Dylan W. Sanderson

CS-499-T4088 Computer Science Capstone 21EW4

Self-Assessment

Throughout this portfolio, you will see a variety of types of documents. They are going to be majorly split into four categories: Video Review, Software Design and Engineering, Databases, and Algorithms and Data Structure. Within the last three sections, you will see a ‘Narrative’ document that answers the following questions: What is the artifact? Why did you include it? How did you change it? Were you successful? What did you learn?

However, these three artifacts are not the summation of my experience through completing the coursework here. The education was well-rounded, touching on a wide variety of subjects and seeking to achieve understanding, if not mastery, of each. Despite being on an online platform, there was collaboration, communication, and exploration of a plethora of ideas and ideals, all pushing us to learn how to become efficient, effective, and skilled.

Nearly every course encouraged collaboration in a team environment on some level. At a minimum, there were regular discussion boards that we had to post about a particular topic, reply to class mates, and reply to people’s responses to our own post. We learned to foster creativity while accepting and sharing constructive criticisms in a positive light, even while blatantly disagreeing. There was even a particular course, CS-310-J6598 Collaboration and Team Project, that had us coding with classmates, pulling and pushing through a remote repository, critiquing other people’s code, and handling mergers.

Communicating to stakeholders was another valuable and explored topic throughout multiple courses. In IT-315-X3453 Object Orient Analysis and Design, we constructed technical documentation and visual aids based on stakeholder communications. In CS-250-Q2056 Software Development Lifecycle, we learned about the Agile development process, which is heavily communication intensive. Throughout one of the electives I chose, IT-328-X4417 Project Mgmt in Info Tech, we spent the breadth of the course building our technical and professional communication skills, culminating in building RACI, WBS, and Gantt charts, as well as a risk assessment and mitigation memo.

We studied data structures and algorithms both within the artifact demonstrated here, and a number of other courses. In particular, we used CS-340-X2142 ClientServer Development to explore accessing particular databases through MongoDB, and built algorithms to seek and alter particular subsets of data. We also studied how particular operating systems handle their own data structures and access in multiple courses, including IT-365-T5735 Operating Environments.

Software engineering was touched on in nearly every course, with many previously discussed involving databases in some respect. The vast majority of courses involved coding in some level, including in the artifacts shown here. We not only touched on back-end development heavily, but front-end as well, including in CS-330-T3231 Comp Graphic and Visualization, where we build an interactive animation in which keyboard and mouse controls altered camera position and the behavior of the objects and light sources. In CS-320-J5705 Software Test Automation, we explored not just building a database and related methods, but automating the testing of said methods, staged in such a way that testing could occur throughout multiple levels as the code was altered. We also heavily explored a variety of database-related concepts and methods in DAD-220-J5376 Introduction to SQL.

However, what of one of the biggest concepts in Computer Science today? Security was explored in a number of courses. In CS-340-X2142 ClientServer Development we spent time building administrator and user accounts and altering their access permissions. In IT-255-J1590 Intro to Linux, we explored the specifics on file permissions and ownership within Linux, which is similar to how the majority of operating systems handle said concepts. Even in IT-201-J3125 Computer Platform Technologies, while discussing and building a client proposal for outfitting a company with improved computational abilities, security was discussed heavily, including ensuring wireless networks were free from intrusion, UAC systems with Windows, and physical system locations.

While all of this sounds nice in summary, there are few ways to prove the program’s efficacy and my own skill set without actually showing my work. As such, the other sections of this site will be filled with the previously mentioned artifacts and accompanying narratives. However, I will provide a brief overview here before you dive into the depths, as it were.

For Category One: Software Design and Engineering, I chose the final from IT-315-X3453 Object Orient Analysis and Design. This artifact originally consisted of the three sets of technical documents and analysis therein, but I subsequently performed some back-end development of the described system. As such, you will see both the technical documents, and three ‘.h’ files that built the object described in the documents.

For Category Two: Algorithms and Data Structure, I chose the final from CS-260-J3682 Data Structures and Algorithms 20EW3. In particular here, you will want to pay attention to the file ‘BinarySearchTree.cpp’, in which I demonstrated understanding of the data structure and recursion as a whole through the addition of a method described in the narrative. The other files are present to demonstrate mastery of the plethora of concept explored throughout the course.

For Category Three: Databases, I chose the final from DAT-220-J2600 Fundamentals of Data Mining. I would argue that this unique choice demonstrated a number of things, which are explored at the end of the Final Project document. First, this showed an understanding of an alternative method of database manipulation that utilized Excel, mathematics, and statistical techniques. Second, this demonstrated the ability to take said information and turn it into actionable data, including how the next explorations should occur. When paired with my other experience, this means I will be capable of using data mining techniques on a variety of databases to create actionable data, and report it effectively.

As can be seen both throughout this assessment, and the provided enhanced artifacts, the education I received through the Computer Science program and SNHU was well-rounded, effective, and provided many employable skills. While I still have much to learn, the combination of skills learned through this program and my current real-world experience results in me being able to provide an informed yet unique perceptive and problem-solving approach. Please, explore on, and see that I am prepared for the next stage of my life journey.