

Problem 2275: Largest Combination With Bitwise AND Greater Than Zero

Problem Information

Difficulty: **Medium**

Acceptance Rate: 80.80%

Paid Only: No

Tags: Array, Hash Table, Bit Manipulation, Counting

Problem Description

The **bitwise AND** of an array `nums` is the bitwise AND of all integers in `nums`.

* For example, for `nums = [1, 5, 3]`, the bitwise AND is equal to `1 & 5 & 3 = 1`. * Also, for `nums = [7]`, the bitwise AND is `7`.

You are given an array of positive integers `candidates`. Compute the **bitwise AND** for all possible **combinations** of elements in the `candidates` array.

Return **the size of the largest combination of `candidates` with a bitwise AND greater than 0**.

Example 1:

Input: `candidates = [16,17,71,62,12,24,14]` **Output:** 4 **Explanation:** The combination `[16,17,62,24]` has a bitwise AND of `16 & 17 & 62 & 24 = 16 > 0`. The size of the combination is 4. It can be shown that no combination with a size greater than 4 has a bitwise AND greater than 0. Note that more than one combination may have the largest size. For example, the combination `[62,12,24,14]` has a bitwise AND of `62 & 12 & 24 & 14 = 8 > 0`.

Example 2:

Input: `candidates = [8,8]` **Output:** 2 **Explanation:** The largest combination `[8,8]` has a bitwise AND of `8 & 8 = 8 > 0`. The size of the combination is 2, so we return 2.

Constraints:

```
*`1 <= candidates.length <= 105` *`1 <= candidates[i] <= 107`
```

Code Snippets

C++:

```
class Solution {  
public:  
    int largestCombination(vector<int>& candidates) {  
  
    }  
};
```

Java:

```
class Solution {  
    public int largestCombination(int[] candidates) {  
  
    }  
}
```

Python3:

```
class Solution:  
    def largestCombination(self, candidates: List[int]) -> int:
```