

Problem A. Permutation

Input file: `permutation.in`
Output file: `permutation.out`
Time limit: 0.5 seconds
Memory limit: 256 megabytes
Grading system: only full solution for subtask receives points

Santa Claus gave NurlashKO a big array of numbers as a Christmas present. When his Math teacher found out about this, he decided to check how well NurlashKO understood the last topic on permutations.

In order to do this, he asks whether array elements with indexes from L to R inclusively form a permutation. In addition, he is able to change some numbers in an array. As a remainder, permutation of n numbers is an ordered sequence of numbers $1, 2, \dots, n$. In our case n is equal to $R - L + 1$.

NurlashKO is still recovering from Christmas Holidays, and therefore, he asks you to help him not to lose respect of his teacher.

Input

The first line of the input file contains a single number N ($1 \leq N \leq 100\,000$) — the length of the Christmas present. The second line describes an array with n integer numbers separated by a space — a_1, a_2, \dots, a_N ($1 \leq a_i \leq N$). The third line contains number M — total number of questions the Math teacher asked. ($1 \leq M \leq 100\,000$).

Each of the following M lines has 3 numbers — t , X and Y ($1 \leq t \leq 2, 1 \leq X, Y \leq N$).

If t is equal to 1, the line represents update of an element, it means making assignment $a[X] = Y$. If t equals to 2, then you have to check whether subinterval from X to Y represents permutation of numbers, it is guaranteed that $X \leq Y$.

Output

For each query where t is equal to 2, print YES if given subinterval is a permutation, and NO otherwise.

Examples

permutation.in	permutation.out
5	NO
1 5 3 4 1	YES
5	YES
2 1 4	
1 2 2	
2 2 5	
1 5 5	
2 1 5	

Scoring

This problem has four subtasks:

1. $1 \leq N, M \leq 1000$. This subtask costs 21 points.
2. $1 \leq N, M \leq 50\,000$. This subtask costs 28 points.
3. $1 \leq N, M \leq 100\,000$, only queries with $t = 2$ is given. This subtask costs 22 points.
4. $1 \leq N, M \leq 100\,000$. This subtask costs 29 points.

Subtask 2 is evaluated only if all the tests from subtask 1 is correct. Subtask 4 is evaluated only if subtask 1 and subtask 2 are successful. Subtask 3 is evaluated independently.