**[287. Find the Duplicate Number](https://leetcode.com/problems/find-the-duplicate-number/)**

Ref: https://www.youtube.com/watch?v=49HrEGt6D2s&t=899s

Given an array of integers nums containing n + 1 integers where each integer is in the range [1, n] inclusive.

There is only **one repeated number** in nums, return *this repeated number*.

You must solve the problem **without** modifying the array nums and uses only constant extra space.

**Example 1:**

**Input:** nums = [1,3,4,2,2]

**Output:** 2

**Example 2:**

**Input:** nums = [3,1,3,4,2]

**Output:** 3

**Constraints:**

* 1 <= n <= 105
* nums.length == n + 1
* 1 <= nums[i] <= n
* All the integers in nums appear only **once** except for **precisely one integer** which appears **two or more** times.