Steven Blathras

CS 499

Software Design and Engineering Narrative

The first enhancement I completed was for Software Design and Engineering. I used the MongoDB Shelter Dashboard, which I originally built in my CS 340 course on Advanced Programming Concepts. The initial project involved creating a Python-based dashboard using the Dash framework that allowed users to view and filter data from an animal shelter stored in a MongoDB database. I chose this artifact because it incorporated multiple components of full-stack development and had a lot of potential for improved structure and code quality.

To enhance the design, I focused on organizing the code by applying object-oriented programming principles. I moved repeated logic into reusable classes and functions, which made the program more maintainable and easier to expand later. I also added docstrings and comments to clearly explain what each part of the code does, improving readability for future developers or collaborators. Through this enhancement, I gained a better understanding of how to design scalable systems and create cleaner, more professional code. This work demonstrated my ability to apply best practices in software design and showed clear growth in my technical maturity compared to the original version.