Can you answer these queries III

You are given a sequence A of N (N <= 50000) integers between -10000 and 10000. On this sequence you have to apply M (M <= 50000) operations:
modify the i-th element in the sequence or for given x y print max{Ai + Ai+1 + .. + Aj | x<=i<=j<=y }.

Input

The first line of input contains an integer N. The following line contains N integers, representing the sequence A1..AN.
The third line contains an integer M. The next M lines contain the operations in following form:
0 x y: modify Ax into y (|y|<=10000).
1 x y: print max{Ai + Ai+1 + .. + Aj | x<=i<=j<=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