4 ]
echo "1: Add records"
echo "2: Delete records"
echo "3: Find records"
echo "4: Exit"
echo " Enter Your Choice: "
read choice

do
case $choice in
        1)
                echo -n "Enter the rollno: "
                read rollno
                echo -n "Enter name: "
                read name
                echo -n "Enter the semester"
                read semester
                echo -n"Enter marks for 3 subjects: "
                read marks1
                read marks2
                read marks3
```

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```
                echo "Record Added.."
        ;;
        2)
                echo "For Deleting row"
                echo "Enter rollno: "
                echo "Record Deleted.."
        ;;
        3)
                echo "For Finding record"
                echo "Enter rollno: "
        ;;
        4)
                echo "exiting from menu"
                exit
        ;;
        *)
                echo "Please Enter correct choice.."
        ;;
esac
done
```

```
iacsd@computer:~$ nano switch.sh
iacsd@computer:~$ bash switch.sh
1: Add records
2: Delete records
3: Find records
4: Exit
 Enter Your Choice:
1
Enter the rollno: 45
Enter name: riya
Enter the semester5
-nEnter marks for 3 subjects:
23
78
90
Record Added..
1: Add records
2: Delete records
3: Find records
4: Exit
 Enter Your Choice:
4
exiting from menu
iacsd@computer:~$
```

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

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```
#!/bin/bash

positive=0
negative=0
zero=0

for ((i=1; i<=10; i++))
do
        echo "Enter the number $i:"
        read num

        if [ $num -gt 0 ]; then
                positive=$((positive+1))
        elif [ $num -lt 0 ]; then
                negative=$((negative +1))
        else
                zero=$((zero + 1))
        fi
done
        echo "positive number : $positive"
        echo "negative number : $negative"
        echo "zeroes : $zero"
```

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```
iacsd@computer:~$ nano count.sh
iacsd@computer:~$ bash  count.sh
Enter the number 1:
2
Enter the number 2:
9
Enter the number 3:
-7
Enter the number 4:
2
Enter the number 5:
0
Enter the number 6:
-7
Enter the number 7:
5
Enter the number 8:
-3
Enter the number 9:
0
Enter the number 10:
1
positive number : 5
negative number : 3
zeroes : 2
iacsd@computer:~$
```

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

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```
  GNU nano 6.2
#!/bin/bash

max=0
min=0

for ((i=1; i<=5; i++))
do
        echo "Enter number $i:"
        read num

        if [ $i -eq 1 ]; then
        max=$num
        min=$num
        else
                if [ $num -gt $max ];then
                        max=$num
                fi
                if [ $num -lt $min ];then
                        min=$num
                fi
        fi
done

echo "Maximum values:  $max"
echo "Minimun value: $min"
```

```
iacsd@computer:~$ bash maxmin.sh
Enter number 1:
0
Enter number 2:
2311
Enter number 3:
9
Enter number 4:
56
Enter number 5:
89
Maximum values:  2311
Minimun value: 0
iacsd@computer:~$
```

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

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


echo "Enter String :"
read input_str

clean_str=$(echo "$input_str" | tr -d '[:space:]' | tr '[:upper:]' '[:lower:]')

reversed_str=$(echo "$clean_str" | rev)

if [ "$clean_str" == "$reversed_str" ]; then
        echo "Given string is Palindrome..."
else
        echo "Not an Palindrome"
fi
```

```
iacsd@computer:~$ nano string.sh
iacsd@computer:~$ bash string.sh
Enter String :
madam
Given string is Palindrome...
iacsd@computer:~$ bash string.sh
Enter String :
brief
Not an Palindrome
iacsd@computer:~$
```

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)

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```
  GNU nano 6.2
#!/bin/bash

echo "Enter  a number :"
read num

sum=0

while [ $num -gt 0 ]; do
        digit=$((num % 10))
        sum=$((sum + digit ))
        num=$((num / 10 ))
done
        echo "Sum of digits : $sum"
```

