

HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

STEP 1 STEP 2 STEP 3 STEP 4 | THEORY PRACTICE | SUBMIT SUBMISSIONS HACKS STANDINGS CUSTOM INVOCATION ITMO Academy: pilot course » Segment Tree, part 1 » Step 2 » Practice

C. First element at least X

time limit per test: 1 second memory limit per test: 1024 megabytes input: standard input output: standard output

In this task, you need to add to the segment tree the operation of finding the minimum index j such that $a[j] \geq x$.

Input

The first line contains two integers n and m ($1 \le n, m \le 100000$), the size of the array and the number of operations. The next line contains n numbers a_i , the initial state of the array ($0 \le a_i \le 10^9$). The following lines contain the description of the operations. The description of each operation is as follows:

- 1 i v: change the item with index i to v ($0 \le i < n$, $0 \le v \le 10^9$).
- 2 x: find the minimum index j such that $a[j] \geq x$. If there is no such element, print -1. Indices start from 0.

Output

For each operation of the second type, print the answer for the query.

Example

input	Сору
5 7	
1 3 2 4 6	
2 2	
2 5	
1 2 5	
2 4	
2 8	
1 3 7	
2 6	
output	Сору
1	
4	
2	
-1	
3	

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