Play with 0/1 Bit

by Key_logger

Problem Submissions Discussions

You are given an array with **N** elements, **indexed from 1 to N**. There are three types of query.

Type - 1 : " *q l r 0* " means that you have to print the number x which has the maximum number of 0's in the binary representation of all elements between position l and r of the array . **If there are many numbers having maximum 0's then output the maximum number.**

Type - 2 : " *q l r 1* " means that you have to print the number x which has the minimum number of 1's in the binary representation of all elements between position l and r of the array . **If there are many numbers having minimum 1's then output the minimum number.**

Type - 3 : " *u i x* " means that you have to replace the value of the position i by x of the array.

Input Format

First line contains **N** indicating the number of elements. The the next line contains N space separated integers forming the array. **The integers range in [1,10^5]**. The next line contains an integer **q** denoting the number of queries. Each query is any of the three types described above.

Constraints

1 <= N, q <= 10^5

1 <= x <= 10^5

1 <= i, l, r <= N

Output Format

Output each query (**Type - 1 and Type - 2**) in a separate line

Sample Input 0

```
5
1 2 3 4 5
3
q 1 3 0
u 3 5
q 3 2 0
```

Sample Output 0

```
2
5
```

Explanation 0

The binary representations of the array elements are: **1, 10, 11, 100, 101**

There are 3 queries.

1 . Between positions 1 and 3, 2nd element has maximum 0's in its binary representation. So, the answer is 2.

2 . Replace 3rd element by the value 5. So, the binary representation of the new array is **1, 10, 101, 100, 101**

3 . Between positions 3 and 2, the 2nd and 3rd element has maximum 0's in its binary representation. **Again max of 2 and 5 is 5. So, the answer is 5.**