CSE 1530

Introduction to Computer Use II: Programming

Winter 2006 (Section M)

Topic D: Control Structures - Iteration

Friday, February 24 2006

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Overview (1):

- **Before We Begin**
  - Some administrative details
  - Some questions to consider
- **ListBox Control**
  - Introduction
- **Date Type**
  - Introduction
  - Working with the Date type

Before We Begin

Administrative Details (1):

- **Lab Exercises**
  - You should be working on Ex 5-3 this week
    - Due February 27
  - Still have a few exercises and tests that were previously distributed but have not been picked up yet
    - If you have not picked up any exercise or test yet, you can after the lecture
  - I will be in the Glade Lab today after the lecture for about 30 minutes

Some Questions to Consider (1):

- What is a counted loop ?
- When should we use a counted loop ?
- What is the loop index ?
- If we can use a counted loop, is it wrong if we use a conditional loop instead ?
- Can a counted loop count "backwards"? ?

ListBox Control

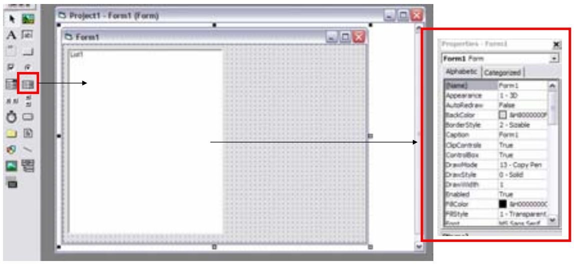
Introduction (1):

- **As an Aside**
  - Recall that an object contains properties that can be accessed, modified etc.
  - An object can also have methods associated with it
    - A method is a sub-program (think of the event handlers we know) that can take zero or more arguments and returns one value
    - Since a method is associated with (belongs to) an object, it is accessed in the same manner as an object's properties → using the "dot" notation

      objectName.methodName

Introduction (2):

- **What is a ListBox Control ?**



Properties - Form1

Form1 Form

Alphabetic | Categorized

(Name)	Form1
Appearance	1 - 3D
AutoRedraw	False
BackColor	&H8000000F
BorderStyle	2 - Sizable
Caption	Form1
ClipControls	True
ControlBox	True
DrawMode	13 - Copy Pen
DrawStyle	0 - Solid
DrawWidth	1
Enabled	True
FillColor	&H00000000
FillStyle	1 - Transparent
Font	MS Sans Serif

Introduction (3):

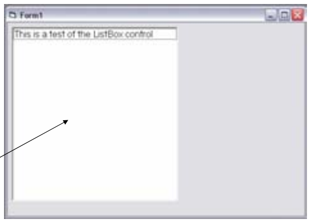
- **What is a ListBox Control ? (cont.)**
  - An object containing a list of output
    - If the data displayed in the ListBox exceeds its height, a scroll bar appears
    - Displays on each row a string value, generically called an item
    - The item must be displayed on the ListBox using the AddItem method of the ListBox

      listBoxName.AddItem(stringExpression)

Introduction (4):

- **What is a ListBox Control ? (cont.)**
  - Example → displaying a row in a listBox called List1

```
Private Sub Form_Load()
  Dim testString As String
  testString = "This is a test of the
        ListBox control"
  List1.AddItem (testString)
End Sub
```



This is a test of the ListBox control

After executing the above code segment, the following is observed in the ListBox control placed on the form

Introduction (5):

- **What is a ListBox Control ? (cont.)**
  - When we add information to the ListBox (via the "addItem" method), the new information is appended to the next line
  - But what if we don't want to append and wish to start "clean" → there is a method to clear the ListBox of any information it may currently hold thus allowing you to "start fresh"
    - The method to clear the ListBox is "Clear" and takes no arguments → ListBox.Clear

The Date Data Type

Introduction (1):

- **Dates Are Common Hence the Date Type**
  - Represent dates and times
    - Stored as 64-bit (8-byte) integers
    - Represent dates ranging from January 1 of the year 1 through December 31 of the year 9999
    - Represent times from 0:00:00 (midnight) through 11:59:59 PM
    - Must be enclosed within number signs (#) and be in the format M/d/yyyy → for example #5/31/1993#

