CSES Problem Set

Range Xor Queries

TASK | SUBMIT | RESULTS | STATISTICS | HACKING

Time limit: 1.00 s   **Memory limit:** 512 MB

Given an array of n integers, your task is to process q queries of the form: what is the xor sum of values in range $[a, b]$?

Input

The first input line has two integers n and q: the number of values and queries.

The second line has n integers $x_1, x_2, \ldots, x_n$: the array values.

Finally, there are q lines describing the queries. Each line has two integers a and b: what is the xor sum of values in range $[a, b]$?

Output

Print the result of each query.

Constraints

- $1 \le n, q \le 2 \cdot 10^5$
- $1 \le x_i \le 10^9$
- $1 \le a \le b \le n$

Example

Input:
```
8 4
3 2 4 5 1 1 5 3
2 4
5 6
1 8
3 3
```

Output:
```
3
0
6
4
```

Range Queries

...

Static Range Minimum Queries	✓
Dynamic Range Sum Queries	✓
Dynamic Range Minimum Queries	✓
Range Xor Queries	✓
Range Update Queries	✓
Forest Queries	✓
Hotel Queries	✓
List Removals	✓

...

Your submissions

2020-03-21 21:00:42	✓