

## Pseudo-RMQ

### Problem Description

Many, many years ago  
Acer didn't know RMQ  
Poor and unlucky he was in trouble –  
How to find minimum in an interval?  
Verged by a despairing sank  
Yet was hint to use a stack ☺

Okay, it is now clear what Acer's trouble is: finding the minimal number in a given interval. Poor and unlucky Acer now needs your help.

You are given a sequence of  $N$  integers, denoted as  $a[1], a[2], a[3], \dots, a[N]$ . And you will then be queried frequently about the minimum number in the closed interval  $[c, d]$ , more explicitly,  $\min\{a[i] \mid c \leq i \leq d\}$ .

Hint: the standard solution for Acer's trouble is actually RMQ (Range Minimum Query). However, it is not needed for this problem, because it will be guaranteed that all the test data are randomly generated. As manifested in the poem, you can use a stack to solve it. Of course, you are also encouraged to learn RMQ if you are interested.

### Input

The first line contains an integer  $N$  ( $1 \leq N \leq 100,000$ ), which is the length of the integer sequence.

This is followed by a line containing  $N$  integers, each of which is nonnegative and smaller than 100,000,000.

The line followed contains an integer  $Q$  ( $1 \leq Q \leq 100,000$ ), which is the number of queries.

This is then followed by  $Q$  lines, each of which is a query in form of  $[c, d]$  (without square brackets),  $1 \leq c \leq d \leq N$ .

### Output

For each query, you are to output a line containing the minimum integer whose index is in the closed interval  $[c, d]$ .

### Sample Input 1

```
7
2 3 4 1 5 2 3
4
1 4
```

2 5  
6 7  
3 4

### **Sample Output 1**

1  
1  
2  
1

### **Sample Input 2**

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

### **Sample Output 2**

1  
3  
8  
3  
2