

# P1908 Inversions

## 题目描述

Cat TOM and mouse JERRY are competing again. But since they are adults now, they no longer enjoy playing chase games; these days, they like counting.

Recently, old cat TOM read about something humans call “inversions,” defined as follows: for a given sequence of positive integers, an inversion is an ordered pair where  $a_i > a_j$  and  $i < j$ . After learning this concept, they compete to see who can first compute the number of inversions in a given sequence of positive integers. Note that the sequence may contain duplicate numbers.

**Update: testdata has been strengthened.**

## 输入格式

The first line contains an integer  $n$ , indicating that the sequence has  $n$  numbers.

The second line contains  $n$  integers, representing the given sequence. Each number is at most  $10^9$ .

## 输出格式

Output the number of inversions in the sequence.

## 输入输出样例 #1

### 输入 #1

```
6
5 4 2 6 3 1
```

## 输出 #1

11

## 说明/提示

For 25% of the testdata,  $n \leq 2500$ .

For 50% of the testdata,  $n \leq 4 \times 10^4$ .

For all testdata,  $1 \leq n \leq 5 \times 10^5$ .

No one should pass  $O(n^2)$  on 500,000, right — 2018.8 chen\_zhe.

Translated by ChatGPT 5