Building .NET Components: Class Libraries, Web Services and WCF Services

Course Summary

Description

The course is designed for those who need to develop components, including Class Library DLLs, Web Services, and/or WCF Services. It covers the design of classes, including properties, methods and events, all Object Oriented features of .NET, including Inheritance and compares performance, security and other aspects of implementing Class Libraries, Web Services and WCF Services. All examples and exercises are in both Visual Basic and C#.

Topics

- Overview
- Class Design
- Class Coding
- Inheritance
- Class Library Considerations
- Web Service considerations
- WCF Services

Audience

This course is designed for .NET application developers.

Prerequisites

Students must have taken the .NET Programming with VB and C# course, and, ideally, ASP.NET Workshop and Database Programming with ADO.NET.

Duration

Three-five days

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Course Outline

I. Overview
   A. Review of creating solutions and projects in Visual Studio .NET
   B. Review of namespaces, classes, properties, methods and events
   C. Comparison among Class Libraries, Web Services, and WCF Services, and with database stored procedures, functions and triggers

II. Class Design
   A. Overview of tools for designing classes and class libraries
   B. Designing a class's public and private properties, method and events

III. Class Coding
   A. Creating a Class Library project in Visual Studio
   B. Purpose and coding of fields/variables
   C. Coding property procedures in VB and C#
   D. Coding methods in VB and C#
   E. Passing arguments, by value and by reference
   F. Optional and named arguments
   G. Overloading methods
   H. Adding XML documentation

IV. Inheritance
   A. Overview of OO features, including inheritance, as implemented in .NET
   B. Creating a base class and inheriting in a derived class
   C. Declaring methods as over ride able or not, overriding in a derived class
   D. Creating Abstract classes and Interfaces, and inheriting or implementing them in derived classes
   E. Creating and using sealed classes

V. Class Library Considerations
   A. Deploying and managing a class library
   B. Using class libraries in client applications
   C. Adding features without breaking client applications

VI. Web Service Considerations
   A. Creating a Web Service project in Visual Studio
   B. Passing and returning complex types, including arrays, DataSets and other objects, and binary data such as graphics
   C. Special considerations for overloading methods
   D. Maintaining state in a web service
   E. Asynchronous web services
   F. Security issues
   G. Deploying a web service

VII. WCF Services
   A. Various WCF project types
   B. Creating the Interface and the implementation class
   C. Adding, updating and configuring service references in client applications
   D. Features available in the service and client configuration files
   E. Returning and using collections, data objects, and complex types
   F. WCF sessions, asynchronous calls
   G. Deployment issues