IOITC 2020 TST 1

Counting Intervals

There are N students numbered $1, 2, \ldots N$. Their teacher wants to select an interval $[L, R]$ ($1 \leq L \leq R \leq N$) and select all students whose number is in that interval. There are M friendships among the students. For each i from 1 to M, a_i and b_i are friends. Note that friendship is a bidirectional relation. The teacher wants to make sure that for each pair of friends, they are either both selected or both not selected. What is the number of different intervals $[L, R]$ the teacher can choose?

Two intervals $[L_1, R_1]$ and $[L_2, R_2]$ are different if and only if $L_1 \neq L_2$ or $R_1 \neq R_2$.

Input

- The first line contains N and M, the number of students and the number of friendships.

- The i-th of the next M lines contains two integers, a_i and b_i.

Output

Print the number of different intervals $[L, R]$ which satisfy the teacher's constraint.

Test Data

In all inputs,

- For all valid i, $a_i < b_i$

- No friendship pair is repeated in the M pairs. Formally, for any $i \neq j, a_i \neq a_j$ or $b_i \neq b_j$.

Subtask 1 (8 Points): $1 \leq N, M \leq 100$

Subtask 2 (27 Points): $1 \leq N, M \leq 5000$

Subtask 3 (65 Points): $1 \leq N, M \leq 3 \times 10^5$
Note: Please use fast IO methods.

Sample Input

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

Sample Output

```
4
```

Explanation

The possible intervals are $[1, 4], [1, 5], [2, 2]$ and $[5, 5]$

Limits

Time: 3 seconds

Memory: 256 MB