Problem 2568: Minimum Impossible OR

Problem Information

Difficulty: Medium
Acceptance Rate: 58.43%
Paid Only: No
Tags: Array, Bit Manipulation, Brainteaser

Problem Description

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

We say that an integer x is **expressible** from `nums` if there exist some integers `0 <= index1 < index2 < ... < indexk < nums.length` for which `nums[index1] | nums[index2] | ... | nums[indexk] = x`. In other words, an integer is expressible if it can be written as the bitwise OR of some subsequence of `nums`.

Return _the minimum**positive non-zero integer** that is not __expressible from_`nums`.

Example 1:

Input: nums = [2,1] **Output:** 4 **Explanation:** 1 and 2 are already present in the array. We know that 3 is expressible, since nums[0] | nums[1] = 2 | 1 = 3. Since 4 is not expressible, we return 4.

Example 2:

Input: nums = [5,3,2] **Output:** 1 **Explanation:** We can show that 1 is the smallest number that is not expressible.

Constraints:

* `1 <= nums.length <= 105` * `1 <= nums[i] <= 109`

Code Snippets

C++:

```
class Solution {
public:
int minImpossibleOR(vector<int>& nums) {

}
};
```

Java:

```
class Solution {
public int minImpossibleOR(int[] nums) {

}
}
```

Python3:

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