**A Simple Problem with Integers**

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| **Time Limit:** 5000MS |  | **Memory Limit:** 131072K |
|  |  |  |
| **Case Time Limit:** 2000MS | | |

**Description**

You have *N* integers, *A*1, *A*2, ... , *AN*. You need to deal with two kinds of operations. One type of operation is to add some given number to each number in a given interval. The other is to ask for the sum of numbers in a given interval.

**Input**

The first line contains two numbers *N* and *Q*. 1 ≤ *N*,*Q* ≤ 100000.  
The second line contains *N* numbers, the initial values of *A*1, *A*2, ... , *AN*. -1000000000 ≤ *Ai* ≤ 1000000000.  
Each of the next *Q* lines represents an operation.  
"C *a* *b* *c*" means adding *c* to each of *Aa*, *Aa*+1, ... , *Ab*. -10000 ≤ *c* ≤ 10000.  
"Q *a* *b*" means querying the sum of *Aa*, *Aa*+1, ... , *Ab*.

**Output**

You need to answer all *Q* commands in order. One answer in a line.

**Sample Input**

10 5

1 2 3 4 5 6 7 8 9 10

Q 4 4

Q 1 10

Q 2 4

C 3 6 3

Q 2 4

**Sample Output**

4

55

9

15

**Hint**

The sums may exceed the range of 32-bit integers.

**Source**

[POJ Monthly--2007.11.25](http://poj.org/searchproblem?field=source&key=POJ+Monthly--2007.11.25), Yang Yi