Stick Length

From cses.fi: https://cses.fi/problemset/task/1074

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: $p_1, p_2, \ldots, p_n$: the lengths of the sticks.

Output

Print one integer: the minimum total cost.

Subtasks

1. (50 point) $N \leq 10^3, p_i \leq 10^3$
2. (50 points) $N \leq 10^6, p_i \leq 10^9$

Example Test Cases

Test Case 1

Input	Output
5 2 3 1 5 2	5

Limits

- Time limit: 1 seconds
- Memory limit: 64 MB