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CS 499

Milestone Two

Enhancement One: Software Design/Engineering

In this milestone, I have enhanced both my python CRUD module, and my python jupyter notebook. The CRUD module offers create, read, update, and delete functions for a database of animals used by an animal shelter. Whereas the .ipynb imports various libraries for Dash, data manipulation, and visualization. The app connects to a MongoDB database through a CRUD module, reads data into a DataFrame, and provides interactive components such as radio buttons, a data table, and visualizations.

The enhanced CRUD module is an improved version of the original AnimalShelter class. It includes several enhancements such as error handling, logging, and the use of environment variables for sensitive information like database credentials. These improvements aim to make the module more robust, secure, and easier to debug.

The enhanced Jupyter Notebook improves upon the original by integrating better error handling, environment variable management, modular code organization, and cleaning up the comments. These improvements aim to make the application more robust, secure, and maintainable.

Using environment variables is a common way to secure credentials and sensitive information. I learned that by default, when you call load\_dotenv() without any arguments, it looks for a .env file in the current working directory where the script is being executed. To address error handling in both files, I started by carefully identifying all potential points of failure and added try-except blocks when connecting to the database, reading data, and updating the dashboard. For the comments I had to go through and clean out all the junk left over from the initial development, and add production ready comments that explain the code well and follow best practices. I also imported logging to take the place of all the pprint statements in my CRUD module. While pprint can be great for debugging during initial development, using the logger improves the usefulness of any output generated by the module. Another major challenge I faced was ensuring that the new enhancements did not break the existing functionality of the entire application, including all interactive components and callbacks which took a fair amount of consideration.