

Problem I. Invisible

Input file: *standard input*
Output file: *standard output*
Time limit: 12 seconds
Memory limit: 512 mebibytes

This is an interactive problem.

You are given an array a_1, \dots, a_n of n integers. You have to process queries of two types:

- “1 x y ”: change value of a_x to y .
- “2 l r ”: find and print a number that occurs an odd number of times in the segment a_l, a_{l+1}, \dots, a_r , or determine that there is no such number and print -1 instead. If there are several suitable numbers, you can output any of them.

Interaction Protocol

Your program must read from standard input and write to standard output.

The input starts with two lines: the first line contains an integer n ($1 \leq n \leq 10^5$), and the second line contains n space-separated integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^5$).

Then follow query block descriptions.

Each query block description starts with a line containing the number of queries q_i . If this number is 0, the solution must immediately terminate gracefully. Otherwise, q_i query descriptions follow, one per line.

Each query description is either “1 x y ” ($1 \leq x \leq n, 1 \leq y \leq 10^5$) or “2 l r ” ($1 \leq l \leq r \leq n$).

For each query of type 2, print the answer on a separate line. You must answer all queries of type 2 in the current block, if there are any, to receive the next block. Don't forget to flush your output after printing the answers, for example, using `fflush(stdout)` in C or C++ and `System.out.flush()` in Java. Otherwise, the most likely outcome will be “**Idleness Limit Exceeded**”.

The total number of queries in all blocks does not exceed 10^5 . It is guaranteed that there is at least one query of type 2.

Example

standard input	standard output
5	1
1 2 2 3 3	-1
2	3
2 1 5	
1 1 3	
3	
2 1 4	
1 5 4	
2 2 5	
0	