CS340 Project 2 Read Me

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This dashboards functions include:

1. The ability to view all the shelter data in a table format show 10 animals at a time.
   1. This data can be sorted based on any of the columns.
   2. Pages of the data can be cycled through using the arrows at the bottom or typing in the desired page
2. The ability to view the location of a selected animal on a map screen under the table.
3. The ability to see all breeds from the table and their percentage of total animals.
4. The ability to select a filter based on what kind of rescue the animal would be best suited for.
   1. Selecting one of these will update the pie chart to show only the breeds of the animals in that category.
   2. Selecting one of these will narrow the table to only show animals that meet all the criteria.
5. The ability to reset the filter status to go back to showing all animals.
6. The company logo and developer name shown at the top of page.

* **Describe the tools used to achieve this functionality and a rationale for why these tools were used.**
  + Be sure to explain why MongoDB was used as the model component of the development, including what specific qualities or capabilities it provides for interfacing with Python.

The tools used for this project include:

1. MongoDB as it has built in functionality with python through pymongo. This makes for easier query code and troubleshooting. In addition MongoDB works better large data sets given its noSQL design.
2. Dash was used because it works well to create an interactive dashboard through python scripting with minimal work. It also has many add-ons like plotly and data table that are designed to show data in a more pleasant and usable way through charts and well formatted data tables respectively.

Here are links to the resources used:

<https://www.mongodb.com/>

<https://pymongo.readthedocs.io/en/stable/>

<https://dash.plotly.com/>

https://dash.plotly.com/datatable

* **Explain the steps that were taken to complete the project.**
* **Identify any challenges that were encountered and explain how those challenges were overcome.**

Here are the steps I took to completing this project:

* Read the specifications required.
* Did a mockup of what was required.
* Researched the documentation to find out what would best meet the requirements using the mockup information as a guide.
* Got all required resources to include company image and shelter data set.
* Worked on one feature at a time starting with filling data table initially and setting it up, then the GS data/map, then the filter option and functionality, and finally the pie chart to round it out.
* During the coding and at the end I tested all functionality and took screenshots of the final test for each filter and feature shown below.

Here are the challenges I encountered:

* Issues creating the queries for the filter options: I had several stumbling blocks here to include syntax issues and logic issues. In the end lots of documentation reading and a few visits to stackoverflow fixed my issues.
* Problems with the update table functionality: Here I didn’t update the return statement, so the statement kept sending back just column data instead of the who tables data. I fixed it through trial and error with some help from dash documentation.
* Last problem was working around the virtual machine issues: probably over a hundred times by the end of this I had Apporto (the virtual lab I used) disconnect and often the disconnect led to even bigger errors that meant I had to log off for long periods of time before being able to work on the project again. I mostly had to learn patience and prep a lot of work so that I could complete as much as possible every time I did have access.

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