

Introduction to Programming & Coding | C# .Net Basics for Non-Developers (TTCODE101-N)

Modality: Virtual Classroom

Duration: 5 Days

About this course

This course, **Introduction to Programming & Coding | C# .Net Basics for Non-Developers** focuses on key concepts of C# that any beginner should know about. Throughout the course you will learn various C#, .NET skills, mostly focusing on Object-Oriented development. This course offers basic/beginner level skills that help you get started with C#, .NET. Like the name of the course suggests, this course is more focused on non-developers and slowly and gradually eases them into real-world development environments. Along with the basics of C# .NET, you will also be learning about the basic programming practices which are somewhat similar between different programming languages. Since the course mainly focuses on the ease of learning for non-developers, you will find the pace at which this course starts rather comfortable.

The course helps you build the mindset of a developer and really pushes you to think like one as well. Students will learn proper structuring of code, building interfaces with windows forms, some database configuration and error/exception handling as well.

The average annual salary of a .NET developer is around \$65,000. This is mostly for senior developers and usually, the salary of a senior .NET is seen way above this number, all the more reasons to get enrolled in this course.

Course Objective

One of the main objectives of this course is to get the students hands-on experience on good programming practices of C# .NET, along with this here are some other key objectives.

- Getting familiar with the Visual Studio environment
- Learning scopes of variables along with their declarations
- Using loops and conditions (if, for, while, etc)
- Learning proper structural implementation of applications
- Use of classes and arrays
- Error handling with try-catch statements
- Learning how to make Windows Forms Applications
- Learning string manipulation and interfaces

Audience

This course is specially tailored for newcomers or beginners who want to dive deep into the development phase and want hands-on experience along with basic knowledge of how programming should be done, the right way with structural integrity.

This course is perfect for people who

- Want to learn application development with C#
- Want to learn object-oriented programming
- Who manage teams working on C# .NET
- Who have to design and implement initial structures of such applications

Prerequisites

No prior development skills needed, only a keen mind focused on learning something new. This course is perfect for beginners with no programming background.

Although no programming experience is required some personal aspects like the following are nice to have.

- Familiar with Windows or any other OS environment
- Knows how to navigate, create, copy or delete files and folders
- Basic knowledge of number theory
- Ability to grasp complex information and recreate step by step

Course Outline:

Module 1: Application Development Fundamentals

- Overview of Programming Concepts
- Understanding the Structure of a C# Program
- Understanding Data Types
- Working with Variables
- Reading From and Writing to the Console
- Overview of the .NET Framework
- Using Visual Studio
- Thinking Like a Programmer
- Designing Algorithms
- Finding Patterns in Code

Module 2: Managing the Flow of an Application

- Conditional Constructs
- Working with if/else Constructs
- Working with switch
- Looping Constructs
- Working with while Constructs
- Working with for and foreach
- Thinking Like a Programmer
- Making Decisions
- Designing Loops

Module 3: Working with Data

- Using Integer Data Types
- Using Floating Point Data Types
- Using Characters and Strings
- Using Dates
- Using Booleans
- Working with Constants and Literals

Module 4: Using Procedures to Modularize Code

- Defining and Calling Subroutines
- Defining and Calling Functions
- Understanding Variable Scope
- Overloading Procedures
- Passing Parameters
- Understanding by value vs by reference Parameters
- Understanding the Call Stack
- Thinking Like a Programmer
- Finding the Procedures
- Refactoring
- Improving Productivity with Snippets

Module 5: Object-Oriented Programming

- Understanding Object-Oriented Concepts
- Designing Classes
- Coding Properties and Methods
- Initializing Objects with Constructors
- Overloading Constructors
- Declaring and Instantiating Objects
- Calling Properties and Methods
- Understanding Value Types vs. Reference Types
- Working with Shared Data Members and Methods
- Thinking Like a Programmer
- Finding your Classes

Module 6: Understanding Namespaces

- Understanding the Role of Namespaces
- Understanding .NET Namespaces
- Defining Custom Namespaces
- Referencing Members in a Namespace
- Using the using Statement

Module 7: Working with Data Collections

- Understanding Arrays
- Declaring and Instantiating Arrays
- Iterating through Arrays
- Working with System.Array Methods
- Copying, Sorting, Searching and Resizing
- Passing Arrays to Methods
- Working with param array Parameters
- Working with Command-line Arguments
- Understanding .NET Collections
- Managing Data Using List
- Managing Data Using Dictionary<TKey, TValue>
- Working with LINQ
- Making LINQ Queries
- Enumerating LINQ Query Results
- Working with Anonymous Types
- Using Extension Methods with LINQ

Module 8: Building Inheritance Hierarchies

- Understanding Inheritance
- Building Derived Classes
- Understanding Constructors in Derived Classes
- Defining and Using Protected Class Members
- Understanding Polymorphism
- Defining Overridable Methods
- Overriding Methods
- Understanding Abstract Classes
- Defining Abstract Classes
- Inheriting from Abstract Classes

Module 9: Building GUIs with Windows Forms

- Overview of Windows Forms
- Designing Forms
- Working with Controls
- Using Labels and Textboxes
- Using Buttons
- Using Checkboxes and Radio Buttons
- Using Menus
- Using List Controls

- Handling Events

Module 10: Accessing Databases Using ADO.NET

- Understanding the ADO.NET Object Model
- Opening Connections
- Executing Queries Using Commands
- Iterating Through Results Using DataReaders
- Calling Stored Procedures
- Passing Parameters to Stored Procedures
- Working with DataSets
- Binding Data to Controls

Module 11: Exception Handling

- Understanding Exception Handling
- Using try/catch to Handle Exceptions
- Working with the Exception Class
- Understanding Exception Propagation
- Using finally to Manage Cleanup Processing
- Throwing Exceptions

Module 12: Working with Files, Directories and Streams

- Using the System.IO Namespace
- Discovering Drives
- Working with Directories
- Working with Files
- Parsing a File Path
- Understanding Streams
- **Working with FileStream**
- **Reading and Writing Text Files**
- **Understanding other Types of Streams**

Module 13: Working with Strings

- Working with the String Class
- Working with String Literals and Escape Sequences
- Understanding String Manipulation Performance Issues
- Working with the StringBuilder Class
- Formatting Output with String.Format

Module 14: Building N-Tier Applications

- Building Large Scale Applications
- Designing N-Tier Applications
- Building .NET Assemblies

- Referencing Assemblies