**7-1 Final Project: Narrative - Algorithms and Data Structure**

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1. **Briefly describe the artifact. What is it? When was it created?**

The artifact is a grocery tracking app from CS210 – Programming Languages. When the program was originally written for CS210, it contained a source.cpp file that displays a menu with 4 options. Option 1 prompts the user for an input string and would iterate through a text file input, if an exact match was found, it would add 1 in a vector to produce the count. The program would output the search would and the frequency. Option 2 would output a list of all the items in the list with the frequency. Option 3 is the exact same logic as option 2 with the addition of adding a symbol of $ to the output to represent the quantity. Depending on the option selected, the output was backed up to a dat file. Option 4 would exit the program. The Grocery Program class contained 5 functions, GroceryTracking(), GroceryBackup(), GroceryOutput(), GrocerySearch(), GroceryHistogram().

1. **Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?**

As originally written, it was extremely basic and not a realistic way that inventory programs would be written in a real-world scenario. I chose to include this in my ePortfolio because it highlights how my skills have improved over time. It will highlight the fact that I can write clean, scalable, well-structured code, and have knowledge of NoSQL. For the second outcome I added sortable vectors that allowed for sorting of the data that was output, allowing for customization. With these new sorting options, sub menus were created that allowed the user select if the data should be displayed greatest to least, least to greatest, or by default, alphabetical order. Next, the logic for the initial menu was not correct. If a user entered an incorrect choice, they error message would display on a constant loop. I nested the while statement correctly, so this didn’t happen. I also enhanced the menu logic to resible a real life scenario. Once a user was in the middle of a task, they wouldn’t have to continue selecting they were still searching. Logic was added to the menu so they user would have to exit the menu choice to go back to the main menu.

1. **Did you meet the course outcomes you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?**

Yes, I was able to follow my enhancement plan from Module One to meet the Algorithms and Data Structure course outcome. The enhancement ended up being a little different than originally planned, but the outcome remained unchanged and no additional enhancements were needed.

1. **Reflect on the process of enhancing and modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?**

I gained additional practice creating a working project with nested for and while statements. Completing the testing for step of the process went smoothly but I should always add additional time on projects when writing code to fix issues when they arise.