Problem 982: Triples with Bitwise AND Equal To Zero

Problem Information

Difficulty: Hard
Acceptance Rate: 59.82%
Paid Only: No
Tags: Array, Hash Table, Bit Manipulation

Problem Description

Given an integer array nums, return _the number of**AND triples**_.

An **AND triple** is a triple of indices `(i, j, k)` such that:

* `0 <= i < nums.length` * `0 <= j < nums.length` * `0 <= k < nums.length` * `nums[i] & nums[j] & nums[k] == 0`, where `&` represents the bitwise-AND operator.

Example 1:

Input: nums = [2,1,3] **Output:** 12 **Explanation:** We could choose the following i, j, k triples: (i=0, j=0, k=1) : 2 & 2 & 1 (i=0, j=1, k=0) : 2 & 1 & 2 (i=0, j=1, k=1) : 2 & 1 & 1 (i=0, j=1, k=2) : 2 & 1 & 3 (i=0, j=2, k=1) : 2 & 3 & 1 (i=1, j=0, k=0) : 1 & 2 & 2 (i=1, j=0, k=1) : 1 & 2 & 1 (i=1, j=0, k=2) : 1 & 2 & 3 (i=1, j=1, k=0) : 1 & 1 & 2 (i=1, j=2, k=0) : 1 & 3 & 2 (i=2, j=0, k=1) : 3 & 2 & 1 (i=2, j=1, k=0) : 3 & 1 & 2

Example 2:

Input: nums = [0,0,0] **Output:** 27

Constraints:

* `1 <= nums.length <= 1000` * `0 <= nums[i] < 216`

Code Snippets

C++:

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

}
};
```

Java:

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

}
}
```

Python3:

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