**Grazioso Salvare/Global Rain.**

The required functionality of this project will involve working with existing data from the animal shelter. This will give Grazioso Salvare persons the ability to identify and categorize data. The application will also feature a client facing dashboard. Persons may access the database from there. The users can interact with the preexisting data from the animal shelter database categorized by the rescue type of the animal. The code implemented in this documentation is for CRUD operations (create, read, update, repeat) functionality. Which allows users to interact through filtering options with database collections data.

**Tools Used**

The tools used for this application were very straight forward. Python, Jupyter Notebooks, Linux os, terminal commands, import commands used inside python files, MongoDB for the database, and a spreadsheet for dataset. MongoDB was used for this project because of its scalability along with python’s flexibility. Of course, there are a many other reasons to choose these technologies such as pymongo’s ease of use or the number of libraries provided. I am simply naming a couple. Python can handle a verbose amount of data with a few lines of code for starters. Handling large amount of data in real time is better managed through MongoDB. The scalability is what gives the program more modularity.

Be sure to explain the Dash framework that provides the view and controller structure for the web application.

**Steps Taken**

To begin, we will start by opening the virtual machine via Apport. This can be accessed through Brightspace. Next, we will open the Jupyter Notebooks application within the Linux operating system. We will either create a new folder or use an existing folder to place the file of the prewritten code. Within the folder, we will create the ipynb file responsible for implementing and compiling our code. The source code has been made available via module four assignment information via Brightspace. Since the virtual machine will not allow me as a mac user to copy and paste the code directly into the IDE. I needed to copy the code into a text file on MY personal machine, upload that file into apporto through the desktop. On the upper left-hand corner of the screen there is a button to upload files anywhere from your personal machine. Then, copy and paste the code into the IDE and save.

**Challenges**

The challenges I faced believe it or not was getting the module to connect to the other files so the program will run properly. This was the biggest issues because this was the only error message I would get after changing the names of files and such. I am still having difficulties getting the program to run properly in this regard.

**Journal questions and Responses**

How do you write programs that are maintainable, readable, and adaptable? Especially consider your work on the CRUD Python module from Project One, which you used to connect the dashboard widgets to the database in Project Two. What were the advantages of working in this way? How else could you use this CRUD Python module in the future?

By using a flexible language like python, along with the scalability of MongoDB. I allow my code to be readable by using one of the best practices known as commenting code and using proper naming conventions. The advantage of working this way was the speed at which I was able to get a full stack application up and semi running with only a few tools and technologies. I may be able to use the CRUP app to filter local new data from an API and dataset.

How do you approach a problem as a computer scientist? Consider how you approached the database or dashboard requirements that Grazioso Salvare requested. How did your approach to this project differ from previous assignments in other courses? What techniques or strategies would you use in the future to create databases to meet other client requests?

I approach problems as a computer science student by first gathering up as much information as I can without wafting too much time. During research, I check out the latest trends in the market and figure a way to implement that into requirements to be worked on. I approached this project very similarly to other projects I have built. I have always had a knack for designing and planning things out before I write any code. I simply understand the task at hand, create an outline for the plan then, put the plan into action. Some other techniques I would use in the future would be perhaps SQL to see what the differences are in terms of how fast one can create functionality for an interactive dashboard.

What do computer scientists do, and why does it matter? How would your work on this type of project help a company, like Grazioso Salvare, to do their work better?

Computer scientists take everyday problems and turn them into solutions using their knowledge of computers through various languages, tools, and frameworks. It matters because without computer scientists to create software companies and businesses would not have as much leverage as they do in terms of marketing, how technologically advanced the inner workings of software is. What makes self-driving cars and robots at the drive work were of course the people who spent time designing, planning, and implementing features into the code base.

**Resources**

CS 340 Jupyter Notebook in Apporto (Virtual Lab) Tutorial PDF

CS 340 Dashboard Specifications Document PDF

CS 340 Mongo in Apporto (Virtual Lab) Tutorial PDF

Headfirst Python