

Problem 1803: Count Pairs With XOR in a Range

Problem Information

Difficulty: Hard

Acceptance Rate: 46.13%

Paid Only: No

Tags: Array, Bit Manipulation, Trie

Problem Description

Given a **(0-indexed)** integer array `nums` and two integers `low` and `high`, return the number of**nice pairs**.

A **nice pair** is a pair `(i, j)` where `0 <= i < j < nums.length` and `low <= (nums[i] XOR nums[j]) <= high`.

Example 1:

Input: nums = [1,4,2,7], low = 2, high = 6 **Output:** 6 **Explanation:** All nice pairs (i, j) are as follows: - (0, 1): nums[0] XOR nums[1] = 5 - (0, 2): nums[0] XOR nums[2] = 3 - (0, 3): nums[0] XOR nums[3] = 6 - (1, 2): nums[1] XOR nums[2] = 6 - (1, 3): nums[1] XOR nums[3] = 3 - (2, 3): nums[2] XOR nums[3] = 5

Example 2:

Input: nums = [9,8,4,2,1], low = 5, high = 14 **Output:** 8 **Explanation:** All nice pairs (i, j) are as follows: - (0, 2): nums[0] XOR nums[2] = 13 - (0, 3): nums[0] XOR nums[3] = 11 - (0, 4): nums[0] XOR nums[4] = 8 - (1, 2): nums[1] XOR nums[2] = 12 - (1, 3): nums[1] XOR nums[3] = 10 - (1, 4): nums[1] XOR nums[4] = 9 - (2, 3): nums[2] XOR nums[3] = 6 - (2, 4): nums[2] XOR nums[4] = 5

Constraints:

* `1 <= nums.length <= 2 * 104` * `1 <= nums[i] <= 2 * 104` * `1 <= low <= high <= 2 * 104`

Code Snippets

C++:

```
class Solution {  
public:  
    int countPairs(vector<int>& nums, int low, int high) {  
        }  
    };
```

Java:

```
class Solution {  
    public int countPairs(int[] nums, int low, int high) {  
        }  
    }
```

Python3:

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