I learned a lot while working on my final project. I implemented several features that I had not encountered which I found to be a very rewarding experience. This project was really exciting for me, as it allowed me to have full control over the design of the program and the available features. I tried to design it as an application that I could actually see myself and others using, and I asked family and friends to give my ideas for features they would like to see added. Most of the requested features were added, and being able to figure out what was needed to make the concept a reality was a fun puzzle to solve.

Of course, this program covered all of the database functions that we had practiced in class. In the program, you are able to insert, delete, update, and view records from the database. None of this was groundbreaking to me, as we had practiced it in class. However, working on the program independently definitely helped me to solidify what we had practiced in class, and I even learned a couple of ways to modify some of the classroom approaches to achieve the same results.

Some of the features that I am proud of in the program are the table views, the pie chart, and I really like the search function. The table view took quite a bit of work to finally get everything the way I wanted. I spent a great deal of time on stackoverflow, YouTube, and other online resources trying to understand what was needed to make it dynamic. Overall, I am glad I put the effort in, as I think the table view makes the most sense for the data being presented, and allows the greatest flexibility in sorting the data. The pie chart was actually pretty intuitive and didn’t take too long, but I like the added feature of being able to visually interpret the data, and I think it’s a nice touch. The search bar function is just a really neat feature to me that seems very streamlined. I did run into some issues with the search function where the table view for the returned data was not populating with the correct information. It took some time to figure out when I needed to call the search method but it was a euphoric moment when it finally started working.

There are several other features that seem like very arbitrary simple things, but actually proved to be more difficult than expected and were good learning experiences. For example, setting date formats for labels, and having those labels populate to the current date. I also have several nodes that are set to be invisible by default but become visible after an action takes place. Getting everything to sync up was a challenge and a good learning experience, since one object needs to become visible on an action and another needs to become invisible on the same action. I realized after I had everything working that I probably didn’t take the most efficient approach to these scenarios, but overall it works well. I think I could have made things more efficient though if I had used **if** statements to determine when an object should be visible and when it should not. I think this would have cut down on a lot of repetitive coding.

If I were to do this again, I would probably spend a little more time with a pencil and paper, working through the best way to accomplish some of the tasks. Even though I am happy with the program, I think I could improve some of the coding by using more efficient statements to call my methods, run individual queries, or toggle the visibility of my nodes. I would also have made a separate class with getter and setter methods for my table view items, as I found this is a more traditional approach for populating a table view. Had I known this ahead of time, it would have solved several issues that I ran into very easily, where as the approach I used proved to be more work in the end.

Overall, I put a lot of effort into this and am pleased with how it turned out. I really tried to focus on little details that I thought made this program have the look and feel of something that is professionally done. There was a lot of thought put into just about every aspect. Whether it was updating the pie chart and the table with each change, or the label that becomes visible when hovering over each slice of the pie chart, or having menu items and buttons within the table to allow users multiple ways to accomplish tasks. It’s still not perfect, and there are a couple of minor things that I could improve, but I haven’t found anything that breaks the program. In conclusion, I learned a lot during the process of making this program, and I actually enjoyed making it!