268. Missing Number

Easy   🏷 Topics   🔒 Companies

Given an array `nums` containing `n` distinct numbers in the range `[0, n]`, return *the only number in the range that is missing from the array.*

Example 1:

> **Input:** nums = `[3,0,1]`
>
> **Output:** 2
>
> **Explanation:**
>
> `n = 3` since there are 3 numbers, so all numbers are in the range `[0,3]`. 2 is the missing number in the range since it does not appear in `nums`.

Example 2:

> **Input:** nums = `[0,1]`
>
> **Output:** 2
>
> **Explanation:**
>
> `n = 2` since there are 2 numbers, so all numbers are in the range `[0,2]`. 2 is the missing number in the range since it does not appear in `nums`.

Example 3:

> **Input:** nums = `[9,6,4,2,3,5,7,0,1]`
>
> **Output:** 8
>
> **Explanation:**
>
> `n = 9` since there are 9 numbers, so all numbers are in the range `[0,9]`. 8 is the missing number in the range since it does not appear in `nums`.

Constraints:

- `n == nums.length`

- `1 <= n <= 10^4`

- `0 <= nums[i] <= n`

- All the numbers of `nums` are **unique**.

Follow up: Could you implement a solution using only `O(1)` extra space complexity and `O(n)` runtime complexity?