Area

2023/2024 SEASON – FOURTH ROUND

Lazar has a long array with size 1 x L. 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 $10^9 + 7$.

Input

The first line of the file **area.in** contains two integers L, n – the length of the array and the number of colored cells. The next n lines comprise of n pairs of integers - $(pos_1, c_1), (pos_2, c_2) \ldots (pos_n, c_n)$ – 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 $10^9 + 7$.

Constraints

$1 \leq n \leq 3 * 10^5$

$1 \leq c_i \leq 2 * 10^4$

$1 \leq pos_1 \leq pos_2 \leq \cdots \leq pos_n \leq L \leq 10^9$

Time limit: 0.2 sec.

Memory limit: 256 MB

Area

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.