CS 1336.502 Project 1

Description

Create a program as follows:

The program assists a shopkeeper in calculating the cost of a customer's shopping cart. The shop sells six items:

- Asparagus
- Brussels Sprouts
- Corn
- Lettuce
- Pumpkins
- Watermelons

When the program is run, it should first prompt the user for the number asparagus packages being purchased and accept input from the user with that number. The program should then prompt the user for the price of each asparagus package and accept input from the user with that number. Next, the program should do the same for Brussels sprouts. Then for corn, lettuce, pumpkins, and watermelon in turn.

After inputting the number of watermelons being purchased and the price of each watermelon, the program should display a summary describing the number of each vegetable and the price of each vegetable.

The program should then calculate and display a subtotal for the cost of all the vegetables being purchased.

The program should then calculate the sales tax on the vegetable purchase, assuming an 8.25% tax rate and print the tax.

Finally, the program should display a final total consisting of the sum of the subtotal and the tax.

In all cases, the costs should be displayed with two decimal places. In addition, the costs should all be aligned so the decimal points line up vertically. You can assume the cart will not contain more than 99 of any particular vegetable and you can assume that no vegetable purchase will total more than $999,999.99.

Documentation

The first line of the source code should be a comment including the following information:

// CS 1336.502 Project 1 <YOUR NETID> <YOURNAME>

In addition, your program should have a header comment describing the purpose of the program and overall flow of the program.

Further, your program should have comments within the code describing the purpose of each logical section within the program and describing why you made decisions as your wrote the program.

Sample Run

```
Please enter the number of asparagus in the cart: 1
Please enter the cost of each asparagus: 2.34

Please enter the number of Brussels sprouts in the cart: 5
Please enter the cost of each Brussels sprout: 6.78

Please enter the number of corn in the cart: 9
Please enter the cost of each corn: 10.11

Please enter the number of lettuce in the cart: 12
Please enter the cost of each lettuce: 13.14

Please enter the number of pumpkins in the cart: 15
Please enter the cost of each pumpkin: 16.17

Please enter the number of watermelons in the cart: 2
Please enter the cost of each watermelon: 100000

The cart contains  1 asparagus that each cost          $     2.34
The cart contains  5 Brussels sprout(s) that each cost $     6.78
The cart contains  9 corn that each cost               $    10.11
The cart contains 12 lettuce that each cost            $    13.14
The cart contains 15 pumpkin(s) that each cost         $    16.17
The cart contains  2 watermelon(s) that each cost      $100000.00
The subtotal of the cart is                            $200527.45
The tax is                                             $ 16543.52
The total is                                           $217070.97
```

Submitting the assignment

Submit only the source code (e.g., all cpp files) and header files you write for your program for the program. You must submit these to eLearning in response to this assignment. If there are multiple files, you may combine them into an archive file (e.g., zip, tar, 7z).

As part of this assignment, you may be required to demonstrate the following to the grader:

- If required by the grader, downloading the source file from eLearning.

- If required by the grader, building the program in Eclipse with MinGW. You must either bring your laptop with Eclipse and MinGW installed on Windows or coordinate with the grader to use a UTD machine configured with Eclipse and MinGW. The grader will check your project settings to ensure they are set as required in this class (e.g., -pedantic, -Wall, -Wextra, -Wconversion).

- If required by the grader, demonstrate the execution of the program to the grader, using input of the grader's choosing.

- If required by the grader, explain the source code to the grader and answer questions from the grader about the code constructs used.

Grading

The program will be graded as follows:

10% - The program was written and submitted as required in this assignment.

20% - The program builds without error or warnings in Eclipse with MinGW configured as specified.

30% - When executed, the submitted program functions as required, accepting the input from the user and displaying the required output as specified in the assignment.

20% - The program code is well structured, readable, and implements the required functionality in a direct and understandable manner.

20% - The program is documented, describing the overall purpose of the program, describing how the functionality is implemented and describing what is happening in each logical section of the program. The identifiers are meaningful and consistent. The coding style is clear and consistent. If the grader requires a demonstration, answer the questions posed by the grader and explain the decisions made while writing the program.