New Year's '17 P1 - Mr. N and Presents

Time limit: 0.5s **Memory limit:** 64M

Mr. N, a kind CS teacher, has decided to give out presents to his hard working students! He has decided that a harder working student should get priority over a student that has slacked off. Unfortunately, some of Mr. N's students are trolls, and Mr. N will remove them from his list if he sees fit. Hoping to move up Mr. N's list, you decide to write a program to order the list.

Input Specification

The first line will have an integer Q $(1 \leq Q \leq 10^5)$, the number of queries that follow.
Lines $2 \ldots Q+1$ will each contain one of three possible queries:

- `F x`: add student x to the beginning of the list
- `E x`: add student x to the end of the list
- `R x`: remove student x from the list. x is guaranteed to be a student already in the list.

x is an integer $1 \leq x \leq 10^9$.

Output Specification

Output the list, from beginning to end, with each number on a new line. **It is guaranteed that the list will only contain distinct integers.**

Subtasks

For 20% of points, $Q \leq 1\,000$ and each x satisfies $1 \leq x \leq 10^6$.

Sample Input

```
5
F 1
F 2
R 1
E 3
E 1
```

Sample Output

```
2
3
1
```