Problem E. Stacked Pearls

Time limit	2000 ms
Mem limit	262144 kB
OS	Windows

Naseem owns a jewelry shop and likes to show his most beautiful pearls at the storefront on a $n \times n$ board. The rows are numbered from 1 to n from top to bottom and the columns are numbered from 1 to n from left to right. Each pearl has its own size. Naseem has an infinite amount of pearls of each size

Naseem thinks that the board looks *good* if he can fill the board with pearls so that choosing any two pearls on adjacent cells in the board, the sum of their sizes would be the same for any other pair of pearls on adjacent cells. Two cells are considered adjacent if they share a side

Initially, the board is empty. At each second, Naseem will add a pearl to an empty cell, remove a pearl from a cell or replace a pearl on a cell. More formally, Naseem will choose a cell on the x_{th} row and y_{th} column and a pearl of size v, remove the pearl on the cell if it exists, and put a pearl of size v on the cell if $v \neq 0$. Otherwise, if $v = 0$ he leaves the cell empty.

Naseem wants to know if the board looks *good* after each second. He is a busy guy because he keeps counting the money he gets from the shop, so can he help him doing so?

Input

The first line of the input contains two space-separated integer numbers n and q ($1 \leq n, q \leq 10^5$). The size of the board and the number of seconds Naseem will make changes on the board, respectively.

The next q lines of the input each contains 3 integer numbers x, y and v ($1 \leq x, y \leq n, 0 \leq v \leq 10^9$), where x and y are the coordinates of the cell on the board and v is the size of the pearl he will put on the cell. If $v = 0$, then he will leave the cell empty

Output

For each second, print `YES` if the board is *good*. Otherwise, print `NO`. Note that the case of the each letter

You can output the answer in any case (upper or lower). For example, the strings `yEs`, `yes`, `Yes`, and `YES` will be recognized as positive responses.

Sample 1

Input	Output
3 4 1 1 1 2 3 4 1 2 3 1 2 1	YES YES NO NO

Sample 2

Input	Output
3 5 2 1 1 1 3 4 2 1 1 2 2 3 2 2 0	YES YES YES NO YES