L. Two Heads Are Better

time limit per test: 2 seconds
memory limit per test: 256 megabytes

World famous scientist Innokentiy has started studying computability theory and invented a new abstract executor that represents a tape of n cells, each of which contains a lowercase Latin letter. Two heads can move along the tape, each pointing at some cell. This device can execute the following instructions: to move the specified head to the left or to the right by one cell, to reverse the part of the tape between two heads, including the cells the heads point at, and to answer the request which symbol the specified head points at. Innokentiy asked you to help him to emulate the work of this device since the program he has written works too slow.

Input

The first line contains three integers separated by spaces: n, l and r ($1 \le n \le 10^5$, $1 \le l < r \le n$) — the number of cells in the tape and the initial positions of the left and the right head, correspondingly.

The second line contains n lowercase Latin letters, written in the cells.

The third line contains a single integer m ($1 \le m \le 3 \cdot 10^5$) — the number of queries.

In the next m lines there are the queries in the following form.

- `S X Y` — to move the head `X` in direction `Y`, where `X` can be `L` for the left head and `R` for the right one, and `Y` can be `L` for moving left or `R` for moving right.
- `R` — to reverse the part of the tape between the heads, including the cells the heads point at.
- `Q X` — to ask which character the head `X` points at, where `X` can be `L` for the left head and `R` for the right one.

It is guaranteed that the left head always remains to the left of the right head and that the heads don't move out of the tape.

Output

Output one string, containing all the answers for the queries of the last type. The k-th character of this string must be the answer to the k-th query of the type «`Q X`».

Examples

input Copy

```
11 2 6
abracadabra
12
Q L
Q R
R
Q L
Q R
S L R
S R R
Q L
Q R
R
Q L
Q R
```

output Copy

```
baabcddc
```

2014, Samara SAU ACM ICPC Quarterfinal Qualification Contest

Finished

Practice

→ 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

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

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

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
304290060	Feb/03/2025 19:53	Accepted
304238899	Feb/03/2025 14:23	Accepted
303574360	Jan/29/2025 23:12	Accepted
303423807	Jan/28/2025 21:42	Accepted

→ Contest materials

- Announcement
- Statements #1 (en)
- Statements #2 (ru)
- Statements #3 (ru)