Problem 2429: Minimize XOR

Problem Information

Difficulty: Medium
Acceptance Rate: 62.43%
Paid Only: No
Tags: Greedy, Bit Manipulation

Problem Description

Given two positive integers `num1` and `num2`, find the positive integer `x` such that:

* `x` has the same number of set bits as `num2`, and * The value `x XOR num1` is **minimal**.

Note that `XOR` is the bitwise XOR operation.

Return _the integer_`x`. The test cases are generated such that `x` is **uniquely determined**.

The number of **set bits** of an integer is the number of `1`'s in its binary representation.

Example 1:

Input: num1 = 3, num2 = 5 **Output:** 3 **Explanation:** The binary representations of num1 and num2 are 0011 and 0101, respectively. The integer **3** has the same number of set bits as num2, and the value 3 XOR 3 = 0 is minimal.

Example 2:

Input: num1 = 1, num2 = 12 **Output:** 3 **Explanation:** The binary representations of num1 and num2 are 0001 and 1100, respectively. The integer **3** has the same number of set bits as num2, and the value 3 XOR 1 = 2 is minimal.

Constraints:

* `1 <= num1, num2 <= 109`

Code Snippets

C++:

```
class Solution {
public:
int minimizeXor(int num1, int num2) {

}
};
```

Java:

```
class Solution {
public int minimizeXor(int num1, int num2) {

}
}
```

Python3:

```
class Solution:
def minimizeXor(self, num1: int, num2: int) -> int:
```