

You are given a histogram consisting of N columns of heights $X_1, X_2, \dots, X_N$, respectively. The histogram needs to be transformed into a roof using a series of operations. A roof is a histogram that has the following properties:

- A single column is called the top of the roof. Let it be the column at position i .
- The height of the column at position j ($1 \leq j \leq N$) is $h_j = h_i - |i - j|$.
- All heights h_j are positive integers.

An operation can be increasing or decreasing the heights of a column of the histogram by 1. It is your task to determine the minimal number of operations needed in order to transform the given histogram into a roof.

INPUT

The first line of input contains the number N ($1 \leq N \leq 10^5$), the number of columns in the histogram.

The following line contains N numbers X_i ($1 \leq X_i \leq 10^9$), the initial column heights.

OUTPUT

You must output the minimal number of operations from the task.

SCORING

In test cases worth 60% of total points, it will hold $N \leq 5000$.

SAMPLE TESTS

input

4
1 1 2 3

output

3

input

5
4 5 7 2 2

output

4

input

6
4 5 6 5 4 3

output

0

Clarification of the first test case: By increasing the height of the second, third, and fourth column, we created a roof where the fourth column is the top of the roof.

Clarification of the second test case: By decreasing the height of the third column three times, and increasing the height of the fourth column, we transformed the histogram into a roof. The example is illustrated below.

