

D. Cutting a graph

time limit per test: 2 seconds

memory limit per test: 256 megabytes

There is an undirected graph and a sequence of operations of two types in the following format:

- cut $u \ v$ — remove edge $u - v$ from the graph;
- ask $u \ v$ — check whether vertices u and v are in the same connected component.

After all the operations are applied, the graph contains no edges. Please, find the result of each operation of type ask.

Input

First line of input consists of three integers n , m and k ($1 \leq n \leq 50\,000$, $0 \leq m \leq 100\,000$, $m \leq k \leq 150\,000$) — the number of vertices in the graph, the number of edges and the number of operations, respectively .

Each of next m lines consists of two integers u_i and v_i ($1 \leq u_i, \ v_i \leq n$) — ends of edge i . Vertices are numbered from 1, graph has no loops and multiple edges.

Each of the next k lines describes an operation in the following format:

- "cut $u \ v$ " ($1 \leq u, \ v \leq n$) — remove an edge between vertices u and v
- "ask $u \ v$ " ($1 \leq u, \ v \leq n$) — check whether vertices u and v are in the same component

Each edge is mentioned in operations of type cut once.

Output

For each of operation of type ask output "YES", if two given vertices are in the same component, and "NO" — otherwise. The order of the answers should correspond to the order of operations of type ask in input.

Example

input	Copy
3 3 7 1 2 2 3 3 1 ask 3 3 cut 1 2 ask 1 2 cut 1 3 ask 2 1 cut 2 3 ask 3 1	
output	Copy
YES YES NO NO	

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

