CS 340 Project Two README

**Global Rain: Grazioso Salvare Rescue Dog Dashboard**

**Motivation**

This project is developed for Grazioso Salvare, an innovative international rescue-animal training company, to aid in the identification and categorization of dogs suitable for search-and-rescue training. Grazioso Salvare partners with a non-profit agency operating animal shelters in the Austin, Texas region, which provides data for this purpose.

**Getting Started:**

**Installation**

1. Clone the repository.
2. Install the required Python packages.
3. Make sure MongoDB is installed and running locally.

**Usage**

1. Run the dashboard.
2. Navigate to the dashboard notebook and execute the cells to run the dashboard.

**CRUD Tests**

A screenshot of a computer code

Description automatically generated

**Screenshots:**

**Dashboard Overview**

**A red line drawing of a dog

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**A screenshot of a computer

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**Water Rescue Filter**

**A screenshot of a computer

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**Mountain or Wilderness Rescue Filter**

**A screenshot of a pie chart

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**Disaster Rescue Filter**

**A screenshot of a data report

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**Animal Geolocation**

**A screenshot of a map

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**Tools Used**

* Python: Used for the backend development of the dashboard.
* Jupyter Notebook: Integrated development environment for running the dashboard.
* Dash (Plotly): Framework for creating interactive web applications in Python.
* MongoDB: Used as the database model to store and retrieve data.
* Pandas: Data manipulation and analysis library.
* Plotly Express: Library for creating interactive and expressive plots.
* Dash Leaflet: Dash component for interactive maps.

**Project Steps**

1. **Database Setup**: Established CRUD functionality in Python for MongoDB.
2. **Dashboard Development**:

* Created an interactive data table displaying animal shelter data.
* Developed filter options for Water Rescue, Mountain or Wilderness Rescue, and Disaster Rescue.
* Built widgets for dynamic data presentation, including a geolocation chart and a pie chart.

1. **Testing and Deployment**:

* Tested the dashboard to ensure functionality.
* Deployed the dashboard locally for user interaction.
* Captured screenshots to demonstrate dashboard functionality.

**Challenges**

* Created a single function to update dashboard and map to prevent duplicate callbacks.
* Implemented dynamic pie chart to display different values based on current filter.
* Established proper callbacks to ensure required dashboard functionality.