# 268. Missing Number

# Difficulty : Easy

https://leetcode.com/problems/missing-number

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?