

I. Bipartite Graph

time limit per test: 2 seconds

memory limit per test: 256 megabytes

You are given an empty undirected graph on n vertices. Each vertex is colored in one of two colors 0 or 1 at any moment in time, such that each edge connects the vertices with different colors.

There are two types of queries:

- You are given two vertices x and y from different connected components: add an edge (x, y) to the graph, and change the colors to satisfy the condition.
- You are given two vertices x and y from one connected component: answer whether they are of the same color.

Initially the graph is empty.

Input

The first line contains two integers n and m ($1 \leq n, m \leq 2 \cdot 10^5$) — the number of vertices in the graph and the number of queries, respectively. The vertices are indexed starting from zero.

Next m lines contain the queries.

- The query of the first type has the following form: "0 a b " ($1 \leq a, b \leq n$), meaning that you have to unite two components with vertices x and y , such that $x \bmod n = (a + shift) \bmod n$ and $y \bmod n = (b + shift) \bmod n$
- The query of the second type has the following form: "1 a b " ($1 \leq a, b \leq n$), meaning that you have to check the difference of colors of vertices x and y , such that $x \bmod n = (a + shift) \bmod n$ and $y \bmod n = (b + shift) \bmod n$
If the answer on the query is positive, then you have to set $shift = (shift + 1) \bmod n$.

Initially, $shift$ is equal to zero.

Output

For each query of the second type output "YES", if the colors are the same, otherwise, output "NO", on a separate line.

Example

input	Copy
3 5 0 1 2 0 2 3 1 1 2 1 1 3 1 1 3	
output	Copy
NO YES NO	

→ Submit?

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

Choose file: Choose File No file chosen

Submit

