

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

F. Timon & Pumbaa and Pizza

time limit per test: 3 seconds  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

Timon and Pumbaa invite their friends for lunch. All of them included Timon and Pumbaa is  $n$  animals. They ordered  $2 * n$  pizza slices from Donimo's. The slices are not cut exactly equal and every animal will eat 2 slices. They want the division to be the most fair as possible.



The most fair division is the one that the difference between the amounts of pizza eaten by the animal that eaten the most and the animal that eaten the least is minimum possible.

Your task is to calculate the most fair division and print the difference between the amounts pizza eaten by the animal that ate the most and the animal that ate the least.

Input

The first line contains one integer,  $n$  ( $2 \leq n \leq 10^5$ ) — the number of animals ordering pizza.

The second line contains  $2 * n$  integers,  $A_i$  ( $1 \leq A_i \leq 10^9$ ) — the size of each slice.

Output

Print the minimum difference between the amounts of pizza eaten by the animal that eaten the most and the animal that ate the least.

Examples

|              |      |
|--------------|------|
| input        | Copy |
| 2<br>1 4 3 2 |      |
| output       | Copy |
| 0            |      |

|                       |      |
|-----------------------|------|
| input                 | Copy |
| 4<br>5 1 1 4 3 2 11 3 |      |
| output                | Copy |
| 6                     |      |

Note

In the first example: the first animal ate slices 1 and 4 and the second animal ate slices 2 and 3.

ICPC Assiut Advanced Newcomers 2023

Private

Participant

Group Contests

ICPC Assiut Advanced Newcomers 2023 Contest 5

ICPC Assiut Advanced Newcomers 2023 Contest 4

ICPC Assiut Advanced Newcomers 2023 Contest 3

ICPC Assiut Advanced Newcomers Practice #1

ICPC Assiut Advanced Newcomers 2023 Contest 2

ICPC Assiut Advanced Newcomers 2023 Onsite Contest 2

ICPC Assiut Advanced Newcomers 2023 Contest 1

ICPC Assiut Advanced Newcomers 2023 Onsite Contest 1

ICPC Assiut Advanced Newcomers 2023 Contest 5

Finished

Practice

Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

Submit?

Language: GNU G++20 11.2.0 (64 bit, w

Choose file: Choose File No file chosen

Submit

| Submission                | Time              | Verdict                |
|---------------------------|-------------------|------------------------|
| <a href="#">227995473</a> | Oct/13/2023 11:05 | Accepted               |
| <a href="#">227995119</a> | Oct/13/2023 11:02 | Accepted               |
| <a href="#">227993924</a> | Oct/13/2023 10:50 | Wrong answer on test 2 |