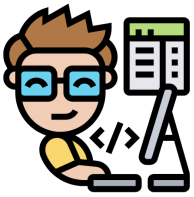

DAILY PROGRAMMING
CHALLENGE

WISDOM SPROUTS
IT Training Hub

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

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.