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## INVCNT - Inversion Count

#number-theory (/problems/tag/number-theory) #sorting (/problems/tag/sorting)

Let  $A[0 \dots n - 1]$  be an array of  $n$  distinct positive integers. If  $i < j$  and  $A[i] > A[j]$  then the pair  $(i, j)$  is called an inversion of  $A$ . Given  $n$  and an array  $A$  your task is to find the number of inversions of  $A$ .

### Input

The first line contains  $t$ , the number of testcases followed by a blank space. Each of the  $t$  tests start with a number  $n$  ( $n \leq 200000$ ). Then  $n + 1$  lines follow. In the  $i$ th line a number  $A[i - 1]$  is given ( $A[i - 1] \leq 10^7$ ). The  $(n + 1)$ th line is a blank space.

### Output

For every test output one line giving the number of inversions of  $A$ .

### Example

**Input:**

2

3

3

1

2

5

2

3

8


6

1

**Output:**

2

5

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carofe82 (/users/carofe82): 2024-08-07 17:00:39

I got AC with golang. As others have said, make sure you use int64 for the result count.



hs1800002 (/users/hs1800002): 2024-06-05 02:22:35

&lt;snip&gt;

[Simes]: No thanks, we don't want solutions.

**Last edit: 2024-06-05 07:45:00**

pudo1234 (/users/pudo1234): 2024-03-25 09:20:56

@onis No you use your brain so I don't think you can solve it



onis (/users/onis): 2024-03-25 09:20:05

guys do I use the amogus method to solve this?????



pratyushgadge1 (/users/pratyushgadge1): 2023-10-13 20:41:33

i agree with @hraj123. don't use int. i used long long and got my solution accepted in the first try after the update;



orgil0127 (/users/orgil0127): 2023-06-27 06:57:03

HELLO world <2

(



hraj123 (/users/hraj123): 2023-06-10 12:28:50

@new\_mutant, it will overflow bcoz of array size not bcoz of array values, as total pair values can have upperbound as  $(n^2-n)/2$  where  $n \leq 2e5$ .

**Last edit: 2023-06-27 19:31:46**

leonardodpv (/users/leonardodpv): 2023-05-08 02:10:41

Ojo con el numero de "inversions" que se pueden dar en casos muy grandes y ordenados.

**Last edit: 2023-05-08 02:11:02**

mddinislam (/users/mddinislam): 2023-05-04 14:06:55

How the first test case answer is 2 ?



cprakash123 (/users/cprakash123): 2023-03-27 18:57:36


solving first time .....

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2. Please be careful, leave short comments only. Don't spam here.
3. For more discussion (hints, ideas, solutions) please visit our forum (/forum).
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 Submit solution! (/submit/INVCNT/)

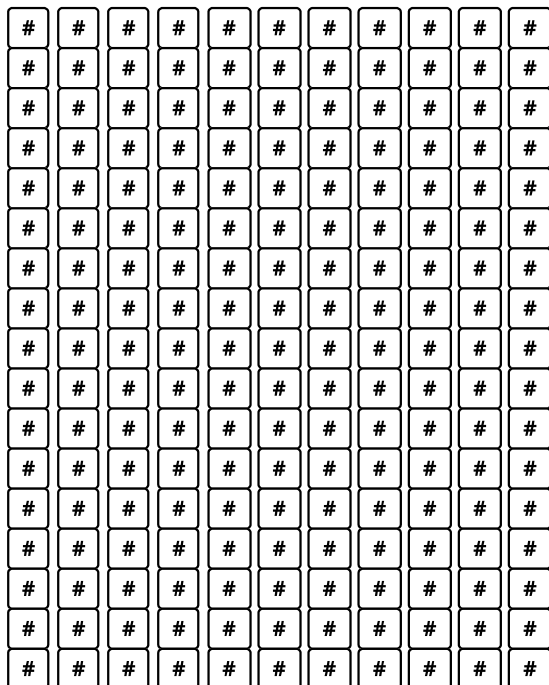
Added by: Paranoid Android  
(/users/goeey\_kablooie)  
Date: 2010-03-06  
Time limit: 3.599s  
Source limit: 50000B  
Memory limit: 1536MB  
Cluster: Cube (Intel G860) (/clusters/)  
Languages: All except: PERL6

## Vote requirements




- ✓ be spoj user for at least 5 days
- ✗ solved 2 from 15 needed problems
- ✓ solve this problem

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