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CS 499

Enhancement Three: Narrative

For Enhancement Three within my ePortfolio I chose and that was previously made in March 2025 as part of the final project for the course CS 340. The original dashboard involved a simple connection to MongoDB to access and analyze a csv file named aac\_shelter\_outcomes. For this planned enhancement, I wanted to allow the dashboard to securely retrieve and display data from a MongoDB database via structured JSON responses and include a RESTful API built with Flask. The final version of my enhancement integrates interactive filters, breed-based visualizations, and geolocation mapping using Dash, all rendered within a clean and organized interface appropriate for stakeholder use.

I selected this artifact for my ePortfolio because it demonstrates a wide range of skills essential to my career goals as a Data or Business Analyst. By building a RESTful API, I showcased my proficiency in HTTP request handling, input validation, and secure data practices. I used Postman to validate the endpoints, ensuring the system was both reliable and maintainable. The dashboard itself shows my ability to create visualizations and allow for ease of use for stakeholders.

This enhancement directly supports the course outcomes I planned to meet throughout this capstone. I successfully designed and implemented secure software solutions, applied innovative tools and techniques, and delivered technically sound communications adapted to real-world contexts. I don’t feel as if updates are needed to my outcome-coverage plan, as the final product of this enhancement fully aligns with my original goals and even exceeds them by incorporating external data integration as I needed to create a way to successfully connect to the data on my personal computer as compared to the virtual environment the dashboard was originally created in.

Throughout the enhancement process, I deepened my understanding of full-stack development and learned how to refactor original code for scalability and clarity. Challenges included resolving Dash compatibility issues by downgrading my version to a more accessible version, debugging API integration, and ensuring consistent rendering across environments such as the dashboard and successfully importing data via MongoDB Compass. These experiences strengthened my confidence in building secure and easy to maintain software. The final dashboard fully rendered as compared to my original artifact and successfully shows my growth with databases and full-stack development through my college education.

