Day 7 problems

1)

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2) Extend the above program to sort the array and then find the 2nd largest and the 2nd smallest element.

```
#!/bin/bash

n=11
for ((i = 0; i < $n; i++)); do      ## fill array with random values
    a[i]=$(($RANDOM % 990 + 10))
done

for((i=0; i<$n; ++i))
do
  for((j=i+1; j<$n;++j))
  do
    if[${array[i]} < ${array[j]}]
    then
      a = ${array[i]}
      {array[i]}= ${array[j]}
      {array[j]} = $a

    fi
  done
done


echo "The array is sorted in descending order"

for((i=0; i < $n; ++i ))
do
  echo ${array[i]}

done


echo "2nd largest number is ${array[1]}"
```

```
echo "2nd smallest number is ${array[$n – 2]}"
```

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

```
#!/bin/bash


read -p "Enter the number" n

while ((n%2 ==0))
do

        n=$n/2
done

a=$(bc <<< "scale=0; sqrt($n)")
for((i=3; i<=$a; i= i+2))
do
        while(($n %$i == 0))

        do
                #echo $i

                a[i]=$i


                n=$n/$i

        done
done


echo "Prime factorization of the given number are "
echo ${a[@]}

if(($n > 2))
then
        echo $n
fi
```

4) Write a Program to show Sum of three Integer adds to ZERO

```
a=(0 -1 2 -3 1)

n=4



for (( i=0; i<$n-2; i++ ))
do
  echo "First"
  for (( j=$i+1; j<$n-1; j++ ))
  do
    echo "second"
    for (( k=$j+1; k<$n; k++))
    do
      echo "third"
      sum=$(( ${a[$i]}+${b[$j]}+${a[$k]} ))


      if (($sum==0))
      then
        echo "one"
        echo ${a[i]}

        echo "two"
        echo ${a[j]}


        echo "three"
        echo ${a[k]}

        found=true
      fi
    done

  done

done
```

5) Take a range from 0 – 100, find the digits that are repeated twice like 33, 77, etc and store them in an array

```
a=(33 77 45 77 33 56 33 48 77 19)

n=9

echo "Repeating elements are"

for (( i=0; i<$n; i++ ))
do
  for (( j=$i+1; j<$n; j++ ))
  do
    if (( $((${a[$i]} == ${a[$j]} ))); then

      echo ${a[i]}

    fi
  done
done
```