**Self-Assessment**

My dream of becoming a software developer started when I was five years old, moments after first playing Super Mario Bros. on the Nintendo Entertainment System (NES). Throughout my Computer Science coursework at Southern New Hampshire University (SNHU), I have gained skills in software engineering and the software development lifecycle (SDLC), automated testing, and security best practices. I’ve discovered a passion for user experience (UX) design and got the opportunity to experience cloud development. I loved developing graphics applications in C++, particularly the Super Mario Bros. OpenGL project I created, which has since sparked an interest in VR/AR development; however, I also enjoyed fullstack development of web apps and mobile apps, as well. I absolutely loved working with machine learning (ML) and can see the limitless potential it offers in so many fields; I can’t wait to see what breakthroughs come from it next. I have also greatly enhanced my ability to effectively communicate a wide range of concepts, both technical and non-technical. This ePortfolio provides a well-organized and user-friendly interface that allows potential employers and other professionals to learn more about me and explore some of my developmental projects.

**Java Program Enhancements**

In the project labeled “Program Enhancements (Java)”, I have taken a text-based program that I created near the beginning of my Computer Science degree, and I made some major improvements in the areas of software engineering and design, data structures and algorithms, and databases. To start, I added JavaDoc comments and corrected inconsistent commenting and spacing throughout the code. I got rid of relevant warning messages and modularized code where needed. After converting the project to utilize the Maven framework and managing dependencies, I implemented input validation and error handling with try/catch blocks. I then integrated JUnit testing for all classes and performed a static analysis with SpotBugs. In addition, I decided to customize the text colors and styles to improve the UI and UX. To improve the time-complexity of the lists used in the program, I converted from ArrayList to the LinkedHashMap data type and lowered the worst-case time complexity from to , or if a collision occurs. Finally, I integrated NoSQL data storage to allow for persistent memory across program executions. These enhancements deliver a better UI/UX, more efficient run-time, persistent memory, modularized architecture, and more secure, robust application.

**Course Outcomes**

Throughout these program enhancements, I have met all of the course outcomes as follows:

* Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision making in the field of computer science
* Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts
* Design and evaluate computing solutions that solve a given problem using algorithmic principles and computer science practices and standards appropriate to its solution, while managing the trade-offs involved in design choices
* Demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry- specific goals
* Develop a security mindset that anticipates adversarial exploits in software architecture and designs to expose potential vulnerabilities, mitigate design flaws, and ensure privacy and enhanced security of data and resources