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## SuperMemo

Language:  ▼

**Time Limit:** 5000MS

**Memory Limit:** 65536K

**Total Submissions:** 16618

**Accepted:** 5238

**Case Time Limit:** 2000MS

## Description

Your friend, Jackson is invited to a TV show called SuperMemo in which the participant is told to play a memorizing game. At first, the host tells the participant a sequence of numbers,  $\{A_1, A_2, \dots, A_n\}$ . Then the host performs a series of operations and queries on the sequence which consists:

1. *ADD*  $x\ y\ D$ : Add  $D$  to each number in sub-sequence  $\{A_x \dots A_y\}$ . For example, performing "*ADD* 2 4 1" on  $\{1, 2, 3, 4, 5\}$  results in  $\{1, 3, 4, 5, 5\}$
2. *REVERSE*  $x\ y$ : reverse the sub-sequence  $\{A_x \dots A_y\}$ . For example, performing "*REVERSE* 2 4" on  $\{1, 2, 3, 4, 5\}$  results in  $\{1, 4, 3, 2, 5\}$
3. *REVOLVE*  $x\ y\ T$ : rotate sub-sequence  $\{A_x \dots A_y\}$   $T$  times. For example, performing "*REVOLVE* 2 4 2" on  $\{1, 2, 3, 4, 5\}$  results in  $\{1, 3, 4, 2, 5\}$
4. *INSERT*  $x\ P$ : insert  $P$  after  $A_x$ . For example, performing "*INSERT* 2 4" on  $\{1, 2, 3, 4, 5\}$  results in  $\{1, 2, 4, 3, 4, 5\}$
5. *DELETE*  $x$ : delete  $A_x$ . For example, performing "*DELETE* 2" on  $\{1, 2, 3, 4, 5\}$  results in  $\{1, 3, 4, 5\}$
6. *MIN*  $x\ y$ : query the participant what is the minimum number in sub-sequence  $\{A_x \dots A_y\}$ . For example, the correct answer to "*MIN* 2 4" on  $\{1, 2, 3, 4, 5\}$  is 2

To make the show more interesting, the participant is granted a chance to turn to someone else that means when Jackson feels difficult in answering a query he may call you for help. Your task is to watch the TV show and write a program giving the correct answer to each query in order to assist Jackson whenever he calls.

## Input

The first line contains  $n$  ( $n \leq 100000$ ).

The following  $n$  lines describe the sequence.

Then follows  $M$  ( $M \leq 100000$ ), the numbers of operations and queries.

The following  $M$  lines describe the operations and queries.

## Output

For each "*MIN*" query, output the correct answer.

## Sample Input

```
5
1
2
3
4
5
2
ADD 2 4 1
MIN 4 5
```

## Sample Output

```
5
```

## Source

POJ Founder Monthly Contest – 2008.04.13, Yao Jinyu

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