

6007. Maximum AND Sum of Array

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You are given an integer array `nums` of length `n` and an integer `numSlots` such that $2 * numSlots \geq n$. There are `numSlots` slots numbered from `1` to `numSlots`.

You have to place all `n` integers into the slots such that each slot contains at **most** two numbers. The **AND sum** of a given placement is the sum of the **bitwise AND** of every number with its respective slot number.

- For example, the **AND sum** of placing the numbers `[1, 3]` into slot `1` and `[4, 6]` into slot `2` is equal to $(1 \text{ AND } 1) + (3 \text{ AND } 1) + (4 \text{ AND } 2) + (6 \text{ AND } 2) = 1 + 1 + 0 + 2 = 4$.

Return the maximum possible **AND sum** of `nums` given `numSlots` slots.

User Accepted:	307
User Tried:	991
Total Accepted:	369
Total Submissions:	1997
Difficulty:	Hard

Example 1:

Input: `nums = [1,2,3,4,5,6]`, `numSlots = 3`

Output: `9`

Explanation: One possible placement is `[1, 4]` into slot `1`, `[2, 6]` into slot `2`, and `[3, 5]` into slot `3`. This gives the maximum AND sum of $(1 \text{ AND } 1) + (4 \text{ AND } 1) + (2 \text{ AND } 2) + (6 \text{ AND } 2) + (3 \text{ AND } 3) + (5 \text{ AND } 3) = 1 + 0 + 2 + 2 + 3 + 1 = 9$.

Example 2:

Input: `nums = [1,3,10,4,7,1]`, `numSlots = 9`

Output: `24`

Explanation: One possible placement is `[1, 1]` into slot `1`, `[3]` into slot `3`, `[4]` into slot `4`, `[7]` into slot `7`, and `[10]` into slot `9`. This gives the maximum AND sum of $(1 \text{ AND } 1) + (1 \text{ AND } 1) + (3 \text{ AND } 3) + (4 \text{ AND } 4) + (7 \text{ AND } 7) + (10 \text{ AND } 9) = 1 + 1 + 3 + 4 + 7 + 8 = 24$. Note that slots `2`, `5`, `6`, and `8` are empty which is permitted.

Constraints:

- `n == nums.length`
- `1 <= numSlots <= 9`
- `1 <= n <= 2 * numSlots`
- `1 <= nums[i] <= 15`

Java

1

2

3

4

5

```
class Solution {
    public int maximumANDSum(int[] nums, int numSlots) {
    }
}
```

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Use Example Testcases

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