Data Structures and Algorithms Narrative

The artifact I have chosen is from CS 340 Client/Server Development, which was completed in February of 2020. The source code for this final project was written in Python and created in the Codio environment. I created a RESTful service API along with Python source code to implement specific functions within MongoDB. I used CRUD functions to help maintain a functional database from a client/server development. This project also uses the Bottle framework, which is an excellent addition to client/server development because it shows the success and failures of operations. I chose to modify and enhance this final project because this type of work seems very applicable to real-life scenarios. I also wanted to display a project that used a different language than my first enhancement. Since my first enhancement was written in C++, I chose to do this one because it was completed in Python. This shows that I am versatile in two different programming languages. This project is also a great indicator of how well I can manage and maintain the data within a database.

My initial enhancement proposal was modified a bit for sure. I wanted to create embedded documents under certain fields but decided to create a brand-new field because it was more applicable to the embedded fields I wanted to add. Making a generic field called “Company Info” made more sense because I could add more fields underneath that parent node. I ended up researching the Ticker for A and found the real company, then added the appropriate information within the database to reflect that company’s real data. The choices I made helped complete course outcomes such as using algorithmic principles and computer science practices to find a solution.

I encountered a few difficulties when trying to complete these tasks for this enhancement. Creating multiple embedded documents became a bit tricky, especially when deciding when to use brackets and when not to. Updating them after setting them up was something I decided to do after my initial proposal. I figured this would help display my understanding of data structures. As for algorithms, I used an aggregate pipeline to show how a compiler would need to follow a series of steps to find certain results. I decided to make two different pipelines to express my understanding of how pipelines work.

By the time I completed this enhancement, I was confident in my skills, not only in navigating through MongoDB, but also with using the Python programming language. I have created examples which are replicable, so others may view my work and duplicate it to receive the same results. Overall, this enhancement was modified many times throughout the process, but can thankfully be considered a success.