CSC317 Visual Programming: Day 04

- Attendance/download Day04 from D2L
- PowerPoint with Illustrations:
  - New object
    - TextBox: to store characters, strings, and numbers
  - New property
    - TabIndex: sets the order of focus, at the beginning and upon use of the Tab key
  - New function
    - Asc() returns the ASCII (binary) code for a character pressed
  - New operators
    - \ integer divide
    - & concatenation of strings (actually used in previous class)
  - New methods
    - KeyPress()
    - TextChanged()
    - KeyUp()
    - KeyDown()
  - Access row in ListBox
    - ListBox_name.Items(row)
- Demo Problem: Messages
- Practice Problem: Reversal

CSC317 Visual Programming: Day 04
Demo Project: Messages

- **TextBoxes can be used for storing and displaying text (including single characters) as well as numeric values.**
- **In order to understand how the text of a message is stored, we look at how a single character is stored.**
- **In the Messages project, we use a TextBox called txtLetter. Every time we type a letter into txtLetter, the method**

txtLetter.KeyPressed()

is invoked – it clears out the previous letter with the method

txtLetter.Clear()

CSC317 Visual Programming: Day 04
Demo Project: Messages

- **Also, as each character is entered, the method**

txtLetter.TextChanged()

is invoked, and txtLetter.text consists of one character.

- **The function**

Asc(character_name)

returns the ASCII value for it, in decimal form. Your instructor will explain how the code on the next slide extracts the binary bit pattern corresponding to this value. This is how the character is actually stored in memory.

CSC317 Visual Programming: Day 04
Demo Project: Messages
CODE

```
 Private Sub txtLetter_TextChanged(ByVal sender As System.Object, ByVal e As System.EventArgs)
Handles txtLetter.TextChanged
        Dim ascii As Integer
        Dim divisor As Integer
        Dim bitNumber As Integer
        Dim digit As Integer

        If txtLetter.Text <> "" Then
            ascii = Asc(txtLetter.Text)
            txtDecimal.Text = ascii
            txtCode.Text = ""
            divisor = 128
            For bitNumber = 1 To 8
                digit = ascii \ divisor
                If digit = 0 Then
                    txtCode.Text = txtCode.Text & "0"
                Else
                    txtCode.Text = txtCode.Text & "1"
                    ascii = ascii - divisor
                End If
                divisor = divisor / 2
            Next bitNumber
        End If

  End Sub
```

CSC317 Visual Programming: Day 04
Practice Project: Reversal

- **Your design should include 3 labeled TextBoxes and 2 labeled ListBoxes.**
- **Your instructor will demonstrate short cuts, such as setting up one label above an object, setting key properties, and then using the Ctrl key to do a multiple selection of objects to be copied and pasted.**
- **The TextBox txtLetter should have a TabIndex property of 0, which means that the focus starts with it. The user repeatedly types letters into this TextBox, which retains the focus. The resulting text is displayed forward and in reverse, and the ListBoxes display the forward and reverse history of the developing text.**

CSC317 Visual Programming: Day 04
Practice Project: Reversal
CODE

```
    Private Sub txtLetter_KeyDown(ByVal sender As Object, ByVal e As
System.Windows.Forms.KeyEventArgs) Handles txtLetter.KeyDown
        txtLetter.Clear()
    End Sub

    Private Sub txtLetter_KeyUp(ByVal sender As Object, ByVal e As
System.Windows.Forms.KeyEventArgs) Handles txtLetter.KeyUp
        txtForward.Text = txtForward.Text & txtLetter.Text
        txtReverse.Text = txtLetter.Text & txtReverse.Text
        lstProgress.Items.Add(txtForward.Text)
        Dim count, row As Integer 'count is size of ListBox, and row to be used to
loop backwards
        count = lstProgress.Items.Count
        lstReverse.Items.Clear() 'get ready for a new listing!
        For row = count - 1 To 0 Step -1 'loop bottom to top in lstProgress - MUST
use -1 for step size or loop will not work!
            lstReverse.Items.Add(lstProgress.Items(row)) 'use (row) to indicate the
location of the item in the list
        Next
    End Sub
```