Problem E

Configurations

Input: Standard Input
Output: Standard Output

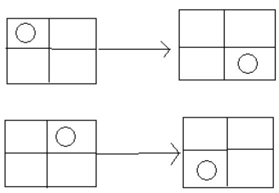
Well, in this problem you are given an RxC grid ($1 \le R \le 10^9$ and $1 \le C \le 10$). There will be B blocks ($1 \le B \le 100$) in the grid. Each block will be placed in a cell of the grid. There can be more than one blocks in a cell.

Now you are given M identical tokens and you can place them in the first row as you like. A cell cannot contain more than one token and you also cannot place a token in a cell occupied by blocks. Now you can move a token but you have to follow following rules:

1. If there is a token in a cell (r,c) then you can move it to either (r+1,c-1) or (r+1,c+1).
2. You cannot move a token to a cell occupied by blocks.
3. You cannot move a token outside of the grid.
4. You cannot move two or more tokens to the same cell.
5. All the tokens should be moved to i-th row before any token can be moved (i + 1)-th row.

Now let S = $\{(1,c_1),(1,c_2),\ldots,(1,c_M))$ be the set of cells of where you placed M identical tokens and W(S) = number of ways you can move these tokens to last row. You have to find the sum of W for every possible S.

For R = 2, C = 2, M = 1 and B = 0 the answer is 2.



Input

First line contains number of test cases $1 \le T \le 500$. For each test case, the first line contains $1 \le R \le 10^9$, $1 \le C \le 10$ and $0 \le M \le C$ respectively. The second line contains $0 \le B \le 100$, followed by B lines and each of those B lines contains two integers r and c, ($1 \le r \le R$ and $1 \le c \le C$) indicating the cell position of each block.

Output

For each test cases you have to output the answer in a single line as shown in the sample output. As the answer can be very large you have to mod the output with 12345.

Sample Input	Output for Sample Input
3 1000000000 10 0 0 1000000000 10 2 0 10202 10 2 4 10 3 11 2 20 3 20 5	Case 1: 1 Case 2: 4973 Case 3: 3205

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