

Quad Kingdoms Chess

Input file: **standard input**
Output file: **standard output**
Time limit: 1.5 seconds
Memory limit: 512 megabytes

Quad Kingdoms Chess is an interesting board game. Here, we consider a simplified version, which involves two players, Player A and Player B, with the chess pieces being integers within $[1, 10^5]$. The game process is as follows:

- Initially, Player A has n_1 chess pieces, forming sequence A ; Player B has n_2 chess pieces, forming sequence B . Both A and B are given, and neither Player A nor Player B can modify them.
- Both players send out the first chess piece from their sequences, assume they are x, y respectively, then a battle occurs.
 - If $x > y$, meaning Player A's piece is larger, then Player B's piece goes into a discard pile and can no longer be used. Afterwards, Player B sends out the next chess piece from the sequence to continue the battle;
 - If $y > x$, meaning Player B's piece is larger, then Player A's piece goes into a discard pile and can no longer be used. Afterwards, Player A sends out the next chess piece from the sequence to continue the battle;
 - If $x = y$, meaning both pieces are of the same size, both pieces go into the discard pile and can no longer be used. Both players then send out the next chess piece from their sequences to continue the battle.
- During the battle, if a player needs to send out a chess piece but has no remaining pieces, then that player loses and the other player wins.
 - Specifically, if both players need to send out a chess piece but neither has any remaining pieces, then the game is considered a draw.

You can refer to the sample explanation to understand the game process.

Player A and Player B are good friends, and they do not wish to have a winner in the game; a draw would make them happier.

Given the initial game situation and m modifications, in each modification, a chess piece in one of the sequences is replaced with another piece, and the effect of each modification is retained after that modification.

After each modification, they want you to help them analyze whether the game result would be a draw if played according to the sequence.

Input

The first line is a positive integer n_1 ($1 \leq n_1 \leq 10^5$) indicating the number of chess pieces Player A has.

The second line contains n_1 positive integers a_1, a_2, \dots, a_{n_1} ($1 \leq a_i \leq 10^5$) describing sequence A .

The third line is a positive integer n_2 ($1 \leq n_2 \leq 10^5$) indicating the number of chess pieces Player B has.

The fourth line contains n_2 positive integers b_1, b_2, \dots, b_{n_2} ($1 \leq b_i \leq 10^5$) describing sequence B .

The fifth line is a positive integer m ($1 \leq m \leq 2 \times 10^5$) describing the number of modifications.

After that, m lines, each with three positive integers o, x, y ($1 \leq o \leq 2, 1 \leq x \leq n_o, 1 \leq y \leq 10^5$), with the following meanings:

- If $o = 1$, it means to change a_x to y ;

- If $o = 2$, it means to change b_x to y .

Output

For each modification, output one line. If the game result is a draw, output YES; otherwise, output NO.

Example

standard input	standard output
5	NO
1 2 3 4 5	NO
5	NO
5 4 3 2 1	YES
8	NO
1 1 5	NO
1 4 2	NO
1 2 4	YES
1 5 1	
1 5 5	
2 1 4	
2 3 5	
2 5 5	