Problem J

Feng Shui

You own N flower pots (numbered from 1 to N) displayed in order from west to east. Each flower pot has a different height; flower pot i is the A_ith shortest flower pot by height. In other words, the array $[A_1, A_2, \ldots, A_N]$ is a permutation of $[1, 2, \ldots, N]$.

After learning about Feng Shui (a practice of arranging pieces in living spaces to create balance), your house is healthier if you arrange the flower pots as follows. There should exist an integer k such that $1 \leq k \leq N$, $A_i > A_{i+1}$ for all $1 \leq i < k$, and $A_i < A_{i+1}$ for all $k \leq i < N$. You are allowed to swap adjacent flower pots zero or more times.

As the flower pots are fragile, you want to minimize the number of swaps. Determine the minimum number of swaps such that the flower pots follow the Feng Shui rule.

Input

The first line consists of an integer N ($1 \leq N \leq 300\,000$).

The second line consists of N integers A_i ($1 \leq A_i \leq N$). The array A is a permutation of $[1, 2, \ldots, N]$.

Output

Output a single integer representing the minimum number of swaps such that the flower pots follow the Feng Shui rule.

Sample Input #1

```
6
2 6 5 3 1 4
```

Sample Output #1

```
3
```

Explanation for the sample input/output #1

The final configuration of $A = [6, 5, 2, 1, 3, 4]$ requires 3 swaps.

Sample Input #2

```
5
1 2 3 4 5
```

Sample Output #2

```
0
```

Sample Input #3

```
5
5 4 3 2 1
```

Sample Output #3

```
0
```