Arrays / Sorting / Two Pointer / Sets-Part-1

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Question name: Two City Scheduling

Problem Statement

A company is planning to interview 2n people. Given the array costs where costs[i] = [aCosti, bCosti], the cost of flying the ith person to city a is aCosti, and the cost of flying the ith person to city b is bCosti.

Return the minimum cost to fly every person to a city such that exactly n people arrive in each city.

Input Format

- First line contains a one integer denoting N.
- Next line contains costs[i] space separated integers denoting the elements of array costs.

Output Format

- Output should be a 1 line containing the sum of the minimum cost.

Constraints

- n == arr.length
- 2 * n == costs.length
- 2 <= costs.length <= 100
- costs.length is even.
- 1 <= aCosti, bCosti <= 1000

Sample Input 1
4
10 20
30 200
400 50
30 20

Sample Output 1
110

Explanation of Sample 1

First line represents n ie. 4 rows

Input: costs = [[10,20],[30,200],[400,50],[30,20]]

Output: 110

Explanation:

The first person goes to city A for a cost of 10.

The second person goes to city A for a cost of 30.

The third person goes to city B for a cost of 50.

The fourth person goes to city B for a cost of 20.

The total minimum cost is 10 + 30 + 50 + 20 = 110 to have half the people interviewing in each city.

Sample Input 2

6
259 770
448 54
926 667
184 139
840 118
577 469

Sample Output 2

1859

Explanation of Sample 2

The first person goes to city A for a cost of 259.

The second person goes to city B for a cost of 54.

The third person goes to city B for a cost of 667.

The fourth person goes to city A for a cost of 184.

The fifth person goes to city B for a cost of 118.

The sixth person goes to city A for a cost of 577.

The total minimum cost is 259 + 54 + 667 + 184 + 118 + 557 = 1859

to have half the people interviewing in each city.

Solution: https://www.ideone.com/BEtbk0

Question name: 3Sum Closest

Problem Statement

Given an integer array nums of length n and an integer target, find three integers in nums such that the sum is closest to target.

Return the sum of the three integers.

You may assume that each input would have exactly one solution.

Input Format
- First line contains Ai space separated integers denoting the pair of footwear.
- Next line contains a one integer as target.

Output Format

- Sum of three integers and it should be a single integer

Constraints

- 3 <= nums.length <= 1000
- -1000 <= nums[i] <= 1000
- -104 <= target <= 104

Sample Input 1

-1 2 1 -4
1

Sample Output 1

2

Explanation of Sample 1

Input: nums = [-1,2,1,-4], target = 1
Output: 2

Explanation:
The sum that is closest to the target is 2. (-1 + 2 + 1 = 2).

Sample Input 2
0 0 0
1

Sample Output 2
0

Explanation of Sample 2

Input: nums = [0,0,0], target = 1
Output: 0

Solution: https://www.ideone.com/qpo32r

Question name: Coin Change

Problem Statement

Sharuk is travelling in a bus and he is asking for a change for a N Rupees to the conductor and conductor having the coins[i] and he can give X number of pairs to form a N Rupees.

Given a value N, if we want to make change for N Rupees, and we have an infinite supply of each coin = { A1, A2, .. , Ai} valued coins, how many ways can we make the change? The order of coins doesn't matter.

Input Format
- First line contains a one integer number N.
- Next line contains coin[i] space separated integers.

Output Format
- Output should be an Integer as count of pairs

Constraints

- n == coin[i].length
- 1 <= n <= 50

Sample Input 1
4
1 2 3

Sample Output 1
4

Explanation of Sample 1

First line represents n ie. 4
From the input 4 is the total number when we add the pair of
number {1, 2, 3}
Below are the pairs
{ 1, 1, 1, 1 } => 4
{ 1, 2, 1 } => 4
{ 2, 2 } => 4
{ 1, 3 } => 4
Total 4 pairs so the output is 4

Sample Input 2
10
1 2 3 4 5 6

Sample Output 2
35

Explanation of Sample 2

First line represents n sessions ie. 10

From the input 4 is the total number when we add the pair of number

{1, 2, 3, 4, 5, 6}

Below are the pairs

{ 1, 1, 1, 1, 1, 1, 1, 1, 1, 1 } => 10

{ 2, 2, 2, 2, 2 } => 10

{ 3, 3, 3, 1 } => 10

{ 5, 5 } => 10

.... So on

Total 35 pairs so the output is 10

Solution: https://www.ideone.com/t3hagK

Problem Statement

Sachin used to watch series in a weekend and each series having n number of seasons and only selective seasons are most interesting to watch. Given an a[i] as an interesting season for series n, and the series seasons are shuffled so help Sachin to watch the season in order.

Input Format

- First line contains a one integer n of series.
- Next line contains a[i] space separated integers as seasons

Output Format

- Output should be a n line having integer are in ascending order

Constraints

- n == a.length
- n <= 100
- a[i] <= 100 .

Sample Input 1

2
5 3 7 8
3 9 4 1

Sample Output 1

3 5 7 8
1 3 4 9

Explanation of Sample 1

Explanation:
first line represents the n
3, 5, 7, 8 are the sorted number for the 5, 3, 7, 8
1, 3, 4, 9 are the sorted number for the 3, 9, 4, 1

Sample Input 2
3
5 3 1 7 8
6 3 2 1 9
1 4 2 3 9

Sample Output 2

1 3 5 7 8

1 2 3 6 9

1 2 3 4 9

Explanation of Sample 2

Explanation:

first line represents the n

1, 3, 5, 7, 8 are the sorted number for the 5, 3, 1, 7, 8

1, 2, 3, 6, 9 are the sorted number for the 6, 3, 2, 1, 9

1, 2, 3, 4, 9 are the sorted number for the 1, 4, 2, 3, 9

Solution: https://www.ideone.com/CbIPf5

Thank You!