**Multiplayer Video Game**

For my capstone project, I wished to do something that I felt would not only be something that was of close interest to me, but additionally something that may be of value to understand for the specific field I will be going into. Because of those reasons, I chose to work on a video game that would support multiple players across a network, specifically up to four, and to understand what went behind making a program that would display simultaneously across the machine of all users. Additionally, I worked in a group of three in order to emulate working in a team and reinforcing other concepts of working in a team that my classes had already taught me.

As such, a majority of our efforts went into making sure that our game was synchronised for all the players, as the type of game we chose to make required all players to be updated real-time of what was currently happening in the game. This specifically proved to be a great challenge, and was personally the most difficult problem that we tackled on this project. Anytime a networking problem occurred, we had to differentiate whether it was a physical limitation on the engine we chose for our networking system, or due to our minimal prior experience with networking and a lack of in-depth documentation for the engine.

In order to solve such problems, we had to focus on isolating individual components of our game and making sure that specific component performed well before moving onto the next. Initially, our project consisted merely of prototypes of the different components to ensure that if any problems did arise, we could tackle it individually. This ensured that we knew what the problems were beforehand and exactly where it was from. From there, we could determine if it was a limitation and how to mitigate it for player experience, or a coding error on our part.

In the end, I learned how difficult it is to synchronise multiple machines across a network, but still also create a successful video game that ensures that these networking problems do not negatively impact the players. It also taught me much about the different stages of creating a video game, and how to improve on it based on feedback.