

## CSCI2010U – Laboratory #6 Sorting Linked Lists

### Introduction

This lab has two activities that relate to out-of-place sorting and in-place sorting. To complete this lab you will need to visit the course website and download the required Lab 6 resources:

- City.java
- Demo.java
- LinkedList.java
- LinkedListElement.java

### Activity 1: Out-Of-Place Sorting (4 marks)

The first activity involves modifying the `sort_OutOfPlace()` method in the `LinkedList` class:

```
//Sort the current list and return it as a new list
public LinkedList<S> sort_OutOfPlace() {
    ...
}
```

Currently, this method sorts the list of cities by name (alphabetically). You need to change this method and if necessary change the `City` and `LinkedListElement` classes so that you can sort the list of cities by population (largest -> smallest). Your changes should keep the `LinkedList` class generic and able to sort other data (e.g., `Strings`). *[Note: the cities should be sorted with the largest population first!]*

### Activity 2: In-Place Sorting (6 marks)

The second activity involves implementing the empty `sort_InPlace()` method in the `LinkedList` class:

```
//Sort the current list
public void sort_InPlace() {
}
```

This method should be modified to sort the current linked list of cities from smallest to largest (by name or population is fine).

### **What needs to be submitted?**

Please submit the following Java source files on Blackboard:

- City.java
- Demo.java
- LinkedList.java
- LinkedListElement.java

You do not need to submit your Eclipse project file.