

GSS3 - Can you answer these queries III

You are given a sequence A of N ($N \leq 50000$) integers between -10000 and 10000. On this sequence you have to apply M ($M \leq 50000$) operations:

modify the i-th element in the sequence or for given x y print $\max\{A_i + A_{i+1} + \dots + A_j \mid x \leq i \leq j \leq y\}$.

Input

The first line of input 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 following form:

0 x y: modify A_x into y ($|y| \leq 10000$).

1 x y: print $\max\{A_i + A_{i+1} + \dots + A_j \mid x \leq i \leq j \leq y\}$.

Output

For each query, print an integer as the problem required.

Example

Input:

```
4
1 2 3 4
4
1 1 3
0 3 -3
1 2 4
1 3 3
```

Output:

```
6
4
-3
```