E. Beautiful Subarrays

time limit per test: 3 seconds
memory limit per test: 512 megabytes
input: standard input
output: standard output

One day, ZS the Coder wrote down an array of integers a with elements $a_1, a_2, ..., a_n$.

A subarray of the array a is a sequence $a_l, a_{l+1}, ..., a_r$ for some integers (l, r) such that $1 \le l \le r \le n$. ZS the Coder thinks that a subarray of a is beautiful if the bitwise xor of all the elements in the subarray is at least k.

Help ZS the Coder find the number of beautiful subarrays of a!

Input

The first line contains two integers n and k ($1 \le n \le 10^6, 1 \le k \le 10^9$) — the number of elements in the array a and the value of the parameter k.

The second line contains n integers a_i ($0 \le a_i \le 10^9$) — the elements of the array a.

Output

Print the only integer c — the number of beautiful subarrays of the array a.

Examples

input
3 1 1 2 3
output
5

input
3 2 1 2 3
output
3

input
3 3 1 2 3
output
2