IOI Training Camp 2017
Team Selection Tests, Day 1

Subarray Medians

You are given an array $A[1], A[2], \ldots, A[N]$ with all elements distinct. This will actually be a permutation of 1 to N. Consider a segment of this array: $A[L], A[2], \ldots, A[R]$, where $1 \leq L \leq R \leq N$. The median of this array is the $(\lceil \frac{R-L}{2} \rceil + 1)$-th largest element in the segment. Note: $\lceil x \rceil$ refers to ceiling of x. ie. smallest intger greater than or equal to x.
A segment is *Good* if the median is one of its end points. ie. the segment $A[L], A[L+1], \ldots, A[R]$ is good if its median is either $A[L]$ or $A[R]$.
Count the number of *Good* segments in the given array.

Input

The first line contains exactly one integer: N.
The next line contains N integers: $A[1], A[2], \ldots, A[N]$

Output

Output one line, which should contain the number of *Good* segments.

General Constraints

Unless otherwise mentioned, the following constraints are met throughout all subtasks:

- $1 \leq N \leq 10^5$
- The given array is a permutation of 1 to N

Subtasks

Subtask 1 (4 Points):

- $1 \leq N \leq 500$

Subtask 2 (20 Points):

- $1 \leq N \leq 10^4$

Subtask 3 (76 Points):

- Original constraints.

Sample Input 1

```
3
3 2 1
```

Sample Output 1

```
5
```

Explanation

The segments $[3], [2], [1], [3, 2]$, and $[2, 1]$ all have their medians on an end point. But the segment $[3, 2, 1]$ has its median, 2, not at an end point. Hence this is not a *Good* segment. Hence the number of *Good* segments is 5.

Limits

Time: 2 seconds

Memory: 512 MB