Object-Oriented Programming in Using C# (5 Days)

Overview

This thorough and comprehensive Object-Oriented Programming in C# training class provides a practical introduction to programming in C#, utilizing the services provided by .NET. This course emphasizes the C# language.

This course is intended to be fully accessible to programmers who do not already have a strong background in object-oriented programming in C-like languages, such as C++ or Java. It is ideal, for example, for procedural programmers who desire to learn C#.

An important thrust of the course is to teach C# programming from an object-oriented perspective. It is often difficult for programmers trained originally in a procedural language to start "thinking in objects." This course introduces object-oriented concepts early, and C# is developed in a way that leverages its object orientation. A case study is used to illustrate creating a complete system using C# and .NET. Besides supporting traditional object-oriented features, such as classes, inheritance, and polymorphism, C# introduces several additional features, such as properties, indexers, delegates, events, and interfaces that make C# a compelling language for developing object-oriented and component-based systems. This course provides thorough coverage of all these features.

C# as a language is elegant and powerful. But to utilize its capabilities fully, you need to have a good understanding of how it works with the .NET Framework. The course explores several important interactions between C# and the .NET Framework, and it includes an introduction to major classes for collections, delegates, and events. It includes a succinct introduction to creating GUI programs using Windows Forms.

COURSE BENEFITS

- Acquire a working knowledge of C# programming
- Learn how to implement programs using C# and classes from the .NET Framework
- Learn how to implement simple GUI programs using Windows Forms
- Gain a working knowledge of important newer features in C#

COURSE OUTLINE

Introduction to NET
- What is .NET?
- .NET Framework and .NET Core
- Application Models
- Managed Code
- Visual Studio 2019
- C# Console and GUI Programs

First C# Programs
- Hello, World
- Namespaces
- Variables and Expressions
- Using C# as a Calculator
- Input/Output in C#
- .NET Framework Class Library

Data Types in C#
- Data Types
- Integer Types
- Floating Point Types
- Decimal Type
- Characters and Strings
- Boolean Type
- Conversions
- Nullable Types

Operators and Expressions
- Operator Cardinality
- Arithmetic Operators
- Relational Operators
- Logical Operators
- Bitwise Operators
- Assignment Operators
- Expressions
- Checked and Unchecked

Control Structures
- If Tests
- Loops
- Arrays
- Foreach
- More about Control Flow
- Switch

Object-Oriented Programming
- Objects
- Classes
- Inheritance
- Polymorphism
- Object-Oriented Languages
- Components

Classes
- Classes as Structured Data
- Methods
- Constructors and Initialization
- Static Fields and Methods
- Constant and Readonly

More about Types
- Overview of Types in C#
- Value Types
- Boxing and Unboxing
- Reference Types
- Implicitly Typed Variables

Methods, Properties and Operators
- Methods
- Parameter Passing
- Method Overloading
- Variable-Length Parameter Lists
- Properties
- Auto-Implemented Properties
- Operator Overloading

Characters and Strings
- Characters
- Strings
- String Input
- String Methods
- StringBuilder Class
- Programming with Strings

Arrays and Indexers
- Arrays
- System.Array