Grocery Calculator Assignment Rubric

Scalable Data Infrastructures: MDV2330

Bare Minimum Requirements

These requirements must be satisfied before any points are awarded. Failing to meet these requirements will result in a zero (0) grade.

1. Working C# file with no major syntax errors and no runtime errors.
2. You must submit the whole project folder and not just the .cs file.

Topic	%	Excellent (100%)	Good (75%)	Fair (30%)	Poor (0%)
Technical					
Naming	5	The submitted files follow the correct naming convention of LastName_FirstName_GroceryCalc.			Files are not named properly.
Programming Fundamentals					
Prompts	15	The user is prompted for 3 costs of food and 3 quantities by a WriteLine and information is stored in a variable of the correct data type.	There are minor errors in prompting the user.	There are major errors in prompting but it is at least attmepted.	No prompts are present. (Zero for the entire project.)
Casting	15	All user prompted variables are correctly parsed or cast using the decimal format.	User variables are cast/converted but there are minor errors.	User variables are cast/converted but there are major errors.	User prompted variables are not correctly parsed.
3 Item Totals	10	Math is used to correctly calculate the Total cost for each item before tax and is stored inside of an appropriately named variable.	There are minor errors in this calculation, but final values are correct.	There are major errors in this calculation or the final values are incorrect.	This calculation is not present.
Total Before Tax	10	Math is used to correctly calculate the total cost of the of all of the items and is stored inside of an appropriately named variable.	There are minor errors in this calculation, but final values are correct.	There are major errors in this calculation or the final values are incorrect.	This calculation is not present.
Sales Tax	10	Math is used to correctly calculate the sales tax cost for all items together. It is stored inside of an appropriately named variable.	There are minor errors in this calculation, but final values are correct.	There are major errors in this calculation or the final values are incorrect.	This calculation is not present.
Grand Total	10	Math is used to correctly calculate the grand total cost of all items and the sales tax added together and is stored inside of an appropriately named variable.	There are minor errors in this calculation, but final values are correct.	There are major errors in this calculation or the final values are incorrect.	This calculation is not present.
Output	15	Console.WriteLine must contain: 1. Calculated values 2. Supporting descriptive narrative text 3. String concatenation	Missing one of the previous list.	Missing two.	Output not present or not meaningful.
Test Values	10	Test values are present in a multi-lined comment at the end of code and are correct.			No test values are present

Activity: Grocery List

OVERVIEW:

For this assignment, you will be building a calculator that will add up the cost of a specific number of items and then add in sales tax to calculate the total bill.

READING & RESOURCES:

Grocery List Calculator - Rubric (necessary)
The rubric on the first page of this document outlines the points for the assignment. Make sure you check off each one as done before submitting your assignment!

OBJECTIVES:

Successful completion of this activity will show that you can do the following:

- Successfully prompt the user and utilize their responses in calculations
- Employ multiple mathematical operators to a working calculator.
- Implement variables.
- Recognize when to use parentheses for the order of operations.
- Translate and summarize code with comments.

INSTRUCTIONS:

1. Before you begin, you should read the rubric on page 1. This is extremely important, as it will tell you exactly how this assignment will be graded.

