G - Gorgeous Vases

Time limit : 8sec / Memory limit : 256MB

Problem

Cat Snuke has a pair of vases. One is noted as vase 1, the other one is noted as vase 2. At first, the vase 1 contains A blue flowers and B red flowers. In addition, the number of blue flowers is larger than or equal to the number of red flower, in other words, $A \geqq B$. In addition, vase 2 is empty, contains neither blue flowers nor red flowers.

By the way, Cat Snuke doesn't like mixing a specific number of red flowers with a specific number of blue flowers. Such combination is called as a **Dirty Placement** . There are N different Dirty Placements in total, the i_{th} **Dirty Placement** is the combination of precisely p_i blue flowers and q_i red flowers.

Cat Snuke wants to move all the flowers that are in vase 1 to vase 2 one by one. However, Cat Snuke has to follow the following rules.

- For vase 1 and vase 2, the number of the blue flowers should always be larger than or equal to that of the red flowers.
- For vase 1 and vase 2, the combination of the number of the blue flowers and the number of the red flowers must not be any **Dirty Placement** (at anytime).

In accordance with the above rules, answer the number of all the possible methods that can move all the flower in vase 1 to vase 2, modulo $1,000,000,007$. Please note that all the flowers with the same color are indistinguishable (identical).

Input

Inputs will be given by standard input in following format

$$
\begin{array}{ll}
A & B \quad N \\
p_1 & q_1 \\
p_2 & q_2 \\
: & \\
p_N & q_N
\end{array}
$$

- For the first line, A、$B(1 \leqq B \leqq A \leqq 100,000)$、$N(0 \leqq N \leqq 20)$ will be given divided by spaces.
- From the second line there are N additional lines to give all the Dirty Placements. For the i_{th} line, integer $p_i(1 \leqq p_i \leqq A)$、$q_i(1 \leqq q_i \leqq B, q_i \leqq p_i)$ will be given divided by spaces.

Output

Please output the remainder when the number of all the possible methods that can move all the flower in vase 1 to vase 2, modulo $1,000,000,007$.

Print a newline at the end of output.

Input Example 1

```
3 1 0
```

Output Example 1

```
2
```

As shown below, there are two possible ways to move flowers.

- The moving order is as, blue, blue, red, blue.
- The moving order is as, blue, red, blue, blue.

Input Example 2

```
7 5 3
4 2
6 1
5 4
```

Output Example 2

```
0
```

Input Example 3

```
98765 43210 5
314 159
26535 8979
3238 46
26433 8327
950 288
```

Output Example 3

```
763788532
```