National University of Computer and Emerging Sciences, Lahore Campus

Course Name:	Data Structures	Course Code:	CL2001
Program:	BS(CS)	Semester:	Fall 2023
Duration:	1.5 Hours	Total Marks:	50
Paper Date:	22-Sep-23	Weight:	7.5%
Section:	BCS-3F	Pages:	2
Exam:	Quiz-1		

Student : Name: **Roll No.**_____ **Section:**

Instruction/Notes:

Scenario: To-do List Application

You are given the task of implementing a to-do list application using a singly linked list. Each node in the list represents a task, and you need to perform various operations on this list. Implement the following functionality:

- Insert a Task: Users can add a new task to the to-do list. Each task has a title and a due date.
- Mark as Complete: Users can mark a task as complete when they finish it. Completed tasks should be moved to a separate list called the "Completed Tasks List."
- View Upcoming Tasks: Users can view the titles and due dates of all upcoming tasks (tasks that are not yet marked as complete) in the to-do list.
- View Completed Tasks: Users can view the titles and due dates of all completed tasks in the "Completed Tasks List."

Question: Imagine you are a software developer working on this to-do list application. Write a C++ function to insert a new task into the to-do list. The task structure should contain the title and due date. Your function should take these two parameters and add a new task node to the to-do list. Ensure that the tasks in the list are organized based on their due dates in ascending order. If two tasks have the same due date, consider them in the order they were inserted. Provide the C++ code for this function.

Remember to consider the following points:

- You have already defined a singly linked list structure for tasks.
- Each task node contains two fields: title (a string) and due date (an integer representing the number of days until the task is due).
- You have access to the head of the to-do list.

You should define the necessary data structures and implement the function to insert a new task while maintaining the correct order of tasks by due date.

Please provide the code for the insertTask function, including any necessary data structures and declarations.