```
iacsd@computer:~$ bash sum1.sh
Enter  a number :
234365
Sum of digits : 23
```

7) Create a script to

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

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

while true; do
        echo "1. Create user"
        echo "2. Delete user"
        echo "3. Create group"
        echo "4. Delete group"
        echo "5. Exit"
        read choice
        case $choice in
        1)
                echo "Enter username :"
                read username
                useradd "$username"
                echo " user $username created"
        ;;
        2)
                echo "Enter username to delete :"
                read username
                userdel -r "$username"
                echo " user $username deleted"
        ;;
        3)
                echo "Enter groupname :"
                read groupname
```

```
                groupadd "$groupname"
                echo " group $groupname created"
        ;;
        4)
                echo "Enter groupname :"
                read groupname
                groupdel "$groupname"
                echo " group $groupname deleted"
        ;;
        5)
                echo "exit"
                exit
        ;;
        *)
                echo "Please enter correct choice"
        ;;
esac
done
```

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```
iacsd@computer:~$ nano case.sh
iacsd@computer:~$ bash case.sh
1. Create user
2. Delete user
3. Create group
4. Delete group
5. Exit
1
Enter username :
raj
useradd: Permission denied.
useradd: cannot lock /etc/passwd; try again later.
 user raj created
1. Create user
2. Delete user
3. Create group
4. Delete group
5. Exit
2
Enter username to delete :
raj
userdel: user 'raj' does not exist
 user raj deleted
1. Create user
2. Delete user
3. Create group
4. Delete group
5. Exit
```

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Exercise

Q1.

```
#!/bin/bash
read -p "enter first number:" fir
read -p "enter second number:" sec
if (($fir > $sec))
then
echo "$fir is the bigger number..."
else
echo "$sec is the bigger number..."
fi
```

```
enter first number:7
enter second number:4
7 is the bigger number...
```

Q2.

```
#!/bin/bash
read -p "enter first number:" fir
read -p "enter second number:" sec
read -p "enter third number:" thr
if (($fir > $sec))
then
    if (($fir > $thr))
    then
    echo "$fir is the bigger number..."
    else
    echo "$thr is the bigger number..."
    fi
elif [ $sec -gt $fir ]
```

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```
then
    if (($sec > $thr))
    then
    echo "$sec is the bigger number..."
    else
    echo "$thr is the bigger number..."
    fi
else
echo "invalid..."
fi
```

```
enter first number:7
enter second number:6
enter third number:8
8 is the bigger number...
```

Q3.

```
#!/bin/bash
read -p "enter num number:" num
if (($num > 0))
then
   echo "number is positive..."
elif (($num == 0 ))
then
    echo "number is zero..."
else
echo "number is negative..."
fi
```

```
enter num number:-5
number is negative...
```

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Q4.

```
#!/bin/bash
read -p "enter number:" num
if (($num % 5==0))
then
   if (( $num%11==0))
    then
    echo "$num is divisible by 5 and 11..."
    else
    echo "$num is not divisible by 5 and 11..."
    fi
else
echo "$num is not divisible by 5 and 11..."
fi
```

```
enter number:55
55 is divisible by 5 and 11...
```

Q5.

```
#!/bin/bash
read -p "enter number:" num
if (($num % 2==0))
then
    echo "$num is even..."
else
echo "$num is odd..."
fi
```

```
enter number:24
24 is even...
```

Q6.

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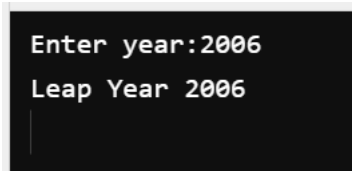
```
read -p "Enter year:" year
if (( $year%4==0 ))
then
    if (( $year%100==0 ))
    then
        if (( $year%400==0 ))
        then
        echo "Leap Year $year"
        else
        echo "Not a Leap Year"
        fi
    else
    echo "Leap Year $year"
    fi
else
echo "Leap Year $year"
fi
```



Q7.

```
read -p "Enter Number:" num
case $num in
    1)
    echo "One"
    ;;
    2)
    echo "Two"
    ;;
    3)
```

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```
    echo "Three"
    ;;
    4)
    echo "Four"
    ;;
    5)
    echo "Five"
    ;;
    6)
    echo "Six"
    ;;
    7)
    echo "Seven"
    ;;
    8)
    echo "Eight"
    ;;
    9)
    echo "Nine"
    ;;
    10)
    echo "Ten"
    ;;
esac
```

```
Enter Number:10
Ten
```

Q8.

