भारतीय सूचना प्रौद्योगिकी संस्थान गुवाहाटी
INDIAN INSTITUTE OF INFORMATION TECHNOLOGY GUWAHATI

Data Structure Lab, B.Tech 2nd Semester

Instructions

1. After completion, you can share the files through the google form, the link will be provided.
2. Deadline to submit is 10th June 2023.

Assignment -7

1. Write a C program to sort a list of strings in alphabetical order using the insertion sort algorithm.

   Sample Input & Sample Output

Input	**Output**
["banana", "apple", "cherry", "date"]	Enter string one by one: List of strings: ["banana", "apple", "cherry", "date"] Sorted list of strings: ["apple", "banana", "cherry", "date"]
["orange", "grapefruit", "apple", "banana"]	List of strings: ["orange", "grapefruit", "apple", "banana"] Sorted list of strings: ["apple", "banana", "grapefruit", "orange"]

2. Write a C program to search for the first occurrence of a given string in a list of strings using the linear search algorithm.

   Sample Input & Sample Output

Input	**Output**
["apple", "banana", "orange", "kiwi", "mango"] “orange”	Enter string one by one: Input: List of strings: ["apple", "banana", "orange", "kiwi", "mango"] Search string: "orange"

	The first occurrence of "orange" is found at index 2.
["cat", "dog", "elephant", "lion", "tiger", "elephant"] "elephant"	Enter string one by one: List of strings: ["cat", "dog", "elephant", "lion", "tiger", "elephant"] Search string: "elephant" The first occurrence of "elephant" is found at index 2.

3. Implement the Merge Sort algorithm using linked list to sort an array of integers in non-decreasing order.

Sample Input & Sample Output

Input	**Output**
7 -> 3 -> 9 -> 2 -> 5	Enter the element of linked list Linked list: 7 -> 3 -> 9 -> 2 -> 5 Sorted linked list: 2 -> 3 -> 5 -> 7 -> 9
4 -> 1 -> 6 -> 3 -> 9 -> 2	Enter the element of linked list Linked list: 4 -> 1 -> 6 -> 3 -> 9 -> 2 Sorted linked list: 1 -> 2 -> 3 -> 4 -> 6 -> 9

4. Write a C Menu Driven Program for Bubble, Selection and Insertion Sort Algorithm using switch case.

Input	**Output**
7 , 3 , 9 , 2 , 5	Enter the number of elements: Array before sorting: 7 , 3 , 9 , 2 , 5 Display the menu: Enter your choice: Sorted array after Appling Name Sort: 1, 2, 3, 4, 6, 9