Problem A

XOR

Here we have a sequence A with n elements. The i-th element of it is denoted by $A[i]$. We also have an integer K as a coefficient. Then we consider several queries.

In each query, we are given two integers L and R indicating the sub-sequence of A from the L-th element to the R-th one. Then you can select some elements in the sub-sequence, denoted by $A[i_1], A[i_2], ..., A[i_t]$. Based on your selection, you can get the value Z that

$$Z = K \text{ or } (A[i_1] \text{ xor } A[i_2] \text{ ... xor } A[i_t]).$$

What you need to do now is making a nice selection to maximize the value Z.

Input

The input has several test cases and the first line is an integer T $(1<=T<=10)$ indicating the number of test cases.

In each test case, the first line contains three integers N, Q and K $(1<=N<=10000, 1<=Q<=100000, 0<=K<=100000)$. The second line contains N integers indicating $A[1]$ to $A[N]$, each of which satisfies $0<=A[i]<=10^8$. Then Q lines follow and each line contains two integers L and R $(1<=L<=R<=N)$ describing a query.

The sum of N in all test cases is no more than 20000 and the sum of Q in all test cases is no more than 200000.

Output

For each query, print the maximum Z in a single line.

Sample Input	Sample Output
1 5 3 0 1 2 3 4 5 1 3 2 4 3 5	3 7 7