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## **AAD**

### **Practical 1**

**(1)** There are 2 chefs, namely chef 1 and chef 2 in the MasterChef competition. The judge is going to judge on the basis of 3 categories: presentation, taste and hygiene to prepare the dishes. The marking is scaling from 1 to 100. The rating for chef 1 challenge is the triplet  $a = (a[0], a[1], a[2])$ , and the rating for Chef 2 challenge is the triplet  $b = (b[0], b[1], b[2])$ , where 0 index is presentation, 1 index is taste and 2 index is hygiene. The task is to find their comparison points by comparing  $a[0]$  with  $b[0]$ ,  $a[1]$  with  $b[1]$ , and  $a[2]$  with  $b[2]$ .

- If  $a[i] > b[i]$ , then Chef 1 is awarded 1 point.
- If  $a[i] < b[i]$ , then Chef 2 is awarded 1 point.
- If  $a[i] = b[i]$ , then neither person receives a point.

Comparison points are the total points a person earned.

Given  $a$  and  $b$ , determine their respective comparison points.

Design the algorithm for the same and implement using the programming language of your choice. Make comparative analysis for various use cases & input size.

#### **Sample Input 1**

27 48 70

89 26 7

#### **Sample Output 1**

2 1

### Explanation 1

Comparing the 0th elements,  $27 < 89$  so Chef 2 receives a point.

Comparing the 1st and 2nd elements,  $48 > 26$  and  $70 > 7$  so Chef 1 receives two points.

The return array is  $[2, 1]$ .

### Code :-

```
chef1 = list(map(int, input().split()))
chef2 = list(map(int, input().split()))

chef1_points = 0
chef2_points = 0

for i in range(3):
    if chef1[i] > chef2[i]:
        chef1_points += 1
    elif chef1[i] < chef2[i]:
        chef2_points += 1
    else:
        chef1_points += 0
        chef2_points += 0

print([chef1_points, chef2_points])
```

### Output :-

```
>>>
= RESTART: D:\Sem 5\Algorithmr
27 48 70
... 89 26 7
[2, 1]
>>>
```

**(2)** Let us suppose that you are having an array containing both positive and negative numbers. Given the numbers you are supposed to find 2 such elements such that the sum of those numbers is closest to zero.

**Sample Input 1**

15. 5. -20. 30. -45

**Sample Output 1**

15, -20

**Explanation 1**

In all the comparison, the sum of 15 and -20 is smallest amount among all other comparison.

**Sample Input 2**

15. 5. -20. 30. 25

**Sample Output 2**

15. -20 & -20. 25

**Explanation 2**

In all the comparison, the sum of 15,-20 & -20, 25 is smallest amount among all other comparison.

## Code :-

```
arr = []

print("Input:",end=' ')
x=input().split()
for i in range(len(x)):
    arr.append(int(x[i]))

nums=[]
least=100

for i in range(len(arr)):
    for j in range(i+1,len(arr)):
        x = arr[i] + arr[j]
        x = abs(x)
        if least > x:
            least = x
            nums=[arr[i],arr[j]]
        elif least == x:
            nums.extend([arr[i],arr[j]])

print("\nNumbers:")
if len(nums) > 2:
    for i in range(0,len(nums),2):
        print(f'{nums[i]}, {nums[i+1]}')
else:
    print(f'{nums[0]}, {nums[1]}')
```

## Output :-

```
>>>
=====
Input: 15 5 -20 30 -45

Numbers:
15, -20
>>>
=====
Input: 15 5 -20 30 25

Numbers:
15, -20
-20, 25
>>> |
```