COCI '08 Contest 6 #3 Nered

Time limit: 0.6s **Memory limit:** 32M

In the nearby kindergarten they recently made up an attractive game of strength and agility that kids love.

The surface for the game is a large flat area divided into $N \times N$ squares.

The children lay large spongy cubes onto the surface. The sides of the cubes are the same length as the sides of the squares. When a cube is put on the surface, its sides are aligned with some square. A cube may be put on another cube too.

Kids enjoy building forts and hiding them, but they always leave behind a huge mess. Because of this, prior to closing the kindergarten, the teachers rearrange all the cubes so that they occupy a rectangle on the surface, with exactly one cube on every square in the rectangle.

In one moving, a cube is taken off the top of a square to the top of any other square.

Write a program that, given the state of the surface, calculates the smallest number of moves needed to arrange all cubes into a rectangle.

Input Specification

The first line contains the integers N and M $(1 \leq N \leq 100, 1 \leq M \leq N^2)$, the dimensions of the surface and the number of cubes currently on the surface.

Each of the following M lines contains two integers R and C $(1 \leq R, C \leq N)$, the coordinates of the square that contains the cube.

Output Specification

Output the smallest number of moves. A solution will always exist.

Sample Input 1

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

Sample Output 1

```
1
```

Sample Input 2

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

Sample Output 2

```
2
```

Sample Input 3

```
5 8
2 2
3 2
4 2
2 4
3 4
4 4
2 3
2 3
```

Sample Output 3

```
3
```

In the first example, it suffices to move one of the cubes from $(1, 1)$ to $(1, 2)$ or $(2, 1)$. In the third example, a cube is moved from $(2, 3)$ to $(3, 3)$, from $(4, 2)$ to $(2, 5)$ and from $(4, 4)$ to $(3, 5)$.