Practice Problems 5

1) Random Function to get single digit

```
#!/bin/bash
RANDOM=$$
echo $(($RANDOM%9+1))
```

---

2) Random Function to get single digit 1 to 6

```
#!/bin/bash -x

RANDOM=$$

for i in `seq 10`
do
  echo $(($RANDOM % 6+1))
done
```

---

3)Add two random numbers

```
#!/bin/bash -x
sum=0
for((i=0; i<=5; i++))
{
sum=$((sum+ RANDOM % 6 + 1))
}
   avg=$(($sum/5))
   echo $sum
   echo $avg
```

---

4) Write a program that reads 5 Random 2 Digit values , then find their sum and the average.

```
#!/bin/bash -x
sum=0
   for((i=0; i<=5; i++))
   {
     sum=$((sum+ RANDOM % 6 + 1))
   }
                avg=$(($sum/5))
                echo $sum
                echo $avg
```

---

5) Unit Conversion
a. 1ft = 12 in then 42 in = ? ft
b. Rectangular Plot of 60 feet x 40 feet in meters
c. Calculate area of 25 such plots in acres

a)

```
#!/bin/bash -x

read -p "Enter the value to convert from ft to inches" x

echo "scale=2;$x/12" | bc
```

---

b)

```
#!/bin/bash -x

read -p "Enter the length of rectangle in ft" x
read -p "Enter the width of re

z=$(($x * $y)) | bc

echo "scale=2;$z/10.764"
```

---

c)

```
#!/bin/bash -x

read -p "Enter the length of rectangle in ft " x
read -p "Enter the width of rectangle in ft" y

echo "scale=2;(($x*$y)/10.764)*25" | bc
```

Practice Problems 5 DAY 2

1)Write a program that reads 5 Random 3 Digit values and then outputs the minimum and the maximum value

```
#!/bin/bash
MAXCOUNT=4
n=5
i=0

while [ "$i" -le $MAXCOUNT ]; do
 nos[$i]=$RANDOM
 let "i += 1"
done


#printing the entered number
echo "number entered are"
for((i=0;i<n;i++))
do
echo ${nos[$i]}
done
#main loop
small=${nos[0]}
greatest=${nos[0]}
for((i=0;i<n;i++))
do
#logic for smallest number
if [ ${nos[$i]} -lt $small ]; then
small=${nos[$i]}
#logic for greatest number
elif [ ${nos[$i]} -gt $greatest ]; then
greatest=${nos[$i]}
fi
done
#printing smallest and greatest number
echo "smallest number in an array is $small"
echo "greatest number in an array is $greatest"
```

---

3) Write a program that takes a year as input and outputs the Year is a Leap Year or not a Leap Year. A Leap Year checks for 4 Digit Number, Divisible by 4 and
not 100 unlessdivisible by 400.

```
#!/bin/bash


yy=0
isleap="false"

echo -n "Enter year (yyyy) : "
read yy



if [ $((yy % 4)) -ne 0 ] ; then
  :
elif [ $((yy % 400)) -eq 0 ] ; then

   isleap="true"
elif [ $((yy % 100)) -eq 0 ] ; then
   :
else

   isleap="true"
fi
if [ "$isleap" == "true" ];
then
   echo "True it's a leap year"
else
   echo "False it's not a leap year"
fi
```

---

4) Write a program to simulate a coin flip and print out "Heads" or "Tails" accordingly.

```
#!/bin/bash


FLIP=$(($RANDOM %2))


if [ $FLIP -eq 1 ];then
    echo "heads"
else
    echo "tails"
fi
```

Practice Problems 5 PROB 2

1) Read a single digit number and write the number in word

```
#!/bin/bash

arr=(zero one two three four five six sevem eight nine)

read -p "Enter the single digit" n

if (($n >=0 && $n<=9))
then
        echo ${arr[$n]}
else
        echo "Please enter the single digit value"

fi
```

