

## CIS 366 Introduction to .NET Development using C# (Spring 2019)

### Assignment 4

#### Requirement

This assignment is to design a windows application to calculate the total meal cost based on the input of meal cost, selection of additional discount, and tip rate depending on both the minimal charge and users' selections. In this assignment, you will use Visual Studio 2015 and write C# code for following functionalities:

1. Build a user interface that looks like this. It allows users to enter the cost of meal, select the party size category, and choose any situations when an extra 10% discount can apply. Use RadioButton for party size selection (mutually exclusive), and CheckBox for extra discount situations. Put all radio buttons and check boxes inside group box as shown. Place a ListBox to show the tip option and a button to calculate the total cost for the meal when clicked. Set the **Enabled** properties of the button to **false**.

The screenshot shows a Windows application window titled "Meal Cost Calculator". The interface includes a text box for "Meal Cost" at the top right. Below it, there are two group boxes. The "Party Size" group box contains two radio buttons: "Less Than 6" and "6 Or More", with the latter being selected. The "Additional Discount (10%)" group box contains three checkboxes: "Military/Veteran", "Student", and "Senior Citizen", all of which are currently unchecked. Below these group boxes is a large empty list box labeled "tipItemsListBox". At the bottom center of the window is a button labeled "Calculate Total".

2. In the fields, define two **constant double** variables **TAX\_RATE = 0.076** and **EXTRA\_DISCOUNT = 0.1** and the following variables using appropriate data types: **mealCost**, **tax**, **tipRate**, **tip**, and **totalCost**.
3. Program the *CheckedChanged* function (by double clicking) of both radio buttons to perform the following functionalities when check status changed:
  - a. If the party size is less than six, use the listbox to show the user tip rate options of “None”, “10%”, “15%”, “20%”, “25%”, “30%”, and “35%”. Use `for` loop to add those options (except None) to the listbox (Hint: you can loop from 10 to 35 with a step of 5).
  - b. If the party size is six or more, **only** show the user tip options of “15%”, “20%”, “25%”, “30%”, and “35%”. Use `for` loop to add those options to the listbox.
4. Program the *SelectedIndexChanged* function (by double clicking) of the listbox to perform the following functionalities when selection changed:
  - a. Enable the button if it's disabled.
5. Program the “Calculate Total” button to perform the following functionalities when clicked:
  - a. Check the user input of meal cost. If it is blank or cannot be converted to a double type data, clear and refocus the text box and show an error message to the user asking for valid input.
  - b. Check all three check boxes, if any one of them is checked, use the **EXTRA\_DISCOUNT** to calculate the discounted meal cost.
  - c. Calculate the tax based on the meal cost using **TAX\_RATE**.
  - d. Use `Switch` statement to check the value of tip option selected in the list box, and assign value to **tipRate** accordingly.
  - e. Calculate the **tip**, **totalCost** and show a message to the user the total amount to pay.

Meal Cost Calculator

Meal Cost

Party Size

☒ Less Than 6

☐ 6 or More

Additional Discount (10%)

☒ Military/Veteran

☐ Student

☐ Senior Citizen

Your total meal cost is \$62.76

OK

None  
10%  
15%  
20%  
25%  
30%  
35%

Calculate Total

## Submission

Zip your ENTIRE project folder and name your zipped file to (yourlastname)\_a4. Submit your zipped file to the Blackboard dropbox as an attachment.