**5-2 Milestone 4**

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For Artifact artifact three I chose to use the final from CS340, the same one that was used for artifact two. The original goal of the project was to have a program that would authenticate the user and interact with a MongoDB. This database would be used to display information on animal shelter animals. The reason that I decided to utilize this project for the database portion was because I found it difficult when I first worked on it a year ago. The project was laid out with each part and each implementation done through steps each week. Even with these steps, I was slighly confused by what I was doing on with the project. I believe that enhancing the project will show the improvements that I have made and the furthur understanding I have gained over databases. The main way that I looked to do this is to migrate the database used from the MongoDS, noSQL, to a SQL database. This would help to show that I have an undertsanding of the differences between the two and I am able to implement a database. A SQL is different from the original noSQL by having defined data types, a fixed schema, primary keys that must be unique, and is a table based system. This is were I had to find solutions from the original design to be able to read the data that was organized to work with NoSQL.

To make these enhancements, I utilized mySQL. I took the previous .csv file and read it in a way that would work for mySQL. I made sure to read in each field and if it was blank, I would add a null to that location. I did this for all the fields, but it could be modified to not accept a record if certain fields are empty. For instance, the fields that are know like outcome\_type and locations should always have an entry from the shelter. These could be modified to not read null characters, which would mean the entry would be skipped if it had one. While there are inmprovements, such as the previosu one, I feel that the modification meet the outcomes I originally planned. The database has been migrated to SQL and functions correclty based on the change. I showed that I could create and manage a database without a step-by-step guide and that I was able to troubleshoot for solutions on my own.

As for what I learned, I was able to see the consept of schema’s in databases and how differences can be applied. I learned the value of having primary keys to attched to databases and to ensure differences between the records. I learned how to read the errors while creating the table and how to make modificaitons based on that feedback. Some of the main challenges that I had was ensuring I had the correct packages to complete the task I wanted. I was able to learn about the sqlconnector and how to utilize it to create an engine that runs the database. Below are screenshots showing the proces of creating and troubleshooting the database table.

Initializing the mySQL database and table with user permissions

A screen shot of a computer program

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Troubleshooting warnings for data fields being truncated.

A screen shot of a computer

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Troubleshooting incorrect records added by finding missing column



I initially thought that the animal\_id was unique to each animal but found repeats while adding to the table. To fix this, I used the index as the primary key for the table.

A screen shot of a computer

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Final load into the table, which catches all empty fields and makes them null to correctly read in each row.

A computer screen shot of white text

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