# Problem D. Domination

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|---|---|
| Input file: | `domination.in` |
| Output file: | `domination.out` |
| Time limit: | 5 seconds |
| Memory limit: | 256 mebibytes |

Consider a sequence $a_i$ of $N$ integers.

Two types of operations are allowed:

- Set the value $x$ for all sequence elements in the range from index $L$ to index $R$ inclusive.
- Find the dominating element of the part of the sequence that begins at index $L$ and ends at index $R$ inclusive.

The element $b$ is called *dominating* in the sequence if more than a half of the sequence elements are equal to $b$.

Given the initial sequence, perform the operations and print the results.

## Input

The first line of input contains the number $N$ ($1 \le N \le 200\,000$) of elements in the sequence. On the second line, there are $N$ values $a_i$ ($0 \le a_i < 10^6$). The third line contains the number $Q$ ($1 \le Q \le 200\,000$) of operations. Each of the next $Q$ lines contains a description of a single operation. Operations of the first type are given as "`set` $L$ $R$ $x$" where $1 \le L \le R \le N$ and $0 \le x < 10^6$. The second type operations are described as "`query` $L$ $R$" where $1 \le L \le R \le N$. All numbers are integers.

## Output

For each operation of the second type, output a line containing a dominating value if it exists, or $-1$ if it does not.

## Example

| domination.in | domination.out |
|---|---|
| 10<br>1 2 1 2 1 2 1 2 1 2<br>10<br>query 1 10<br>query 2 10<br>query 1 9<br>set 1 5 3<br>query 2 3<br>query 1 10<br>query 1 9<br>set 1 10 1<br>query 2 3<br>query 1 10 | -1<br>2<br>1<br>3<br>-1<br>3<br>1<br>1 |