

Unit Testing

Course Outline

Module 1: Unit Testing in .NET

- The role of the developer
- Unit tests explained
- .NET unit testing frameworks
- MSTest, NUnit, xUnit.net, and others
- The anatomy of a unit test
- Writing your first unit test

Module 2: Unit Testing in Visual Studio

- Testing support in Visual Studio
- Test projects
- Test Explorer and other windows
- Unit testing in Visual Studio
- Running tests
- Managing test results
- Managing a large number of tests

Module 3: Test-Driven Development (TDD)

- TDD overview and benefits
- Practicing TDD within Visual Studio
- Refactoring
- Using CodeLens to support TDD and refactoring
- Working with legacy code

Module 4: Writing Good Unit Tests

- Know your code
- Path testing (i.e. sad path)
- Right BICEP
- Testing for expected exceptions
- Maintaining high-quality test code
- Unit test naming conventions (e.g. BDD)
- Organizing unit tests

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Module 5: Advanced Unit Testing in Visual Studio

- Code coverage
- Using code coverage as a metric
- Data-driven unit tests
- Continuous testing in Visual Studio
- Concurrent testing using Ncrunch

Module 6: Testing Difficult Code

- The need to isolate code under test
- Doubles (dummies, stubs, fakes, and mocks)
- Microsoft Fakes framework (stubs and shims)
- Mocking frameworks (Rhino Mocks)
- Profiling slow running unit tests
- Using IntelliTest with legacy code