**Milestone Four: Database**

This python-based project called the Animal Shelter CRUD Module organizes animal records for a rescue facility by interacting with a MongoDB database. This project was assignment of CS340 developed in April 2025, which is related to client-server data. The four main data management operations used here are create, read, update, and delete, or CRUD for short. Users can add new animal entries, edit animal details, search specific data using filters like name or breed, and delete records from the database as needed with this module. The project connects python to MongoDB using the pymongo package, allowing all operations to be carried out in an organized and simple way.

**Inclusion of the Artifact**

I selected this artifact because it was one of the most interesting and meaningful projects I completed in the databases category. I gained a practical understanding of how databases operate in the background and how coding can be used to modify them to meet practical requirements.

This artifact shows my database skills by:

* Set up and use MongoDB as a NoSQL database.
* Create Python code that carries out all CRUD function.
* Manage input validation and use improved checks to prevent errors.

To ensure that the data is accurate, I also added:

* Input validation to the module.
* Error handling to prevent software crashes.
* Queries were optimized to increase efficiency.

**Reflection:**

I learned a lot from working on this project. I learned about connecting to and communicating with a MongoDB database. I did not know about it before working on this project. It showed me the importance of verifying user inputs prior to storing them and what consequences can be present without it. And it also made it clear that when working with actual data, code must be readable and maintainable.

There were some challenges I faced while working in this project, it included:

* At first, I had trouble connecting to the MongoDB server, but I was able to fix it.
* Due to a coding error, it was challenging to display the logo on the web dashboard output.
* I found some unexpected behavior and problems, and occasionally the software did not function as planned. Small syntax or logical errors were often the cause of these problems, which I eventually corrected.

Summing up the project, this project allowed me to apply what I had learned in databases to a realistic scenario, which helped in improving myself.