Betsy Kamas Capstone Report

I started thinking about an idea for my capstone in spring semester 2023, since I had a few senior friends working on their own capstones. Two of them were making their own games. I had always thought about making my own game, but there was always doubt that I could make one. There was always something holding me back. I decided that the main limiting factor was my skills. I didn’t know how to create visuals through code. I started looking into ways that could teach me how to do so. I watched game dev videos on YouTube. In the videos they used Python, JavaScript, C++, and Unreal Engine. I am strongest in C++ so that gave me hope in thinking it was possible for me to create a game. It was also during this time that I started looking at classes for the fall semester, and I saw that there was a class being offered centered around multimedia programming. So, I signed up for that to learn more about the process and if it was something I was capable of and enjoyed. I ended up really liking and enjoying coding with the SDL2 graphics library and decided to use it for my capstone. I was enrolled in COM416 while taking CS490, which was an interactive animation class utilizing ActionScript and Adobe animate. The final for that class was to make an interactive story book, which is essentially what my capstone turned out to be. I had a fun time with it, and that gave me more confidence that I would be successful with my capstone. For my capstone, I needed to decide was what game I was going to make. I grew up playing a lot of Humongous Entertainment games like Pajama Sam, Freddie Fish, and Spy Fox as a child and as I grew up, I played a lot of Nancy Drew games. They are all point and click games with a mystery to be solved. With this basic concept in mind, I had to come up with a story. I enjoy watching TV shows like The X Files and Supernatural, and I also enjoy watching and learning about cryptids. I decided to make a game centered in a little cryptid town with a silly little mystery to solve. The mystery being that the town’s power had been stolen, and Mothman needed that power to be able to stare at a streetlamp. He wouldn’t rest until the power was back. With that in mind, I had a basic concept to work from to begin concept designs for characters and locations.

From the knowledge, work, and in-class examples I had from CS490, I had a solid foundation for the code knowledge necessary to execute my capstone. We had made a state machine framework code that I utilized in my capstone for each of the different areas. If there was anything I was unsure of, I could go to the SDL wiki and look at the documentation. If I was having a specific error or issue I really couldn’t figure out, I could usually look it up and find a Stack Overflow article of someone else with the issue. I took everything in bite-sized portions, starting small and working my way up to making everything interconnected.

I spent January and February trying to solidify the storyline I wanted to follow, along with drawing the characters and areas in the game. It was during this time that I decided that the way I wanted the power to come back on was for Mothman to win a game of Go Fish against the villain in the story. I turned my focus to coding the game of Go Fish, which was more involved and intricate than I thought it was going to be. I started off coding the card game just using the terminal and cout lines in the code. It made more sense to me to get a better understanding of the game mechanics and get them working correctly. I worked on it on and off throughout March as other responsibilities started to pick up for me. By the end of March, I had the ASCII Go Fish completely and correctly working, and I was in the process of adapting it into the framework code. The framework code is setup in such a way that the draw() function is called endlessly in a while loop, which caused me to have a lot of segmentation faults. I figured out that was due to my vectors, which was easy enough to fix. After I got that all working, I turned my focus to the town and getting the transitions between areas working the way I wanted. I then wrote the dialogue and finished creating the items requested by each character in the game to create a more interactive story.

I was successful in my goal of creating a game. It is more of an interactive storybook kind of game, but a game nonetheless. The framework code from CS490 was incredibly helpful for me to have multiple cpp files working together and not have everything shoved into one massive main file with who knows how many functions. I also decided to pay for an Adobe subscription throughout this process, which helped immensely. I was able to draw everything on my iPad and everything synced to my laptop which made it easy to save everything as a png file. Looking at the result, I can see all the different pieces of inspiration I had throughout the process. I can see elements of Nancy Drew games in my overlay and my dialogue is reminiscent of Frog Detective.

One thing that I tried implementing in my code that was not successful was having a custom cursor for the game. In theory, it was easy enough to do: hide the mouse, get its location, and draw to the renderer something in its place. It worked for most areas in my game since I was always clearing the renderer at the beginning of the draw() function, but I didn’t have it setup that way in the game of go fish. I was only rendering there when something updated since there a lot of loops in place for rendering within that function. I decided to avoid troubleshooting that to keep focusing on the other parts of the code that still needed to be written. I had other various issues along the way, but I was able to solve them.

If I were to do all this again, I would start by having done this in an easier semester so it could have gotten more of my attention. I took calculus this semester which took up a fair bit of my brain power. I was also enrolled in a cybersecurity class that was easy enough in subject matter, but there was a lot of classwork and homework to be done which took up a fair bit of my time. My last class was a different graphic’s class which also required some time studying and completing homework. Another thing I would change would be adding in more animations. It would have been nice to see more dynamic animations throughout this. But my skills are limited in what I can draw. If I could have found someone else to work with who could have done the drawing and dialogue, I think it would have made it even better.