Problem 3209: Number of Subarrays With AND Value of K

Problem Information

Difficulty: Hard
Acceptance Rate: 34.58%
Paid Only: No
Tags: Array, Binary Search, Bit Manipulation, Segment Tree

Problem Description

Given an array of integers `nums` and an integer `k`, return the number of subarrays of `nums` where the bitwise `AND` of the elements of the subarray equals `k`.

Example 1:

Input: nums = [1,1,1], k = 1

Output: 6

Explanation:

All subarrays contain only 1's.

Example 2:

Input: nums = [1,1,2], k = 1

Output: 3

Explanation:

Subarrays having an `AND` value of 1 are: `[_**1**_ ,1,2]`, `[1,_**1**_ ,2]`, `[_**1,1**_ ,2]`.

Example 3:

Input: nums = [1,2,3], k = 2

Output: 2

Explanation:

Subarrays having an `AND` value of 2 are: `[1,**_2_** ,3]`, `[1,_**2,3**_]`.

Constraints:

* `1 <= nums.length <= 105` * `0 <= nums[i], k <= 109`

Code Snippets

C++:

```
class Solution {
public:
long long countSubarrays(vector<int>& nums, int k) {

}
};
```

Java:

```
class Solution {
public long countSubarrays(int[] nums, int k) {

}
}
```

Python3:

```
class Solution:
def countSubarrays(self, nums: List[int], k: int) -> int:
```