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Professor Sanford

CS 499 Computer Science Capstone

Milestone Four Narrative

The artifact enhanced for this milestone is the same one enhanced in the software engineering section. That artifact was a web application that populated a database using a csv file and then read and filter data from it.

The enhancements I performed in this milestone were adding operations for updating and deleting entries in the database, adding indexes to improve database performance, and implementing a system for authentication. I chose to build off the first milestone’s enhancement since that project lends itself well to further demonstrating my abilities with databases. I also wanted to build a larger single project that more comprehensively demonstrates my skills as a developer. The enhancements picked for this milestone were intentional for demonstrating some particular skills. I wanted to add functionality to update and delete elements from the database via the web application to demonstrate my ability to consider how customers will use the applications I develop. I chose to add indexes to the database to show my consideration for improving an application’s performance. Finally, I wanted to implement authentication to show my anticipation for potential misuse, displaying a value for security. Doing so allowed me to achieve my final course outcome of developing 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.

While enhancing this artifact, I learned how to improve database performance, consider user needs, and develop a security mindset. While these were not new skills I learned entirely, these artifacts allowed me to develop these skills further. A challenge I faced while performing this enhancement was applying authentication to the application. The challenges I faced were due to changes in the way the frameworks used interact with one another throughout updates to these frameworks. This is a common challenge developers will face as they maintain their codebase. Frameworks and APIs will sometimes receive updates that change how they are used requiring developers to make necessary changes when upgrading versions. Thus, this challenge proved to be a valuable experience gained from performing this enhancement. By performing this final enhancement, I am confident this artifact will be a strong piece for my ePortfolio.