

Time limit: 3.000 seconds

## Range Minimum Query

### The Problem

Suppose there is an array  $A$  of size  $n$ , (index range: 0 to  $n-1$ ) each containing an integer value. We want either to find a minimum element among elements within a range or to change an element in  $A$ . There are three kinds of command: (q l r), (c id v) and (s -1 -1). Command (q l r) requires to find the index of array  $A$  which contain the minimum element in range  $[l, r]$  in  $A$ . **If more than one elements have the same minimum value in range  $[l, r]$ , minimum index should be returned.** Command (c id v) means to change  $A[id]$  to  $v$ . Command (s -1 -1) indicates the last command which needs not be processed.

### The Input

The first line of the input contains an integer  $n$  ( $1 \leq n \leq 1,000,000$ ) which indicates the size of array  $A$ . Following  $n$  integers indicate  $A[i]$  for  $i=0, 1, \dots, n-1$ . Each  $A[i]$  can be represented as an integer type.

Several command lines follow, each contains one command. Each is either (q l r) or (c id v), meaning of each is explained above. Last command is (s -1 -1).

Input file name: rmq.inp

### The Output

For each command (q l r), find the index of minimum element and sum up all the indices and print out the least 5-digits of the sum.

Output file name: rmq.out

### Sample Input

```
20
34 34 34 57 36 89 47 10 53 48 37 52 95 97 82 66 46 72 70

q 0 4 // min idx: 0
q 6 10 // min idx : 7
c 8 -10
q 7 10 // min idx: 8
q 3 11 // min idx: 8
q 4 9 // min idx: 8
c 10 -20
q 0 19 // min idx: 10
q 0 5 // min idx: 0
q 11 19 // min idx 16
s -1 -1
```

### Sample Output

```
57
```