UVa Online Judge

10534 Wavio Sequence

Wavio is a sequence of integers. It has some interesting properties.

- Wavio is of odd length i.e. $L = 2 * n + 1$.
- The first $(n + 1)$ integers of Wavio sequence makes a strictly increasing sequence.
- The last $(n + 1)$ integers of Wavio sequence makes a strictly decreasing sequence.
- No two adjacent integers are same in a Wavio sequence.

For example 1, 2, 3, 4, 5, 4, 3, 2, 0 is an Wavio sequence of length 9. But 1, 2, 3, 4, 5, 4, 3, 2, 2 is not a valid wavio sequence. In this problem, you will be given a sequence of integers. You have to find out the length of the longest Wavio sequence which is a subsequence of the given sequence. Consider, the given sequence as :

1 2 3 2 1 2 3 4 3 2 1 5 4 1 2 3 2 2 1.

Here the longest Wavio sequence is : 1 2 3 4 5 4 3 2 1. So, the output will be '9'.

Input

The input file contains less than 75 test cases. The description of each test case is given below. Input is terminated by end of file.

Each set starts with a postive integer, N ($1 \leq N \leq 10000$). In next few lines there will be N integers.

Output

For each set of input print the length of longest wavio sequence in a line.

Sample Input

```
10
1 2 3 4 5 4 3 2 1 10
19
1 2 3 2 1 2 3 4 3 2 1 5 4 1 2 3 2 2 1
5
1 2 3 4 5
```

Sample Output

```
9
9
1
```