

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` `0 ≤ nums[i] ≤ 2 * 104` `0 ≤ 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:
```