Problem A: Queue sum

Advanced Algorithms for Programming Contests

Restrictions

Time: 2 seconds
Memory: 512 MB

Problem description

We have a queue of integer values. Every now and then, the first element gets removed and pushed back at the end. We want to calculate sums over intervals of the queue at different points in time.

Input

The input consists of

- one line containing N and M ($1 \leq N, M \leq 10^6$) – the number of elements in the queue and the number of queries
- one line containing N numbers $a_1, ..., a_N$ ($0 \leq a_i \leq 10^8$) – the elements in the queue in the beginning
- M lines each containing one letter, either `r`, signaling that the first element is removed and pushed back at the end, or `q`, indicating a sum query, and if it's `q` also two numbers l_i and r_i ($1 \leq l_i \leq r_i \leq n$), the beginning and end of the interval to sum over.

Output

For any query "`q` l r", output the sum of elements from l to r (inclusively) on a separate line.

Sample input and output

Input	Output
3 5 1 2 3 q 1 2 r q 2 3 r q 2 2	3 4 1