# CS 340 README for Grazioso Salvare’s Custom Dashboard

# About the Project

This project was developed to create a functional, web-based dashboard for Grazioso Salvare, enabling them to review animals available at the Austin Animal Shelter that meet their business requirements. The project is structured into three layers:

* A MongoDB layer that stores the data required for visualization
* A Python middleware layer responsible for control functions
* A visualization layer built with Plotly, Dash, and Leaflet to generate the HTML

The Python middleware uses a custom class that supports Create-Read-Update-Delete (CRUD) operations in MongoDB through the Pymongo driver. This class includes the necessary getter and setter methods to manage CRUD functions and initialize MongoDB.

# Component Selection Methodology

MongoDB was selected over SQL for its ease of use and flexibility. Its dynamic schema helps avoid errors during update or create operations, such as when a user inputs a decimal for an age field that was expected to be an integer. Additionally, MongoDB's JSON format is better suited for web environments.

While MongoDB does not provide the same level of ACID compliance as SQL, this is not a major concern for this tool, as it is not expected to handle many transactions.

Python was chosen for its extensive toolset to connect the backend and frontend. For instance, the Pymongo driver is utilized to interact with MongoDB through the CRUD class and middleware layer.

# Tools used

To use this software the following tools must be installed:

* Python 3.6
* Pymongo 4.2
* MongoDB 4.2
* Data available in a Mongo database collection, see example on importing a CSV
* User account with read/write permissions

## Steps Taken

Grazioso Salvare requested the dashboard to have a few key components:

* Branding with logo
* A link to their website
* A data table, with custom filters, containing the information about the animals at the Austin Animal Shelter
  + Custom filters provide targeted animals for specific business needs, including:
    - Water Rescue
    - Mountain or Wilderness Rescue
    - Disaster Rescue or Individual Tracking
* A pie chart showing the breakdown of available breeds
* A map with the location of a selected animal

# Project Recreation

# Pit Falls and Struggles

For some reason I struggled with this project. I could not get the code to give me a link at all! It would run the code but output a really long list of animals but would never give me the dashboard link. I am not sure what I am doing wrong in the code. I worked on it for hours with no luck. Any help would be appreciated.

## Contact

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