**Project Two Read Me**

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CS-340

SNHU

6/16/2023

* **Describe the required functionality of the project. Include the screenshots or screencast taken while testing and deploying your dashboard (Step 6) as proof that you have achieved the required functionality.**

The project for Global Rain and Grazioso Salvare was to read through a database containing multiple different types of animals and display the entire database in an easy to read and manipulate table. This was done using a CRUD function (Create, Read, Update, delete). Once the CRUD functionality was complete the database could be manipulated as the user sees fit. The table that was created could then be used to search for specific breeds, animal types, names, outcomes, sex, locations, etc. Once this was completed specific read functions needed to be applied allowing for searches of the database based on desirable qualities based on breed, training age, and sex. Three parameters were established: **Water Rescue** (Labrador Retriever Mix, Chesapeake Bay Retriever, Newfoundland intact females between 26 -156 weeks old), **Mountain or Wilderness** (German Shepherd, Alaskan Malamute, Old English Sheepdog, Siberian Husky, Rottweiler intact males between 26-156 weeks old) , and **Disaster or Individual tracking** (Doberman Pinscher, German Shepherd, Golden Retriever, Bloodhound, Rottweiler intact males between 20-300 weeks old).

Once the search parameters are established the use can easily select the type of rescue animal desired and the database will automatically be searched and the breeds available for that parameter will be displayed in a pie chart and the table will be modified to only show compatible animals. The table then allows the user to click on the individual animals and the location of that animal will then be displayed on a map based off the latitude and longitude locations. When the pin on the map is clicked the name of that animal (if available) is then displayed above the dropped pin.

**A screenshot of a computer

Description automatically generated(All animals Displayed in Table with Austin animal Shelter Marked)**

A screenshot of a computer

Description automatically generated**(Water Rescue Compatible Animals Displayed with Table and pie Chart Changes)**

A screenshot of a computer

Description automatically generated**(Mountain or Wilderness** **Compatible Animals displayed with Table and pie Chart Changes)**

A screenshot of a computer

Description automatically generated**(Disaster or Individual tracking Compatible Animals displayed with Table and pie Chart Changes)**

**A screenshot of a computer

Description automatically generated(Reset Tab Selected Table and Pie chart return to Original Showing all Animals)**

**A screenshot of a computer

Description automatically generated(Animal name displayed when pin on map is selected)**

* **Describe the tools used to achieve this functionality and a rationale for why these tools were used.**

The tools used in this project were MongoDB, Python coding language, Juypter Notebook, and multiple libraries within Python to output the tables charts and maps. MongoDB was chosen based on the flexibility of the data that can be stored within the database. This makes importing and parsing through different data formats much easier than it normally would be in other types of databases. Python was chosen for its compatibility with MongoDB and the multiple libraries that can be imported. Some of these libraries are NumPy for math operations, Pandas for the manipulation of data, and Dash for the display of the data and all the visualizations seen above. These can be easily called in using the import function. Lastly Juypter library was used as the environment where the code could be executed.

* **Explain the steps that were taken to complete the project.**

The steps taken to complete this project were to create an IPYNB file that created the table the animal data was displayed in, the pie chart that was created, and the map that updates with animal locations. I was given a starter code that I had to modify to add this functionality to the project. This IPYNB file also calls on a CRUD function that was created in project one. This allowed me to search for the specific parameters required for the types of rescue animals that were desired then display them in the correct format using the Dash library.

* **Identify any challenges that were encountered and explain how those challenges were overcome.**

I did not run into that many challenges while completing this project. The biggest hurdle was getting the CRUD function to work as intended. Once that was complete displaying the data into the correct format was simple. There are many resources available for all the libraries used in this project with multiple examples on how to get the intended result.