5759. Sum of All Subset XOR Totals

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The **XOR total** of an array is defined as the bitwise `XOR` of **all its elements**, or `0` if the array is **empty**.

- For example, the **XOR total** of the array `[2,5,6]` is `2 XOR 5 XOR 6 = 1`.

Given an array `nums`, return *the **sum** of all **XOR totals** for every **subset** of* `nums`.

Note: Subsets with the **same** elements should be counted **multiple** times.

An array `a` is a **subset** of an array `b` if `a` can be obtained from `b` by deleting some (possibly zero) elements of `b`.

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

Example 1:

```
Input: nums = [1,3]
Output: 6
Explanation: The 4 subsets of [1,3] are:
- The empty subset has an XOR total of 0.
- [1] has an XOR total of 1.
- [3] has an XOR total of 3.
- [1,3] has an XOR total of 1 XOR 3 = 2.
0 + 1 + 3 + 2 = 6
```

Example 2:

```
Input: nums = [5,1,6]
Output: 28
Explanation: The 8 subsets of [5,1,6] are:
- The empty subset has an XOR total of 0.
- [5] has an XOR total of 5.
- [1] has an XOR total of 1.
- [6] has an XOR total of 6.
- [5,1] has an XOR total of 5 XOR 1 = 4.
- [5,6] has an XOR total of 5 XOR 6 = 3.
- [1,6] has an XOR total of 1 XOR 6 = 7.
- [5,1,6] has an XOR total of 5 XOR 1 XOR 6 = 2.
0 + 5 + 1 + 6 + 4 + 3 + 7 + 2 = 28
```

Example 3:

```
Input: nums = [3,4,5,6,7,8]
Output: 480
Explanation: The sum of all XOR totals for every subset is 480.
```

Constraints:

- `1 <= nums.length <= 12`
- `1 <= nums[i] <= 20`

JavaScript

```
const subsetXORSum = (a) => {
    let res = 0
    let n = a.length;
    let N = 2 ** n;
    for (let i = 0; i < N; i++) {
        let data = [];
        for (let j = 0; j < n; j++) {
            if (i & (1 << j)) {
                data.push(a[j]);
            }
        }
        res += cal(data)
    }
    return res;
};

const cal = (a) => {
    let res = 0;
    for (const e of a) res ^= e;
    return res;
};
```

Custom Testcase | Use Example Testcases

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Submission Result: Accepted (/submissions/detail/493738413/) | More Details > (/submissions/detail/493738413/)

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