**Introduction**

My name is AJ McAnderson and I have been a student at SNHU since 2023. I have been in the computer science program since joining SNHU. During my time in the program I have learned many different skills and techniques that I have used to do a number of different projects. Here I will discuss three different projects and the changes I have made to them to show what I have learned from the program.

**Self-Assessment**

*My Journey*

I learned a lot of different skills and tools to use while working on getting through my computer science program. I used a variety of different tools, programming languages, and techniques to solve various problems presented to me in each course. These courses all taught me how to further hone my skills and acquire new ones and helped to teach me how to perform different tasks as a computer scientist. With CS250, I learned about the software development lifecycle and the various roles different people play within it. By learning how to cooperate within our roles and the information needed to complete our goals, here I learned how to work as a team member to complete each scrum using the agile method. To learn how to communicate with different people outside of engineering, in CS255 I learned about requirements gathering from a user and how to get different functions of a project from the user’s explanations. By understanding the needs of the user, I was able to understand the features that the project would need and use that to plan out an appropriate plan to make sure the deliverables would be completed on time. My journey has taught me a lot about various different tools, skills, and algorithms out there in computer science. One such example would be in CS370, while I learned about different trends in computer science, I learned how machine learning worked and utilized it to create a solver for a simple maze game. This technique was something I could use to help me learn how to code AI in video games which would help me work towards a future goal of creating a game. Throughout my journey I learned various skills in different programming languages like python, C++, and java. While also seeing the differences between them and their quarks I was able to understand and transmute programs between them. While continuing my journey I learned about the different kinds of databases available to me.With DAD220, I learned about mySQL and how to make queries using it as well as adding and creating databases within a mySQL system. For CS340, I worked with a mongoDB and learned how to create a CRUD for it and used it to graph data. Finally, in CS465 I used a mongoDB to create a full stack website and learned new skills that I can now apply to create websites using a variety of tools. A security mindset comes from not only understanding validating user input, but also the vulnerabilities in the packages themselves. In my CS305 class I did a lot of work on security and maintaining a security mindset. This went from reading and understanding CVEs to using maven and how it helps to evaluate our work and show us the security threats within it. With all of these different skills, techniques, and mindsets I chose three past projects to revisit and enhance to showcase how much I’ve grown through the computer science program.

*My Artifacts*

My three artifacts come from different points on my computer science journey. My first artifact is from CS320 which I took in April of 2024. This artifact is from around the middle of my computer science journey. I chose this artifact to showcase my ability to use other programming languages as needed. I mainly used Java throughout my computer science life, and by using this enhancement plan I was able to showcase my knowledge in another language. With this enhancement I showed my security mindset by going through and checking user input to make sure it was valid as well as demonstrated my ability to use new tools to recreate this enhancement in C++. The enhancement also has some visual clarity to ensure different audiences can work with this enhancement. My second artifact is from IT145 which I took in June 2023. This artifact is one of my earliest works in the computer science program. I took this artifact and using the knowledge I gained over the course of the program increased the functionality and usability of the artifact. I added new features as well as expanded on the number of entities that could be used for the artifact. With the enhancements to this artifact I was able to showcase my ability to build a new environment that enabled it to have more diverse use and support more features that improve its readability for the user. I used a few different techniques to get the functions as I wanted them which shows my ability to find an appropriate solution while making sure the tradeoffs are worth the changes. Finally, it shows how I am able to use new techniques to help mitigate design flaws and to check appropriate input is used to increase the security of the artifact. My third artifact is from CS340 which I took in August of 2024. This artifact is from later in my computer science journey and I chose it because I wanted to showcase another technique I learned outside of the program. With this artifact I put in the time and effort to learn a new skill outside of the ones I learned within the program, which helps to showcase how I can learn new various techniques as the need arises. By utilizing data mining I was able to see new information within the data of this artifact while also showcasing my ability to learn and apply complex computing solutions to solve a problem. This enhancement also shows how I can learn and apply new techniques as needed. These three artifacts when put together shows how much I have grown over the course of this program. They all stem from my beginning and middle of my journey and help to show how I am able to apply what I have learned to improve or change them into something new. With these three artifacts I will demonstrate how I was able to grow and develop within the computer science program to meet this capstone’s course outcomes.