For our capstone project we made a game called MechaPunk Fury, a beat-em up style game that Abdul Naveed, Brandon Jackson, Elygh Thao, and I developed. My goals for this project were to understand and implement various types of shaders and graphics programming techniques, understand the underlying mechanics behind the beat-em up genre such as state machines and animation canceling, and apply Agile software development techniques such as Scrum, Kanban, or other methodologies.

A particular issue of note during our capstone was balancing the combat between our player and the enemies. Through our survey results during playtesting, we received lots of complaints about various exploits or enemies being too hard. A specific frustration we heard during feedback was that in certain situations, the player could be stunlocked by the enemies, often forcing the player to restart. The solution to our issue with combat was a mix of playtesting feedback and non-destructive combat adjustments. Particularly, we designed the combat to be adjustable dynamically, meaning we could make changes without having to change the code directly. The dynamic nature of our implementation gave us fast turnaround times on our adjustments, allowing for productive daily standups, and more time for large feature additions.

One of the major goals I personally had was to make my own custom VFX and Shaders for our game, which I managed to accomplish to varying degrees. For instance, I implemented my own health and stamina bar system which used signed distance fields to make clean in-game UI. Additionally, I custom made several VFX that contributed to combat feel, such as a smack effect that animates when you damage the enemy, and a screenshake effect that emphasized impact. One VFX I had difficulty with was a ripple post effect that distorted the background when the player or enemy hit someone. Unfortunately I did not have time to complete this feature, but the failure in getting this implemented gave me a broader understanding of how postFX work compared to other forms of VFX.

This project is significant because it provides my team and I with valuable experience in cooperative game development. Through this cooperative experience, we got hands-on with specific parts of the development process, such as VFX, gameplay programming, design, and more. Overall, all of our work culminated in a satisfying and engaging beat-em up style game that we’re proud to present.