Name: _____, _____
(last)   (first)

Student Number: _____

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York University
Faculty of Science and Engineering
Department of Computer Science and Engineering

Test 2
March 13, 2008

COSC1530.03 - Introduction to Computer Use II – Winter term, FW07

Instructions:

1. Examination rules are in effect.
2. Fill in the information requested at the top of this page and print your
    name at the top of all the other pages.
3. Answer ALL questions. Answer questions in the space provided.
4. Time allowed is 50 minutes.
5. Use of calculators is NOT permitted.
6. Including the cover there are 7 pages with parts A to D. Please check the
    pages.

	Value	Mark
A.	6	_____
B.	14	_____
C.	6	_____
D.	14	_____
Total:	40	_____

Part A (6 points; 1 point each)

1. For a conditional loop to terminate the loop body must change the value of at least one variable used in the Boolean expression.

   … … T   F

2. The counted loop
   ```
   For i = 2 To 12 Step 3
      i = i - 3
   Next
   ```
   will terminate even though the loop body changes the value of the counter variable.

   … … T   F

3. Generally you should use a counted loop when iterating through a collection (such as the collection of items in a listbox).

   … … T   F

4. In a conditional loop only the variables used in the Boolean expression need to be initialized.

   … … T   F

5. In a counted loop such as
   ```
   For i = start To end Step 3
      (loop body)
   Next
   ```
   when the loop terminates the value of variable i will be either end+1, end+2 or end+3.

   … … T   F

6. To use the Substring function you must call it on an object of the String class.

   … … T   F

Part B (14 points)

1. (4 points) The click event for the Do It ... command button shown in the Form is given below. Given the input shown in the two textboxes what is displayed in the label (that currently contains "(answer)")? If you think there is a syntax error or runtime exception, write either "syntax error" or "runtime exception".

```
Private Sub btnDoIt( … ) Handles btnDoIt.Click
    Dim endValue, stepValue, i, s As Integer
    endValue = Convert.ToInt32(txtValue1.Text)
    stepValue = Convert.ToInt32(txtValue2.Text)
    For i = 1 To endValue Step stepValue
        s = s + i
    Next
    lblAnswer.Text = i
End Sub
```
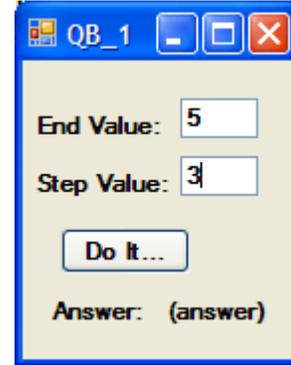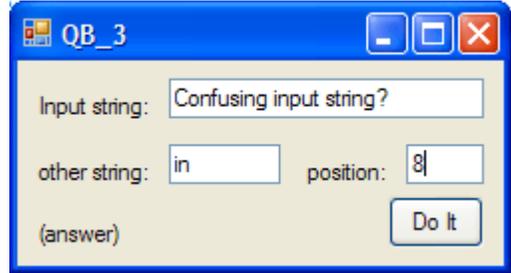
Answer: _____

2. (4 points) The click event for the Do It ... command button shown in the Form is given below. Given the input shown in the two textboxes what is displayed in the listbox? If you think there is a syntax error or runtime exception, write either "syntax error" or "runtime exception".

```
Private Sub btnDoIt( ... ) Handles _
                           btnDoIt.Click
    Dim x, y As Double, indx as Integer
    x = Convert.ToDouble(txtX.Text)
    y = Convert.ToDouble(txtY.Text)
    Do While x > y + 1
        x = x – (x – y) / 2
        indx = lstShowIt.Items.Add(x)
    Loop
End Sub
```
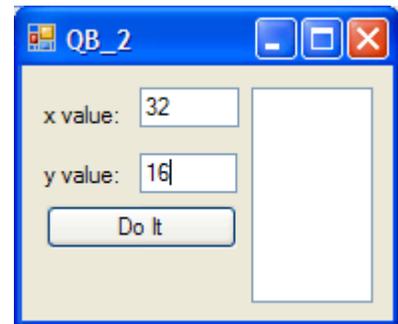
Answer: _____

_____

_____

_____

_____

_____

_____

_____

3. (2 points) The click event for the Do It ... command button shown in the Form is given below. Given the input shown in the textboxes what is displayed in the label (that currently contains "(answer)")? If you think there is a syntax error or runtime exception, write either "syntax error" or "runtime exception".

```
Private Sub btnDoIt( ... ) Handles btnDoIt.Click
    Dim s1, s2 As String
    Dim p As Integer
    s1 = txtInputS.Text
    s2 = txtOtherS.Text
    p = Integer.Parse(txtPosition.Text)
    lblAnswer.Text = s1.IndexOf(s2, p)
End Sub
```

