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I. Bipartite Graph

time limit per test: 2 seconds<sup>

 memory limit per test: 256 megabytes
</sup>

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 ($1 \le n, m \le 2 \cdot 10^5$) — 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" ($1 \le a, b \le n$), meaning that you have to unite two components with vertices x and y, such that $x \mod n = (a + shift) \mod n$ and $y \mod n = (b + shift) \mod n$
- The query of the second type has the following form: "1 a b" ($1 \le a, b \le n$), meaning that you have to check the difference of colors of vertices x and y, such that $x \mod n = (a + shift) \mod n$ and $y \mod n = (b + shift) \mod n$ If the answer on the query is positive, then you have to set $shift = (shift + 1) \mod n$.

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	Сору
3 5	
0 1 2	
0 2 3	
1 1 2	
1 1 3	
1 1 3	
output	Сору
NO	
YES	
NO	

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