

# Array-3

## Assignment Questions

# Assignment Questions

**Q1 - Given two vectors `arr1[]` and `arr2[]` of size `m` and `n` sorted in increasing order. Merge the two arrays into a single sorted array of size `m+n`.**

(Easy)

Input: `arr1=[1,2,3]` `arr2=[4,5,6]`

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

Input: `arr1=[1,3,5]` `arr2=[2,4,6]`

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

**Q2 - Given a vector `arr[]` sorted in increasing order of `n` size and an integer `x`, find if there exists a pair in the array whose sum is exactly `x`.**

(Easy)

Given: `n>0`

Input: `[-1,0,1,2,3]` `x=2`

Output: Yes

Input: `[1,2,3,4]` `x=9`

Output: No

**Q3 - Given a vector `arr[]` sorted in increasing order of `n` size and an integer `x`, find if there exists a pair in the array whose absolute difference is exactly `x`.**

(Medium)

Given: `n>0`

Input: `[5,10,15,20,26]` `x= 10`

Output: Yes

Input: `[5,6,7,8,9]` `x=4`

Output: Yes

Input: `[9,23,45,69,78]` `x=56`

Output: No

**Q4 - Given a vector `arr[]` sorted in increasing order. Return an array of squares of each number sorted in increasing order. Where size of vector `1<size<101`.**

(Medium)

Input: `[0,1,2,3]`

Output: `[0,1,4,9]`

Input: `[-5,-4,-3,-2,-1]`

Output: `[1,4,9,16,25]`

Input: `[-4,-3,-1,0,2,10]`

Output: `[0,2,4,9,16,100]`

# Assignment Questions

**Q5 - Given a vector `arr[]` sorted in increasing order of `n` size and an integer `x`, find the number of unique pairs that exist in the array whose absolute sum is exactly `x`.**

(Hard)

Input: `[1,2,3,4,6]` `x=7`

Output: 2

Explanation: 1,6 and 3,4 sum to 7

Input: `[3,1,3,5,3]` `x=6`

Output: 2

Explanation: The unique pairs are 3,3 and 1,5

Input: `[2,2,2]` `x=4`

Output: 1

Explanation: The only unique pair is 2,2

**Q6 - Given a vector array `nums`, print the count of triplets `[nums[i], nums[j], nums[k]]` such that `i != j`, `i != k`, and `j != k`, and `nums[i] + nums[j] + nums[k] == x`. Where `k` is an integer given by the user.**

(Hard)

**Note:** The solution set must not contain duplicate triplets and should not have 3 loops.

Input: `[-1,0,1,2,-1,-4]` `x=0`

Output: 2

Explanation: The two triplets are: -1,0,1 and 1,2,-1

Input: `[1,2,3]` `x=5`

Output: 0