

Problem K

Magic Lamp 2

Time Limit: 1 second

You are so smart to solve the first quest of the Genie. Are you ready for the second quest? Let's go.

Given a sequence a which is a permutation of n numbers $1, 2, \dots, n$.

A subsequence $[l, r]$ ($1 \leq l \leq r \leq n$) of the permutation a is a sequence whose elements are a_l, a_{l+1}, \dots, a_r . The subsequence $[l, r]$ is called a Min-Max Sequence if its maximum and minimum values lie on both ends of that sequence.

Your task is to count the number of Min-Max Sequences of the permutation a .



Input

The first line contains an integer n ($1 \leq n \leq 10^6$)

The second line contains n numbers a_1, a_2, \dots, a_n .

Output

Print one single integer which is the number of Min-Max Sequences of a permutation a .

Sample Input

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5
2 5 3 1 4
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Sample Output

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10
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Explanation for the sample:

There are 10 Min-Max sequences which are: 2; 2 5; 5; 5 3; 5 3 1; 3; 3 1; 1; 1 4 and 4