

REVIEW LESSON

MTA Course: Web Development Fundamentals
Lesson name: Web Development Fundamentals 3.1
Topic: Debug a Web application
File name: WebDevFund_RL_3.1

Lesson Objective:

3.1: Debug a Web application. *This objective may include but is not limited to:* use in conjunction with custom error pages to display appropriate error information to the appropriate user; implementing tracing of a Web application, Trace.axd, Trace=True on @Page directive, <trace enabled="true"/>.

Preparation details

Prerequisite student experiences and knowledge

This MTA Certification Exam Review lesson is written for students who have learned about Web design and Web 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.

Students should have a basic understanding of how to incorporate debugging code into a Web application and how to display error messages in an appropriate manner. They should also have experience using various tracing techniques with Web pages.

Instructor preparation activities

For this lesson, you will need a computer with Microsoft Office 2007®, and Microsoft Visual Studio 2008® attached to a liquid crystal display (LCD) projector to display and review the attached Microsoft PowerPoint® presentation.

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

- WebDevFund_PPT_3.1

- WebDevFund_SA_3.1_1
- WebDevFund_SA_3.1_2
- A Windows®-based PC with installed Web development software. Examples include Visual Studio 2008, or
 - Microsoft Visual Basic 2008®, Express Edition
(<http://www.microsoft.com/express/downloads/#2008-Visual-Basic>)
 - Microsoft Visual C# 2008®, Express Edition
(<http://www.microsoft.com/express/downloads/#2008-Visual-CS>)
 - Microsoft Visual Web Developer 2008, Express Edition
(<http://www.microsoft.com/express/downloads/#2008-Visual-Web-Developer>)

Teaching Guide

Essential vocabulary:

debug—to detect, locate, and correct logical or syntactical errors in a program.

custom error page—a page designed to display detailed error information that helps administrators and developers to troubleshoot and solve Active Server Pages (ASP) coding issues.

tracing—ASP.NET tracing enables you to view diagnostic information about a single request for an ASP.NET page. ASP.NET tracing enables you to follow a page's execution path, display diagnostic information at run time, and debug your application. ASP.NET tracing can be integrated with system-level tracing to provide multiple levels of tracing output in distributed and multi-tier applications. When you enable tracing for an application, you can display trace output in any page in the application by setting the *pageOutput* attribute of the trace element to True in the Web.config file.

Trace.axd—the file name for *trace viewer*. Trace viewer can be used to view trace information that is collected and cached by ASP.NET when tracing is enabled.

Lesson sequence

Activating prior knowledge/lesson staging (10 minutes)

Warm-up activity—“Error pages”

1. Complete a live demo of tracing using the following Web resources. (*Note:* this activity can be completed in both Microsoft Visual Basic® and Microsoft C#®. See the upper-right corner of the page to alternate between the two.)
 - a. VB Trace Enabled
<http://quickstarts.asp.net/QuickStartv20/aspnet/doc/monitoring/pagetrace.aspx>

- b. VB Trace Write
 - c. VB Diagnostics Trace Integration
2. Call upon individual students to explain what is happening in each example.
 3. Prompt a discussion of debugging issues using these prompts.
 - Why are error messages important?
 - Ask students give an example of an error message that was not very useful, and suggest how it could have been improved.
 - Demonstrate this concept by showing the example at <http://msdn.microsoft.com/en-us/library/aa511267.aspx> (This site shows examples of good and poor error messages.)

Lesson activity (30 minutes)

1. Use the WebDevFund_PPT_3.1 PowerPoint presentation to review the concepts for this lesson.
2. Distribute the WebDevFund_SA_3.1_1 Student Activity.
 - a. Students will demonstrate the use of custom error pages and create code samples that illustrate the appropriate use of them in various scenarios.
3. Students will review the use of various tracing techniques by visiting demonstration sites.
4. Discuss the key objectives of the review assignment.

Assessment/lesson reflection (10 minutes)

1. Ask students to describe various scenarios in which error handling is a critical element.
2. Ask students to share their solutions for portions of the Student Activity.
3. Ask students to explain how tracing works and to demonstrate some of the commands used.
4. Wrap up and provide the WebDevFund_SA_3.1_2 Student Activity as homework.

Microsoft resources and Web links

Students who wish to explore this lesson topic further may visit the following links:

Web references on debugging:

<http://www.asp.net/learn/videos/video-6898.aspx>

<http://www.asp.net/learn/videos/video-10.aspx>

Microsoft ASP.NET:

<http://www.asp.net>

Suggested best practices:

- It may be beneficial to display code examples using the LCD projector for each of the major concepts, particularly when the vocabulary is being reviewed. Randomly choose students to demonstrate the concepts to the class. It may also be advantageous to have students complete this activity in small groups.