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CS-499 Computer Science Capstone

Mr. Conlan

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7-1 Final Project

**Professional Self-Assessment**

Throughout my time at SNHU, I have learned many skills that will enhance my career as a Data Center Operations Analyst 2. I now have a working knowledge of multiple programming languages such as Python, Java, Javascript, SQL, etc. I have also learned what it takes to work on a project as a team. In the CS-310 Collaboration and Team Project course, we had to work individually on a jukebox application that was later consolidated into a master program. This taught me how to be a team player and understand the methods required for a collaboration project.

One of my favorite courses, Web Site Design, taught me how to use HTML and create website pages. For this, I built a working multipage website for my wife's handmade jewelry business. I was even a scrum master in my software development course. This taught me how to work with a team and stay on top of the design process.

For this project, I chose three artifacts to help showcase my skills. For the first artifact, I will be going back to the skills I obtained in CS-315: Object-Oriented Analysis and Design. This relates to the field of software design and engineering. In the second artifact, I will be using IT-365: Operating Environments. This one is related to the algorithms and data structure field. The third artifact is CS-340: Client Server Development. This final artifact is for working with databases. On this ePortfolio, you will see the original file as well as the updated one.

**Enhancement One: Software Design and Engineering**

This artifact is a sequence diagram to show the design of an application. This is a guide for a student information system. The idea here was to create a website and mobile app for students to register for classes. It was created in November of 2020.

I selected this artifact to show how the different parts of a system interact with each other to carry out a function. It showcases my skills in understanding how an application works. Showing how each use case works to create a working application. This helps designers understand the requirements needed to create a successful application. The artifact will be cleaned up for better readability.

I met some of the course objectives for this week. I was able to find some of the original documentation that had the requirements for this application. From that, I can make more modifications to the sequence diagram. I made one additional actor to the diagram this week to show that it is a user. At this time, I don't have any new updates planned.

I learned that you can always improve something even though it looks good as it is. I faced several challenges this week. One of them was remembering what the application was designed for. There may be a need to download additional software to go further into updating future enhancements.

**Enhancement Two: Algorithms and Data Structure**

This artifact was created to display a table made from page numbers and addresses. It was to use a system call operation. It was for the Operating Environments course using the Java language. It was created on February 7th, 2021.

I selected this artifact to show how the different parts of a system interact with each other to carry out a function. It showcases my skills in understanding how programming works in an operating environment. This shows that I know how to read a programming language and make modifications as necessary. In the original files, some sections needed to be completed to make the code run as indicated. The artifact will be cleaned up for better readability.

So far, I have not made any changes to the code. I have not been able to find my documentation explaining how to test this code. Some of this is because all my previous work was done on the virtual labs provided by the school. I will attempt to go through the code and add in new comments. The structure looks good from what I have reviewed so far. At this time, I don't have any new updates planned.

I learned that you can always improve something even though it looks good as it is. I faced several challenges this week. One of them was remembering what the application was designed for. There may be a need to download additional software to go further into updating future enhancements. I will need to dig deeper in my OneDrive file and see if I can find more documentation. One challenge so far is a section that calls for an int of Physical\_Memory\_Size.

**Enhancement Three: Databases**

This artifact comes from the CS-340 Client Server Development class. It uses a mongo to poll a database of animal shelters for candidates to train as service animals. This project was created on October 31, 2021. The completed file was submitted on December 12th of the same year.

I selected this artifact to show my ability to understand data manipulation. I created a specific user account and password so I could be the only person to make any changes. I was able to incorporate the customer's wishes and create the script to do the function. To be improved I will remove the fix me text notations. I will also incorporate the main username and password into the pymongo script.

Without access to the database used to create this artifact, I was not able to do any research and testing. I was able to retrieve the excel document that was used but not the database itself. I will continue to update the code to polish it for submission. Other than that, I have no immediate plans.

I learned there is always room for error. Since we are humans, we are prone to make mistakes. Being able to recognize and correct those mistakes will make us better computer science specialists. The challenge is not having access to the database. I should have saved a copy of it to my OneDrive so I could revisit it later. All of the work presented can be seen at <https://github.com/pgoodwin83/CS-499-Computer-Science-Capstone>.