2527. Find Xor-Beauty of Array

Hint

Medium 80 30

Companies

You are given a **0-indexed** integer array `nums`.

The **effective value** of three indices `i`, `j`, and `k` is defined as `((nums[i] | nums[j]) & nums[k])`.

The **xor-beauty** of the array is the XORing of **the effective values of all the possible triplets** of indices `(i, j, k)` where `0 <= i, j, k < n`.

Return *the xor-beauty of* `nums`.

Note that:

- `val1 | val2` is bitwise OR of `val1` and `val2`.
- `val1 & val2` is bitwise AND of `val1` and `val2`.

Example 1:

Input: nums = [1,4]
Output: 5
Explanation:
The triplets and their corresponding effective values are listed below:
- (0,0,0) with effective value ((1 | 1) & 1) = 1
- (0,0,1) with effective value ((1 | 1) & 4) = 0
- (0,1,0) with effective value ((1 | 4) & 1) = 1
- (0,1,1) with effective value ((1 | 4) & 4) = 4
- (1,0,0) with effective value ((4 | 1) & 1) = 1
- (1,0,1) with effective value ((4 | 1) & 4) = 4
- (1,1,0) with effective value ((4 | 4) & 1) = 0
- (1,1,1) with effective value ((4 | 4) & 4) = 4
Xor-beauty of array will be bitwise XOR of all beauties = 1 ^ 0 ^ 1 ^ 4 ^ 1 ^ 4 ^ 0 ^ 4 = 5.

Example 2:

Input: nums = [15,45,20,2,34,35,5,44,32,30]
Output: 34
Explanation: The xor-beauty of the given array is 34.

Constraints:

- $1 <= nums.length <= 10^5$
- $1 <= nums[i] <= 10^9$

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Yes No

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