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PSEGTREE - Make Versions in Segment Tree

no tags

You have an array of N integers, named **Version-0** array. You need to do **Q** queries. There are 2 type of queries.

- 1. idx pos v: Take Version-idx array and copy it into another array. Name the new array **Version-K** array where **K** = (number of queries of 1st type before this query + 1). Then add **v** the element at index **pos** in **Version-K** array.
- 2. idx | r: In Version-idx array, sum the elements from index | to r. Print the sum of the range

Input

First line there will be an integer **N** (1 <= **N** <= 100000), the length of the array. The following line wil contain **N** integers, the elements of **Version-0** array. Each element is non-negative and at most 100.

The next line will contain an integer **Q** (1 <= **Q** <= 100000), the number of queries. Next **Q** lines will contain the queries. All queries in form

a b c d

If a = 1, then you have first kind of query and idx = b, pos = c, v = d.

If $\mathbf{a} = \mathbf{2}$, then you have second kind of query and $\mathbf{idx} = \mathbf{b}$, $\mathbf{l} = \mathbf{c}$, $\mathbf{r} = \mathbf{d}$.

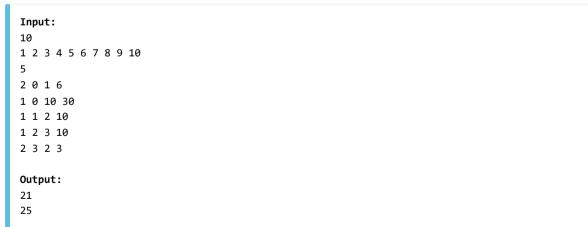
For all queries, it is guaranteed that **Version-idx** array exists. And

1 <= pos <= N 1 <= l <= r <= N 1 <= v <= 100

Output

If you incounter an query of second type, you need to print the required sum in a seperate line. These should be printed in the order they appears in the input.

Example



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Rezwan Added by:

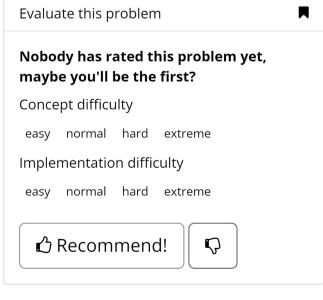
(/users/rezwanarefin) 2017-08-28

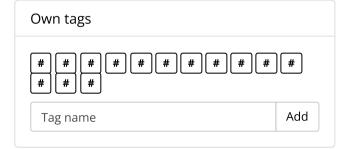
Date: Time limit: 1s

Source limit: 50000B Memory limit: 1536MB

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Languages:





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zakir068 (/users/zakir068): 2020-06-04 17:44:56

Thanks @Arefin.Implemented basic persistent seg-tree successfully!



mahbubkuet08 (/users/mahbubkuet08): 2019-03-20 07:59:14

Problem statement didn't mention maximum number of queries. max value of Q.