**CSC123 Programming Project 5**

**Data Structures and Generics**

**Problem Description**

Write a class that provides the following three methods:

1. Iteratively reverse a list

public static LList<E> iterativeReverseList(LList<E> list)

that accepts a reference to a LList<E> and returns a reference to another LList<E> that contains the data of the original list in reverse order. Your method should be implemented using iteration.

1. Recursively Reverse a list

public static LList<E> recursiveReverseList(LList<E> list)

that accepts a reference to a LList<E> and returns a reference to another LList<E> that contains the data of the original list in reverse order. Your method should be implemented using recursion.

1. Sort Using ArrayList

public static ArrayList<String> insertSort(ArrayList<String> list)

that accepts a reference to an ArrayLIst<E> and returns another ArrayList<String> that contains the data of the original list in ascending order. You can implement your method as insertion sort or selection sort. You cannot use the Java sort methods.

Write a test class to test above three methods. Your test data list should contain at least 20 data items.

**Submission**

The completed project should be included in a single file and submitted onto the blackboard. The hardcopy or email submission will not be accepted. Your submission should include:

1. The Java code for all classes, all put in a single word or PDF file.
2. Your test: including test data, test cases, and test results. You may show screen shots for the test results.