(130 pts) due: November 14, 2013 11:59pm

Important Notes

- **This assignment is to be done on your own.** If you need help, see the instructor or TA.
- Please start the assignment as soon as possible and get your questions answered early.
- Read through this specification completely before you start.
- Some aspects of this specification are subject to change, in response to issues detected by students or the course staff.

1 Description

The goal of this assignment is to write a Java program to sort objects and practice unit testing. In particular, we are going to work on intervals defined as below:

```
/**
 * Definition for an interval.
 */
public class Interval {
    int start;
    int end;
    Interval() { start = 0; end = 0; }
    Interval(int s, int e) { start = s; end = e; }
}
```

Do not change the class Interval. Use it as is. You need to implement the following methods:

- Insert a new interval into the intervals defined as an ArrayList of Intervals and merge intervals if necessary. For example, if there are two intervals `[2,5],[6,9]` in this order in the ArrayList, insert and merge `[3,5]`, the resulting list is `[2,5],[6,9]`. As another example, given `[1,3],[4,5],[6,7],[8,10],[11,12]`, insert and merge `[2,9]`, you should obtain `[1,10],[11,12]`. Note that if you insert intervals one by one into an empty list, your list should always be sorted.
- Merge all overlapping intervals from a given collection of intervals (not necessarily sorted). For example, given `[1,4],[2,5],[7,10],[12,19]`, your method should return `[1,5],[7,10],[12,19]`.
- Make up your own JUnit test cases for these two methods.

The interface of the required methods are defined as below:

```
public class IntervalUtil {
   ...
   public ArrayList<Interval> insert(ArrayList<Interval> intvls, Interval newInterval){
      ...
   }
```

```
    public ArrayList<Interval> merge(ArrayList<Interval> intvls) {
        ...
    }
}
```

2 Submission

Provide working code for the class and method required for this assignment (70pts), including the JUnit test (60pts). Turn in a zip file named LastnameFirstname-Assignment5.zip, containing all your source code. The package name for the project must be edu.brynmawr.cs206.assignment5. Include the Javadoc tag @author in each class source file. **Do not turn in class files**.