

Mastering C# using Visual Studio 2010

Course Length: 5 days

Price: \$2,500

Summary

In this course students will learn in depth knowledge of building solutions with Visual Studio 2010. Using the C# language, students will work hands on with essential aspects of the .NET runtime.

Who Should Attend?

Students must already be familiar with C# syntax and general programming techniques.

Course Outline

Introduction to .NET: Terms and Definitions (from a programmers viewpoint)

- Application Domain
- Assemblies
- Digital Signing
- Global Assembly Cache
- Namespaces and Modules
- User Defined Types: enums, structs, classes, interfaces and delegates
- Components of all types

Introduction to Types (Value Types vs Reference Types)

- Static vs Instance
- Constants, Fields and Methods (and nested types)
- Exploring Enums
- Structures vs Classes
- Special Methods
 - Constructors
 - Static Constructors
 - Destructors
 - Properties
 - Indexers

- Converters
- Managing Memory
 - Static Region
 - Stack
 - Managed Heap
 - Garbage Collection

Working with Types

- Object
- Assignment
- Parameters

Implementing Classes and Polymorphic Behavior in C#

- Virtual Functions
- Abstract Classes
- Sealed and New functions
- Casting and determining type
- Interfaces
- Explicit Implementation

System.Collections as an Example

- IEnumerable
- IEnumerator
- ICollection
- IList and IDictionary
- ArrayList and Hashtable
- Using CollectionBase to create a type-safe collection class

Delegates and Events

- Definition of Delegates
- Examples and Case Study
- Definition of Events

- Procedure for exposing Events
- Windows Forms as a case study of Events
- Events vs Virtual Functions

System.IO

- The stream class
- System.Text.Encoders and Decoders
- Readers and Writers
 - BinaryReader/Writer
 - TextReader/Writer
- System.File and System.Directory
- System.FileWatcher

Networking

- WebRequest
- WebResponse
- TCPListener
- TCPClient

Serialization

- Object Graphs
- Serializable
- Writing
- Reading
- Custom Serialization

Cryptography

- Types of Encryption
- Symmetric Algorithms
- Asymmetric Algorithms
- Using Salt to store a password safely
- Using CryptoStream

Database (ADO.NET)

- Connected Model
 - IDbConnection
 - IDbCommand
 - IDataRecord
 - IDataReader
- Disconnected Model
 - DataSet
 - DataAdaptors
 - Typed DataSets
- Using XML

Windows Forms

- Introduction and Basic control usage
- Visual Inheritance
- Creating Controls
- Data Binding

ASP.NET

- Internal Architecture
- Web Controls
- Data Binding
- Web Services

Interoperability

- Platform Invoke
- Com Interoperability



TRAINING
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Deployment

- Private Assemblies
- Signing Assemblies
- Installing Assemblies into the GAC
- Versioning Assemblies

Security

- Code Access Security Demo

Attributes

- Reflection
- Attributes

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