C# Programming For Experienced Developers

Duration:	3 days
Type:	intermediate

Description

This course introduces Java or C++ programmers to C# and the fundamentals of building and deploying applications on the .NET platform.

Prerequisites

Delegates should have a minimum of two years Java or C++ programming experience.

List of Modules

Fundamental Concepts of .NET
- Compiling to Intermediate Language (IL)
- The Common Language Runtime (CLR)
- Comparing the CLR and the Java VM
- The Common Type System (CTS)
- Assemblies and Application Domains
- Running the C# compiler manually
- Examining assemblies using ILDASM
- Locating and loading assemblies
- Deploying assemblies to the GAC

Creating and Compiling Applications
- Installing and running Visual Studio (VS)
- Creating new solutions and projects in VS
- Building console and GUI based applications
- Building and referencing class libraries
- Building ASP based Web Applications and Web Services

Useful Development Tools
- Writing unit tests with NUnit
- Creating NAnt and MSBuild deployment scripts
- Object Persistence with NHibernate

Procedural Coding and Built In Objects
- Basic types and their CTS mappings
- Understanding the object class
- Using Strings and StringBuilders
- Converting between basic types
- Boxing and unboxing basic types
- Constructs for iteration and selection
- Working with the three types of array
- Documenting C# code using XML

Object Oriented Development Part One
- Class declarations in C#
- Understanding partial classes
- Organizing classes into namespaces
- Access modifiers and their meaning
- Declaring fields using the static, readonly, constant and volatile modifiers
- Adding constructors to classes
- Using other constructors via *this* and *base*
- Object initialization in detail
- Using properties instead of Java accessor (getter and setter) methods
- Allowing clients to use array notation by implementing an indexer method
- Destructor methods and finalization
- Comparing GC in Java and .NET
- Declaring methods and parameters
- Passing parameters by reference and for output
- Using variable number parameters

Object Oriented Development Part Two
- Declaring derived classes
- Polymorphism with *virtual* and *override*
- Opting out of polymorphism using *new*
- Safe downcasting using *is* and *as*
- Abstract base classes and Interfaces
- Releasing resources via *IDisposable*
- Differentiating between Java Inner Classes and C# Nested Classes
- Throwing and catching exceptions
- Comparing the exception management philosophies of Java and C#

Event Handling in .NET
- Understanding function addressing
- Using delegates to hold function addresses
- Working with anonymous delegates
- Adding events to a class
- Customizing the event model

Generic Programming in C#

- Introduction to Generic Programming
- How generics works within the CLR
- Using the generic collection classes
- Declaring your own generic types
- Applying constraints to type parameters
- Examining generic types via reflection

Advanced Language Features

- How to overload operators
- Using structs to create local objects
- Pointers and unsafe code