DAY 7 ARRAY PRACTICE PROBLEMS

Q1.(a)Write a program that generates 10 random 3 digits number.

(b)Store this random number in an array.

(c)Find second largest and second smallest number of array.

Ans:

#! /bin/bash -x

a=$(( RANDOM % (899 ) + 100 ))

b=$(( RANDOM % (899 ) + 100 ))

c=$(( RANDOM % (899 ) + 100 ))

d=$(( RANDOM % (899 ) + 100 ))

e=$(( RANDOM % (899 ) + 100 ))

f=$(( RANDOM % (899 ) + 100 ))

g=$(( RANDOM % (899 ) + 100 ))

h=$(( RANDOM % (899 ) + 100 ))

i=$(( RANDOM % (899 ) + 100 ))

j=$(( RANDOM % (899 ) + 100 ))

declare -a digits

digits=("$a" "$b" "$c" "$d" "$e" "$f" "$g" "$h" "$i" "$j")

echo ${digits[\*]}

Q2.Extend above program to find 2nd smallest and 2nd gighest number using sort method.

Ans:

#! /bin/bash -x

a=$(( RANDOM % (899 ) + 100 ))

b=$(( RANDOM % (899 ) + 100 ))

c=$(( RANDOM % (899 ) + 100 ))

d=$(( RANDOM % (899 ) + 100 ))

e=$(( RANDOM % (899 ) + 100 ))

f=$(( RANDOM % (899 ) + 100 ))

g=$(( RANDOM % (899 ) + 100 ))

h=$(( RANDOM % (899 ) + 100 ))

i=$(( RANDOM % (899 ) + 100 ))

j=$(( RANDOM % (899 ) + 100 ))

declare -a digits

digits=("$a" "$b" "$c" "$d" "$e" "$f" "$g" "$h" "$i" "$j")

echo ${digits[\*]}

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

do

for((j = 0; j<10-i-1; j++))

do

if [ ${digits[j]} -gt ${digits[$((j+1))]} ]

then

# swap

temp=${digits[j]}

digits[$j]=${digits[$((j+1))]}

digits[$((j+1))]=$temp

fi

done

done

echo "Array in sorted order :"

echo ${digits[\*]}

echo "Second smallest Number"

echo ${digits[1]}

echo "Second largest Number"

echo ${digits[8]}

Q3.Extrend prime factorisation program to store all the prime factors of number n in an array and display output.

Ans:

#! /bin/bash -x

declare -a factor

read -p "Enter an integer greater than one:" num

i=2

count=0

flag=0”

for ((i;i<$num;));do

if [ `expr $num % $i` -eq 0 ];then

factor=$i

for ((j=2;j<=`expr $factor / 2`;));do

flag=0

if [ `expr $factor % $j` -eq 0 ];then

flag=1

break

fi

j=`expr $j + 1`

done

if [ $flag -eq 0 ];then

echo "[ $factor ]"

count=1

fi

fi

i=`expr $i + 1`

done

if [ $count -eq 0 ];then

echo "no prime factors found except $num"

fi

echo ${factor[\*]}

Q4. Write a program to show sum of 3 digits integer adds to zero.

Ans:

#! /bin/bash

declare -a digits

digits=(5 4 3 -2 -3)

sum=`expr 5 - 2 - 3`

echo ${digits[\*]}

echo $sum: 5 -2 -3

Q5. Take a number from range 0 to 100 ,and find that digits that are repeated twice like 33 and 77 and store them in an array.

Ans: #! /bin/bash -x

#read -p "Enter a number: " number

number=11

i=1

while [ $i -le 9 ]

do

echo "$((number\*i))"

i=$((i+1))

done