ITI 1121. Introduction to Computer Science II

Laboratory 10 (Script)

Winter 2017

1 Linked Lists

This first part of the lab was added to help the students learn about linked lists, and to help with the Ordered-Structure Exercise in the second part of the lab. This section explains two types of linked lists: **Circularly** linked lists, and **Doubly** linked lists. We introduce the Circularly linked lists first as a way to discuss the iterators in the context of circular queues, which leads nicely into the next topic about Doubly linked lists. The majority of the answers to the exercises in this part of the lab are given to the students, so just be sure to visit each student to see if they have any additional questions about linked lists.

2 OrderedStructure Exercise

For the second part of the lab, the students will create a doubly linked with a dummy node list implementation of the interface **OrderedStructure**. Please circulate to see if the students have any questions about parts of the exercise, giving them time to come up with their own solutions. When you feel the time is right, go through the parts of the solutions that student are having the most trouble with. Try and do this iteratively through different parts of the exercise.

3 Introduction to Git

The third part of the lab explains why version control systems are important to learn, and introduces the **Git** version control system and the **GitHub** hosting service. This part of the lab is an advanced section, and was added because we realized a lot of students have never used a version control system yet, and knowing how to use a version control system will be very useful for the rest of the students studies and very likely useful at work.

   This part of the lab is meant for the students to try and figure out on their own, but if you have knowledge of how to use Git and GitHub, I'm sure it will make a world of a difference if you gave the students a small demo, or answered any of their questions. Otherwise, if students have questions about this part of the lab, refere them to the Reference section of the lab where we've linked some very useful videos, and encourage them to google any other questions they may have. Also, there may be other students in the class who are quite knowledgable about Git and GitHub, in which case please encourage these students to help those students with less knowledge about Git and GitHub.

4 Quiz

The fourth part of the lab is a quiz. The quiz below will be made available to the students. The students must submit an answer to the quiz on blackboard.

Quiz (1 point) For the ArrayList implementation of the interface List.

1. Insertions at intermediate positions are always fast.

2. Adding an element at the rst position is always fast.

3. Removing an element is always fast.

4. Reading the value of an intermediate position is always fast.

Solution 4.