Part A: Implementing Procedures and Functions: You will be working through tutorial 6-7 in the textbook (p. 395). You can refer to the textbook for detail directions, but you might be able to get by with the following outline. Your task is to write a simple application to allow the user to enter their choice of bagel, toppings, and drink with the output being the calculated subtotal, tax, and total price. The application should look like the figure:

1) Copy the “starter” code with the VB form already layed out as shown from P:\Math-CS\810-030\common\Tutorial_6-7_Starter to the Desktop or download it from the web at http://www.cs.uni.edu/~fienup/cs030f09/lectures/Tutorial_6-7_Starter.zip

2) Open this project in VB.

3) User defined procedures/functions allow the programmer to split the problem into smaller, more managable steps. For example, when the “Calculate Total” button (btnCalculate) is clicked we need to do a sequence of steps:

Here: BagelCost, ToppingCost, CoffeeCost are all calls to user-defined functions that examine their respective group of radio buttons and return the corresponding price.

The pseudocode for the BagelCost function is as follows:

If radWhite Is Selected Then
cost of bagel = 1.25
Else
  cost of bagel = 1.50
End If
Return cost of bagel

You are to complete the VB application by writing the code to implement the procedures and functions. The code is attached, but don’t just type it. Instead, think about the code and try to write as much code as possible on your own.

At the end of class, you should copy the application from the Desktop to your P: drive folder and/or to a USB flash drives.
Public Class Form1
   Inherits System.Windows.Forms.Form
   ' This application calculates the total order for a bagel and coffee
   ' at Brandi's Bagel house. The application uses several functions
   ' to calculate the total cost.
   Const decTAX_RATE As Decimal = 0.06D ' Sales tax rate

   Private Sub btnCalculate_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnCalculate.Click
      ' This procedure calculates the total of an order.
      Dim decSubtotal As Decimal ' Holds the order subtotal
      Dim decTax As Decimal ' Holds the sales tax
      Dim decTotal As Decimal ' Holds the order total

      decSubtotal = BagelCost() + ToppingCost() + CoffeeCost()
      decTax = CalcTax(decSubtotal)
      decTotal = decSubtotal + decTax

      lblSubtotal.Text = decSubtotal.ToString("c")
      lblTax.Text = decTax.ToString("c")
      lblTotal.Text = decTotal.ToString("c")
   End Sub

   Private Sub btnReset_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnReset.Click
      ' This procedure resets the controls to default values.
      ResetBagels()
      ResetToppings()
      ResetCoffee()
      ResetPrice()
   End Sub

   Private Sub btnExit_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnExit.Click
      ' End the application
      Me.Close()
   End Sub

   Function BagelCost() As Decimal
      ' This function returns the cost of the bagel.
      If radWhite.Checked = True Then
         Return 1.25D
      Else
         Return 1.5D
      End If
   End Function
Function ToppingCost() As Decimal
    ' This function returns the cost of the toppings.
    Dim decCostOfTopping As Decimal = 0D
    If chkCreamCheese.Checked = True Then
        decCostOfTopping += 0.5D
    End If
    If chkButter.Checked = True Then
        decCostOfTopping += 0.25D
    End If
    If chkBlueberry.Checked = True Then
        decCostOfTopping += 0.75D
    End If
    If chkRaspberry.Checked = True Then
        decCostOfTopping += 0.75D
    End If
    If chkPeach.Checked = True Then
        decCostOfTopping += 0.75D
    End If
    Return decCostOfTopping
End Function

Function CoffeeCost() As Decimal
    ' This function returns the cost of the selected coffee.
    If radNoCoffee.Checked Then
        Return 0
    ElseIf radRegCoffee.Checked = True Then
        Return 1.25D
    ElseIf radCappuccino.Checked = True Then
        Return 2
    ElseIf radCafeAuLait.Checked = True Then
        Return 1.75D
    End If
End Function

Function CalcTax(ByVal decAmount As Decimal) As Decimal
    ' This function receives the sale amount. It calculates and returns the sales tax, based on the sale amount.
    Return decAmount * decTAX_RATE
End Function

Private Sub ResetBagels()
    ' This procedure resets the bagel selection.
    radWhite.Checked = True
End Sub

Sub ResetToppings()
    ' This procedure resets the topping selection.
    chkCreamCheese.Checked = False
    chkButter.Checked = False
    chkBlueberry.Checked = False
    chkRaspberry.Checked = False
    chkPeach.Checked = False
End Sub
Sub ResetCoffee()
' This procedure resets the coffee selection.
    radRegCoffee.Checked = True
End Sub

Sub ResetPrice()
' This procedure resets the price.
    lblSubtotal.Text = String.Empty
    lblTax.Text = String.Empty
    lblTotal.Text = String.Empty
End Sub

End Class