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"Charting the Course ...

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ASP.NET AJAX Using C#
Course Summary

Description
This course provides a practical introduction to developing rich Internet applications using ASP.NET AJAX and C#. Because of the rich support provided by Microsoft's AJAX tools, an ASP.NET programmer can get up and running in this new environment quickly. This course shows the way. It is current to ASP.NET 3.5 and Visual Studio 2008.

The course begins with a discussion of rich Internet applications, which include substantial client-side code, typically JavaScript. Microsoft's AJAX tools are surveyed, and a simple AJAX application is illustrated. The JavaScript programming language is covered in enough detail to give the student a good working knowledge of writing client scripts. To retrieve and update information on a Web page from client-side code, the programmer needs to use DHTML or the Document Object Model (DOM), which are discussed in the third chapter along with Cascading Style Sheets (CSS).

Chapter 4 covers the AJAX Client Library, which simplifies client-side programming with JavaScript extensions, a debugging trace facility, and various API shortcuts. The next chapter covers partial page rendering, which enables part of a page to be updated asynchronously, resulting in an improved user experience. The next chapter covers various techniques for making remote-method calls, resulting in greater efficiency in an AJAX application. The next chapter introduces the AJAX Control Toolkit, which provides many very useful controls enabling sophisticated client-side effects with relatively little programming. The last chapter covers built-in application services, which provides a client-side API to various services on the server, such as authentication and user profiles.

Objectives
At the end of this course, students will be able to:
- Gain a thorough understanding of the philosophy and implementation of rich Internet applications
- Use JavaScript and DHTML/CSS/DOM to add interactivity to Web applications
- Explain the benefits of AJAX in creating non-blocking and interactive Web applications
- Use ASP.NET AJAX and Visual Studio to easily implement AJAX applications
- Create visually rich and attractive Web applications with controls in the AJAX Control Toolkit

Topics
- Rich Internet Applications and AJAX
- Using JavaScript
- DHTML, DOM and CSS
- ASP.NET AJAX Client Library
- Partial Page Rendering
- Remote Method Calls
- AJAX Control Toolkit
- Application Services

Prerequisites
Students should have a good working knowledge of Web application development using ASP.NET, Visual Studio and C#. The student should have a basic knowledge of HTML. Exposure to JavaScript would be helpful but not required. A basic knowledge of ADO.NET would be helpful for understanding the case study and some of the examples.

Duration
Three days

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Course Outline

I. Rich Internet Applications and AJAX
- A. Desktop Applications
- B. Web Applications
- C. Rich Client Applications
- D. Using Plug-Ins
- E. Using JavaScript
- F. Asynchronous Communication
- G. AJAX
- H. Microsoft's AJAX Technologies
- I. A Simple AJAX Application

II. Using JavaScript
- A. JavaScript and the Browser
- B. Data Types and Variables
- C. Control Structures
- D. Functions
- E. Strings
- F. Arrays
- G. Objects

III. DHTML, DOM and CSS
- A. What Is DHTML?
- B. Document Object Model
- C. Accessing DOM Nodes
- D. Manipulating DOM Nodes
- E. DOM Events
- F. Cascading Style Sheets

IV. ASP.NET AJAX Client Library
- A. Components of Microsoft's AJAX Support
- B. ScriptManager
- C. Client-Side Page Lifecycle
- D. Debugging Support
- E. JavaScript Extensions
- F. Object-Oriented Programming Support
- G. Global API Shortcuts
- H. Embedded JavaScript Resources

V. Partial Page Rendering
- A. UpdatePanel Control
- B. Update Modes
- C. Triggers
- D. Using a Timer
- E. PageRequestManager
- F. Partial Page Update Lifecycle
- G. UpdateProgress Control
- H. Limitations and Performance Issues

VI. Remote Method Calls
- A. Web Service Methods
- B. Handling Errors
- C. Using Context
- D. Page Methods
- E. JSON Serialization
- F. ScriptMethod Attribute

VII. AJAX Control Toolkit
- A. Using ACT Controls in Visual Studio
- B. Extender Controls
- C. Use of Style Sheets
- D. Page Layout Controls
- E. Popup Controls
- F. ACT Controls and Web Services

VIII. Application Services
- A. Profile Service
- B. Authentication Service