B. Aymoon and Books

time limit per test: 1 second

memory limit per test: 256 megabytes

Aymoon has a very nice bookshelf containing N books in a row. Each book has a unique id. He can only pick either the leftmost or rightmost book. Aymoon will keep picking books from the shelf in some order and put them on a table and he can only read any book that is on the table. However, some books are more interesting than others. Aymoon believes that the book with the greatest id is the most interesting book to read.

You are given the description of Aymoon's bookshelf and some queries. **Each query will depend on all the previous queries**. Each query will be one of three types:

- 'L': Remove the leftmost book and put it on the table (if there are no books on the shelf, do nothing).
- 'R': Remove the rightmost book and put it on the table (if there are no books on the shelf, do nothing).
- 'Q': Tell Aymoon the id of the most interesting book that is currently on the table to read it.

Note that if Aymoon read a book, he will put it away from the table and will never read it again.

Input

The first line contains a single integer N ($1 \le N \le 10^5$) — the number of books on the shelf.

The second line contains N distinct integers $a_1, a_2, ..., a_N$ ($1 \le a_i \le 10^5$) — the ids of the books on the shelf from left to right.

The third line contains a single integer Q ($1 \le Q \le 10^5$) — the number of queries.

Then Q lines follow each of them contains a single character representing the query type 'L', 'R', or 'Q'.

Output

For each query of type 'Q', print the id of the most interesting book on the table. If there are no books on the table at the moment the query is done, print -1.

If there are no queries of type 'Q', **don't output anything**.

Example

input Copy

```
5
6 1 7 5 4
5
L
Q
R
L
Q
```

output Copy

```
6
4
```

ICPC Assiut University Training - Juniors Phase 1 Sheets-2022

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→ Group Contests

- Juniors Phase 1 Practice #5 (Bitmask, Bitset, Bits)
- Juniors Phase 1 Practice #4 (Binary search , Two pointers)
- Juniors Phase 1 Practice #3 (STL 2)
- Juniors Phase 1 Practice #2 (STL 1)
- Juniors Phase 1 Practice #1 (Prefix sum , Frequency Array)

Juniors Phase 1 Practice #3 (STL 2)

Finished

Practice

→ About Time Scaling

This contest uses time limits scaling policy (depending on a programming language). The system automatically adjusts time limits by the following multipliers for some languages. Despite scaling (adjustment), the time limit cannot be more than 30 seconds. Read the details by the link.

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
311928182	Mar/23/2025 00:19	Accepted