

REVIEW LESSON

MTA Course: Windows Development Fundamentals

Lesson name: Windows Development Fundamentals 2.1B

Topic: Create event handlers at run time (One 50-minute class period)

File name: WinDevFund_RL_2.1B

Lesson Objective:

2.1: Create and handle events. *This objective may include but is not limited to:* methods for creating events in an application; handling events raised in an application.

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, this lesson is built on the fact that students understand the fundamental concepts of event-driven programming and have recent experience creating event handlers via the Designer, as reviewed in Lesson 2.1A.

Finally, this lesson includes applications that add controls to forms “dynamically,” or at run time. The samples provided guide the students through this process, but it may be helpful to introduce the topic ahead of time. If possible, students could complete the Walkthrough ahead of time and focus on adding event handlers during this lesson.

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.
- If possible, review dynamic control creation and modify the examples accordingly, as detailed in the “Additional notes to the teacher” section.

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

- WinDevFund_PPT_CS_2.1B (the C# version of the slideshow)
- WinDevFund_PPT_VB_2.1B (the Visual Basic version of the slideshow)
- WinDevFund_CS_2.1B (a sample project in C#)
- WinDevFund_VB_2.1B (the same sample project in Visual Basic)
- Microsoft Visual Studio 2008 Professional Edition, 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:**

default event handler—an event handler that is created automatically by double-clicking a control in the Windows Forms Designer; the type of event handler created depends upon the control.

event—an action or occurrence, often generated by the user, to which a program might respond—for example, key presses, button clicks, or mouse movements.

event handler—a method (or procedure) within a program that is called automatically whenever a particular event occurs.

Lesson Sequence**Activating prior knowledge/lesson staging (Anticipatory Set—5–10 minutes)**

1. *Student prompt (available in PowerPoint file):* “Summarize the event-driven application model. In other words, how do event-driven applications work? Give an example of an event-driven application.”
 - The intent is for students to review what they know about events and event handlers, especially the material covered in Lesson 2.1A.
2. Call upon students to read their summaries and/or examples. Encourage other class members to contribute their own ideas.
3. Be sure students understand the concepts of events and event handlers.

Lesson activity (25 minutes)**1. Follow Along (30 minutes)**

- Lead students through the creation of the Follow Along project detailed in the presentation. Stop frequently to answer questions and to ensure that students understand the process and are keeping up with the instructions.

Note: Sample solutions are provided in both Visual Basic and Visual C#.

Assessment/lesson reflection (15–20 minutes)

1. As indicated on the last slide in the PowerPoint file: “Create the project in the Walkthrough at <http://support.microsoft.com/kb/319266> (Visual C# 2005) or <http://support.microsoft.com/kb/308433> (Visual Basic 2005). When you have finished, write code to create at least three event handlers at run time. The handler methods can show a *MessageBox* or make a cosmetic change to the form or controls, such as changing the color.

Microsoft resources and Web links**How to: Create Event Handlers at Run Time for Windows Forms**

(<http://msdn.microsoft.com/en-us/library/dfty2w4e.aspx>)

How to programmatically add controls to Windows Forms at run time (Visual C#)

(<http://support.microsoft.com/kb/319266>)

How to programmatically add controls to Windows Forms at run time (Visual Basic)

(<http://support.microsoft.com/kb/308433>)

Additional notes to the teacher:

- As indicated in the “Prerequisite student experiences and knowledge” section, this lesson requires adding controls to a form at run time. If possible, have students complete the Walkthrough part of the Assessment activity.
- For more information on this, see the site **How to: Add Controls to Windows Forms** (<http://msdn.microsoft.com/en-us/library/0h5y8567.aspx>).