

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, \dots, a_n .

A subarray of the array a is a sequence a_l, a_{l+1}, \dots, a_r for some integers (l, r) such that $1 \leq l \leq r \leq n$. 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 ($1 \leq n \leq 10^6, 1 \leq k \leq 10^9$) — the number of elements in the array a and the value of the parameter k .

The second line contains n integers a_i ($0 \leq a_i \leq 10^9$) — 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