6194. Minimize XOR

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Given two positive integers `num1` and `num2`, find the 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.

User Accepted:	0
User Tried:	0
Total Accepted:	0
Total Submissions:	0
Difficulty:	Medium

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 <= 10^9`

JavaScript

```javascript
const minimizeXor = (a, b) => {
    let sa = a.toString(2), sb = b.toString(2), one = 0, min = 0, n = Math.max(sa.length, sb.length), used = new Set();
    if (sa.length < n) sa = '0'.repeat(n - sa.length) + sa;
    if (sb.length < n) sb = '0'.repeat(n - sb.length) + sb;
    sa = sa.split("");
    for (const c of sb) {
        if (c == '1') one++;
    }
    // pr(sa, sb, one);
    for (let i = 0; i < sa.length && one > 0; i++) {
        if (sa[i] == '1') { // 1 ^ 1
            one--;
            sa[i] = '0';
            used.add(i);
        }
    }
    // pr(sa, one);
    if (one > 0) {
        for (let i = sa.length - 1; ~i && one > 0; i--) { // 0 ^ 1
            if (sa[i] == '0' && !used.has(i)) {
                sa[i] = '1';
                one--;
            }
        }
    }
    // pr(sa, one)
    for (let i = sa.length - 1; ~i; i--) {
        if (sa[i] == '1') min += 1 << sa.length - i - 1;
    }
    // pr("min", min)
```

```
31      return min ^ a;
32  };
```

Custom Testcase | Use Example Testcases

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