**Monotonically Increasing Interval**

**Description**

A monotonically increasing interval (MII) of an array is a consecutive subsequence of the array in which the elements are monotonically increasing. A MII should have at least two elements. For example {2, 3, 5} is an monotonically increasing interval of the array {4, 2, 3, 5, 7, 6, 8}.

MIIs are very useful. But you are not going to use them here. Instead, in this lab, you are to count the number of MIIs of a given array of integers.

**Input**

The first line contains an integer N which is the number of elements in the array. The second line contains N integers, which are elements in the array.

**Output**

Output the number of MIIs of the input array.

**Sample Input**

7

4 2 3 5 7 6 8

**Sample Output**

7

**Explanation:**

The MIIs are {2, 3}, {2, 3, 5}, {2, 3, 5, 7}, {3, 5}, {3, 5, 7}, {5, 7}, and {6, 8}

**Data Sets:**

There are 10 data sets. The N’s in the data sets are 10, 20, 30, 400, 500, 6000, 7000, 8000, 90000, 100000.

**Grading:**

1. If the complexity of your algorithm is higher than O(N2), you will get at most 85% of the total mark.
2. If the complexity of your algorithm is not higher than O(N2), but higher than O(N1.5), you will get at most 100% of the total mark.
3. If the complexity of your algorithm is not higher than O(N1.5), you will get at most 110% of the total mark.

**Hints:**

1. An O(N3) solution: exhaustion
2. An O(N2) solution: exhaustion (smart).
3. An O(N) solution: queue (no need to be explicit, but the idea of queue is used).