Enhancement 3 Narrative

CS 499: Computer Science Capstone

Thomas J Z McMahon

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I continued from enhancement 1: software design and engineering straight into enhancement 3: databases because I realized that my plans for enhancement 2 would require a fully working database. In the original artifact the database was just used to pull data for the table, map, and pie chart and to filter based on the filter the user selected.

I felt that the original artifact was a perfect starting point to implement full Create Read Update and Delete (CRUD) database functions. I also felt I could improve the separation of functions for better debugging and development. In this enhancement I created a separate API that would receive calls through the main node server so that the users are never directly messing with the database or back end. I also added in abilities to add, edit and delete data if the user first authenticated which was also not a feature in the original artifact. Doing this I was able to show my ability to adapt old code to new features, add in security, and separate concerns to make more readable and workable code.

During this enhancement I made a lot of changes to how the first enhancement worked because some things that worked when the data was built into the front end didn't work when moving to a back end database. I also found that I could get rid of a lot of extra stuff during the process as I moved more of the data manipulation to the API and away from the front end. The artifact could now update in real time to data changes. By the end of this enhancement I felt I had accomplished three of the course outcomes to include designing and evaluating computing solutions using computer science practices appropriate to the solution while managing tradeoffs, using well-founded skills and tools in computing practices to implement computer solutions, and developing a security mindset that anticipates adversarial exploits and ensure security of data.