CSE1030 Labs 7&8

Friday, August 1, 2014, before 23:59
Due: Tuesday, August 5, 2014, before 17:00

Introduction

This lab will allow you to practice using both recursion and lists in Java. Recursion will be used to implement merge sort as a static method similar to `Collections.sort(List<T> list)`. Linked list will be the type of the structure on which the algorithm will operate.

In eclipse:

1. Create a new Java Project (perhaps called `lab7`)
2. In your project, create a new Package named `L7`
3. In the package `L7` create new Java class named `Lab7` in which you will implement your sorting algorithm as a public static method:

   ```
   public static <T extends Comparable<? superT>> void sort(List<T> list)
   ```

   The method should implement the merge sort and should modify the list `list` passed as a parameter

4. In the same project, also create a test class `Test` that creates a `List` (e.g., a LinkedList) of random numbers (e.g., use `Integer`, ~50 numbers). Print the numbers in the list. Sort the numbers – using your sorting algorithm implementaion. Print the numbers in the list again to demonstrate the correctness of your implementation.

Your implementation should be robust: e.g., it should not fail on empty lists, lists of size 1, odd sizes, even sizes, etc. If you have any questions, don't hesitate to contact the instructor.

You might find the following useful:

http://docs.oracle.com/javase/tutorial/java/generics/

http://docs.oracle.com/javase/7/docs/api/java/util/Collections.html

http://docs.oracle.com/javase/7/docs/api/java/util/LinkedList.html

Submit

Submit your solution using the `submit` command. Remember that you first need to find your workspace directory, then you need to find your project directory.

```
submit 1030 L7 <names of all your files separated by spaces>
```

Alternatively, you may use the web form at
`https://webapp.eecs.yorku.ca/submit/index.php`