CS 358 Compiler Techniques Lab

Assignment 3

Maximum Marks: 100

Start Date: 24.01.2025 02:30 PM

Submission Deadline:31.01.2025 11:59 PM

Instructions:

1. This assignment must be done individually.

2. *For late submissions, 10% is deducted for each hour late after an assignment is due.*

3. You need to submit your code and document in Google Classroom.

4. You should submit **ONLY ONE SINGLE PDF FILE** containing your code and material. You should name your pdf file as **rollNumber_name.pdf**

Question 1 [Marks: 30]: Write a C program to find the length of the Longest Increasing Subsequence (LIS) in a given array of integers. An increasing subsequence is a sequence of elements from the array such that each element is greater than the previous one, and the order of elements in the subsequence is the same as in the array. Program should work for any random array of any size.

Question 2 [Marks: 30]: Write a C program to find the smallest positive integer missing from an unsorted array of integers. The missing number should be greater than 0 and should not exist in the array.

Question 3 [Marks: 30]: Write a C program to check if a given string is a valid rotated palindrome. A string is considered a rotated palindrome if any rotation of the string is a palindrome. A string is a palindrome if it reads the same backward as forward after ignoring case, spaces, and non-alphanumeric characters.

Example:

String: “aab”

Rotations of “aab”:

Original: “aab”

Rotation 1: “aba”

Rotation 2: “baa”

Palindrome Check:

“aab” is not a palindrome.

“aba” is a palindrome (reads the same forward and backward).

“baa” is not a palindrome.

Thus, “aab” is a rotated palindrome because one of its rotations, “aba”, is a palindrome.