# CS 340 README Template

## About the Project/Project Title

## *Title: Animal Shelter Dashboard*

## *Description: This Python module streamlines CRUD operations for an Animal Shelter database in MongoDB, acting as a backend component for a web application. It offers essential functionalities for effectively managing animal data within the database.*

## Motivation

## *This project creates a user-friendly Python module for seamless interaction between a user interface and a MongoDB database.*

## *It simplifies CRUD operations, enabling efficient management and visualization of animal data in a dashboard interface.*

## Getting Started

## *Prerequisites:*

## *Python 3 (download from*[*https://www.python.org/*](https://www.python.org/)*)*

## *MongoDB Community Edition (download from*[*https://www.mongodb.com/*](https://www.mongodb.com/)*)*

## *Pymongo library (install via pip install pymongo)*

## *Jupyter Notebook (included in Anaconda:*[*https://www.anaconda.com/*](https://www.anaconda.com/)*)*

## *Database Configuration:*

## *Update the provided lines with your specific MongoDB credentials (USER, PASS, HOST, PORT, DB, and COL) in the code.*

## Tools & Rationale:

## *Interaction Filter Options: Python is chosen for its versatility, large community, and extensive libraries for web development and data manipulation.*

## *Database: MongoDB is selected for its flexible schema, scalability, and ease of integrating with Python via Pymongo.*

## *Jupyter Notebook: Jupyter Notebook serves as a convenient development environment for testing and iterating on your code.*

## *Dash Framework: Dash is used to provide the view and controller structure for the web application. It allows for the creation of interactive web-based data visualizations with Python.*

## Features:

## *Interactive Filter Options: Users can filter animal data based on predefined categories like Water Rescue, Mountain or Wilderness Rescue, Disaster Rescue or Individual Tracking, and a Reset button.*

* Data Table: *The dashboard includes an interactive data table that displays animal data retrieved from my MongoDB database. Users can sort, filter, and select specific rows in the table.*
* Pie Chart: *A pie chart visualizes the distribution of animals based on the selected filter option.*
* Geolocation Map: *A geolocation map displays the location of selected animals based on their coordinates.*

## Screenshots:

* These next screenshots will show the three interactive filter options and the functionality of the reset button of my dash project:

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a dashboard

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A screenshot of a dashboard

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## Usage

* See the included code example below for detailed usage.

*A screenshot of a computer program

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## Code Example:

## *The AnimalShelter class interacts with animal data in the specified MongoDB collection.*

## *Create method inserts new animal entries.*

## *Read method retrieves data based on provided queries.*

## *Update method updates one or many data entries.*

## *Delete method deletes one or many data entries.*

## Tests:

## *The main function demonstrates the usage of create, read, update, and delete functions.*

## *It runs only when the script is executed directly.*

## Additional Information:

## *Reproducing the Project:*

## *Install MongoDB and required libraries (pymongo).*

## *Import a (csv) data file (the data file I’m using is titled “aac\_shelter\_outcomes.csv”).*

## *Set up user authentication for secure database access.*

## *Implement CRUD operations using my Python module.*

## *Develop a web application utilizing my module to present data visually using Jupyter Notebook.*

* **Challenges Encountered:** The main challenge I faced with this project was the slight learning curve of setting up this project and its environments on my personal computer. The steps outlined in the “Reproducing the Project” section were the steps I took to set this project up for myself. This is a school project where much of the environment was already preset, but I chose to go a different route (in making the project myself). Upon finishing this project, I couldn’t figure out how to include the age\_upon\_outcome query with my filters. age\_upon\_outcome includes integers and a string, so I didn’t quite figure it out how to convert it to the necessary variable age\_upon\_outcome\_in\_weeks.

## Contact

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