Project 3 Code Functionality Description

Lines 11-26

```
#include <iostream>
#include <fstream>
#include <string>
#include <map>

using namespace std;

/*
Implementation of the usage of class with one public and one private section
*/
class NumberItems {
    private:
    map<string, int> ItemCount;

    public:
    void readTextFile(const string& filename){
        // reads each element in the text file
        ifstream inputTextFile(filename);
        // txt file composed of elements, 'item' as a string
        string item;
        // while statement: while there is another item in list, increment the count
        while (inputTextFile >> item){
            itemCount[item]++;
        }
        inputTextFile.close();
    }

```

The first step I made was creating a public and private class for the program. Where I explained how the file is open and read through the commented lines of the code.

Menu Option One, Two and Three

This section was simply defining a function (getItemCount) I could later call that would return the item frequency count of a specified grocery item. I defined the second function (printItemCount) that would be called to print out the item from the list with the numerical value after, such that the number is the number of times the item appears in the list. This will print in the form 'item: #". The third function defined (printItemHistogram) prints each item and instead of the numerical value, an asterisk is added for every instance the item occurs in the list.

```
    int getItemCount(const string& item){
        return itemCount[item];
    }
```

lines 33-35

getItemCount()

```
    void printItemCount(){
        for (const auto& entry : itemCount){
            cout << entry.first << ": " << entry.next << endl;
        }
    }
```

Lines 42-46
PrintItemCount()

```
    void printItemHistogram(){
        for (const auto& entry : itemCount){
            cout << entry.first << " ";
            // for each item in list, prints item with asterick to match count
            for (int i = 0, i < entry.next; i++){
                cout << "*";
            }
            cout << endl;
        }
    }
```

Lines 54 -63
printItemHistogram()

The main() function was the last part of my code, starting by defining a class and reading the text file that was given for the assignment. From here the user is able to choose one of the options listed out, and according to the input, there is an if else statement. If the first option is chosen, the first menu option is displayed according to their item. If the 2nd option is chosen, the second function defined (printItemCount) is called and sent to output. The same process is in place for the Histogram, in addition to a way to end the program with an Option 4, exit. When the user doesn't input 1-4, there is an error message sent to output. Then code ends with the return 0;

```
int main() {
    // class items created
    NumberItems items;
    // reads the text file
    items.readTextFile("CS210_Project_Three_Input_File.txt")


    int Option;
    while (true){
        // Give user options, then prompeted for a response
        cout << "From the Menu, choose Option 1, 2, 3 , or 4 and hit Enter."
        cout << "Menu:" << endl;
        cout << "Option 1: Numerical Count of Specified Item" << endl;
        cout << "Option 2: Print Items with Numerical Count" << endl;
        cout << "Option 3: Print Items with Histogram" << endl;
        cout << "Option 4: Exit" << endl;
        cout << "Your Option is Option #: "
        cin >> Option;

        // If and else if statement depending on the option the use rinputs.
        // For the first open, the defined function (getItemCount) is called.
        if (Option == 1) {
            string item;
            cout << "Enter the item are you looking for: ";
            cin >> item;
            cout << "Count: " << items.getItemCount(item) << endl;
        // if the second option is picked by the user, (printItemCount) is called.
        } else if (Option == 2){
            item.printItemCount();
        } else if (Option == 3){
        // if the second option is picked by the user, (printItemHistoram) is called.
            item.printItemHistogram();
        // If option for is chosen, the program is Exited.
        } else if (Option == 4){
            break;
        // When none of the options are chosen, an error message appears.
        } else{
            cout << "Try Again: Valid Response '1', '2', '3', '4'. " << endl;
        }
    }

// end program
    return 0;
}
```