



Утегенов Батырхан Елембетұлы [ADS-Lab-04]: Submit a solution

Info

Summary

Submissions

Standings

Submit clar

Clars

Settings

Logout [ads23_22B030458]

23:28:54 / RUNNING

A

B

C

D

E

F

G

H

I

J

Submit a solution for G-197831. Killua and Hunter exam

Time limit: 1 s

Real time limit: 5 s

Memory limit: 256M

Problem G: 197831. Killua and Hunter exam

While Gon is surviving on the Greed Island, Killua, after the first unsuccessful attempt to pass the hunter exam, decides to test himself again. The time one of his tasks is to find the maximum distance between any two vertices in a binary search tree. Since Killua is pretty bad at algorithms, he asks for your help.

Input format

In the first line you will be given single number N ($1 \leq N \leq 200000$). Next line consists of N numbers, where a_i ($1 \leq a_i \leq 10^9$) represents the i -th number inserted to a binary search tree. If a_i was found in a tree, then you don't have to insert it again.

Subtasks

1. (30%) $N \leq 100$.
2. (30%) $N \leq 1000$
3. (40%) No additional constraints.

Output format

Print one single number - the maximum distance between any two vertices in a binary tree.

Examples

Input

```
9
11 5 3 2 1 7 9 8 13
```

Output

```
7
```

Input

```
5
1 2 4 3 5
```

Output

```
4
```

Input

```
7
4 2 6 5 1 3 7
```

Output

```
5
```

Notes

In the first test, the answer is the distance between nodes 1 and 8.

Submit a solution

Language:

g++ - GNU C++ 11.4.0 ▾

File

Choose File No file chosen

Send!

Send!

Previous submissions of this problem

Run ID	Time	Size	Problem	Language	Result	Failed test	View source	View report
1886	1006:57:28	2180	G	g++	OK	N/A	View	View

- A B C D E F G H I J