



CSES Problem Set

Stick Lengths

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Time limit: 1.00 s **Memory limit:** 512 MB

There are n sticks with some lengths. Your task is to modify the sticks so that each stick has the same length.

You can either lengthen and shorten each stick. Both operations cost x where x is the difference between the new and original length.

What is the minimum total cost?

Input

The first input line contains an integer n : the number of sticks.

Then there are n integers: p_1, p_2, \dots, p_n : the lengths of the sticks.

Output

Print one integer: the minimum total cost.

Constraints

- $1 \leq n \leq 2 \cdot 10^5$
- $1 \leq p_i \leq 10^9$

Example

Input:

5
2 3 1 5 2

Output:

5

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