Final Project Instructions

Due Dates

- Idea Submission - Nov 11th, Canvas Quiz
- Detailed Plan - Nov 18th, Canvas Assignment
- Final Program & Paper - Dec 2nd, Canvas Assignment

Purpose

The purpose of your final project is to give you experience turning the abstract concepts we've learned in class into practical programming, and to give you experience talking about the concepts used in your program in layman's terms. The learning objectives of this assignment are to be comfortable employing your chosen topic into a real world program and to be able to articulate how a program works and what it relies on. As a professional in computer science, you'll have to use all of the concepts we've learned in building programs as well as communicate with team members and coworkers on the work you've done.

Task

You will write a program that clearly demonstrates the use of one of the topics in our class. Your program should solve a real-world problem, though it may be a simple one. You will also submit a 1-2 page paper that thoroughly describes the mechanics of your program, what it accomplishes, and how the in-class topic is used.

You will submit your work in three steps

1. Submission of idea and programming language -- 15 pts, Nov 11th via Canvas Quiz.
2. Detailed plan of your program using **this outline (https://auburn.instructure.com/courses/1429866/files/201823648?wrap=1)** **(https://auburn.instructure.com/courses/1429866/files/201823648/download?download_frd=1)** -- 35 pts, Nov 18th via Canvas Assignment.
3. Final program code and paper submission -- 50 pts, Dec 2nd via Canvas Assignment.

Criteria for Success

Idea Submission - 15 pts

10 pts	Student chose a major and reasonably complex topic to use in their program. Student chose a different topic than other class participants.
5 pts	Student included programming language.

Detailed Plan - 35 pts

Use this outline - word (https://auburn.instructure.com/courses/1429866/files/201823648?wrap=1) (https://auburn.instructure.com/courses/1429866/files/201823648/download?download_frd=1) or pdf. (https://auburn.instructure.com/courses/1429866/files/201823649?wrap=1) (https://auburn.instructure.com/courses/1429866/files/201823649/download?download_frd=1)

5 pts	Student answered first three questions on form. Student was clear with their responses, and it is easy to understand what problem they are solving. Student does not need to write in complete sentences.
15 pts	Student fully and descriptively answered fourth question on form. Student indicated important variables, structures, the use of the topic in the program, and the result of the program. Student does not need to write in complete sentences and may use psuedocode.
15 pts	Student fully and descriptively answered last four questions on form. For questions 6, 7, student's response was clearly thoughtful and unhurried. Student does not need to write in complete sentences, but it is recommended for questions 6, 7.

Final Program & Accompanying Paper - 50 pts

You will submit your final program, along with test data to prove that your program works (30 pts). You will also submit a 1-2 page paper, (20 pts) written in MLA format (12 pt, double spaced, Times New Roman or Calibri). Your paper should answer the following questions:

- What role does your topic play in the program? How does it interact with other elements of the code?
- What role does your topic play in solving the real-world problem?
- Is there a way that you could solve this problem without the use of this topic? Why or why not?
- Reflect on your learning process in writing the program -- Was it harder than you thought to employ the topic? Easier? What were your limitations in demonstrating your topic in code? What previous experience helped you? Do you now feel more confident using other topics from this class?

*Note, the final question point here is meant to be a reflection. If you feel that this assignment was not helpful in your learning, you are free to express that without grade penalty.

Paper Rubric

5 pt	Student submits a paper that meets the required length and format requirements. Paper is written in complete sentences with minimal grammar and spelling mistakes.
10 pt	Student fully answers the four questions above, and demonstrates a deep understanding of both the topic and how the topic functions in their code.
5 pt	Student demonstrates a thoughtfulness in their writing, especially concerning the final two question points.

Program Rubric

5 pts	Code is succinct and devoid of unnecessary variables and "fluff." Code is submitted in the language which the student chose and runs without bugs.
5 pts	Student provides test data and the program successfully uses the data to solve the proposed problem.
20 pts	Student's program demonstrates the use and mastery of the chosen topic. The chosen topic is an integral part of the code and is essential for solving the problem. The code written that involves the topic is the student's original work.