2. Create a project called **Lastname_Firstname_**GroceryCalc.

3. In this assignment you will have the following objectives:

    a. Prompt the user for 3 prices of different food items and store their responses inside of variables that you create.
        i. Prompt for the price of
            1. A Banana
            2. A Beef Brisket
            3. An Apple Pie
    b. Convert and store the user prompts into a number data type that you can work with using the math operators.
        i. HINT * Remember when dealing with a cost, you should be using the most precise number data type.
    c. After you have the cost of the food item, prompt the user for the quantity desired for each of the 3 individual food items.
    d. Convert and store the quantity into a number data type that you can work with using the math operators.
    e. Finally prompt the user for the sales tax % where they live.
        i. This should be taken in as a whole number like 7 for 7% tax, instead of trying to have the user convert it to .07.
        ii. Try not to overthink this part. Remember a percentage is a number expressed as a fraction of 100.
        iii. 10% is really 10/100 or .10
        iv. 8% is 8/100 or .08
    f. Convert and store the sales tax into a number data type that you can work with using the math operators.
    g. Using the user prompted variables calculate the following values and remember to store them inside of a variable that you create. Think of this kind of like a receipt you would get when you check out.
        i. Give each user the total cost for each of the items without sales tax.
            1. Ex. **3** bananas will cost you **$1.50**.
        ii. The total cost of all of the items before the sales tax.
            1. Ex. The total before tax is **$20.50.**
        iii. The total cost of the sales tax for all of the items combined.
            1. Ex. The sales tax for all of your items is **$1.25.**
            2. If you are having trouble calculating the sales tax, just google the phrase “How to calculate sales tax” You will be surprised by how many great sites and tutorials are out there!
        iv. Then finally the grand total for all of the items bought and the sales tax added in.
            1. Ex. The grand total for your bill including tax is **$30.45**.
    h. Check that your calculator is working correctly with the test values below.

        i. These test values should also be in a multi-lined comment at the end of your code or you will get points deducted.
    i. If you would like to round your numbers to 2 decimal places check out Math.Round() or your could also check .ToString("C") to format the number as currency.

4. Place your name, date, and assignment at the top of your code in a multi-lined comment.
5. Make sure to comment every important line of code so that you are explaining exactly what you are trying to do.
6. Your code should give the user meaningful output. So, after your calculations are complete, your code should report back to the user the final values with a Console.WriteLine().
    a. This should contain the variables that you calculated and a concatenation text string that describes the value.
    b. e.g. Console.WriteLine ("The area of the rectangle is " +calcArea+ "!");
7. Zip your whole project folder and upload this file to FSO.

Test Values:

- Use the following values to test that your calculator is working properly.
- These tests must be in a multi-lined comment at the end of your code.
- Do **NOT** just copy and paste these values. They must be written by you and match your output or you will get a zero for the Test Value section.

Test #1

Inputs

- Cost of an Banana - 0.40
- Cost of a Beef Brisket - 20.25
- Cost of Apple Pie – 9.75.

- Quantity of Bananas – 4
- Quantity of Beef Briskets – 2
- Quantity of Apple Pies – 3

- Sales Tax In My Area – 5%

Results

- Total cost of Bananas before tax is - $1.60.
- Total cost of Beef Briskets before tax is $40.50.
- Total cost of Apple Pies before tax is $29.25.
- Total cost of all items before tax is $71.35.
- Total sales tax on all items is $3.5675 or $3.57 rounded.
- Total of all items including tax is $74.9175 or $74.92 rounded.

Test #2

Inputs

- Cost of a Banana - 0.75.
- Cost of a Beef Brisket – 13.24.
- Cost of a Apple Pie – 3.75.

- Quantity of Bananas – 6
- Quantity of Beef Briskets – 4
- Quantity of Apple Pies – 2

- Sales Tax In My Area – 9%

Results

- Total cost of Bananas before tax is - $4.50.
- Total cost of Beef Briskets before tax is $52.96.
- Total cost of Apple Pies before tax is $7.50.
- Total cost of all items before tax is $64.96.
- Total sales tax on all items is $ 5.8464 or $5.85 rounded.
- Total of all items including tax is $ 70.8064 or $70.81 rounded.

TURNING IT IN:

- Double-check that you've commented your code (You can't comment too much).
- Compress your **Lastname_Firstname_GroceryCalc** folder into one zipped file. It should be named **Lastname_Firstname_GroceryCalc.zip**
- Upload this zipped file to FSO. This is the file I will unzip and run to verify it works and review your code.
- You must zip the whole folder and not just the one individual C# file. If you only submit a .cs file you will get a **zero** for the whole project.

Don't Forget:

Make sure your project follows this list of criteria:

- The result should appear in the console and include an explanation of the result.
    - **Good example of console print out:** The volume of the sphere is 26 feet cubed.
    - **Bad example of console print out:** 26
- Final output should use string concatenation.
- Comment every line of code (describe what each line is doing in English). Do NOT just label sections of your code.