10710EECS204001  
Data Structures Homework 5

Due date: 2018/12/18 23:59

Submit to OJ: #12076

Upload code to iLMS

Submission

* Please **1)** submit your code to OJ (OJ: #12076),   
  and **2)** upload the zipped file (source codes) to iLMs.   
  **Both should be done before the due date.**
* Scores will be given based on your OJ results, and the uploaded zipped file (the source codes) should be identical to those submitted to OJ. TAs will examine your uploaded codes.

Description

In this homework, you are asked to count the number of inversion pairs in a sequence. Let **A** be a sequence of numbers. If **i<j** but **A[i]>A[j]**, we call **(i,j)** an *inversion pair*.

For example, let **A=[1 2 3 5 4]**. Then (4,5) is an inversion pair; Similarly, suppose **A= [5 4 3 2 1]**, we have 10 inversion pairs: **(5,4), (5,3), (5,2), (5,1), (4,3), (4,2), (4,1), (3,2), (3,1), (2,1)**.

Input

There are multiple test cases, and each test case begins with an integer **n**, indicating the number of elements in the sequence. After **n**, the next line includes the **n** **distinct** **integers** in the sequence.

Please note:   
1)

2) The value of each number is within **[1, 232-1]**

3) It is also possible that the number of inversion pairs exceeds **232-1** but an **unsigned long long** variable will work fine.

Output

For each input sequence, you need to output the number of inversion pairs.

Sample input

5

1 2 3 4 5

5

5 4 3 2 1

Sample output

0

10