

HopScotch

Bruce developed a new hopscotch. In the game, a single row of N squares is drawn along the ground. The squares are numbered from 0 to $N - 1$. Each square i has a power value K_i , which enables Bruce to directly hop to the square $i + K_i$ (Bruce can only hop to $i + K_i$, but not any other square). If the square $i + K_i$ is beyond the N squares ($i + K_i \geq N$), Bruce finishes the game. To make the game more interesting, Bruce can dynamically change the power value of square i . At the same time, Bruce wants to know the number of hops he requires if he starts from the square i . Could you please write a program to help Bruce?

Input

The first line of input will contain one integer, N ($1 \leq N \leq 200\,000$), the number of squares. Note, square is numbered from 0 to $N - 1$.

The second line of input will contain N positive integers, K_i ($1 \leq K_i \leq 10^7$), which is the initial power value of the square i .

The third line of input will contain Q ($1 \leq Q \leq 100\,000$), the number of operations Bruce will take.

Each of the next Q lines will be one of the following operations

- 1 x : Query the number of hops required if Bruce starts from the square x ($0 \leq x \leq N - 1$).
- 2 x v : Change the power value of the square x to v ($0 \leq x \leq N - 1$, $1 \leq v \leq 10^7$).

Output

For any operation 1, output one single integer on a line.

Sample Input

```
4
1 2 1 1
3
1 1
2 1 1
1 1
```

Sample Output

```
2
3
```

Sample Case Explanation

There are 4 squares in the game, and the initial power values are $\{1, 2, 1, 1\}$. If Bruce starts from square 1, Bruce will hop to square $1 + 2 = 3$. Square 3 has the power of 1. So, Bruce will hop to square $3 + 1 = 4$, and finishes the game with 2 hops.

In the second operation, Bruce change the square 1's power to 1. The new power values are $\{1, 1, 1, 1\}$.

If Bruce starts from square 1, he will hop from square 1 to square 2, from square 2 to square 3, from square 3 to square 4, and finishes the game with 3 hops.