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CS 340 Module 7-2

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Introduction

Hello, I'm Kevin Andryzak, the lead developer for the Grazioso Salvare Animal Rescue Dashboard project. This README provides comprehensive documentation for the project, its functionality, tools utilized, and steps taken during its development. This project is intended to assist Grazioso Salvare in identifying and categorizing dogs suitable for search-and-rescue training based on data from various animal shelters around Austin, Texas.

Project Functionality

The dashboard was built to offer an interactive, user-friendly interface to the MongoDB database, housing data from regional animal shelters. Key functionalities include:

Interactive Data Table: Displays an unfiltered view of the Austin Animal Center Outcomes dataset. Enhanced with features such as pagination, sorting, and row limit adjustments.

Data Filters: Allow users to view specific subsets of the database data based on rescue types, such as:

Water Rescue

Mountain or Wilderness Rescue

Disaster or Individual Tracking

Dynamic Charts: A geolocation chart and an additional chart (of your choice) dynamically respond to user filters.

Grazioso Salvare Logo and Developer's Unique Identifier: As requested, both of these elements have been prominently integrated into the dashboard.

Starting state of Dashboard

Tools and Technologies

Several cutting-edge tools and technologies were utilized in this project:

MongoDB: Chosen for its flexibility, scalability, and seamless compatibility with Python. It acts as the model component, storing all data relating to the animal outcomes.

Python: Employed for its versatility and the vast libraries it offers. The CRUD functionality developed interfaces with the MongoDB database.

Dash: A productive Python framework, Dash was instrumental in building the web-based dashboard, providing both view and controller structures.

Steps to Completion

Reviewed the project's specifications and requirements.

Developed the dashboard's starting point, creating an unfiltered data table of shelter animals.

Formulated database queries matching the required filter functionalities.

Crafted interactive options such as dropdowns and radio items to facilitate data filtering.

Adjusted the data table to be interactive, responding to filter changes. Subsequently, relevant charts were also made dynamic.

Tested and deployed the dashboard, capturing screenshots for validation.

Challenges & Resolutions

Throughout the project's lifecycle, several challenges arose:

Data Volume: With a vast amount of data from the shelters, performance optimization was critical. Through effective indexing and query optimization in MongoDB, we ensured efficient data retrieval.

User Experience: Crafting an intuitive interface was paramount. Constant feedback loops with the client and utilizing Dash's comprehensive components ensured a seamless user experience.

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