CS 340 Project 2 README

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Function Introduction:

The dashboard of Grazioso Salvare is designed to help users obtain data related to rescued animals from the database of animal shelters. The dashboard offers multiple classification options, such as water rescue, mountain/wilderness rescue, and disaster or individual tracking, etc. Users can quickly filter the required data through these options.

The dashboard also includes chart and map views to help users understand the data in a more intuitive way. For example, pie charts can show the distribution of different species of animals, while maps display the location coordinate information of the animals.

A red line drawing of a dog

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a map

AI-generated content may be incorrect.

Use tools:

* Python: A major programming language used for writing CRUD operations, front-end logic,and data processing.
* Dash: A Flask-based Python framework for building interactive web applications.
* Jupyter Notebook: An IDE environment for writing and debugging code.
* MongoDB: A non-relational database used for storing animal data and interacting with Python through the pymongo library.

Development steps：

* Import data: Use the mongoimport tool to import animal data into MongoDB.
* Implement the CRUD module: Create the AnimalShelter class to achieve the functions of adding, deleting, modifying and querying MongoDB.
* Connect to the database: Use the username, password, host and port information to connect to the MongoDB database.
* Build the dashboard interface: Use Dash to construct the front-end interface, including data tables, filter buttons, charts, and location maps.
* Implement interactive callback functions: Dynamically update data tables, charts, and maps based on button clicks or table selections.
* Testing and debugging: Check whether all functions are operating normally and confirm that CRUD operations are synchronized with the front-end display.

The challenges encountered：

* The beginner's difficulty of Dash: When using the Dash framework for the first time, I encountered some difficulties in callback functions and component layout.
* MongoDB query design: To meet the filtering conditions of different buttons, a deep understanding of mongodb query syntax is required.
* Data format issue: After exporting from MongoDB to a DataFrame, the \_id field needs to be removed and missing values handled to ensure that the front-end components do not crash.

Contact information

If you have any questions or suggestions, please contact:

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