

Advanced C# Programming with the .NET 3.5 Framework

Introduction to .NET

- Overview of the .NET Framework
- How .NET is Different from Traditional Programming
- Common Language Runtime (CLR)
- Common Language Specification (CLS)
- Common Type System (CTS)
- Overview of .NET Assemblies
- Microsoft Intermediate Language (MSIL)
- .NET Namespaces
- .NET Framework Classes

Introduction to Visual Studio.NET

- Setting Profiles
- Creating a Project
- Using the Solution Explorer
- Setting Project Properties
- Adding References
- Using the Code Editor
- Compiling a Program
- Running a Program

.NET Programming in C#

- Value Types vs. Reference Types
- Data Types
- Control/Conditional Statements
- Arrays/Structures/Enum
- Extending System.Object
- String vs. StringBuilder

Data Structures

- Defining and Using Arrays
- Using System.Array
- Defining and Using Structures
- Defining and Using Enumerations
- Using System.Enum

Exception Handling

- What are Exceptions
- Catching Exceptions
- .NET Exception Hierarchy
- Throwing Exceptions
- Managing Resources with Finally
- Defining Custom Exception Types

Object-Oriented Programming

- Defining and Using Classes
- Understanding Object Lifetime
- Building Class Hierarchies
- Forcing Inheritance with Abstract Classes
- Preventing Inheritance with Sealed Classes
- Cross-Language Inheritance
- Visual Inheritance
- Defining and Implementing Interfaces
- Defining and Implementing Delegates
- Understanding Partial Classes in .NET 2.0
- Working with Generics in .NET 2.0
- Working with Iterators
- Working with Nullable Types.
- Working with Anonymous methods

Multithreading in .NET

- Threading Concepts
- Creating Threads in C#
- Managing Threads
- Problems with Threads
- Thread Synchronization

Windows Forms Programming in C#.NET

- What are Windows Forms
- Overview of Controls
- The .NET Control Hierarchy
- Label and Textbox Controls
- Button and other Controls
- Using the Windows Forms Designer
- The Life-cycle of a Form

Using Controls

- Enabling/Disabling Controls
- Showing/Hiding Controls
- Setting Focus to a Control
- Making Choices Using the CheckBox and RadioButton Controls
- Managing Lists Using the ListBox, ComboBox, ListView and TreeView Controls
- Providing Assistance with the ToolTip Control
- Using the Up/Down Controls
- Building Menus, Toolbars and Statusbars in .NET 2.0
- New Controls in .NET 2.0

Working with Dialogs

- Using the MessageBox Class
- Using the Standard Dialogs

- Creating and Using Windows Dialogs
- Modal versus Modeless Dialogs
- Working with Modal Dialogs
- Using DialogResult
- Setting the Default and Cancel Buttons
- Using the ErrorProvider Control
- Working with Modeless Dialogs

ADO.NET

- The ADO.NET Object Model
- Client-Side vs. Server-Side Cursors
- Connected vs. Disconnected Access
- Using Connection Classes to Connect to a Data Source
- Using Command Classes to Execute Queries and Stored Procedures
- Insert, Update and Delete with ADO.NET
- Using DataReader Classes to Work with Cursors
- Using the DataSet Class with Disconnected Data
- Using DataAdapter Classes with DataSets

Data Binding

- Introduction to Data Binding
- Binding Controls using .NET 2.0

.NET Interoperability Services

- Interactions between Managed and Unmanaged Code
- Interop Marshalling
- Platform Invocation Service (PInvoke)
- Calling Platform DLL's from .NET
- Using COM Servers from .NET
- Runtime Callable Wrappers
- Thread Interoperability with COM
- Calling .NET Components from COM
- COM Callable Wrappers

Working with Assemblies

- ❖ The Role of .NET Assemblies
- ❖ Private and Shared Assemblies
- ❖ Understanding Private Assemblies
- ❖ Building and Using Single-File Assemblies
- ❖ Building and Using Multi-File Assemblies
- ❖ Understanding Shared Assemblies
- ❖ Strong Names
- ❖ Global Assembly Cache (GAC)

- ❖ Building, Configuring and Consuming Shared Assemblies

Working with Files

- System.IO Namespace
- Examining Files and Directories
- Opening Files
- Reading Files
- Writing Files

Remoting

- Remoting Basics
- Understanding Application Domains
- Creating Remotable Objects
- Well-known vs. Activated Objects
- Creating Channels for Calling Remote Methods
- Creating Remote Objects
- Interacting with Remote Objects
- Using Interfaces with Remote Objects

Security

- Security Basics
- Evidence and Code Identity
- Role-based Security
- Code Access Security
- Cryptography

Deploying Applications

- Issues with Deployment
- Using XCOPY Deployment
- Using Visual Studio Deployment Projects

Visual Studio2008(.Net3.5) Features:

- Anonymous constructors
- Automatic properties
- Anonymous types
- The 'var' keyword
- Lambda expressions
- Extension methods
- Partial Methods
- Understanding Object Initializer Syntax.
- Language Integrated Query (LINQ)
 - Understanding the Role of LINK
 - First Look at LINK Query Expressions
 - LINK and Generic Collections
 - LINK and Non Generic Collections
 - Internal Representation of LINK Query Operators
 - LINK Queries

- The Role of LINK to ADO.NET
- Programming with LINK to DataSet
- Programming with LINK to SQL
- Introduction to Windows Communication Foundation(WCF)
- Introduction to Windows Presentation Foundation(WPF)
- Introduction to Windows Workflow foundation (WWF).
- Introduction to Silver Light.