CIS 044:   
Introduction to Data Structures Using Java

Homework & Lab #4

**Instructor**

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**Guidelines**

**Please follow the guidelines below:**

**Submit the homework and lab solutions in drop box. For a programming question, submit a .java file (for source code) and a .txt file for program output.**

**Problem 1**

Start with the file **AList.java** and add the following methods:

1. Add the method

**public int getLastIndex(T item)**

which returns the index of the last entry which is equal to item. If **item** is not found, it returns -1. (15 points)

1. Add the method

**public int removeEvery(T item)** that removes all occurrences of **item** and returns the number of removed items. (15 points)

1. Add the method

**public boolean equals(Object other)**

that returns true when the contents of 2 AList objects are the same. Note that 2 AList objects are the same if they have the same number of items and each item in one object is equal to the item in its corresponding location in the other object (15 points)

**Problem 2**

Start with the file **LList2.java** and add the following methods:

1. Add the method

**int getLastIndex(T item)**

that returns the index of the last entry which is equal to **item**. If item is not found, it returns -1. (15 points)

1. Add the method

**int removeEvery(T item)** that removes all occurrences of **item** and returns the number of removed items. (15 points)

1. Add the method

**boolean equals(Object other)** method that returns true when the contents of 2 LList2 objects are the same (the two objects in this case are the current object and **other**). Note that 2 LList2 objects are the same if they have the same number of items and each item in one object exists in the same location in the other object (15 points)

1. Provide a second implementation of the method

**boolean contains2(T anEntry)**

that calls a private recursive method

**private boolean contains(T anEntry, Node startNode)**

that returns whether the list that starts at **startNode** contains the entry **anEntry**. (10 points)