Problem 2447: Number of Subarrays With GCD Equal to K

Problem Information

Difficulty: Medium
Acceptance Rate: 51.84%
Paid Only: No
Tags: Array, Math, Number Theory

Problem Description

Given an integer array `nums` and an integer `k`, return _the number of**subarrays** of _`nums` _where the greatest common divisor of the subarray 's elements is _`k`.

A **subarray** is a contiguous non-empty sequence of elements within an array.

The **greatest common divisor of an array** is the largest integer that evenly divides all the array elements.

Example 1:

Input: nums = [9,3,1,2,6,3], k = 3 **Output:** 4 **Explanation:** The subarrays of nums where 3 is the greatest common divisor of all the subarray's elements are: - [9,_**3**_ ,1,2,6,3] - [9,3,1,2,6,_**3**_] - [_**9,3**_ ,1,2,6,3] - [9,3,1,2,_**6,3**_]

Example 2:

Input: nums = [4], k = 7 **Output:** 0 **Explanation:** There are no subarrays of nums where 7 is the greatest common divisor of all the subarray's elements.

Constraints:

* `1 <= nums.length <= 1000` * `1 <= nums[i], k <= 109`

Code Snippets

C++:

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

}
};
```

Java:

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

}
}
```

Python3:

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