Problem L. Land of Fantasy

Input file:	`stdin`
Output file:	`stdout`
Time limit:	1 second

Our heroine, once again, is on her way to defeat the evil mastermind threating our beloved land of fantasy.

Before reaching her final target, however, our heroine is blocked by one of the minions of the great evil. Having no interest in dealing with these valueless targets, our heroine decides to use her time manipulation super power to stop the time, and quickly move to the other side of the rectangular battlefield.

Unfortunately, the evil minion has already released a large amount of circular bullets. Even though the heroine can stop the time, she will still die if she touches any of the bullets.

Starting from the upper boundary of the battlefield, our heroine wants to know whether she can safely move to the lower boundary of the battlefield without touching any of the bullets released by the evil minion.
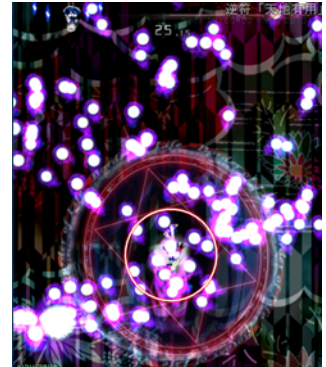
Input

The first line of input contains two numbers $H, W (1 \leq H, W \leq 10^6)$, denoting the height and width of the rectangular battlefield.

The second line of input contains one integer $N (0 \leq N \leq 2000)$, which is the number of circular bullets on the battlefield.

The following N lines each contain three numbers x_i, y_i, r_i, which are the x coordinate, y coordinate, and the radius of the ith bullet $(0 \leq x_i \leq W, 0 \leq y_i \leq H, 0 < r_i \leq 10^6)$.

The lower-left corner has coordinate $(0, 0)$ and the upper-right corner has coordinate (W, H).

The heroine can start from any point on the upper boundary, and can end up on any point on the lower boundary. It is guaranteed no bullet will touch upper and lower boundaries. It is also guaranteed bullets will never be tangent with each other or any of the boundaries. You can assume our heorine is so small compared to the bullets, and can be treated as a point.

Output

A single line either be "YES YES YES" if she can safely move to the other side of the battlefield, or "NO NO NO" otherwise.

Examples

stdin	stdout
6.0 4.0 1 2.0 3.0 1.5	YES YES YES
10.0 6.0 3 2.0 4.0 3.0 3.0 4.0 3.0 4.0 4.0 3.0	NO NO NO