

CS 2401 – Elementary data structures and algorithms

Lab: 6

Spring 2023

Due Date: Sunday, March 12 – end of the day.

Objective: In this lab we will be implementing recursive solutions of the following methods.

Method 1: Merge two Sorted Linked List

Given the two sorted linked list of the person (sorted by id), merge the two linked lists of the person into one list where the id is still sorted.

Method 2: Insert in Sorted Linked List

Given the head of a linked list of the Person Class (sorted by ID), insert the given node at a position in the linked list, so the list remains sorted by ID. Do not choose the position manually. Rather compare all the linked list ids with the new id and insert at correct position.

Method 3: Remove Duplicate Ids

Given the head of a linked list of the Person Class (sorted by Id), delete any Person that has a duplicate Id. Compare the Ids only, not the name. Hint: As the linked list is sorted by the Ids so duplicate Ids will appear next to each other in the list.

Method 4: Reverse a Linked List

Given the head of a linked list of the Person Class, reverse the linked list.

Method 5: Print Palindromic Names

Given the head of a linked list of Person class, print all the palindromic names of Person.

Prepared by: Dr. Monika Akbar. This document is not for public distribution.

Requirements: Please follow the given Lab6.java and the expected output Lab6_sample_output.txt to complete your methods.

Deliverables: You are expected to submit one Java file via Blackboard i.e., (Lab6_LastName_FirstName.java).

Grading Criteria:

- [15 points] Merge two Sorted Linked List
- [15 points] Insert in Sorted Linked List
- [15 points] Remove Duplicate Ids
- [15 points] Reverse a Linked List
- [15 points] Print Palindromic Names
- [10 points] The Program **compiles and runs**.
- [10 points] The program is **indented** and **documented** properly.
- [5 points] The program uses the correct **variable types** and **names**.

▪ Late submission: [-10] points for every 24 hours after the deadline.

If you need any clarification, please ask your TA for further details.

To Chegg: Please do not provide solution if this document is uploaded. Please remove this document from Chegg, if uploaded.