IOITC 2016 Practice Test Day 3

Nice Inversions

Morty has recently come across the definition of an inversion.

An *inversion* in a sequence of numbers $s_1, s_2, \ldots, s_n$ is any pair s_i, s_j such that $i < j$ and $s_i > s_j$.

Rick gave Morty a stack of n cards. Each card has two numbers written on it — one in red and one in blue color. Morty is anxious to apply his knowledge of inversions to that stack.

He places the cards in front of him in arbitrary order and calculates the total number of *nice inversions* in front of him. Morty considers an inversion to be nice if it consists of the numbers of the same color. In our case nice inversion can be formed by either two blue or two red numbers. If the number of nice inversions is too big by Morty's standards, he rearranges the cards and repeats the process.

Your task is to help Morty find out the minimal possible number of nice inversions he can get by rearranging.

Input

The first line of the input contains one integer number n — the number of cards in the deck. The following n lines describe one card each. The i-th line contains two integer numbers r_i and b_i — the numbers written on i-th card in red and blue colors respectively.

Output

Output should contain exactly one integer number — the minimal possible number of nice inversions.

Test Data

In all the subtasks,

- $1 \leq r_i, b_i \leq 10^9$

Subtask 1 (30 Points): $1 \leq n \leq 1000$

Subtask 2 (70 Points): $1 \leq n \leq 100\,000$

Sample Input1

```
3
10 3
20 2
30 1
```

Sample Output1

```
3
```

Sample Input2

```
4
2 2
5 25
2 1
10 9
```

1

Sample Output2

1   2

Limits

Time: 3 seconds

Memory: 256 MB

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