**Narrative: Software Engineering & Design**

After reviewing, I was able to clean up the code and comments in the program and ensure consistency throughout, as well as add JavaDoc documentation for all classes. I was also able to modularize many components of the program, including converting the architecture to use the Maven framework. I was also able to showcase my skills by integrating input validation, error-checking, and unit testing using JUnit. I also implemented a better user interface (and user experience) by customizing text colors and styles. I was able to communicate much better with the user this way – simply by adding ANSI escape codes and proper spacing!

I have improved both the overall enjoyability and robustness of the program, and I have met all four of the course outcomes I planned on reaching. During this experience, I have strengthened my skills in software engineering and modification, as well my skills in user experience (UX) design and software security. I found creating unit tests to be a bit challenging, which is one reason I chose this enhancement. Being thorough and intentional is extremely important when designing these tests. I have enjoyed this process and look forward to future artifact enhancements.

Throughout this enhancement, I have met the following course outcomes:

* 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
* 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