Colorful graph

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1.5 seconds
Memory limit:	256 megabytes

Given an undirected graph on n vertices with m edges numbered from 1 to m. Each edge is colored in one of k colors. The i-th edge connects the vertices v_i and u_i and has the color c_i.

Let's call a graph *good* if it is possible to leave exactly $n-1$ edge in it so that the graph is connected and there is at least one edge of each color among the edges left.

Given q changes in the colors of the edges of the graph. Each change is described by two numbers e_i and w_i and means that the color of the e_i-th edge becomes equal to w_i. After each change, determine if it is *good*.

Input

The first line contains three integers n, m and k ($2 \le n \le 100\,000$, $1 \le m \le 100\,000$, $1 \le k \le 8$) — the number of vertices, edges and colors respectively.

The following m lines contain a description of the edges. i-th of them contains three numbers v_i, u_i and c_i ($1 \le v_i, u_i \le n$, $1 \le c_i \le k$, $v_i \ne u_i$) — the endpoints of the i-th edge and its color, respectively.

The next line contains a single integer q ($1 \le q \le 100\,000$) — the number of changes.

The following q lines contain a description of the changes. i-th of them contains two integers e_i and w_i ($1 \le e_i \le m$, $1 \le w_i \le k$) — edge number and its new color.

It is guaranteed that there are no loops and multiple edges in the graph.

Output

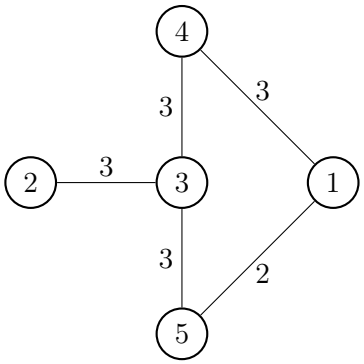
In the i-th line, print «`Yes`» (without quotes) if the graph after the i-th query is *good*, and «`No`» (without quotes) otherwise.

Examples

standard input	standard output
5 5 3 3 4 1 1 5 2 3 2 3 1 4 3 3 5 3 5 1 3 4 1 5 1 2 1 3 2	No Yes Yes No Yes
2 1 1 1 2 1 1 1 1	Yes

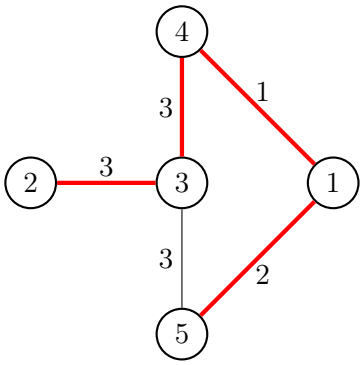
Note

In the first example, after the first change, the graph looks like this:



In this case, there are no edges of the color 1, so the condition of the problem cannot be met.

After the second change, the graph looks like this:



The edges that can be left are highlighted in red. This example is correct, since among these edges there are all the colors 1, 2 and 3, and they also form a connected graph.

Scoring

The tests for this problem consist of 8 groups. Points for each group are awarded only if all the tests in that group and some tests from the previous groups pass. **Offline-testing** means that the results of testing your solution on this group will only be available after the competition ends.

Group	Score	Additional constaints	Required groups	Comment
		k		
0	0	–	–	Samples.
1	10	$k \leq 1$	–	
2	9	$k \leq 2$	1	
3	15	$k \leq 3$	0 – 2	
4	16	$k \leq 4$	0 – 3	
5	14	$k \leq 5$	0 – 4	
6	13	$k \leq 6$	0 – 5	
7	12	$k \leq 7$	0 – 6	
8	11	$k \leq 8$	0 – 7	**Offline-testing.**