

Range Updates

time limit per test: 1 second (3 seconds for Python)
memory limit per test: 500 megabytes
input: standard input
output: standard output
points: 100 · problem code: rangeupdates

You are given an array of n integers and must process q queries of the following types:

1. Increase every value in the range $[l, r]$ by u .
2. Report the value at position k .

Positions are 1-indexed.

Input

The first line contains the integer n .

The second line contains n integers $x_1, \dots, x_n$: the initial values of the array.

The third line contains the integer q .

Each of the next q lines describes a query and is one of the following:

- `1 l r u`: add u to every value in the range $[l, r]$
- `2 k`: query the value at position k

Output

For each query of type `2`, output a line containing the value at position k .

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq q \leq 10^5$
- $1 \leq x_i, u \leq 10^9$
- $1 \leq k \leq n$
- $1 \leq l \leq r \leq n$

Example 1

Input

```
5
8 8 6 7 9
10
1 1 4 3
1 4 5 9
1 1 4 1
2 4
2 3
2 3
2 2
1 1 2 9
1 4 5 1
2 5
```

Output

```
20
10
10
12
19
```

Hints

Hint 1

Try converting this from a range-update / point-query problem into a point-update / range-query problem.