Q1
Code

q1 (Global Scope)

```cpp
#include <iostream>
#include <iomanip>
#include <fstream>
#include <string>

using namespace std;

const int MENU_SIZE = 8;
const double TAX_RATE = 0.05;

struct menuItemType {
    string menuItem;
    double menuPrice;
};

void getData(ifstream& inData, menuItemType menuList[], int size);
void showMenu(menuItemType menuList[], int size);
void printCheck(menuItemType menuList[], int itemsPurchased[], int size);

int main() {
    menuItemType menuList[MENU_SIZE];
    // an array which keeps track of the items the customer purchased. the index matches the index of the item in the menuList
    // and the number at an index is the quantity of that item purchased.
    ifstream inData;
    inData.open("Menu_Data.txt");
    if (!inData) {
        cout << "File does not exist." << endl;
        return 1;
    }
    getData(inData, menuList, MENU_SIZE);
    showMenu(menuList, MENU_SIZE);
    int input = 0;
    int itemsPurchased[MENU_SIZE] = {0};
    cout << "Enter a number to order an item from 0-7. Enter -1 to calculate your total." << endl;
    cin >> input;
    while (input != -1) {
        if (input >= 0 && input < MENU_SIZE) {
            itemsPurchased[input] += 1;
        }
        cin >> input;
    }
    printCheck(menuList, itemsPurchased, MENU_SIZE);
    inData.close();
    return 0;
}
```

```
46
47    // read in menu information from text file
48    void getData(ifstream& inData, menuItemType menuList[], int size) {
49        for (int i = 0; i < size; i++) {
50            string name;
51            string price;
52            getline(inData, name);
53            menuList[i].menuItem = name;
54            getline(inData, price);
55            menuList[i].menuPrice = stof(price);
56        }
57    }
58
59    // format and display the menu to the customer
60    // inform the customer how to selct menu items
61    void showMenu(menuItemType menuList[], int size) {
62        cout << "Welcome to Sooji's Restaurant" << endl;
63        for (int i = 0; i < size; i++) {
64            cout << fixed << showpoint << setprecision(2);
65            cout << i << ": " << left << setw(15) << menuList[i].menuItem << right << "$" << menuList[i].menuPrice << endl;
66        }
67    }
68
69    // display the items, quantities, and prices of the items purchased
70    void printCheck(menuItemType menuList[], int itemsPurchased[], int size) {
71        double total = 0.0;
72        double subtotal = 0.0;
73        double tax;
74        cout << "Welcome to Sooji's Restaurant" << endl;
75        for (int i = 0; i < size; i++) {
76            int qty = itemsPurchased[i];
77            if (qty > 0) {
78                subtotal = qty * menuList[i].menuPrice;
79                cout << qty << " " << left << setw(17) << menuList[i].menuItem << " $" << subtotal << endl;
80                total += subtotal;
81            }
82        }
83        tax = total * TAX_RATE;
84        total += tax;
85        cout << "  Tax:" << right << setw(15) << "$" << tax << endl;
86        cout << "  Amount due:" << right << setw(8) << "$" << total<< endl;
87    }
```

Output

```
Microsoft Visual Studio Debug Console
Welcome to Sooji's Restaurant
0: Plain Egg      $1.45
1: Bacon and Egg  $2.45
2: Muffin         $0.99
3: French Toast   $1.99
4: Fruit Basket   $2.49
5: Cereal         $0.69
6: Coffee         $0.50
7: Tea            $0.75
Enter a number to order an item from 0-7. Enter -1 to calculate your total.
1
2
2
6
-1
Welcome to Sooji's Restaurant
1 Bacon and Egg     $2.45
2 Muffin            $1.98
1 Coffee            $0.50
  Tax:              $0.25
  Amount due:       $5.18
```