



Find the Missing Number

You are given an array `arr` containing $n-1$ distinct integers. The array consists of integers taken from the range 1 to n , meaning one integer is missing from this sequence. Your task is to find the missing integer.

Input:

An integer array `arr` of size $n-1$ where the elements are distinct and taken from the range 1 to n .

Example : `arr = [1, 2, 4, 5]`

Output:

Return the missing integer from the array.

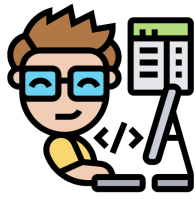
Example: Missing number: 3

Constraints:

- The array contains exactly $n-1$ distinct integers, and all integers are in the range $[1, n]$.
- You must solve the problem with a time complexity of $O(n)$.
- The space complexity should be $O(1)$ (constant space).
- $1 \leq n \leq 10^6$

Test Cases:

1. Test Case 1
Input: `[1, 2, 4, 5]`
Output: 3
2. Test Case 2:
Input: `[2, 3, 4, 5]`
Output: 1
3. Test Case 3:
Input: `[1, 2, 3, 4]`
Output: 5
4. Test Case 4:
Input: `[1]`
Output: 2



DAILY PROGRAMMING

CHALLENGE



5. Test Case 5:

Input: [1, 2, 3, ..., 999999]

Output: 1000000

Edge Cases:

1. The smallest possible array where $n = 2$. The missing number can only be 1 or 2.
2. The largest possible array where $n = 10^6$.