

Assignment 2 – Programming Fundamentals

This assignment covers programming skills covered during recent weeks of class and gives you a chance to practice and apply these concepts. The assignment includes a flowcharting component – you may use any software you like to create your flowcharts. Options include <http://draw.io>, Microsoft Visio, or even Microsoft Word.

The assignment counts for 25% of your final grade.

Due Date: Thursday, Monday December 3 @ 9:00am

Submission Details via Blackboard:

- Upload a flowchart document in *.png* or *.pdf* format
- Link to your *Private* GitHub Repository that contains your *entire* Visual Studio solution. Be sure to invite me – ifotn – as a collaborator to your repository or else I won't be able to access your work.

All work **must be your own**. There will be a zero tolerance policy for any infractions of the academic honesty policy. Please review the “Academic misconduct” details at <http://www.georgiancollege.ca/admissions/policies-procedures/> to ensure you understand the policy.

The Application Requirements:

1. The application will simulate a very simple Meal Plan Order Form that will allow users to pre-order 3 meals for a day. For each meal, you need a ComboBox with the options **Bagel, Vegetarian Special, Protein Platter** and a TextBox for Quantity.
2. When the user clicks the Order Now button, the application must:
 - validate all user inputs to ensure all meals have a selected option (check that the SelectedIndex property of each ComboBox is greater than -1)
 - validate only numbers are entered in the quantity TextBoxes
 - calculate and display the order subtotal, tax, and total cost using Labels.
3. The price of each meal depends on which option the user selects. The prices are as follows:
 - Bagel – 3.95
 - Vegetarian Special = 10.95
 - Protein Platter = 11.95
4. You must:
 - Use a loop to loop through the meal, determine the cost of each (the price times the quantity), and calculate and display the order subtotal in a Label
 - Calculate and display the tax in a Label (subtotal * 13%)

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- Calculate and display in a Label the order total (subtotal + tax)

An example of running the program is shown below.

The screenshot shows a window titled "Meal Order Form". It contains three rows of input fields for "Breakfast", "Lunch", and "Dinner". Each row has a "Type" dropdown menu and a "Quantity" text box. The "Breakfast" row has "Bagel" selected and "1" in the quantity box. The "Lunch" row has "Vegetarian Special" selected and "1" in the quantity box. The "Dinner" row has "Protein Platter" selected and "1" in the quantity box. Below these fields is an "Order Now" button. To the right of the button, the following values are displayed: "Sub Total" is \$24.85, "Tax" is \$3.23, and "Total" is \$28.08.

Meal Type	Type	Quantity
Breakfast	Bagel	1
Lunch	Vegetarian Special	1
Dinner	Protein Platter	1

Order Now

Label	Value
Sub Total	\$24.85
Tax	\$3.23
Total	\$28.08

The screenshot shows the same "Meal Order Form" window, but with invalid input. The "Type" dropdown menus for "Breakfast", "Lunch", and "Dinner" are empty. The "Quantity" text boxes contain "a", "%", and an empty box respectively. To the right of each row, the text "Invalid Meal Selection. Invalid Quantity." is displayed. The "Order Now" button is still present, but the summary values on the right are empty.

Meal Type	Type	Quantity	Message
Breakfast			Invalid Meal Selection. Invalid Quantity.
Lunch		a	Invalid Meal Selection. Invalid Quantity.
Dinner		%	Invalid Meal Selection. Invalid Quantity.

Order Now

Label	Value
Sub Total	
Tax	
Total	

Evaluation Method

Your work will be evaluated separately on the following criteria:

Evaluation Criteria (max 28 marks + 2 possible bonus marks)

Criteria	Level 1	Level 2	Level 3	Level 4	Marks
Flowchart	- Little or no diagram	- Some attempt to create flowchart	- Mostly complete, flowchart	- Complete, accurate flowchart	2
Form Inputs	- No inputs	- Some correct inputs / some meaningful names assigned	- Most correct inputs / some meaningful names assigned	- All correct inputs with descriptive names used	2
Input Validation	No validation	Some validation	Most validation	Validation Complete	6
Decision Structures / Calculations	- No decisions / calculations	- Decisions / calculation started	- Mostly correct decision / calculation	- Complete accurate decision & calculation	6
Outputs	- No outputs	- Some attempt to display outputs	- Outputs mostly complete	- Complete outputs	4
Code Commenting	- No comments	- Some attempt to explain code	- Most sections clearly explained	- All sections clearly explained	2
Version Control	Not implemented	Some use of GitHub	2 or 3 commits made to GitHub	Min 2 commits to private repo; ifotn as collaborator	6
*** WILD-CARD BONUS ***				- Up to 2 bonus marks for additional working functionality of your choosing	2