**Grazioso Salvare Dashboard**

**By**

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**Overview of the Project**

This is the dashboard project created for Grazioso Salvare, an organization dedicated to training rescue dogs. The goal of this dashboard is to help them find dogs suitable for search-and-rescue training. The dashboard provides an easy way to view, filter, and analyze data from local animal shelters.

**Required Functionality**

**Interactive Filtering Options -** Users can filter the data by different rescue types

* Water Rescue
* Mountain or Wilderness Rescue
* Disaster Rescue or Individual Tracking
* Reset (returns all widgets to their original, unfiltered state)

**Dynamic Data Table** - The table shows the results based on the selected filters.

**Charts** - The dashboard includes a geolocation chart and a secondary chart that updates in response to the filtering options.

**Tools Used**

**Python**

The main programming language for developing the application.

**Dash**

A framework for building web applications in Python. It makes it easy to create interactive dashboards.

**MongoDB**

A NoSQL database to store the data about the animals. It allows flexible data structures and easy querying, which is important for our dynamic filtering.

**Pandas**

For data manipulation and analysis.

**Why MongoDB?**

MongoDB was chosen because it handles large amounts of data very well and is easy to work with from Python. It stores data in a flexible format (like JSON), making it simple to add or change fields without affecting the rest of the database. This is very useful for our animal data, which can vary widely.

**Why Dash?**

Dash allows me to create interactive web applications using Python. It combines the capabilities of Flask (for web serving) and Plotly (for data visualization) in a way that is very user-friendly. This means I could focus on developing the functionality rather than dealing with complex web development.

**Resources**

MongoDB Documentation - https://www.mongodb.com/docs/

Dash Documentation - https://dash.plotly.com/

Pandas Documentation - <https://pandas.pydata.org/docs/>

**Steps Taken to Complete the Project**

**Planning**

I started by gathering requirements from Grazioso Salvare and creating a plan for the dashboard.

**Setting Up the Database**

I established the MongoDB database and created CRUD (Create, Read, Update, Delete) functionality.

**Developing the Dashboard**

I used Dash to create the user interface and implemented the interactive features.

**Testing**

I tested each component to ensure everything was working correctly and made necessary adjustments.

**Documentation**

Finally, I wrote this README to provide clear instructions and explanations for future users.

**Challenges Encountered**

**Data Filtering**

Making sure the filters worked correctly with the database queries was tricky. I overcame this by carefully checking the query logic and adjusting the filtering criteria based on the rescue types and breeds provided by Grazioso Salvare.

**User Interface Design**

Ensuring that the dashboard was user-friendly took some time. I consulted the UI/UX requirements to make sure I was following best practices.