Self-Assessment

My journey in the Computer Science program has taught me many valuable skills. These skills include the foundation of computer programming with languages such as Python, Java, HTML/CSS, C++, and C#. It has taught me how to utilize object-oriented programming, data analysis techniques, version control, along with the Agile methodology, testing and working with teams. I have also learned to work with data sources such as MySQL or SQL, and MongoDB, including the differences between relational and non-relational databases. All of these skill, will help me further my future aspirations of becoming a Software or Web Developer.

When it comes to working within a team, there are two courses that come to mind – CS 310 – Collaboration and Team Project, and an elective course CS 465 – Full Stack Development I. In CS 310 – Collaboration and Team Project, I learned to work with Git and version control. We also had to work as a team by pushing our commits and merging the branches. The challenge was in learning how to merge branches without removing the work of someone else, but this process became second nature after learning to ‘fetch’ the most recent updates and utilizing tools to see differences and to make the necessary adjustments before merging. In CS 465 – Full Stack Development, we took full advantage of the general discussion board to help each other with the assignments. The challenge this course presented was that the versioning of MongoDB changed in comparison to the tutorials set up for the course. We successfully navigated the course by sharing our experiences on how to set up our environments locally. I, for one, had the opportunity to start on this early, thus having experienced many of these challenges initially and provided help. Later in this course, I was the one needing assistance and was able to find others that had similar problems.

With communicating to stakeholders, CS 250 – Software Development Lifecycle introduced me to the Agile Development methodology. In this, we had projects that required “sprints” as part of the course development projects. In this, I learned how to work with ‘user stories’ as well as create ‘test cases’. These aspects of the SDLC helps in determining what the stakeholders are requesting for their programs. This also helps the development team by breaking down the overall software into smaller, manageable tasks to be completed.

For Software Engineering and Databases, I come back to CS 340 – Client Server Development. I started this course by learning MongoDB. I first created the database, imported the existing .csv datastore, then learned how to query the MongoDB. From this, I learned how to create the connection string to MongoDB and create CRUD methods using the PyMongo library. From there, and by using the data-first method, I was then introduced to Plotly Dash. In this I imported the python program to then create a “dashboard” to return filters on the specific data that was requested by the stakeholder.

For Data Structures and Algorithms, one of the courses I can use as an example of learning is CS 330 – Computer Graphics and Visualization. In this course, I was introduced to OpenGL. The course took me through how to create a 3D model using the C++ library. For this, I had to define the widow size, implement keyboard and mouse controls, and define the coordinate system to create triangles to then create complex structures. These complex structures included cylindrical, spherical, torus, and cone structures to design a 3D model. I had to create multiple buffer array objects to store the shape, then transform and translate the object to the desired location in the 3D space.

Overall, the journey through the Computer Science program has had its set of challenges. The biggest lessons I have learned was in how to conduct research. There were times when I would need to look for further explanations on how to implement more complex problems. Other times, I would need to research why a tutorial was not functioning as intended, which was usually due to library changes and versioning. This helped in developing further knowledge, especially in the realm of searching for ‘bugs’