

Problem K

K Blocked Jawn Path

You have a chessboard of size $N \times M$, and you want to move a piece called the "jawn" from position $(1, 1)$ to position (N, M) . However, there are obstacles on the board; exactly K positions where the "jawn" cannot be placed. The "jawn" moves only downwards (either down or right) in each step. The goal is to find how many different ways exist to bring the "jawn" from $(1, 1)$ to (N, M) without passing through positions occupied by obstacles.

Input

The first line of input will contain three integers separated by spaces: N ($1 \leq N \leq 10^5$), M ($1 \leq M \leq 10^5$), and K ($0 \leq K \leq \min(N \cdot M, 1000)$), where N and M represent the dimensions of the board, and K is the number of positions with obstacles.

The following K lines will contain two integers each, X and Y ($1 \leq X \leq N, 1 \leq Y \leq M$), which indicate the coordinates of positions occupied by obstacles.

Output

You should print a single number: the number of different ways to bring the "jawn" from $(1, 1)$ to (N, M) without passing through positions occupied by obstacles. Since the number of ways can be large, print the answer modulo $10^9 + 7$.

Input example 1 3 3 0	Output example 1 6
Input example 2 3 3 1 2 2	Output example 2 2
Input example 3 10 10 2 1 2 2 1	Output example 3 0