# Final Project README

## About the Project/Project Title

*The Grazioso Salvare dashboard is a website that allows users to interact and monitor rescue animals. Users may filter animals based on different selections and view their location on a map and get visualized data via pie chart.*

## Required Functionality

*The website must have the company logo and the developer unique identifier:*

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*The data table must be dynamic and must change based on the filtering option selected:*

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*A screenshot of a computer screen

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*A map with a blue pin on it

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*Graph Visualization and Geolocation Mapping:*

*The previous screenshots show evidence of the pie chart and geo location dynamically changing according to the filter and the animal selected from the table. This is a full screenshot of the chart and the map:*

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*Finally, users should be able to filter the data in the table itself in ascending or descending order:*

*Filtered by Breed column:*

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*Filtered by DOB column:*

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*All the other columns function in the same manner as the ones above.*

## Tools Used and Rationale:

* *Dash Framework: Dash is a web framework for Python that developers can utilize to create websites. Dash was chosen due to its flexibility and it’s ability to be used directly within a python script file.*
* *Pandas: Pandas in a library in python that helps in data analysis and here it was used to visualize the data within a table when the controller gets the data from the back end.*
* *Plotly Express: It is a python library and here it is used to create the pie charts within the website. It was selected because of its ease of use and various online resources that are helpful in debugging.*
* *Dash Leaflet: This python library is used to locate the animals using geo location maps, and it is selected due to its ability to display maps using longitude and latitude values, and it is free.*
* *Mongo Database: MongoDB is a NoSQL database that is very versatile and can store huge collections of data. This was used due to its flexibility when storing a lot of unstructured data. This helps with the animals data structure and helps avoid issues that may arise with some missing data within the collection.*

## Steps Taken:

*Account Creation and importing the animals data csv file into MongoDB:*

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*Python code written that connects to MongoDB and has methods that provides CRUD endpoints:*

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*Finally an ipynb file that uses all the tools mentioned in the Tools section that uses the python file and creates the dashboard:  
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Ensure both the python file, company logo and the ipynb script are in the same folder, the csv file imported to MongoDB and the account credentials are valid. Once in the same folder, opening the ipynb file using Jupiter and running it will cause the dashboard to go live.*

## Challenges Encountered:

*While working on this project, I faced issues with connection to the database initially, but that was remedied by selecting the correct port. I faced some issues getting the data to show up on the dashboard when I was calling my getAnimal method but that was fixed once I added rows and page-size attributes in the div that contains the data. Filtering according to the Dog Breeds table was very challenging at first as the data kept showing up as null, that was fixed after I added the parameters as a query object in my file. Finally, my pie chart was too small initially, and I used documentation and online resources to make its readability better.*

## Contact

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