Problem 3094: Guess the Number Using Bitwise Questions II

Problem Information

Difficulty: Medium
Acceptance Rate: 83.13%
Paid Only: Yes
Tags: Bit Manipulation, Interactive

Problem Description

There is a number `n` between `0` and `230 - 1` (both inclusive) that you have to find.

There is a pre-defined API `int commonBits(int num)` that helps you with your mission. But here is the challenge, every time you call this function, `n` changes in some way. But keep in mind, that you have to find the **initial value of**`n`.

`commonBits(int num)` acts as follows:

* Calculate `count` which is the number of bits where both `n` and `num` have the same value in that position of their binary representation. * `n = n XOR num` * Return `count`.

Return _the number_ `n`.

Note: In this world, all numbers are between `0` and `230 - 1` (both inclusive), thus for counting common bits, we see only the first 30 bits of those numbers.

Constraints:

* `0 <= n <= 230 - 1` * `0 <= num <= 230 - 1` * If you ask for some `num` out of the given range, the output wouldn't be reliable.

Code Snippets

C++:

```
/**
* Definition of commonBits API.
* int commonBits(int num);
*/

class Solution {
public:
int findNumber() {

}
};
```

Java:

```
/**
* Definition of commonBits API (defined in the parent class Problem).
* int commonBits(int num);
*/

public class Solution extends Problem {
public int findNumber() {

}
}
```

Python3:

```
# Definition of commonBits API.
# def commonBits(num: int) -> int:

class Solution:
def findNumber(self) -> int:
```