Find The Duplicate Number

Try to solve the Find The Duplicate Number problem.

We'll cover the following

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- Statement
- Examples
- Understand the problem
- Figure it out!
- Try it yourself

Statement

Given an unsorted array of positive numbers, nums, such that the values lie in the range [1,n], inclusive, and that there are n+1 numbers in the array, find and return the duplicate number present in nums. There is only one repeated number in nums.

Note: You cannot modify the given array nums. You have to solve the problem using only constant extra space.

Constraints:

• $1 \le n \le 10^5$

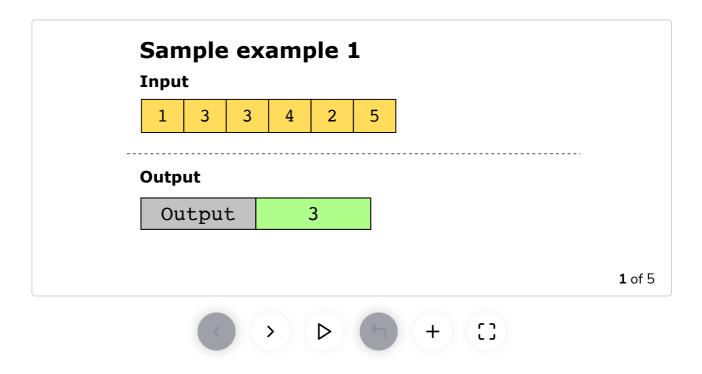
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ullet nums.length =n+1

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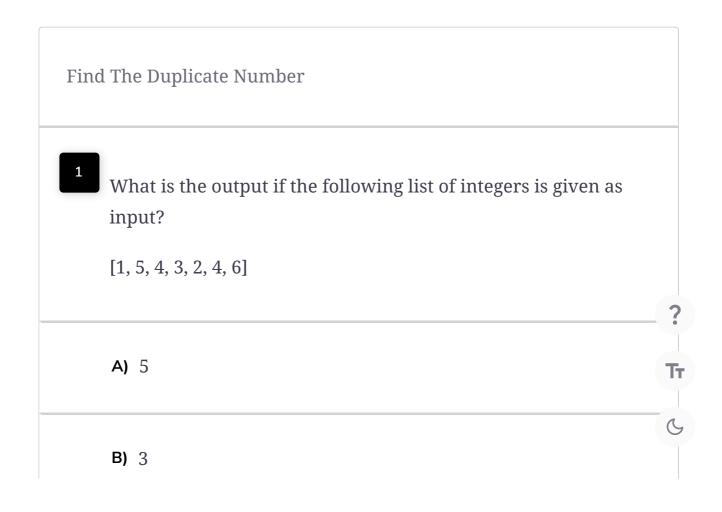
- $1 \leq \operatorname{nums}[i] \leq n$
- All the integers in nums are unique, except for one integer that will appear more than once.

Examples



Understand the problem

Let's take a moment to make sure you've correctly understood the problem. The quiz below helps you check if you're solving the correct problem:



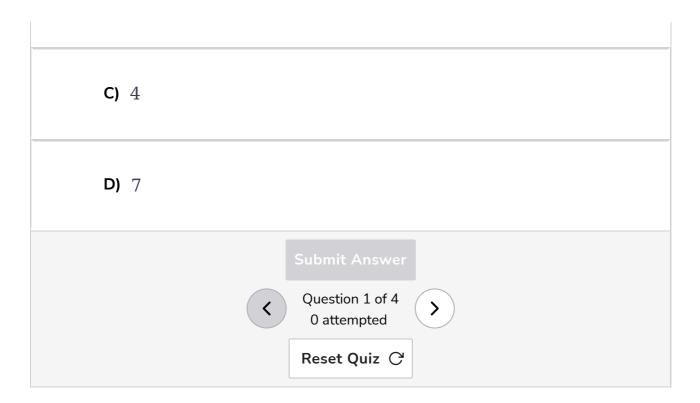
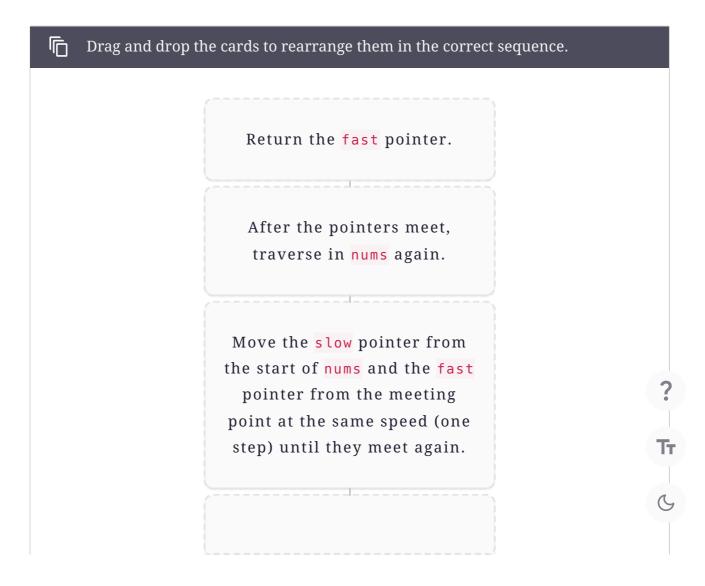


Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.



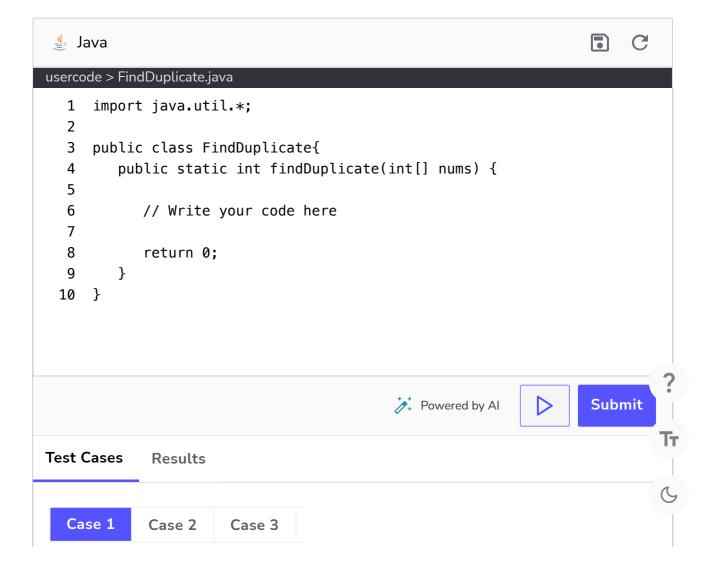
Move pointers until they
meet. The slow pointer moves
once and the fast pointer
moves twice as fast as the
slow pointer.

Traverse in nums using the
fast and slow pointers.



Try it yourself

Implement your solution in the following coding playground:



[3,4,4,4,2]

Find The Duplicate Number



Solution: Circular Arra...



Solution: Find The Du...



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