



Web Services using VB.NET and ASP.NET (BDT4250) 4 days

Course Description

This course provides a realistic, hands-on, comprehensive coverage of developing Web services using ASP.NET and Visual Basic. Web services are an evolving series of standards that enable programs on various computers to communicate with other programs on similar or disparate computers transparently over the Internet. This course teaches in detail the skills needed to program Web services using ASP.NET. It also examines the fundamentals of SOAP and WSDL essential for creating interoperable Web services. The course is current to .NET 3.5 and Visual Studio 2008, with coverage of newer features such as the WS-I Basic Profile 1.1, SOAP 1.2, event pattern for calling Web services asynchronously, and more. It also includes an introduction to Windows Communication Foundation (WCF), Microsoft's modern unified framework for creating distributed applications.

Learning Objectives

- Gain a comprehensive understanding of the philosophy and architecture of Web services and Service Oriented Architecture
- Acquire a working knowledge of creating and consuming Web services using the .NET Framework 3.5 and Visual Studio 2008
- Attain a detailed knowledge of the building blocks of Web services, including XML, SOAP and WSDL
- Understand issues in the ASP.NET programming model, such as caching, data handling and state management
- Implement Web services and clients using WCF.
- Understand the issues of interoperability between Web services created using ASP.NET and those created using WCF.

Course Duration: 4 days

Prerequisites: Knowledge of the .NET Framework using Visual Basic and an understanding of the fundamentals of XML. Some experience in ASP.NET is advantageous.



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Course Outline

1. What Are Web Services?
 1. Introduction to Distributed Computing
 2. Network Latency
 3. Object State and Scalability
 4. Interoperability
 5. SOAP
 6. WSDL
 7. UDDI
 8. Web Service Business Models
 9. Service Oriented Architecture (SOA)
 10. ASP.NET Web Services
 11. Web Service Enhancements (WSE)
 12. Windows Communications Framework (WCF)

2. Web Services Fundamentals
 1. Creating a Web Service Using ASP.NET
 2. Deploying a Web Service Using IIS
 3. Testing a Web Service
 4. HTTP
 5. XML
 6. SOAP 1.1 and SOAP 1.2
 7. Web Service Clients
 8. WSDL

3. Developing ASP.NET Web Services
 1. Using Visual Studio 2008 to Develop Web Services
 2. Visual Web Developer
 3. Using ASP.NET Development Server
 4. An Overview of the Web Services Namespaces
 5. Deriving from the WebService Class
 6. @Webservice Attribute
 7. WebService Class
 8. Adding a WebMethod to Web Services
 9. Debugging Web Services
 10. WS-I Basic Profile
 11. ASP.NET Configuration



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4. Web Service Clients
 1. Web Service Proxies
 2. Web Services Description Language Tool (Wsdll.exe)
 3. Understanding the Proxy Code
 4. Creating a Proxy with Visual Studio 2008
 5. Returning Complex User-Defined Data Types

5. ASP.NET Web Services Programming Model
 1. Asynchronous Programming in Web Services
 2. Asynchronous Events in .NET 2.0
 3. Managing State in ASP.NET Web Services
 4. Transactions in ASP.NET Web Services
 5. Caching in ASP.NET Web Services

6. XML Serialization
 1. XmlSerializer
 2. What Is Not Serialized
 3. Writing and Reading XML
 4. Customizing XML Serialization
 5. XML Schema and XSD
 6. Creating Classes from Schemas
 7. XML Serialization and Web Services

7. More about SOAP
 1. The Structure of SOAP Messages
 2. Using SOAP Headers
 3. SOAP Faults
 4. Document and RPC Style Messaging
 5. Literal and Encoded Use
 6. Customizing SOAP with Attributes
 7. Using SOAP 1.2



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8. More about WSDL

1. The Need for Service Description
2. An IDL for Web Services
3. WSDL Namespaces
4. The WSDL Description Model
5. WSDL Descriptors as Schema
6. Message Description
7. Messaging Scenarios
8. Operations: Input, Output, and Fault
9. Messages
10. Service Description
11. Extending WSDL
12. .NET WSDL Classes
13. WSDL First!

9. Data Access with Web Services

1. Multiple-Project Solutions in Visual Studio
2. Multiple-Tier Data Access
3. Data Access Using ADO.NET 3.5
4. A Data Access Web Service
5. Data Binding with Windows Forms
6. Using Typed DataSets
7. Binding to a Web Service

10. Introduction to WCF

1. What is WCF?
2. Address, Binding and Contract
3. WCF Services and Clients
4. IIS Hosting
5. Interoperability with ASMX Web Services
6. Data Contracts

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