Problem 2748: Number of Beautiful Pairs

Problem Information

Difficulty: Easy
Acceptance Rate: 51.60%
Paid Only: No
Tags: Array, Hash Table, Math, Counting, Number Theory

Problem Description

You are given a **0-indexed** integer array `nums`. A pair of indices `i`, `j` where `0 <= i < j < nums.length` is called beautiful if the **first digit** of `nums[i]` and the **last digit** of `nums[j]` are **coprime**.

Return _the total number of beautiful pairs in_`nums`.

Two integers `x` and `y` are **coprime** if there is no integer greater than 1 that divides both of them. In other words, `x` and `y` are coprime if `gcd(x, y) == 1`, where `gcd(x, y)` is the **greatest common divisor** of `x` and `y`.

Example 1:

Input: nums = [2,5,1,4] **Output:** 5 **Explanation:** There are 5 beautiful pairs in nums: When i = 0 and j = 1: the first digit of nums[0] is 2, and the last digit of nums[1] is 5. We can confirm that 2 and 5 are coprime, since gcd(2,5) == 1. When i = 0 and j = 2: the first digit of nums[0] is 2, and the last digit of nums[2] is 1. Indeed, gcd(2,1) == 1. When i = 1 and j = 2: the first digit of nums[1] is 5, and the last digit of nums[2] is 1. Indeed, gcd(5,1) == 1. When i = 1 and j = 3: the first digit of nums[1] is 5, and the last digit of nums[3] is 4. Indeed, gcd(5,4) == 1. When i = 2 and j = 3: the first digit of nums[2] is 1, and the last digit of nums[3] is 4. Indeed, gcd(1,4) == 1. Thus, we return 5.

Example 2:

Input: nums = [11,21,12] **Output:** 2 **Explanation:** There are 2 beautiful pairs: When i = 0 and j = 1: the first digit of nums[0] is 1, and the last digit of nums[1] is 1. Indeed, gcd(1,1) == 1. When i = 0 and j = 2: the first digit of nums[0] is 1, and the last digit of nums[2] is 2.

Indeed, gcd(1,2) == 1. Thus, we return 2.

Constraints:

* `2 <= nums.length <= 100` * `1 <= nums[i] <= 9999` * `nums[i] % 10 != 0`

Code Snippets

C++:

```
class Solution {
public:
int countBeautifulPairs(vector<int>& nums) {

}
};
```

Java:

```
class Solution {
public int countBeautifulPairs(int[] nums) {

}
}
```

Python3:

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