

Problem I

Inversion Number

Time limit: **1 second**

Mem limit: **256 Megabytes**

You are given an array of n integers $a_1, a_2, a_3, \dots, a_n$, which is a permutation of n numbers from 1 to n . An inversion number of an array is the number of inversions, i.e. pairs (i, j) that satisfy the condition $1 \leq i < j \leq n$ and $a_i > a_j$.

You are allowed to perform a transformation on the array as follows:

- You pick an integer x that has value in range 1 to n .
- All the elements that are less than x will be moved to the left of x and all the elements that are greater than x will be moved to the right of x .
- The order of the elements that are less than x and the order of elements that are greater than x have to be the same after the transformation.

For example, given an array of $[6, 2, 3, 5, 1, 4]$ and you pick $x = 4$. After the transformation, the array will be $[2, 2, 1, 4, 6, 5]$ and it has three inversions. However, if you pick $x = 5$, then the array will be $[2, 3, 1, 4, 5, 6]$ and it has only two inversions.

Task: Find the minimum inversion number of the array after your transformation.

Input

The first line contains an integer n ($1 \leq n \leq 10^6$) – the number of elements in the array.

The second line contains n integers a_1, a_2, \dots, a_n – the array itself.

Output

The minimum inversion number.

Sample input

Sample output

6 6 2 3 5 1 4	2
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