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## C# 10 Development

(5 days)

### Course overview

C# 10 is the latest evolution of Microsoft's primary programming language. This course covers the new language features introduced in C# 10, plus the key features from earlier versions of the language. The course is based on .NET 6 (previously known as .NET Core) and shows how to create contemporary solutions using REST, Entity Framework, asynchronous techniques, and so on.

### What you'll learn

- Essential C# syntax
- Implementing object-oriented designs in C#
- Using common .NET APIs
- Using LINQ and EF
- Introduction to asynchronous programming
- Creating REST services using Web API

### Prerequisites

- At least 6 months programming experience
- Familiarity with OO concepts would be an advantage

### Course details

- **Introduction to .NET:** Overview of .NET; Creating a .NET App at the Command Line; Creating a .NET App by using Visual Studio; Understanding Top-Level Statements
- **Core C# Language Features:** Language Essentials; Operators; Conditional Statements; Loops
- **Control Flow Techniques:** Conditional Logic Techniques; Loop Techniques
- **Defining Types:** .NET Language Essentials; Classes and Objects; Arrays; Value Types
- **Defining Nullable Types:** Nullable Reference Types; Nullable Value Types; Null Coalescing Operators
- **Defining Members:** A Closer Look at Parameters; Additional Function Techniques; Construction and Finalization; Properties
- **Going Further with Types and Members:** Static Members; Operators; Partial Types; Partial Methods
- **Inheritance:** Introduction to Inheritance; Additional Inheritance Techniques
- **Interfaces:** Introduction to Interfaces; Object Disposal; Additional Interface Techniques

- [Delegates, Lambdas, and Events](#): Delegates; Lambdas; Standard Delegate Types; Events
- [Using .NET APIs](#): Exception Handling; Collections; Regular Expressions
- [Additional C# Language Features](#): Initialization; Anonymous Types; Extension Methods
- [LINQ](#): Introduction to LINQ; Using LINQ with Arrays; Using LINQ with Collections; LINQ Techniques
- [ADO.NET Entity Framework](#): Introduction to the Entity Framework; Understanding the Sample Database; Defining an EF Data Model; Using EF to Access Data
- [Tuples and Records](#): Tuples; Improved Pattern Matching; Record Types
- [Parallelization and Asynchronous Methods](#): Parallelization; Async Methods
- [Creating REST Services](#): Overview of REST Services; Creating REST Services in .NET; Implementing Industrial-Strength Actions