Unit Testing for C# Developers

Types of testing

Unit Tests - Extremely narrow unit of test

Component Tests / Narrow Integration Tests

Integration Tests - Calls actual dependencies

End To End Testing - Testing as a user would

TDD- Test Driven Development - write tests before coding

3 Core Unit Testing Concepts

Test Libraries

- xUnit
- nUnit
- msTest

Mocking Libraries

- Moq
- NSubstitute
- Fak.t Easy

Assertion Library

ProjectName.Tests library name

Arrange, Act, Assert - Every test should be split into these three categories

Anything instantiated at the top level of XUnit test will be re-created in each test case.

Can inherit IDisposable to have a cleanup method that gets called at the end of each test.

In Async tests order of calling is:

Constructor
Initialize Async
Test Case
Dispose Async

Theory vs Fact

Theory allows you to pass parameters via [InlineData()] to not duplicate test functions

Can use Fluent Assertions to do better than Assert.Equals

You can use Fixtures to share data between different tests.

Coverlet.console code coverage tool