FENTREE - Fenwick Trees

Mr. Fenwick has an array **a** with many integers, and his children love to do operations on the array with their father. The operations can be a query or an update.

For each query the children say two indices **l** and **r** , and their father answers back with the sum of the elements from indices **l** to **r** (both included).

When there is an update, the children say an index **i** and a value **x** , and Fenwick will add x to a_i (so the new value of a_i is $a_i + x$).

Because indexing the array from zero is too obscure for children, all indices start from 1. Fenwick is now too busy to play games, so he needs your help with a program that plays with his children for him, and he gave you an input/output specification.

Input

The first line of the input contains N ($1 \leq N \leq 10^6$) . The second line contains N integers a_i ($-10^9 \leq a_i \leq 10^9$) , the initial values of the array. The third line contains Q ($1 \leq Q \leq 3 \times 10^5$) , the number of operations that will be made. Each of the next Q lines contains an operation. Query operations are of the form "q l r " ($1 \leq l \leq r \leq N$) , while update operations are of the form "u i x " ($1 \leq i \leq N$, $-10^9 \leq x \leq 10^9$) .

Output

You have to print the answer for every query in a different line, in the same order of the input.

Example

```
Input:
10
3 2 4 0 42 33 -1 -2 4 4
6
q 3 5
q 1 10
u 5 -2
q 3 5
u 6 7
q 4 7

Output:
46
89
44
79
```