

Problem 2 - Numbers



You are given **numbers** in a **sequence on a single line, separated by a space**. After that, you will receive **commands** that modify the sequence differently:

- **"Add {value}"** - you should **add** the given value to **the end** of the sequence.
- **"Remove {value}"** - you should **remove** the **first occurrence** of the given value if there is such.
- **"Replace {value} {replacement}"** - you should **replace** the **first occurrence** of the **given value** with the **replacement** if there is such occurrence.
- **"Collapse {value}"** you must **remove each number with a value less** than the given one.

When you receive the command **"Finish"**, you should **print the modified sequence** and end the program.

Input / Constraints

- On the first line, you will receive a sequence with numbers, separated by spaces - integers in the range **[-1000...1000]**.
- On the following lines, you will receive commands until the **"Finish"** command is received.
- The commands will always be valid.

Output

- Print a single line the array of numbers separated by a space, with the modified values.

Examples

Input	Output
1 4 5 19 Add 1 Remove 4 Finish	1 5 19 1
1 20 -1 10 Collapse 8 Finish	20 10
5 9 70 -56 9 9 Replace 9 10 Remove 9 Finish	5 10 70 -56 9