



Day 1: Quartiles ☆

1 more challenge to get your next star!

Points: 4/5



Problem

Submissions

Leaderboard

Editorial

Tutorial

Objective

In this challenge, we practice calculating *quartiles*. Check out the [Tutorial](#) tab for learning materials and an instructional video!

Task

Given an array, X , of n integers, calculate the respective first quartile (Q_1), second quartile (Q_2), and third quartile (Q_3). It is guaranteed that Q_1 , Q_2 , and Q_3 are integers.

Input Format

The first line contains an integer, n , denoting the number of elements in the array.

The second line contains n space-separated integers describing the array's elements.

Constraints

- $5 \leq n \leq 50$
- $0 < x_i \leq 100$, where x_i is the i^{th} element of the array.

Output Format

Print 3 lines of output in the following order:

1. The first line should be the value of Q_1 .
2. The second line should be the value of Q_2 .
3. The third line should be the value of Q_3 .

Sample Input

```
9
3 7 8 5 12 14 21 13 18
```

Sample Output

```
6
12
16
```

Explanation

$X = \{3, 7, 8, 5, 12, 14, 21, 13, 18\}$. When we sort the elements in non-decreasing order, we get $X = \{3, 5, 7, 8, 12, 13, 14, 18, 21\}$. It's easy to see that $\text{median}(X) = 12$.

As there are an odd number of data points, we do not include the median (the central value in the ordered list) in either half:

Lower half (L): 3, 5, 7, 8

Upper half (U): 13, 14, 18, 21



Now, we find the quartiles:

- Q_1 is the *median*(L). So, $Q_1 = \frac{5+7}{2} = 6$.
- Q_2 is the *median*(X). So, $Q_2 = 12$.
- Q_3 is the *median*(U). So, $Q_3 = \frac{14+18}{2} = 16$.

Python 3



```

1  # Enter your code here. Read input from STDIN. Print output to STDOUT
2
3  from statistics import median
4
5  size = int(input())
6  numbers = list(map(int, input().split()))
7
8  numbers.sort()
9
10 t=len(numbers)//2
11 if len(numbers)%2==0:
12     L=numbers[:t]
13     U=numbers[t:]
14 else:
15     L=numbers[:t]
16     U=numbers[t+1:]
17
18 print(int(median(L)))
19 print(int(median(numbers)))
20 print(int(median(U)))

```

Line: 10 Col: 17

[Upload Code as File](#)


Test against custom input

Run Code

Submit Code

You have earned 30.00 points!

You are now 1 challenge away from the 2nd star for your 10 days of statistics badge.

50%

4/5



Congratulations

You solved this challenge. Would you like to challenge your friends?



Next Challenge

Test case 0

Compiler Message