---(/) Explore Problems(/problemset/all/)

Interview Contest/)

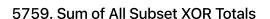












My Submissions (/contest/weekly-contest-241/problems/sum-of-all-subset-xor-totals/submissions/)

Back to Contest (/contest/weekly-contest-241/)

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:

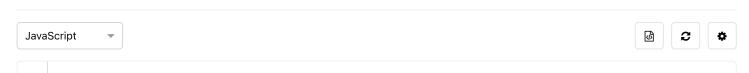
```
Input: nums = [5,1,6]
Output: 28
Explanation: The 8 subsets of [5,1,6] are:
- The empty subset has an XOR total of 0.
- [5] has an XOR total of 5.
- [1] has an XOR total of 1.
- [6] has an XOR total of 6.
- [5,1] has an XOR total of 5 XOR 1 = 4.
- [5,6] has an XOR total of 5 XOR 6 = 3.
- [1,6] has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



```
1 \cdot | const subsetXORSum = (a) => {
 2
        let res = 0
 3
         let n = a.length;
         let N = 2 ** n;
 4
 5 ▼
         for (let i = 0; i < N; i++) {
 6
             let data = [];
 7 ▼
             for (let j = 0; j < n; j++) {
 8 ▼
                 if (i & (1 << j)) {
 9
                      data.push(a[j]);
10
11
             res += cal(data)
12
13
14
         return res;
15
    };
16
17 \vee const cal = (a) \Rightarrow \{
18
        let res = 0;
19
         for (const e of a) res ^= e;
20
         return res;
21
    };
```

☐ Custom Testcase

Use Example Testcases

Submission Result: Accepted (/submissions/detail/493738413/) @

More Details > (/submissions/detail/493738413/)

Run

Share your acceptance!

Copyright © 2021 LeetCode

Help Center (/support) | Jobs (/jobs) | Bug Bounty (/bugbounty) | Students (/student) | Terms (/terms) | Privacy Policy (/privacy)

United States (/region)