# Grazioso Salvare Dashboard Project

## About the Project/Project Title

This project is a web-based dashboard developed for Grazioso Salvare. It provides an interactive interface for exploring the Austin Animal Center Outcomes dataset, allowing users to filter and visualize data based on specific criteria such as breed, sex, and age.

## Motivation

The motivation behind this project was to create a tool that could assist Grazioso Salvare in managing and analyzing animal outcome data more effectively. By providing a visual and interactive means of exploring the dataset, the dashboard aims to improve decision-making and operational efficiency.

## Getting Started

* Clone the Repository:
* Navigate to the Project Directory:
* Install Dependencies:
* Import Data into MongoDB:
* **Set Up MongoDB:** Ensure you have MongoDB running locally or access to a MongoDB instance. Update the connection parameters in crud.py to match your MongoDB setup.

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## Installation

* **Python:** Ensure Python 3.x is installed.
* **Jupyter Notebook:** For running the testing script.

pip install notebook

* **MongoDB:** Ensure MongoDB is installed and running.
* Create a user account in the mongo shell to **ensure user authentication to the database and collection** you created.

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## Usage

### Code ExampleA screenshot of a computer screen Description automatically generated

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### Tests

1. **Open Jupyter Notebook:**
2. **Run the Script:** Open ProjectTwoDashboard.ipynb in Jupyter Notebook and execute the cells to run the tests for create and read operations.

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### Screenshots

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## Roadmap/Features

* **Future Features:**
  + Implement advanced filtering options.
  + Add support for exporting filtered data.
  + Integrate machine learning models for predictive analytics.

When writing programs, especially for projects like the CRUD Python module from Project One, maintainability, readability, and adaptability are critical. To achieve this, I focused on the following:

- Modular Design: By breaking down the CRUD operations into separate functions, I ensured that each function had a single responsibility. This made the code easier to test, debug, and extend in the future.

- Consistent Naming Conventions: Using clear and consistent naming conventions helped in understanding the purpose of each variable and function at a glance.

- Documentation and Comments: Throughout the code, I added comments to explain complex logic and provided detailed docstrings for functions. This not only helped me during development but will also assist anyone who might work on this project in the future.

The advantages of working in this way became evident when I connected the dashboard widgets to the database in Project Two. The modular design allowed me to easily integrate the CRUD module with the dashboard, facilitating smooth data retrieval and manipulation. In the future, this CRUD Python module can be reused in other projects requiring database interactions, saving time and reducing the need for rewriting code.

Problem-Solving Approach as a Computer Scientist

Approaching problems as a computer scientist involves a combination of analytical thinking, structured planning, and iterative development. When I began working on the database and dashboard requirements for Grazioso Salvare, I first analyzed the problem by breaking it down into smaller tasks:

1. Understanding Requirements: I carefully reviewed what was needed—both in terms of the database structure and the functionality of the dashboard.

2. Planning: I then mapped out the architecture of the solution, deciding on the appropriate tools and libraries to use.

3. Iterative Development: Throughout the project, I worked in iterations, building small parts of the system, testing them, and then expanding functionality.

This approach was more methodical compared to previous assignments, where the scope might have been narrower. In the future, I would apply similar strategies—starting with a clear understanding of client needs, planning the architecture, and developing iteratively—to create databases and applications that meet specific client requirements.

The Role of Computer Scientists

Computer scientists play a crucial role in solving complex problems through technology. They design, implement, and optimize systems that can process, analyze, and visualize data in ways that drive better decision-making and operational efficiency.

For example, my work on the Grazioso Salvare dashboard allows the organization to manage and analyze animal outcome data more effectively. By providing an interactive and user-friendly interface, the dashboard enables better data-driven decisions, ultimately helping the company to achieve its mission more efficiently. The ability to transform raw data into actionable insights is what makes the work of computer scientists so valuable in today's data-driven world.

## Contact

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