CS-499-X2150

Computer Science Capstone – Enhancement One

Software Design and Engineering

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The first artifact I have selected to work on is my zooAuthentication Java program. This program I created as my final project in my IT-145 course. This artifact was completed in April of 2018. The authentication program prompts a user to enter their username unless they want to quit the program; it then prompts them to enter their password. Once they enter credentials, the program goes to a specified path location and accesses a credentials file and confirms the user’s credentials. If the credentials are authenticated the user is displayed with text related to their roles. If the user is successful logging in, the program goes back to the designated path as before and searches for a file with the name of the role assigned to the user in the credentials file. With my update, the program will now search a csv file instead of a text file for the user’s credentials and role. For my second artifact, which is a work in progress, I selected the final project I worked on for my DAD-220. My plan on this artifact was to update some of the SQL queries I had created to complete the different tasks. The plan was to create, read, update, and delete from tables on different databases. I had updated two, but one did not pan out, as I wanted it to. The syntax was SQL but was meant for a Microsoft SQL server. When working with SQL, we need to ensure we use the right SQL syntax. I learned this the hard way when I used SAS at work and use the PROC SQL function and kept getting errors. I realized I had to use SAS SQL syntax and not the Oracle DB syntax I was accustomed to. They are all similar with some minor changes. I worked on this project for my DAD-220 class in September of 2019.

I chose this artifact because it was one of the more complex programs I worked on and I enjoyed working on. It took me some time to get it to work and display the data and information, as I wanted it to. In the program, I used different classes to separate the authentication portion of the program, create the prompts that would be displayed to the user as well as initiate the variables that would be used in the program, such as what is stated in the userInputs. It was also one of the first programs I had worked on that contained multiple files to work as one program. This was something new to me. I updated the program by adding additional files for the new roles as well as created a new credentials file to make the storage of the user’s name, md5 hash, password and role in an easier manner. Regarding my SQL tasks, I reviewed them and made the ones that were possible, more efficient to execute. For example, instead of looking for multiple variables, I updated some to update a table by using an ID field to update an entry. I reviewed all the SQL tasks I worked on and updated the ones I found that were able to be made more efficient or streamlined. Not all of them were able to be updated and were efficient as is. I have worked with SQL for many years, mainly Oracle databases. MySQL was new to me and in the past, I mainly extracted data creating outputs and listings. With this course, I had to create databases and tables which was different, which is why I chose this project for this course. The artifact was improved by making the SQL queries/statements more efficient.

I believe I met the required and planned objectives with both of my artifacts. I was initially worried about how to update my artifacts. I was overthinking the process and what I should do. I reviewed the java program first and was thinking of shifting classes around and maybe adding more to get the program in a more complex state. I decided against that, I felt that in order to do that I would basically be starting from scratch at that point. My goal for this artifact’s first enhancement was to make it a little more complex. I achieved this by adding additional users to authenticate and have an additional role rile to read and extract the data to display for the new users. This enhancement also provided me the thought of my second enhancement, which was to update the credentials file.

The process to modify and enhance my programs was a little stressful. It has been a while since I completed my IT-145 course, and I have learned different programming languages since I completed this course. I was afraid of not being able to remember the right syntax or not being able to accurately update the programs. Once I decided on the changes, I was planning on making, I then felt more comfortable. This java program was a little complicated while I updated it for my enhancements. I created the additional role file and updated the existing credentials text file. I was able to execute it successfully and authenticate the existing users. For my second enhancement, I made the necessary changes to the file path and created the necessary files as well as updated the credentials file information, but initially I had some issues loading the code into NetBeans as well as running the program successfully. The java classes slowly came back to me and I was able to review the errors and warnings and make the necessary changes to build and execute the program successfully. I learned that comments are very important in code to make sure that if we review code later on or after a large period, they can help refresh us on what each part of the program does. It is also important to continually test code in order to ensure its accuracy and correctness. This will avoid issues down the line. Slowly making updates is key as well. If a program works now, as you update it you can easily break the whole thing. It is good practice to work slowly, test often and if possible, copy the code to a separate location so you do not mess up an existing copy of a program that works.