Q1 Write a program in the following steps

a. Generates 10 Random 3 Digit number.

b. Store this random numbers into a array.

c. Then find the 2nd largest and the 2nd smallest element without sorting the array.

MAXCOUNT=10

count=1

#Array name is number

while [ "$count" -le $MAXCOUNT ]; do

number[$count]=$(( ( RANDOM % 10 ) + 100 ))

let "count += 1"

done

echo "${number[\*]}"

secondGreatest=$(printf '%s\n' "${number[@]}" | sort -nu | tail -2 | head -1)

echo "Second Greatest element is " $secondGreatest

secondSmallest=$(printf '%s\n' "${number[@]}" | sort -nu | head -2 | tail -1)

echo "Second Smallest element is " $secondSmallest

Output:-

HP@DESKTOP-EJVD731 MINGW64 ~/Desktop/Assignments/Day7 (master)

$ notepad Q1.sh

HP@DESKTOP-EJVD731 MINGW64 ~/Desktop/Assignments/Day7 (master)

$ bash Q1.sh

109 100 105 108 100 100 103 104 104 104

Second Greatest element is 108

Second Smallest element is 103

Q.2 Extend the above program to sort the array and then find the 2nd largest

and the 2nd smallest element.

MAXCOUNT=10

count=1

#Array name is number

while [ "$count" -le $MAXCOUNT ]; do

number[$count]=$(( ( RANDOM % 10 ) + 100 ))

let "count += 1"

done

echo "${number[\*]}"

secondGreatest=$(printf '%s\n' "${number[@]}" | sort -nu | tail -2 | head -1)

echo "Second Greatest element is " $secondGreatest

secondSmallest=$(printf '%s\n' "${number[@]}" | sort -nu | head -2 | tail -1)

echo "Second Smallest element is " $secondSmallest

Output:-

HP@DESKTOP-EJVD731 MINGW64 ~/Desktop/Assignments/Day7 (master)

$ notepad Q1.sh

HP@DESKTOP-EJVD731 MINGW64 ~/Desktop/Assignments/Day7 (master)

$ bash Q1.sh

109 100 105 108 100 100 103 104 104 104

Second Greatest element is 108

Second Smallest element is 103

**Q.3 Extend the Prime Factorization Program to store all the Prime Factors of a number n into an array and finally display the output.**

read -p "Enter a number " num

echo "All Prime Factors of $num are: "

for (( i=2; i\*i<=$num; i++ ))

do

if [ $num%i == 0 ]

then

number[prime]=1

for (( j=2; j<=i/2; j++ ))

do

if [ i % j == 0 ]

then

number[prime]=0

fi

done

if [ $prime == 1 ]

then

echo ${number[@]}

fi

fi

done

**Q.4 Write a Program to show Sum of three Integer adds to ZERO**

sum(){

found=0

for (( i=0;i<$2-2;i++ ))

do

for (( j=i+1;j<$2-1;j++ ))

do

for (( k=j+1;k<$2;k++ ))

do

if (( arr[$i]+arr[$j]+arr[$k] == 0 ))

then

echo "${arr[i]}"

echo "${arr[j]}"

echo "${arr[k]}"

found=1

fi

done

done

done

if (( $found == 0))

then

echo "Not exist"

fi

}

echo "Enter numbers"

read -a arr

n=${#arr[@]}

sum $arr $n

Output :=

HP@DESKTOP-EJVD731 MINGW64 ~/Desktop/Assignments/Day7 (master)

$ notepad Q4.sh

HP@DESKTOP-EJVD731 MINGW64 ~/Desktop/Assignments/Day7 (master)

$ bash Q4.sh

Enter numbers

1 -2 1 0 5

1

-2

1

**Q.5 Take a range from 0 – 100, find the digits that are repeated twice like 33, 77,**

**etc and store them in an array**