From Zero to Unit Testing in .NET 6

Every programmer knows they should be writing unit tests for their applications. Visual Studio contains unit testing tools built-in, so it makes it easy to get started. In this course you are introduced to the basics of unit testing, how to run tests, and how to reduce the number of tests by taking advantage of data-driven tests. At the end of this course, you walk away with the knowledge you need to start automating the testing of your applications.

Learning Objectives

Why unit test

Build your first tests using Visual Studio

Initialization and Cleanup

Attributes and Assert Classes

Data-Driven Tests and using Command Line Utilities

Prerequisites

We assume you have a working knowledge of C#, .NET 6, and Visual Studio 2019 or later.

Course Length

1 day for lecture

2 days for hands-on

Module 1: Introduction to Unit Testing

Overview of unit testing

Testing tools

Module 2: Building Your First Unit Tests

Use Visual Studio to create a test project

Create tests against a simple class

Handling exceptions

Code coverage basics

Module 3: Avoid Hard Coding

Use constants

Add configuration file to test project

Create/delete file before/after running test

Use TestContext property

Module 4: Initialization and Cleanup

Assembly initialize and cleanup attributes

Class initialize and cleanup attributes

Test initialize and cleanup attributes

Module 5: Unit Testing Attributes

Description attribute

Owner attribute

Priority attribute

TestCategory attribute

Ignore attribute

Timeout attribute

Deployment attribute

Module 6: Assert Classes

Assert class

IsTrue, IsFalse, AreEqual, AreSame and other methods

StringAssert class

CollectionAssert class

Module 7: Data-Driven Tests

Eliminate tests by using data-driven techniques

Put parameters to test in a database table

Use configuration file to configure test

Writing code to retrieve test data

Module 8: Using the Command Line Interface

dotnet test command line interface

Built-in loggers

Run tests by name

Filter tests based on attributes