Milestone Three Narrative

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This new artifact that will be included in my ePortfolio is an enhanced version of my work from a previous class: CS 410. It is a banking/investment software in which I was tasked to find any security vulnerabilities within. I first edited the program last semester (approx. DEC 2023) but failed to include an encrypted password/username system and a few other upgrades. So, for this assignment, I chose to first: change the program to Java. I did this because I understand Java’s hashing algorithms a bit better than C++ and chose to highlight a strongpoint of mine. Then, I included a hashing algorithm for both the password and username. (If testing this program, the USERNAME IS ADMIN and the PASSWORD IS 1234567). Next, I included a better client structure which allows the user to add to the list rather than update old clients. If I were to continue this, I would create a method which would allow me to edit the list.

I selected this item because I wasn’t proud of my initial work and wanted to prove I could enhance it further in a security mindset. This showcases I can learn from previous errors and grow to learn new methods such as the Method Digest algorithm included. This artifact was improved greatly as if you were to run this through assembly, you wouldn’t find the specific password needed to access the system; just a hashed version which is useless if you’re trying to input the actual password.

I met all the objectives I planned to with the module one activity. The first one I mentioned was: 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. My enhanced code is much more secure than the original piece as it now includes a hashing algorithm and better user verification. Moreover, I have less instances where it is possible for the code to break, compared to the original artifact.

The second objective I wrote that I would meet is: Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision-making in the field of computer science. I have met this objective due to my extensive inline comments and header. Moreover, by employing strategies which keep the appropriate amount of white space and formatting of the code, I have ensured the code is easy to read and understand.

Lastly, I have met the last objective of: Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts. The enhanced code does not break as easily as the original piece and has been adapted to further enhance user-friendliness. Plus, the extensive inline comments and standard coding practices I employed throughout the enhanced artifact should allow for a coherent piece of code which can be read by multiple different audiences.

I’m proud of this artifact, as I pretty much coded this from scratch. I learned the importance of pseudocode as while I was trying to think of what to do here, I kept going back and forth with myself on what to do next and how to do it. It was a lot easier once I created a guide for myself. Moreover, after completing the original work, I like to think I developed a good security mindset while including a bunch of verifications throughout. I want to continue learning encryptions because of this project.