

Problem N. Number Of Vertices

Input file: *standard input*
 Output file: *standard output*
 Time limit: 2 seconds
 Memory limit: 512 mebibytes

New meta.

A **zigzag cycle** in an undirected graph is a sequence of vertices a_0, a_1, \dots, a_{k-1} , not necessarily distinct, such that for all $i : 0 \leq i < k$ a_i and $a_{(i+1) \bmod k}$ are adjacent in the graph and one of the following holds:

1. $a_{(i+k-1) \bmod k} < a_i, a_i > a_{(i+1) \bmod k}$
2. $a_{(i+k-1) \bmod k} > a_i, a_i < a_{(i+1) \bmod k}$

A cycle contains the edge (u, v) p times if there exist exactly p distinct $i : 0 \leq i < k$, such that $a_i = u, a_{(i+1) \bmod k} = v$ OR $a_i = v, a_{(i+1) \bmod k} = u$.

A graph is **splittable** if there exists a set of zigzag cycles, such that for each edge exactly one cycle contains it 1 time and all the remaining cycles contain it 0 times, i.e. you can split edges of the graph into zigzag cycles.

There is a graph which is initially empty. Process the following types of queries:

1. Add an edge between vertices u and v .
2. Remove an edge between vertices u and v .

After each query print whether the graph is splittable.

Input

The first line contains two integers n and q ($2 \leq n \leq 3 \cdot 10^5, 1 \leq q \leq 3 \cdot 10^5$) — the number of vertices in the graph and the number of queries, respectively.

q lines follow. i -th of them contains three integers t, u, v ($t \in \{1, 2\}, 1 \leq u < v \leq n$) — the type of query and the endpoints of the edge you have to add if $t = 1$ or remove if $t = 2$. No query will ask you to add an already present edge or to delete an absent one.

Output

Print q lines. i -th of them should contain 1 if the graph is splittable after the first i queries and 0 otherwise.

Example

standard input	standard output
6 10	0
1 1 4	0
1 1 5	0
1 4 5	0
1 3 5	0
1 3 4	1
2 4 5	0
1 4 5	0
1 2 5	0
1 2 6	1
1 4 6	

Note

After processing all the queries one possible set of zigzag cycles is $\{[1, 4, 3, 5], [2, 6, 4, 5]\}$.