EECS 233 – Final Project

Submission	Points	Due at 11:59 PM	What to Submit
Proposal	10	Tue, Nov 28	Typed answers to questions below (Word or text file).
Progress Report	30	Tue, Dec 5	Zip file of all necessary files.
Presentation	(+10)	Nov 30 – Dec 7	Slides or outline of presentation.
Final Report	60	Tue, Dec 12	Zip file of all necessary files.

Note: For groups of 2, *both* group members must submit each item with *separate* progress reports.

General instructions: You can work by yourself or in a group of 2 people. (A group of 3 may be allowed with advanced permission only.) The final project is worth 10% of your grade for the course. You will write an application of your own choosing. The project must agree with the accepted proposal, and major design changes after the proposal must be approved. The workload is expected to be approximately 10 hours per person. For a group project, both students will generally receive the same grade, except in cases of unequal effort. Perform the following tasks:

1. Choose *two* or more comparable data structures or algorithms. Here, "comparable" means that they serve the same purpose using different approaches. If desired, you may develop your own, novel data structure or algorithm and compare it to an established one. You may wish to compare two that are both considered "good", or you may wish to compare a "good" one to a "bad" one.

2. Experimentally analyze the Big-O run time of at least *three* characteristics that were not specifically covered as part of EECS 233 assignments. For data structures, this could include new operations, new approaches to previous covered operations, and new considerations for the kind of data. For algorithms, this could include new variations on the problem to be solved or new characteristics of the data to be processed. **NOTE: The application must be written in Java so that teaching staff can easily run the programs.**

3. Explain the theoretically expected results for the experiments in #2 above. You may report on existing knowledge in the literature (including textbooks) or derive the theoretical expectations yourself.

Submissions (see due dates above)

1. *Proposal (10 pts)*: Submit a typed document with your name and answers to the questions below (1 page maximum). You will be graded based on clarity and completeness. The design of your application can be changed later, but any significant changes should be approved by the instructor and accompanied by a revised proposal. If you are in a group, both group members must submit this.
   a. Do you have a partner? If so, who is it?
   b. Explain the structures/algorithms you have chosen and the three characteristics you will analyze.
   c. Will you use any specialized code written by someone else? If so, explain. Note that software from other sources can be used but does not count toward the requirements.

2. *Progress report (30 pts)*: You should have analyzed at least one characteristic of all structures/algorithms. Submit the following:
   a. A typed document (minimum of 1 full page) that explains: (1) what you have done so far, (2) what the results were, (3) the purposes of your program/data files (see "b" below), and (4) what problems you have encountered. If you are working with a partner, briefly (1-2 sentences) explain what your partner worked on.
   b. All files, including program and data files. These are not required to be functional, but comments should be inserted where necessary to explain significant parts of the program. Note: do not use more than 10 MB of support files because these may be difficult for teaching staff to download.

3. *Final report (60 pts)*: Submit the following:
   a. A typed document (minimum of 2 full pages, not including #5) that explains: (1) the relevant details of the data structures or algorithms, (2) the experimental procedures, (3) the results of the experiments, (4)

the theoretical expectations, (4) overall conclusions, and (5) an appendix that details all program and data files, including the purpose and proper usage. Note that (5) does not count toward the 2-page requirement. If you are working with a partner, briefly (1-2 sentences) explain which aspects of the project each of you worked on.

b. All files, including program and data files. These should be functional, but comments should be inserted where necessary to explain significant parts of the program. Note: do <u>not</u> use more than 10 MB of support files because these may be difficult for teaching staff to download.

4. *OPTIONAL: Presentation (+10 pts)*: This part is optional and is equivalent to 1% of your grade for the course. Explain your project, any results you may have, and/or what you expect. Presentations should be approximately 2 – 3 minutes in duration. A signup form will be provided, and advanced registration will be required.