Problem D - Darts

In order to avoid the catastrophe of a balloon popping when it hits the ground, Daniel has reinflated all the balloons with helium and left them floating in the room.

The room had a $n \times n$ grid on the ceiling, and Daniel was careful to place balloons only on grid squares.

Unfortunately for Daniel, David likes to pop balloons. David can throw darts that pierce through all balloons in a row or column of the $n \times n$ grid all at once. David wants to pop all the balloons, but doesn't want to throw too many darts or his arm will be sore. Help him figure out how many darts he needs to throw!

Input

The first line contains T, the number of test cases.

Each test case begins with two integers integer n, m ($1 \leq n \leq 500, 1 \leq m \leq n^2$) denoting the size of the grid and the number of balloons respectively. Following this will be m lines with two integers each r, c ($1 \leq r, c \leq n$) denoting the row and column of a balloon. No two balloons will be on the same grid square.

Output

For each test case, output the minimum number of darts that David needs to throw to pop all the balloons.

Sample Input

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

Sample Output

```
2
```