

Mexico Hotel

Timelimit: 5 sec

Problem description

In a hotel in Mexico the rooms are numbered starting from 1. You have to keep track of the occupied rooms.

In the beginning all rooms are empty. Guests arrive and leave. Sometimes arriving guests are assigned to a room with a given number, but usually they get the first empty room, i.e., the one with the smallest number.

Your program should keep track which rooms are occupied.

Input

A number n ($n \leq 500000$) followed by n lines containing one of three possible commands:

- `in 34` means room 34 becomes occupied.
- `out 124` means room 124 becomes empty.
- `mex` means that the first available room becomes occupied.

The highest possible room number is 10^9 .

Output

The occupied room numbers in ascending order. One number per line.

Sample input/output

Input	Output
7 in 4 mex in 1000000 mex out 1 in 3 mex	1 2 3 4 1000000