Problem 1707: Maximum XOR With an Element From Array

Problem Information

Difficulty: Hard
Acceptance Rate: 56.99%
Paid Only: No
Tags: Array, Bit Manipulation, Trie

Problem Description

You are given an array `nums` consisting of non-negative integers. You are also given a `queries` array, where `queries[i] = [xi, mi]`.

The answer to the `ith` query is the maximum bitwise `XOR` value of `xi` and any element of `nums` that does not exceed `mi`. In other words, the answer is `max(nums[j] XOR xi)` for all `j` such that `nums[j] <= mi`. If all elements in `nums` are larger than `mi`, then the answer is `-1`.

Return _an integer array_`answer` _where_`answer.length == queries.length` _and_`answer[i]`_is the answer to the_`ith` _query._

Example 1:

Input: nums = [0,1,2,3,4], queries = [[3,1],[1,3],[5,6]] **Output:** [3,3,7] **Explanation:** 1) 0 and 1 are the only two integers not greater than 1. 0 XOR 3 = 3 and 1 XOR 3 = 2. The larger of the two is 3. 2) 1 XOR 2 = 3. 3) 5 XOR 2 = 7.

Example 2:

Input: nums = [5,2,4,6,6,3], queries = [[12,4],[8,1],[6,3]] **Output:** [15,-1,5]

Constraints:

* `1 <= nums.length, queries.length <= 105` * `queries[i].length == 2` * `0 <= nums[j], xi, mi <= 109`

Code Snippets

C++:

```
class Solution {
public:
vector<int> maximizeXor(vector<int>& nums, vector<vector<int>>& queries) {

}
};
```

Java:

```
class Solution {
public int[] maximizeXor(int[] nums, int[][] queries) {

}
}
```

Python3:

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