**Day 7 Practice Problems**

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**Ques1: Wap to generate random 3 digit numbers and find 2 largest and 2 smallest number.**

#! /bin/bash

for counter in {1..10}

do

array[counter]=$(( RANDOM%900+100 ))

done

function maxFinder() {

largest=99

fnArray=$@

for value in ${fnArray[@]}

do

if [ $value -gt $largest ]

then

second=$largest

largest=$value

elif [ $value -gt $second -a $value -ne $largest ]

then

second=$value

fi

done

echo $second

}

function minFinder() {

smallest=9999

fnArray=$@

for value in ${fnArray[@]}

do

if [ $value -lt $smallest ]

then

second=$smallest

smallest=$value

elif [ $value -lt $second -a $value -ne $smallest ]

then

second=$value

fi

done

echo $second

}

echo ${array[@]}

max=`maxFinder ${array[@]}`

echo "Second Largest Element is: "$max

min=`minFinder ${array[@]}`

echo "Second Minimum Element is: "$min

OP:-

782 892 866 991 292 686 597 634 383 504

Second Largest Element is: 892

Second Minimum Element is: 383

**Ques2: Extend above to sort and then find 2 largest and 2 smallest.**

#! /bin/bash

for counter in {1..10}

do

array[counter]=$(( RANDOM%900+100 ))

done

function maxFinder() {

fnArray=($@)

IFS=$'\n' sorted=($(sort <<<"${fnArray[\*]}"))

unset IFS

echo "${sorted[-2]}"

}

function minFinder() {

fnArray=($@)

IFS=$'\n' sorted=($(sort <<<"${fnArray[\*]}"))

unset IFS

echo "${sorted[1]}"

}

echo ${array[@]}

max=`maxFinder ${array[@]}`

echo "Second Largest Element is: "$max

min=`minFinder ${array[@]}`

echo "Second Minimum Element is: "$min

OP:-

909 672 222 856 951 927 669 603 570 685

Second Largest Element is: 927

Second Minimum Element is: 570

**Ques3: Extend Prime factorization program to store factors in an array.**

#! /bin/bash

read -p "Enter the number: " number

iterator=1

while [ $(( $number%2 )) -eq 0 ]

do

prime[iterator]=2

(( iterator++ ))

number=$(( $number/2 ))

done

for (( counter=3; $counter\*$counter<=$number; counter=$(( $counter+2 ))

))

do

while [ $(( $number%$counter )) -eq 0 ]

do

prime[iterator]=$counter

(( iterator++ ))

number=$(( $number/$counter ))

done

done

if [ $number -gt 2 ]

then

prime[iterator]=$number

fi

echo "Prime Factors are: " ${prime[@]}

OP:-

Enter the number: 568

Prime Factors are: 2 2 2 71

**Ques4: Wap to show sum of three integers adds to zero**

#! /bin/bash

arr=( 0 -1 2 -3 1 )

size=0

#Find Array Size

for counter in ${arr[@]}

do

(( size++ ))

done

function findTriplets(){

found=1

newArr=($@)

IFS=$'\n'

sortedArr=($(sort -g <<<"${newArr[\*]}"))

unset IFS

for(( i=0; i<$(( $size-1 )); i++ ))

do

left=$(( $i+1 ))

right=$(( $size-1 ))

current="${sortedArr[$i]}"

while [ $left -lt $right ]

do

if [ $(( $current+"${sortedArr[$left]}"+"${sortedArr[$right]}" )) -eq 0 ]

then

echo $current,${sortedArr[$left]},${sortedArr[$right]}

(( left++ ))

(( right-- ))

found=0

elif [ $(( $current+"${sortedArr[$left]}"+"${sortedArr[$right]}" )) -lt 0 ]

then

(( left++ ))

else

(( right-- ))

fi

done

done

if [ $found -eq 1 ]

then

return 1

fi

}

ret=`findTriplets ${arr[@]}`

invalidCheck=$?

echo $ret

if [ $invalidCheck -eq 1 ]

then

echo "No Triplet sum equals 0 found"

fi

OP:-

-3,1,2 -1,0,1

**Ques5: Take range from 0-100 and find digits that are repeated twice 33,77 etc.**

#! /bin/bash

iterator=0

for (( counter=0; counter<=100; counter++ ))

do

if [ $counter -ne 0 ] && [ $(( $counter%11 )) -eq 0 ]

then

array[$iterator]=$counter

(( iterator++ ))

fi

done

echo ${array[@]}

OP:-

11 22 33 44 55 66 77 88 99