

Set

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output
points: 100 · problem code: set

You have q queries and an empty set. Each query is of the form:

- **ADD** x : Add x to the set
- **ERASE** x : Erase x from the set
- **NTH** n : Output the n -th smallest number in the set (1-indexed)
- **MIN** : Output the minimum value in the set
- **MAX** : Output the maximum value in the set

Constraints

$$1 \leq q \leq 10^5$$

$$1 \leq x \leq 10^9$$

Common sense constraints should hold ($n \leq |\text{set}|$).

Example 1

Input

```
5
ADD 1
ADD 2
NTH 2
MIN
MAX
```

Input

```
2
1
2
```