

## CX 4010 / CSE 6010 Assignment 5

### Class Project

#### Due Dates:

- Discussion of proposals: in class, Friday November 3, 2017
- Proposal due: 11:55 PM, Monday November 6, 2017
- Presentation: Week of November 27 and December 4, 2017
- Final Report: 11:55 PM, Tuesday December 5, 2017
- No late submissions will be accepted
- All deliverables must be a joint effort. Only one student in each team should submit materials to t-square on behalf of the entire team.

This assignment involves participating in a team of two or three students to work on a computational problem of your choice. The scope should be at least as large as the team programming assignments occurring earlier in the semester. The project must start by defining a problem in some application domain, and involve the development of C code to explore some domain-specific question. The project must involve developing software in C and exercising it to perform a study. The project may involve development of sequential or parallel code.

The project must involve the joint development of code by the team that interacts programmatically through function calls or accesses to global variables, or by one code generating a file used by a second code. For example, a project might involve the development of a single discrete event simulation, and dividing up the development of event handler functions among members of the team. Projects involving the development of separate, independent programs that do not interact are not allowed. For example, a project involving comparison of the execution time of different sorting algorithms is not a suitable project both because it does not address an application question, and the resulting software components do not interact.

We will *not* assign teams; rather you should identify another student (or two) to work together on your team. Team should not contain more than three individuals. Teams that include both CX 4010 and CSE 6010 students must receive prior approval. One-person projects are also not allowed. The class session on November 3 will be used for students to briefly (in one or two minutes) present project ideas, and to help match individuals to teams as needed. Each team should plan to briefly discuss their project idea at this session.

Each individual in the team must develop code. For this purpose, each team must decompose the project into distinct components, with each component including a software development task. The interface and tasking for each component must be explicitly defined and described in the project proposal and final report. The parts of the project might be integrated by defining an application program interface (e.g., by creating header files that define the interface) or by defining a file format for data passed between the two components. Ideally, each component will be something that can be tested separately to demonstrate it functions correctly even if the other components are not functional.

Some projects may involve the use of existing software or other resources, however, use of such software must be described explicitly in the project proposal as well as the final report. It is expected that all projects will involve some significant additional software development beyond these other resources.

## **1. Project Proposal**

The project proposal should be comparable in detail to the write up for assignments 2 and 3. It should include the following information:

- (1) name of the project or software you will develop,
- (2) names of members of your team,
- (3) a brief description of the application area the project examines, the questions that will be addressed, and the goals of the project,
- (4) a description of how the project will be divided among team members with a block diagram illustrating the software components that will be developed and description of how they interact.
- (5) discussion of any existing software or data that will be used, and a clear description of what new code will be created.

Include references to the literature, as appropriate. The intention of the proposal is to provide sufficient information in order to assess if the project is suitable for the course, especially in terms of scope and complexity. The proposal will form a portion of the grade for the project.

## **2. Project Presentation**

Each team will give a brief oral presentation to the class describing their project. Each person on the team must present some aspect. The presentation should be organized as a single presentation given by the members of the team, not two or three separate presentations.

## **3. Final Report**

The final report represents the complete documentation for the project. You should turn in:

- A report describing the results from your project. You may reuse material from the project proposal for the final report.
- All source code, data files, etc. developed and used in the project.
- The materials (e.g., powerpoint slides) used in your project presentation.

The report must be a single document jointly authored by all members of the team.

## **4. Final Comments**

Be careful to scope the project to something that can be completed on time! Please consult with the TA or class instructor if you are uncertain if your project has a suitable scope.

Turn your report and software in as a single zip file. Your software must be well documented and include comments so the code is easy to understand. You should include a README file with instructions on how to compile and run your program. Only one person should submit the project deliverables on behalf of the entire team.

Finally, a reminder you must adhere to the Georgia Tech honor code, and the collaboration policy stated in the course syllabus. All code that originated from other sources (including the web) must be clearly documented as such in the project proposal as well as the final report. Disseminating your code to other students outside your team is strictly prohibited.