---

2) Read a Number and Display the week day (Sunday, Monday,...)

```
#!/bin/bash


read -p "Enter the number between 0 to 6" n

if (($n >=0 && $n<=6))
then
          if (($n ==0))
          then
                    echo "Sunday"

          elif(($n ==1))
          then
                              echo "Monday"


   elif(($n ==2))
   then
        echo "Tuesday"

   elif(($n ==3))
   then
```

```
        echo "Wednesday"

   elif(($n ==4))
   then
        echo "Thursday"

   elif(($n ==5))
   then
        echo "Friday"

   elif(($n ==6))
   then
        echo "Saturday"
          fi

else
          echo "Please enter the number between the range"


fi
```

---

3) Read a Number 1, 10, 100, 1000, etc and display unit, ten, hundred,...

```
read -p "Enter the value" b


u=$(($b%10))
t=$((($b/10)%10))
h=$((($b/100)%10))
th=$(($b/1000))



echo "Thousands= $th Hundreds=$h Tens= $t Units=$u"
```

---

4) Enter 3 Numbers do following arithmetic operation and find the one that

is maximum and minimum
1. a + b * c 3. c + a / b

2. a % b + c 4. a * b + c

```
#!/bin/bash

echo "Enter Size(N)"
read N

i=1
max=0

echo "Enter Numbers"
while [ $i -le $N ]
do
  read num
  if [ $i -eq 1 ]  #set first number as max
  then
     max=$num
  else            #from number 2 update max if the num > max.
     if [ $num -gt $max ]
     then
       max=$num
     fi
  fi
  i=$((i + 1))  #increment i by 1
done

echo $max
```

Practice Problems 5 PROB 3

1) Read a single digit number and write the number in word using Case

```
#!/bin/bash
echo -n "Enter number : "
read n


if (($n >=0 && $n<=9))
```

```
then
   echo "Your number $n in words : "
   case $n in
      0) echo -n "zero " ;;
      1) echo -n "one " ;;
      2) echo -n "two " ;;
      3) echo -n "three " ;;
      4) echo -n "four " ;;
      5) echo -n "five " ;;
      6) echo -n "six " ;;
      7) echo -n "seven " ;;
      8) echo -n "eight " ;;
      9) echo -n "nine " ;;
   esac

else
        echo "Please enter the single digit"
fi
```

---

2) Read a Number and Display the week day (Sunday, Monday,...)

```
#!/bin/bash


read -p "Enter the number between 0 to 6" n

if (($n >=0 && $n<=6))
then
        case $n in
                0) echo -n "Sunday" ;;
                1) echo -n "Monday" ;;
     2) echo -n "Tuesday" ;;
     3) echo -n "Wednesday" ;;
     4) echo -n "Thursday" ;;
     5) echo -n "Friday" ;;
     6) echo -n "Saturday" ;;

        esac

else
        echo "Please enter the number between the range"


fi
```

3) Read a Number 1, 10, 100, 1000, etc and display unit, ten, hundred,...

```
#!/bin/bash
echo -n "Enter number : "
read n


if (($n >=0 && $n<=9))
then
   echo "Your number $n in words : "
   case $n in
      0) echo -n "zero " ;;
      1) echo -n "one " ;;
      2) echo -n "two " ;;
      3) echo -n "three " ;;
      4) echo -n "four " ;;
      5) echo -n "five " ;;
      6) echo -n "six " ;;
      7) echo -n "seven " ;;
      8) echo -n "eight " ;;
      9) echo -n "nine " ;;
   esac

else
        echo "Please enter the single digit"
fi
```

---

4) Write a program that takes User Inputs and does Unit Conversion of different Length units

1. Feet to Inch 3. Inch to Feet
2. Feet to Meter 4. Meter to Feet

```
# !/bin/bash


echo "Enter Two numbers : "
read a


echo "Enter Choice :"
```

```
echo "1. Feet to Inch"
echo "2. Feet to Meter"
echo "3. Inch to Feet"
echo "4. Meter to Feet"
read ch


case $ch in
  1)res=`echo $a \* 12 | bc`
  ;;
  2)res=`echo "scale=2; $a / 3.281" | bc`
  ;;
  3)res=`echo "scale=2; $a / 12" | bc`
  ;;
  4)res=`echo $a \* 3.281 | bc`
  ;;
esac
echo "Result : $res"
```