**7-1 Final Project: Narrative - Software Design and Engineering**

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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 first outcome enhancements, the first thing that was fixed was the logic for the menu.

Next, I refactored the code. I took the remining 3 functions that were in the GroceryProgram class and moved them to the newly created GroceryProgram.cpp file. I created a header file for the GroceryProgram.cpp file, moved all the #include statements and private and public members in the GroceryProgram.hpp. Once I ran tests to ensure the program was working correctly, I started to add another function called GrocerySales. When I started creating the logic, I noticed a lot of the code for the GrocerySearch was needed to find the item, get the count, and multiple it by the cost. To ensure logic wasn’t repeated throughout the code, I created another function called GetItemsSalesData that returns a pair<int, double> representing the number of times an item appears in the database and its unit cost. I moved the search logic previously created to this new function to remove pluralization, ignore spacing, and converting everything to lowercase. I updated the GrocerySearch function to return the searchWordRaw and the count. And then in the GrocerySales function I added an output in prompt the user to enter an item. Then used the GetItemsSalesData to calculate the cost time count. Then it output the total sales. After these functions were updated, I added the menu choice to the main.cpp file. I then cleaned up spacing and minor misspellings throughout.

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 software design and engineering 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?**

While creating programs in courses at SNHU, I have only had a few classes where I had to create programs from the beginning using headers and multiple cpp files. Having done this on my own, I didn’t find it as complicated as I thought it would be. Updating each function was took me a lot longer than anticipated so I learned to have to allow myself more time when writing code to fix issues when they arise.