Lazar has a long array with size 1 x . Its cells have size 1 x 1 and are white (colorless). After painting a few cells, Lazar wondered what is the total number of the rectangles, which contain at least one square of every color which he used. He managed to solve it promptly and decided to challenge you too. Due to the fact that the total count may be too large, print its value modulo .

**Input**

The first line of the file **area.in** contains two integers – the length of the array and the number of colored cells. The next lines comprise of pairs of integers - – the position of the colored cell and its color.

**Output**

On the first line of the file **area.out** print one integer – the count modulo

**Constraints**

**Time limit: 0.2 sec.**

**Memory limit: 256 MB**

**Sample test**

|  |  |
| --- | --- |
| **Input (area.in)** | **Output (area.out)** |
| 5 4  1 1  2 2  3 3  5 1 | 4 |

**Sample test explanation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

Let 1 be blue, 2 – orange, 3 – green. The white cells are colorless. The rectangles fulfilling the criteria, given with indexes of their leftmost and rightmost cell, are: (1,3), (1,4), (1,5), (2,5). Their count is 4.