Answer: _____

4. (4 points) The click event for the Do It ... command button shown in the Form is given below. Given the input shown in the two textboxes what is displayed in the listbox? If you think there is a syntax error or runtime exception, write either "syntax error" or "runtime exception".
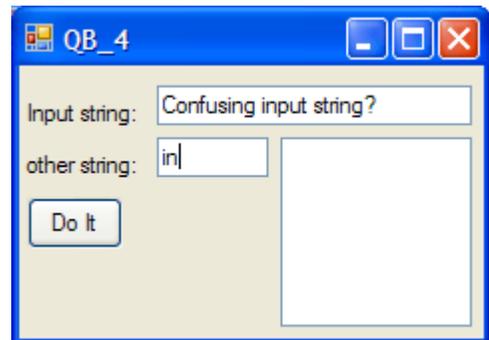
```
Private Sub btnDo_It ( ... ) Handles _
                        btnDo_It.Click
    Dim s1, s2 As String
    Dim p, indx As Integer
    s1 = txtS1.Text
    s2 = txtS2.Text
    p = s1.IndexOf(s2)
    Do While p >= 0
        indx = lstShow.Items.Add(p)
        p = s1.IndexOf(s2, p+1)
    Loop
End Sub
```
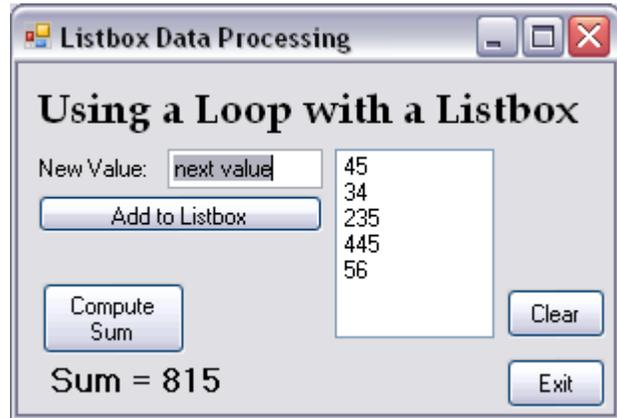
Answer: _____

_____

_____

_____

_____

_____

4

Part C (6 points; 1 point each except where indicated)

1. (2 points) In Ex. 5-12 you are told … If the user presses the Compute Sum button but then returns to enter a new value (without pressing the Clear button the label displaying the sum, which is now incorrect, should be set to Sum = ?.
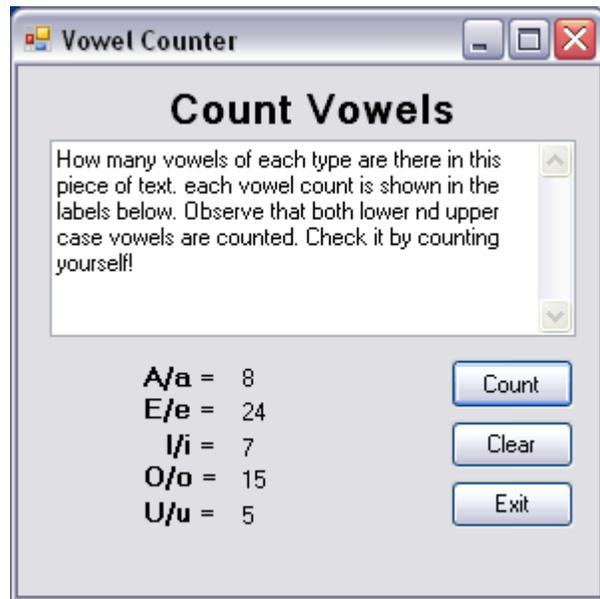
   Name the object.event that you implemented to do this.

   Answer:

2. (2 points) In Ex. 5-9, counting vowels, it is possible that the user changes the text without pressing the Clear button. Describe what you would like to see happen in the interface in this case; not which event you would implement, but rather only what changes should happen in the interface.
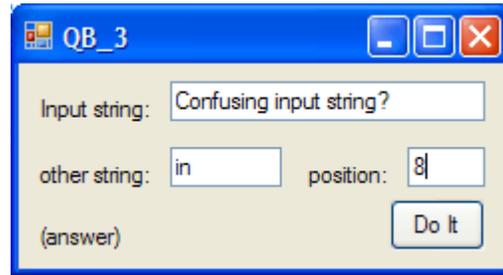
   Answer:

3. (2 points) Explain why it is good practice to write
   ```
   Dim indx As Integer
   indx = Listbox.Items.Add("something")
   ```
   as opposed to simply
   ```
   Listbox.Items.Add("something")
   ```

Part D (14 points)

1. (8 points) The value entered in the position: textbox in the form shown should be an integer greater than zero. It is also valid if the value is the null string.

   Write the Validating event for the position: textbox. (Note, it doesn't matter what the rest of the program does, just validate the value in the textbox.)


   Answer:

```
Private Sub txtPosition_Validating( _
          ByVal sender As Object, _
          ByVal e As System.ComponentModel.CancelEventArgs) _
          Handles txtPosition.Validating




      End Sub
```

2. (6 points) You are shoveling snow, but as you're getting tired you toss 1% less each time you throw a shovel full. Your first shovel full contains 0.1 cubic meters of snow. If your sidewalk contains 3 cubic meters how many times do you throw a load of snow with your shovel?
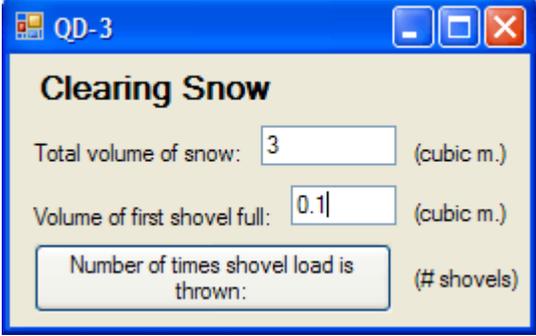
In the click event of the command button implement an iteration in which you decrease the (total) volume of snow by the amount of a shovel full, decrease the amount of a shovel full by 1%, and keep count of the number of iterations, assigning that value to the label when the loop terminates. Part of the code is given. Use the variables shown and declare any others you want to use.

Answer:

```
Private Sub btnCalculate_Click( ... ) Handles btnCalculate.Click
    Dim totalVol, shovelVol As Double



    totalVol = Convert.ToDouble(txtTotalVol.Text)
    shovelVol = Convert.ToDouble(txtFirstShovel.Text)









    End Sub
```