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 $(2 \le n \le 10^5)$ — the number of animals ordering pizza.

The second line contains $2*n$ integers, A_i $(1 \le A_i \le 10^9)$ — 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
```
2
1 4 3 2
```
output
```
0
```

input
```
4
5 1 1 4 3 2 11 3
```
output
```
6
```

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