Kentico

Automated Testing

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Topics

- TDD
- Frameworks
- Test Life Cycle
- Asserting
- Mocks & Fakes
- Test Coverage
- JavaScript

Automated Testing, TDD

- Automation of laborious repetitive testing
- Can be repeated every time the code changes.

- Test Driven Development - Tests should be written first, then the code they test.

Frameworks

- Provide a way to describe expectations about code behaviour

Microsoft Unit Testing Framework

- Out of the box in Visual Studio

NUnit

- Similar to JUnit
- Requires an adapter in Visual Studio
- Industry standard

xUnit.net

- More "modern" approach
- Used to test .NET Core

Test Body

- Arrange
- Act
- Assert

- As simple as possible – tests can be buggy as well!

Test Life Cycle

- Test method attribute
- Test initialization attribute
- Test cleanup attribute

Asserting

- Check the result of your method call
- As semantic as possible
- Meaningful message in case of failure
- General assertions - `NUnit.Framework.Assert`
- Specialized assertions - `CollectionAssert`, `StringAssert`, `DirectoryAssert`, `FileAssert`.

Asserting

```
Assert.IsTrue(result is string);

Assert.That(result, Is.InstanceOf<string>(), "Result should be a string");
```

Code Coverage

- What parts of production code are covered by some test
- Helpful when dealing with complicated legacy code
- Mostly useless metric

What to test?

- You **can** test **everything**!

- Initial cost of the tests
- Maintenance cost

  vs.
- Value of various pieces of code being covered by tests

Mocks & Fakes

- Replace dependency of tested code
- Define behavior of the replacement

- Mock frameworks: Moq, NSubstitute, Rhino Mocks

https://msdn.microsoft.com/en-us/data/dn314429.aspx

JavaScript Testing

- Fundamentally same as C#
- Tooling differs

- Test frameworks – Jasmine, tape, mocha, etc.
- Test runners – browser, Node.js, Gulp, Grunt, Karma

Write tests!