XOR Game

Time limit: *1000 ms*
Memory limit: *256 MB*

You are given an integer sequence A of length N. You are requested to answer to Q queries of the following type:

- Given a and b, compute the Bitwise XOR of all the elements of A in the range of positions $[a, b]$.

Can you compute them efficiently?

Standard input

The first line of input contains two integers N and Q, the number of integers in the sequence and queries, respectively.

The second line of input contains N integers A_i, the i-th integer is the i-th element of the sequence.

The following Q lines contain two integers a and b, that describe the range of positions for the corresponding query.

Standard output

For each query, print the Bitwise XOR of all the elements of A in the range of positions given.

Constraints and notes

- $1 \leq N, Q \leq 10^5$.
- $0 \leq A_i \leq 10^5$ for each i.
- $1 \leq a \leq b \leq N$ for each query.

Input	Output
8 3 2 5 1 5 6 1 2 9 3 4 1 6 3 6	4 4 3