```
read -p "Enter Id:" id
case $id in
```

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```
    1)
    echo "Clerk"
    ;;
    2)
    echo "Manager"
    ;;
    3)
    echo "Analyst"
    ;;
    4)
    echo "Salesman"
    ;;
    5)
    echo "President"
    ;;
esac
```

```
Enter Id:5
President
```

Q9.

```
#!/bin/bash
read -p "Set Password:" pword
echo "...Password Set Successfully..."
read -p "Enter Password:" password
case $password in
    $pword)
    echo "Password Accepted..."
    ;;
    *)
    echo "Invalid Password..."
    ;;
```

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esac

```
Set Password:2351
...Password Set Successfully...
Enter Password:2351
Password Accepted...
```

Q10.

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

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```
*)
echo "Enter Valid Day...."
esac
```

```
Enter day of week(1-7):5
Friday
```

Q11.

```
#!/bin/bash
read -p "Enter First Number:" num1
read -p "Enter Second Number:" num2
read -p "Enter operation(+,-,/,*):" operation
case $operation in
+)
sum=$(($num1+$num2))
echo "Sum $num1+$num2="$sum
;;
-)
Sub=$(($num1-$num2))
echo "Sub $num1-$num2="$Sub
;;
/)
Division=$(($num1/$num2))
echo "Division $num1/$num2="$Division
;;
*)
Multiply=$(($num1*$num2))
echo "Multiply $num1*$num2="$Multiply
;;

esac
```

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```
Enter First Number:5
Enter Second Number:2
Enter operation(+,-,/,*):*
Multiply 5*2=10
```

Loops

Q1.

```
#!/bin/bash

for I in {1..10}

do

    echo $i

   ((i++))

done
```

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```
iacsd@iacsd-VirtualBox:~$ touch loop1.sh
iacsd@iacsd-VirtualBox:~$ nano loop1.sh
iacsd@iacsd-VirtualBox:~$ bash loop1.sh
1
2
3
4
5
6
7
8
9
10
iacsd@iacsd-VirtualBox:~$
```

Q2.

```
#!/bin/bash/

sum=0

for((i=0;i<=10;i++))

do

    echo –n “$i ”

     sum=$((sum+i))

done

echo –e “The Sum is:” $sum
```

```
iacsd@iacsd-VirtualBox:~$ touch loop2.sh
iacsd@iacsd-VirtualBox:~$ nano loop2.sh
iacsd@iacsd-VirtualBox:~$ bash loop2.sh
012345678910The sum is 55
iacsd@iacsd-VirtualBox:~$ nano loop2.sh
iacsd@iacsd-VirtualBox:~$ bash loop2.sh
 0 1 2 3 4 5 6 7 8 9 10The sum is 55
iacsd@iacsd-VirtualBox:~$
```

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Q3.

```
#!/bin/bash/

Read –p “Enter a number” num

sum=0

echo “First $sum natural numbers are:”

for((i=0;i<=$num;i++))

do

    echo –n “$i ”

     sum=$((sum+i))

done

echo –e “Sum is:” $sum
```

```
iacsd@iacsd-VirtualBox:~$ touch loop3.sh
iacsd@iacsd-VirtualBox:~$ nano loop3.sh
iacsd@iacsd-VirtualBox:~$ bash loop3.sh
Enter a number6
First 6 natural numbers are:
1
2
3
4
5
6
Sum is : 21
iacsd@iacsd-VirtualBox:~$
```

Q4.

```
#!/bin/bash/

sum=0

cnt=10

echo –n “Enter 10 numbers:”

for((i=0;i<=cnt;i++))

do

    read n
```

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```
    sum=$((sum+n))
done
avg=$((sum/cnt))
echo  “the sum is $sum”
echo  “average is $avg”
```

```
iacsd@iacsd-VirtualBox:~$ nano loop4.sh
iacsd@iacsd-VirtualBox:~$ bash loop4.sh
Enter 10 numbers:1
2
4
3
6
3
6
22
8
5
the sum is 60
average is 6
iacsd@iacsd-VirtualBox:~$
```

