Problem 2857: Count Pairs of Points With Distance k

Problem Information

Difficulty: Medium
Acceptance Rate: 32.53%
Paid Only: No
Tags: Array, Hash Table, Bit Manipulation

Problem Description

You are given a **2D** integer array `coordinates` and an integer `k`, where `coordinates[i] = [xi, yi]` are the coordinates of the `ith` point in a 2D plane.

We define the **distance** between two points `(x1, y1)` and `(x2, y2)` as `(x1 XOR x2) + (y1 XOR y2)` where `XOR` is the bitwise `XOR` operation.

Return _the number of pairs_`(i, j)`_such that_`i < j` _and the distance between points_`i` _and_`j` _is equal to_`k`.

Example 1:

Input: coordinates = [[1,2],[4,2],[1,3],[5,2]], k = 5 **Output:** 2 **Explanation:** We can choose the following pairs: - (0,1): Because we have (1 XOR 4) + (2 XOR 2) = 5. - (2,3): Because we have (1 XOR 5) + (3 XOR 2) = 5.

Example 2:

Input: coordinates = [[1,3],[1,3],[1,3],[1,3],[1,3]], k = 0 **Output:** 10 **Explanation:** Any two chosen pairs will have a distance of 0. There are 10 ways to choose two pairs.

Constraints:

* `2 <= coordinates.length <= 50000` * `0 <= xi, yi <= 106` * `0 <= k <= 100`

Code Snippets

C++:

```
class Solution {
public:
int countPairs(vector<vector<int>>& coordinates, int k) {

}
};
```

Java:

```
class Solution {
public int countPairs(List<List<Integer>> coordinates, int k) {

}
}
```

Python3:

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