

# GSS4 - Can you answer these queries IV

You are given a sequence A of N ( $N \leq 100,000$ ) positive integers. Their sum will be less than  $10^{18}$ . On this sequence you have to apply M ( $M \leq 100,000$ ) operations:

(A) For given x,y, for each element between the x-th and the y-th ones (inclusively, counting from 1), modify it to its positive square root (rounded down to the nearest integer).

(B) For given x,y, query the sum of all the elements between the x-th and the y-th ones (inclusively, counting from 1) in the sequence.

## Input

Multiple test cases, please proceed them one by one. Input terminates by EOF.

For each test case:

The first line contains an integer N. The following line contains N integers, representing the sequence  $A_1..A_N$ . The third line contains an integer M. The next M lines contain the operations in the form "i x y".  $i=0$  denotes the modify operation,  $i=1$  denotes the query operation.

## Output

For each test case:

Output the case number (counting from 1) in the first line of output. Then for each query, print an integer as the problem required.

Print a blank line after each test case.

See the sample output for more details.

## Example

**Input:**

```
5
1 2 3 4 5
5
1 2 4
0 2 4
1 2 4
0 4 5
1 1 5
4
10 10 10 10
3
1 1 4
0 2 3
1 1 4
```

**Output:**

Case #1:

```
9
4
6
```

Case #2:

```
40
26
```