UNITED INTERNATIONAL UNIVERSITY

Department of Computer Science and Engineering (CSE)

CT-01

35 mins

Set B

Course: DSA I Lab **Course Code: CSE 2216**

Trimester & Year: Spring 2025 **Section: D**

Name : **Total Marks: 20**

ID:

SN	Questions	Marks
1		10

You are given a sorted array **nums** containing **n** distinct numbers in the range **[0, n]** in strictly increasing order. Your task is to find and return the only number in this range that is missing from the array.

You must implement an algorithm with **O(log n)** runtime complexity.

Input:

- The first line contains an integer **n** — the number of elements in the array.
- The second line contains **n** distinct integers **nums[i]** (**0 <= i < n**) representing the given sorted array in strictly increasing order.

Output:

- Print a single integer — the missing number in the range [0, n].

Sample Input	Sample Output
3 0 1 3	2
4 0 1 2 4	3

Marking Criteria

Logic	**4**
Implementation	**4**
Overall correctness	**2**

SN	Questions	Marks
2	You are given two strings **s** and **t**. String **t** is generated by randomly shuffling string **s** and then adding **one extra letter** at a random position. Your task is to determine and output the letter that was added to **t**. ## Input: ● The first line contains a string **s** — the original string. ● The second line contains a string **t (|s|+1)** — the modified string after shuffling **s** and adding one extra letter. ● Both strings consist of only **lowercase English letters** (’a’–’z’). ### Output: ● Print a single character — the letter that was added to **t**. **Sample Input** / **Sample Output** abcd abcde → e hello oelfhl → f **Marking Criteria** **Logic** — **4** **Implementation** — **4** **Overall correctness** — **2**	**10**