**Describe the required functionality of the project.**

For this project, most of the functionality has been successfully achieved. I have been able to implement the ability to create a data table and then from there based on a query filter that data table. There has been radio buttons installed and when clicked they launch the necessary query and filter the data table appropriately. There has also been a data map installed that when an animal is clicked on from the data table there will be a pop-up with a tag on that animal. However it seems that I have struggled in one area and that would be the logo to appear and then as well with the pie graph to pop-up. I have been unable to produce a pie graph though I have an X and Y coordinate graph in it’s place.

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

MongoDB was used because it can connect to python and using dash, and other built-in libraries it was able to connect to python and make a well-rounded database without the use of JavaScript. Dash was used because it can be an interactive segway between the database and the information being displayed on a map and a pie graph in an interactive way. This also can be used to connect the data table to the user inputs through the radio buttons and the clicks that would be used to switch between filters. This was also used to allow the user to use the queries without the user needing to know the queries. Python was used since it would be a good language to connect through dash and with it being able to use dash to provide the same capabilities as JavaScript and I had no experience with JavaScript and better knowledge of Python. Then Jupyter Notebook was used as the program that would allow for adequate testing and good capabilities to use MongoDB and Python to connect the front end and back end of this database.

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

The first thing that was done was to take the data and import it directly into MongoDB. Next, I set up a user account and an admin account that would be used throught the rest of the development. Then, from there I set up queries using breed and age\_upon\_outcome as variables inside the database. Then when this was done I started to set up a test file that would run tests to prove that the database was set up correctly using the CRUD method. When I got to here I started setting up the dashboard and what the user would see. I added the logo and made sure to add an identifier that would show that it was from me and would show my work. Then from there I set up the data table and made sure that it would show the data and set up the functionality for the maps that would be used whenever an animal was clicked on. Then I set up the radio buttons and functionality that would allow for the user to click the buttons and to query the database for those dogs that would match the descriptions. I then set up a secondary chart and was working on that to allow for the type of breed and the number of each breed to be displayed to the user of the database along with the location of each.

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

When I was making this program there were quite a few problems that arose and most of them I was able to overcome. I had some issues with my lack of experience with this type of program. This is my first-time using dash or a program like it. There are some things that this would cause with errors that I had not encountered before. I was able to use google and my professor’s help to be able to get unstuck throughout this course. I know that a lot of issues came up and with lines that I had no idea. I would ask my professor and he would help me get on the right track. Along with this came a mental block with me. When, I was stuck at times I would try googling and instead of plugging in randomly I would read and decide it wasn’t it and move on. This led to me becoming frustrated and led to me almost freezing up. That is one of my biggest problems in general and I am looking for ways through that. I am trying to find a way to solve more problems and thus start to recognize things more easily to help in this class and others. I then have been looking up some suggestions from google and I am looking at a book to help me get better. I would get stuck as well and find some answers in my book that would give me a better idea of what my prompt should be to get my desired result. I know with the queries on the different types of rescue dogs that it was wrong but I was able to set myself on a better track with the books help. I also am working on deconstructing problems into more base pieces.

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