

Problem B

The kingdom consists of towns connected by roads. Some of the roads are important. To save on the budget, we want to cancel as many unimportant roads as possible so that the kingdom stays connected. Determine in how many ways this can be done.

Note: You can get part of the points for solving the case where there are no important roads and any two towns are joined by at most one road.

Input and output

The first line of the input contains three integers integer n , m , and p ($0 \leq n \leq 10^2$, $0 \leq p \leq m \leq 10^5$), the number of towns, roads, and important roads. Each of the next m lines contains two integers u and v ($1 \leq u, v \leq n$, $u \neq v$), indicating a road joining the towns u and v ; the first p of the roads are important. You can assume that there exists a way to get over the roads between any two of the towns. In the general case, there can be multiple roads between the same pair of towns.

Output a single line, containing the number of ways you can delete the maximum number of unimportant roads so that the kingdom stays connected, modulo 1000003.

Example

Input:

```
3 5 1
1 2
1 2
1 3
1 3
2 3
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Output:

```
3
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