Problem J. Range Reachability Query

Input file:	standard input
Output file:	standard output
Memory limit:	512 megabytes

You are given a directed acyclic graph with n vertices and m edges. The vertices are labeled by $1, 2, \ldots, n$, and the edges are labeled by $1, 2, \ldots, m$.

You will be given q queries. In the i-th query, you will be given four integers u_i, v_i, l_i and r_i $(1 \le l_i \le r_i \le m)$. You need to answer whether vertex u_i can reach vertex v_i when only edges labeled by k $(l_i \le k \le r_i)$ are available.

Input

The first line contains a single integer T $(1 \le T \le 10)$, the number of test cases. For each test case:

The first line contains three integers n, m and q $(2 \le n \le 50\,000,\ 1 \le m \le 100\,000,\ 1 \le q \le 50\,000)$, denoting the number of vertices, the number of edges, and the number of queries.

Each of the following m lines contains two integers u_i and v_i $(1 \le u_i < v_i \le n)$, denoting a directed edge from vertex u_i to vertex v_i.

In the next q lines, the i-th line contains four integers u_i, v_i, l_i and r_i $(1 \le u_i < v_i \le n, 1 \le l_i \le r_i \le m)$, describing the i-th query.

Output

For each query, print a single line. If vertex u_i can reach vertex v_i when only edges labeled by k $(l_i \le k \le r_i)$ are available, print "YES". Otherwise, print "NO".

Example

standard input	standard output
1	NO
5 6 5	YES
1 2	YES
1 3	YES
3 4	NO
2 4	
2 5	
3 5	
3 5 1 5	
3 5 1 6	
1 4 1 6	
1 4 2 3	
1 4 4 5	