CPSC 223: Class Project, Part #3
Due Tuesday, December 2
Final Report Due Thursday, December 16

This is the last part of the project. Your job is to benchmark your algorithm implementations, and prepare your in-class presentation and final report.

**Result Prediction.** Before you benchmark your algorithms, each member of your group should individually make predictions on how you think each implementation will perform relative to the others. You should discuss these as a group, and come up with a set of predictions for the group (these may be different than your individual predictions). Write down your individual and group predictions.

**Benchmark your Implementations.** You need to design and run a set of tests to benchmark your algorithms. The overall goal of these tests are to give you sufficient data to compare and contrast the performance of your algorithms. Your tests should compare the runtime speed of your three implementations. Your tests should be automated (using your test script) and should at least consider one or more “small”, “medium”, and “large” data sets. The large datasets should be large enough to see a difference in runtime speed from your small and medium-sized datasets. For each size of dataset, you should consider different cases, e.g., if you are comparing sorting algorithms, you should consider at least three data sets for each size (one sorted, one reverse sorted, and one random).

**Comparison Graphs.** You must generate a set of graphs showing the results of your tests. Each graph should compare different test cases. For example, you might consider a set of graphs in which each compares all three implementations over all the different dataset sizes. You might also consider a set of graphs in which each shows the performance of a specific algorithm over each type of dataset. Excel and Open Office can each be used to create these graphs. Each of your graphs must have have labels on each axis (typically the x-axis will list dataset sizes (or types) and the y-axis the runtime). Be sure to include units on your axis!

**In-Class Presentation (Due December 2).** You will have approximately 6 minutes for your in-class presentation. Each member of your group should speak during the presentation. Your presentation should include at a minimum:

1. Your names and the name of your group
2. The algorithms you selected to study
3. The reason you selected these algorithms
4. A brief description of how the algorithms work
5. Your initial performance “predictions”
6. The design of your performance tests

7. Your test results (including your graphs)

8. A brief summary of results

You may create a set of Powerpoint or PDF slides for your presentation. If you choose to use slides, your group should email me your slides before class on December 2nd. Your presentation will be graded on content and clarity.

**Project Report (Due December 16).** Your project report should include: (i) an overview of your project, your test design, and test results including the timings for each dataset and your graphs (approx. 2 pages); (ii) your source code; and (iii) the slides from your presentation. Hand in your report on or before the class final. As with your presentation, your report will be graded on content and clarity (which includes “mechanics”, i.e., spelling and grammar).