Working With The Date Type (1):

- **Declaring A Date Variable**
  - As with any other variable declaration
    - Dim birthDay As Date
    - Dim lastDayOfSchool As Date
    - birthDay = #10/10/1999#
    - lastDayOfSchool = #1/1/9999#
  - Can also declare Date constants
    - Const birthDate As Date = #10/10/1999#
    - Const examDate As Date = #1/20/2006#

Working With The Date Type (2):

- **Date to String Conversion**
  - As an aside → if you convert a Date value to the String type
    - Date is rendered according to the short date format recognized by your computer
    - Time is rendered according to the time format (either 12-hour or 24-hour) in effect on your computer

Working With The Date Type (3):

- **Built-in Date Related Functions**
  - How can we obtain today's date ?
    - Use the "Date" command

```
Dim myDate As Date
myDate = date
Text1.text = CStr(myDate) → "1/24/2006"
```

  - Visual Basic contains many built-in functions that deal with the Date type
    - Allow for various processing of Dates

Working With The Date Type (4):

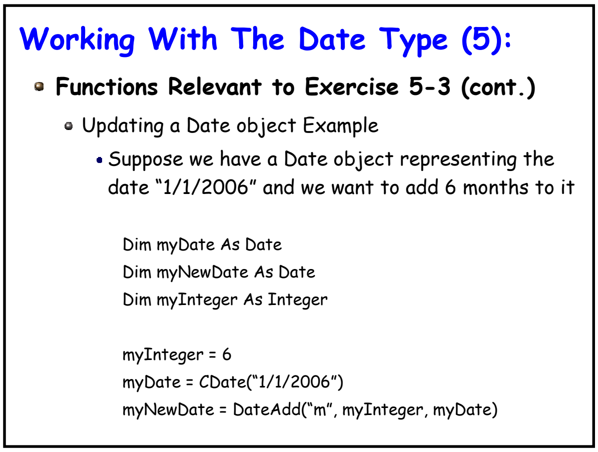
- **Functions Relevant to Exercise 5-3**
  - Converting a String to a Date Type
    - Use the CDate conversion function → takes a String argument and returns a Date type representation of it

```
Dim myDate As Date
Dim myString As String

myString = "1/1/2006"
myDate = CDate(myString)
```

Working With The Date Type (5):

- **Functions Relevant to Exercise 5-3 (cont.)**
  - Updating a Date object → use the DateAdd function
  - General form → DateAdd(interval, number, date1)
    - Interval → a string specifying to add years ("yyyy"), months ("m"), days ("d") etc.
    - Number → how many of the specified intervals to add
    - Date1 → the Date object to which the specified interval are to be added

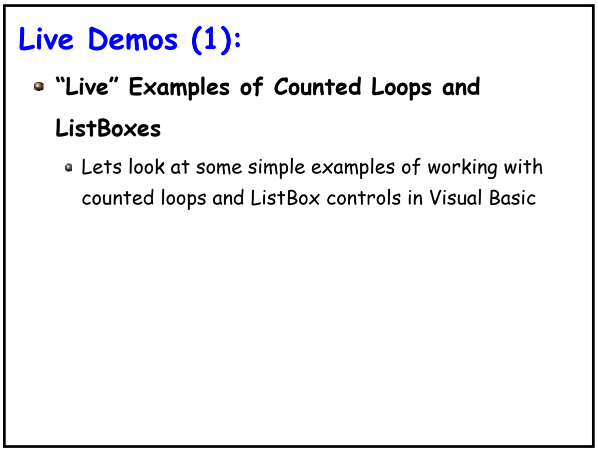


Working With The Date Type (5):

- **Functions Relevant to Exercise 5-3 (cont.)**
  - Updating a Date object Example
    - Suppose we have a Date object representing the date “1/1/2006” and we want to add 6 months to it

```
Dim myDate As Date
Dim myNewDate As Date
Dim myInteger As Integer

myInteger = 6
myDate = CDate(“1/1/2006”)
myNewDate = DateAdd(“m”, myInteger, myDate)
```



Live Demos (1):

- **“Live” Examples of Counted Loops and ListBoxes**
  - Lets look at some simple examples of working with counted loops and ListBox controls in Visual Basic