

REVIEW LESSON

MTA Course: Windows Development Fundamentals
Lesson name: Windows Development Fundamentals 2.3B
Topic: Inherited controls (One 50-minute class period)
File name: WinDevFund_RL_2.3B

Lesson Objective:

2.3: Understand how to create new controls and extend existing controls. *This objective may include but is not limited to:* creating a new GUI control or inheriting functionality from an existing control.

Preparation Details

Prerequisite student experiences and knowledge

This MTA Certification Exam Review lesson is written for students who have learned about Windows[®] application programming. Students who do not have the prerequisite knowledge and experiences cited in the objective will find additional learning opportunities using resources such as those listed in the Microsoft resources and Web links at the end of this review lesson.

Specifically, students should understand the options for creating new controls and the advantages of each, as reviewed in Lesson 2.3B. Students should also be comfortable creating event handlers, as reviewed in Lessons 2.1A and 2.1B.

Instructor preparation activities

- Review the included Microsoft PowerPoint[®] presentations. One provides sample source code written in Microsoft Visual Basic[®]; the other provides sample code in Microsoft Visual C#[®]. You should use whichever slideshow is appropriate for the language your students are using.
- Familiarize yourself with the *HoverButton* and *CounterButton* examples created in this lesson.

Resources, software, and additional files needed for this lesson:

- WinDevFund_CS_PPT_2.3B
- WinDevFund_CS_2.3B (C# project files)
- WinDevFund_VB_PPT_2.3B
- WinDevFund_VB_2.3B (Visual Basic project files)
- Microsoft Visual Studio® 2008, or
 - Visual Basic 2008, Express Edition
(<http://www.microsoft.com/express/downloads/#2008-Visual-Basic>)
 - Visual C# 2008, Express Edition
(<http://www.microsoft.com/express/downloads/#2008-Visual-CS>)

Teaching Guide**Essential vocabulary:**

custom control—the general term for any developer-created control; it is sometimes used to specifically refer to a control that extends the *Control* class.

inherited control—a control that derives from an existing Windows Forms control, such as a *Button*, *TextBox*, or *ComboBox*; also referred to as an *extended control*.

user control—a collection of Windows Forms controls encapsulated into a common container; also referred to as a *composite control*.

Lesson sequence**Activating prior knowledge/lesson staging (Anticipatory Set—10 minutes)**

1. *Discussion prompt (available in PowerPoint file):* “What are the different types of controls that a developer can create for Windows Forms? Be prepared to list the types and explain the reason for using each one.”
 - Students will likely list User controls , Inherited controls , and Custom controls.
 - For additional information on types of developer-created controls, see Review Lesson 2.3A and the associated resources.

Lesson activity (15–20 minutes)

1. “Follow Along” activity
 - Lead students through the creation of an inherited control called *HoverButton*.
 - See the sample source code provided or the resource listed below for additional information.

Assessment/lesson reflection (25–30 minutes)

1. As indicated in the presentation, give the students the following direction:
On your own, create another new control. This one is called *CounterButton*—it is a button that includes a property that returns the number of times the *CounterButton* has been clicked.

Note: The included solutions show examples of the *CounterButton*.

Microsoft resources and Web links**MSDN Library: Varieties of Custom Controls**

(<http://msdn.microsoft.com/en-us/library/ms171725.aspx>)

MSDN Library: Control Type Recommendations

(<http://msdn.microsoft.com/en-us/library/yah0tcw1.aspx>)

Walkthrough: Inheriting from a Windows Forms Control with Visual Basic .NET, for Visual Studio 2005

(<http://msdn.microsoft.com/en-us/library/w2a8y03d.aspx>)

Walkthrough: Inheriting from a Windows Forms Control with Visual C#

(<http://msdn.microsoft.com/en-us/library/5h0k2e6x.aspx>)