Assignment 10

Q1. Given an array arr[] of positive and negative numbers only.

The task is to find the length of the longest alternating

(means negative-positive-negative or positive-negative-positive) subsequence present in the array.

Examples:

Input: arr[] = {-4, 3, -5, 9, 10, 12, 2, -1}

Output: 5

Explanation:

The longest sequence is {-4, 3, -5, 9, -1}, which is of length 5. There can be many more subsequences of this length.

Input: arr[] = {10, 12, 2, -1}

Output: 2

Explanation:

The longest sequence is {10, -1}, which is 2. There can be many more subsequences of this length.

Q2. Given a sorted array of positive integers, rearrange the array alternately i.e first element should be the maximum value, second minimum value, third-second max, fourth-second min and so on.

Examples:

Input: arr[] = {1, 2, 3, 4, 5, 6, 7}

Output: arr[] = {7, 1, 6, 2, 5, 3, 4}

Input: arr[] = {1, 2, 3, 4, 5, 6}

Output: arr[] = {6, 1, 5, 2, 4, 3}

Q3. Given an array arr of N integers. Find the contiguous sub-array with maximum sum.

Example 1:

Input:

N = 5

arr[] = {1,2,3,-2,5}

Output:

9

Explanation:

Max subarray sum is 9

of elements (1, 2, 3, -2, 5) which

is a contiguous subarray.

Example 2:

Input:

N = 4

arr[] = {-1,-2,-3,-4}

Output:

-1

Explanation:

Max subarray sum is -1

of element (-1)

Q4. Chain Marketing Organization has a scheme for income generation, through which its members generate income for themselves. The scheme is such that suppose A joins the scheme and makes R and V join this scheme then A is Parent Member of R and V who are child Members. When any member joins the scheme then the parent gets a total commission of 10% from each of its child members.

Child members receive a commission of 5% respectively. If a parent member does not have any member joined under him, then he gets a commission of 5%.

Take the name of the members joining the scheme as input.

Display how many members joined the scheme including parent members. Calculate the Total commission gained by each member in the scheme. The fixed amount for joining the scheme is Rs.5000 on which commission will be generated

SchemeAmount = 5000

Example 1: When there are more than one child members

Input : (Do not give input prompts. Accept values as follows.)

Hannah //Enter parent Member as this

Y //Enter Y if Parent member has child members otherwise enter N

Rocky, Shahrukh //Enter names of child members of Amit in comma separated

Output: (Final Output must be in format given below.)

TOTAL MEMBERS:3

COMISSION DETAILS

Hannah: 1000 INR

Rocky :250 INR

Shahrukh: 250 INR

Example 2: When there is only one child member in the hierarchy

Input :

Hannah

Y

Rocky

Output:

Total Members: 2

Commission Details

Hannah: 500 INR

Rocky: 250 INR