Q5.

```
#!/bin/bash
echo “Enter a number”
read num
for((i=1;i<=num;i++))
do
cube=$((i*i*i))
echo “Number is $i and cube is $cube”
done
```

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```
iacsd@iacsd-VirtualBox:~$ touch loop5.sh
iacsd@iacsd-VirtualBox:~$ nano loop5.sh
iacsd@iacsd-VirtualBox:~$ bash loop5.sh
Enter a number
5
Number is 1 and cube is 1
Number is 2 and cube is 8
Number is 3 and cube is 27
Number is 4 and cube is 64
Number is 5 and cube is 125
iacsd@iacsd-VirtualBox:~$
```

Q6.

```
#!/bin/bash

echo “Enter a number”

read num

for((i=1;i<=10;i++))

do

result=$((num *i))

echo “$num * $i=$result”

done
```

```
iacsd@iacsd-VirtualBox:~$ nano loop6.sh
iacsd@iacsd-VirtualBox:~$ bash loop6.sh
Enter a number
6
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
```

Q7.

```
#!/bin/bash
```

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```
echo "Enter upto the table number starting from 1:"

read num

for((i=1;i<=num;i++))

do

for((j=1;j<=10;j++))

do

pro=$((i*j))

echo "$i * $j = $pro"

done

echo ""

done
```

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```
iacsd@iacsd-VirtualBox:~$ bash loop7.sh
Enter upto the table number starting from 1:
3
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

iacsd@iacsd-VirtualBox:~$
```

O8. #!/bin/bash

echo "input num of terms: "

read n

count=0

odd="

cur=1

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```
while [$count -lt $n]

do

if [ $((cur % 2)) -ne 0 ]; then

odd="$odd $cur"

Sum=$((sum+ cur))

count=$((count+ 1))

fi

cur=$((cur +1))

done

echo "The odd numbers are :$odd"

echo "The sum of odd natural number upto $n terms :$sum"
```

```
iacsd@iacsd-VirtualBox:~$ nano loop8.sh
iacsd@iacsd-VirtualBox:~$ bash loop8.sh
input num of terms:
10
The odd numbers are : 1 3 5 7 9 11 13 15 17 19
The sum of odd natural number upto 10 terms :100
```

Q9.

```
#!/bin/bash

echo “Enter number of rows”

read row

for(i=1;i<=row;i++))

do

for(j=1;j<=i;j++))

do

echo –n “*”

done

echo “”

done
```

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```
iacsd@iacsd-VirtualBox:~$ touch loop9.sh
iacsd@iacsd-VirtualBox:~$ nano loop9.sh
iacsd@iacsd-VirtualBox:~$ bash loop9.sh
Enter number of rows
5
*
**
***
****
*****
iacsd@iacsd-VirtualBox:~$
```

Q10.

```
#!/bin/bash

echo “Enter number of rows”

read row

for(i=1;i<=row;i++))

do

for(j=1;j<=i;j++))

do

echo –n “$j”

done

echo “”

done
```

```
iacsd@iacsd-VirtualBox:~$ bash loop10.sh
Enter the number of rows
5
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
iacsd@iacsd-VirtualBox:~$
```

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Q11.

```
#!/bin/bash

echo “Enter number of rows”

read n

for(i=1;i<=n;i++))

do

for(j=1;j<=i;j++))

do

echo –n “$i”

done

echo “”

done
```

```
iacsd@iacsd-VirtualBox:~$ touch loop11.sh
iacsd@iacsd-VirtualBox:~$ nano loop11.sh
iacsd@iacsd-VirtualBox:~$ bash loop11.sh
 Enter number of rows
5
1
22
333
4444
55555
iacsd@iacsd-VirtualBox:~$
```

Q12.

```
#!/bin/bash

echo “Enter number of rows”

read row

num=1

for(i=1;i<=row;i++))

do
```

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```
for(j=1;j<=i;j++))

do

echo –n “$num ”

num=$((num+1))

done

echo “”

done
```

```
iacsd@iacsd-VirtualBox:~$ nano loop12.sh
iacsd@iacsd-VirtualBox:~$ bash loop12.sh
Enter the number of rows
6
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
16 17 18 19 20 21
iacsd@iacsd-VirtualBox:~$
```