Rukudzo Mushunje
9/15/2025
Senior Design
Assignment 3

<div align="center">Essay</div>

The senior design project my team and I are tackling is a competitive coding platform. This system will allow users to compete against each other on various coding assessments. The reason we chose this topic is that it integrates a wide array of disciplines that we have learned during the curriculum. From my own academic experience, this project ties directly into core computer science courses, including computer networks, database design, and software engineering. The idea of adding a competitive edge to typical programming questions is a unique and interesting take on learning that will make the process both fun and engaging.

My academic journey has exposed me to a variety of courses, both related and unrelated to my major. Most memorable were those where a professor offered a unique perspective. In Computer Science 1, Professor Williams Hawkins's reliability and approachable style made the introduction to basic programming entertaining and enjoyable. Courses like Giovanni's Intro to Computer Systems and Gallagher's Operating Systems were particularly impactful, as they introduced me to low-level computer architecture and systems thinking—areas often overlooked in general computer science curricula. These courses, while not always focused on job-specific skills, helped me become a stronger overall computer scientist by providing a deeper understanding of the underlying principles behind the infrastructure and industries that make up the field.

My co-op experiences at P&G's Digital Acceleration Center and Siemens have been instrumental in my professional development. At P&G, I worked as a developer on two projects, one involving IoT devices and the other focusing on data management and data science. There, I gained technical skills in device configuration, database management, and data analysis. At Siemens, as a strategic co-op intern, I was a part of a DevOps team that worked on creating custom VS Code extensions and configuring API endpoints. This experience taught me about AI principles, VS Code extension creation, and Object-Oriented Programming (OOP) fundamentals. Beyond these technical skills, my co-ops taught me how to effectively collaborate, manage basic projects, and communicate in a hybrid work environment. The most valuable takeaway from these experiences was learning how to work with people and build a productive environment, a skill I plan to apply directly to my senior project.

The motivation for this project is creating a competitive coding application. Merging popular gaming and competitive aspects that people are used to with conventional coding problems. My teammates are people I've worked with in the past and that I have good chemistry with. The preliminary project approach that we have decided to implement is that we are going to spend the first two weeks ideating on possible ideas that we want to implement in the project. Then we are going to construct a roadmap before we start implementing features for the project. I am excited to work on this project because it will be a serious implementation of my current knowledge. This will be a project that I will be able to implement from start to finish.

Our primary goal for this project is a working demonstration of a 1v1 competitive match. A fully developed front end is also an essential component. To manage our progress, we will use GitHub Issues to track tasks, which will be divided among the group. A task will be considered complete when it meets the criteria we've established. We will hold regular discussions to ensure that our work aligns with the overall vision of the project. This self-evaluation process will help us maintain the accuracy and quality of our work.