

## E. The Untended Antiquity

time limit per test: 2 seconds  
memory limit per test: 512 megabytes  
input: standard input  
output: standard output

*Adieu l'ami.*

Koyomi is helping Oshino, an acquaintance of his, to take care of an open space around the abandoned Eikou Cram School building, Oshino's makeshift residence.

The space is represented by a rectangular grid of  $n \times m$  cells, arranged into  $n$  rows and  $m$  columns. The  $c$ -th cell in the  $r$ -th row is denoted by  $(r, c)$ .

Oshino places and removes barriers **around** rectangular areas of cells. Specifically, an action denoted by " $1\ r_1\ c_1\ r_2\ c_2$ " means Oshino's placing barriers around a rectangle with two corners being  $(r_1, c_1)$  and  $(r_2, c_2)$  and sides parallel to squares sides. Similarly, " $2\ r_1\ c_1\ r_2\ c_2$ " means Oshino's removing barriers around the rectangle. **Oshino ensures that no barriers staying on the ground share any common points, nor do they intersect with boundaries of the  $n \times m$  area.**

Sometimes Koyomi tries to walk from one cell to another carefully without striding over barriers, in order to avoid damaging various items on the ground. " $3\ r_1\ c_1\ r_2\ c_2$ " means that Koyomi tries to walk from  $(r_1, c_1)$  to  $(r_2, c_2)$  without crossing barriers.

And you're here to tell Koyomi the feasibility of each of his attempts.

### Input

The first line of input contains three space-separated integers  $n$ ,  $m$  and  $q$  ( $1 \leq n, m \leq 2\,500$ ,  $1 \leq q \leq 100\,000$ ) — the number of rows and columns in the grid, and the total number of Oshino and Koyomi's actions, respectively.

The following  $q$  lines each describes an action, containing five space-separated integers  $t, r_1, c_1, r_2, c_2$  ( $1 \leq t \leq 3$ ,  $1 \leq r_1, r_2 \leq n$ ,  $1 \leq c_1, c_2 \leq m$ ) — the type and two coordinates of an action. Additionally, the following holds depending on the value of  $t$ :

- If  $t = 1$ :  $2 \leq r_1 \leq r_2 \leq n - 1$ ,  $2 \leq c_1 \leq c_2 \leq m - 1$ ;
- If  $t = 2$ :  $2 \leq r_1 \leq r_2 \leq n - 1$ ,  $2 \leq c_1 \leq c_2 \leq m - 1$ , the specified group of barriers exist on the ground before the removal.
- If  $t = 3$ : no extra restrictions.

### Output

For each of Koyomi's attempts (actions with  $t = 3$ ), output one line — containing "Yes" (without quotes) if it's feasible, and "No" (without quotes) otherwise.

### Examples

input
5 6 5 1 2 2 4 5 1 3 3 3 3 3 4 4 1 1 2 2 2 4 5 3 1 1 4 4
output
No Yes

input
2500 2500 8 1 549 1279 1263 2189 1 303 795 1888 2432 1 2227 622 2418 1161 3 771 2492 1335 1433 1 2017 2100 2408 2160 3 48 60 798 729 1 347 708 1868 792 3 1940 2080 377 1546
output
No Yes No

**Note**

For the first example, the situations of Koyomi's actions are illustrated below.