Colliding Balls Problem

Problem Statement

There are n red balls kept on the positive X axis, and m blue balls kept on the positive Y axis. You are given the positions of the balls. For each i from 1 to n, the i-th red ball has the coordinates $(x_i, 0)$, where x_i is a positive integer. For each i from 1 to m, the i-th blue ball has the coordinates $(0, y_i)$, where y_i is a positive integer.

It is given that all x_i are distinct. Also, all y_i are distinct.

At time $t = 0$, for each i from 1 to n, the i-th red ball is thrown towards the positive Y axis with a speed of u_i (that is, with velocity vector $(0, u_i)$). Simultaneously (at time $t = 0$), for each i from 1 to m, the i-th blue ball is thrown towards the positive X axis with a speed of v_i (that is, with velocity vector $(v_i, 0)$).

Two balls are said to collide if they are at the same position at the same time. When two balls collide, they disappear and no longer collide with other balls.

Your task is to find the total number of collisions that occur between the balls.

Input

- The first line contains n and m, the number of red balls and the number of blue balls, respectively.
- The next n lines each contain two space-separated integers x_i and u_i, representing the position and speed of the i-th red ball, respectively.
- The next m lines each contain two space-separated integers y_i and v_i, representing the position and speed of the i-th blue ball, respectively.

Output

Print the total number of collisions.

Constraints

- $1 \leq n, m \leq 10^5$
- $1 \leq x_i, u_i, y_i, v_i \leq 10^9$
- For all $1 \leq i < j \leq n$, $x_i \neq x_j$
- For all $1 \leq i < j \leq m$, $y_i \neq y_j$

Example

Input 1

```
1 1
1 2
2 1
```

Output 1

```
1
```

Input 2

```
1 2
1 2
2 1
1 2
```

Output 2

```
1
```

Explanation

- **Example Case 1:** The balls collide at $t = 1$, at the coordinates $(1, 2)$.
- **Example Case 2:** The red ball and the second blue ball collide at time $t = 0.5$ at coordinates $(1, 1)$. Note that the first blue ball would have collided with the red ball at $t = 1$ (like in sample input #1), if the second blue ball wasn't present. However, since the red ball disappears at $t = 0.5$, its collision with the first blue ball does not happen. Thus, the total number of collisions is 1.