

Min Max Queries

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: minmaxqueries

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

1. Change the value at position k to u .
2. Find the minimum and maximum values over the range $[l, r]$.

Positions are 1-indexed.

Input

The first line contains the integer n , the size of the array.

The second line contains n space-separated integers $x_1, x_2, \dots, x_n$: the initial values of the array.

The third line contains the integer q , the number of queries.

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

- `1 k u`: set the value at position k to u
- `2 l r`: query the minimum and maximum values over the range $[l, r]$

Output

For each query of type `2`, output a line containing the minimum and maximum of the given range, separated by a space.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq q \leq 10^4$
- $-10^9 \leq x_i, u \leq 10^9$
- $1 \leq k \leq n$
- $1 \leq l \leq r \leq n$

Example 1

Input

```
5
-2 0 10 -10 -7
10
1 4 -2
2 4 5
2 4 5
2 1 3
1 5 6
1 2 -3
1 2 -5
1 5 -5
2 2 3
2 3 5
```

Output

```
-7 -2  
-7 -2  
-2 10  
-5 10  
-5 10
```

Example 2

Input

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

Output

```
-6 -4  
-9 10  
-3 4  
-9 7  
-5 7  
-9 7  
-4 4  
-7 6
```