

## Algorithm Class Mini-Contest 8

# Problem: CLIQUE

Time Limit: 2.0 seconds

Memory Limit: 256 MB

**Problem Description** A teacher is organising a class of  $N$  students to sit in a row. As you know, students tend to stick within their own clique and don't interact too much outside of it. There are  $C$  cliques in total, and the student  $i$ , which is sitting on the  $i$ th position, belongs to a clique  $B_i$ .

The teacher has  $Q$  queries, each one querying about the distance between the two closest students of the same clique within the range  $l$  to  $r$ . Help the teacher answer each of these queries efficiently.

**Input Format** The first line of input will contain three integers,  $N$ ,  $C$  and  $Q$ . The next line of input will contain  $N$  integers, the array  $B$ . The next  $Q$  lines will contain one query each, with two integers  $l$  and  $r$

**Output Format** The output should contain one line with one integer for each query, the distance between the two closest students in the same clique. If no two students are within the same clique, output -1.

**Limits** These are the bounds on the input.

| Subtask | Score | Additional Bounds                           |
|---------|-------|---|
| 1       | 24    | $1 \leq N, Q \leq 3,000$                    |
| 2       | 28    | $1 \leq N, Q \leq 200,000, 1 \leq C \leq 3$ |
| 3       | 48    | $1 \leq N, Q \leq 200,000$                  |
| All     | -     | $1 \leq C \leq N$                           |

### Sample Input

```
6 3 5
0 1 0 2 1 2
3 5
0 2
1 4
1 3
0 5
```

### Sample Output

2  
2  
3  
-1  
2