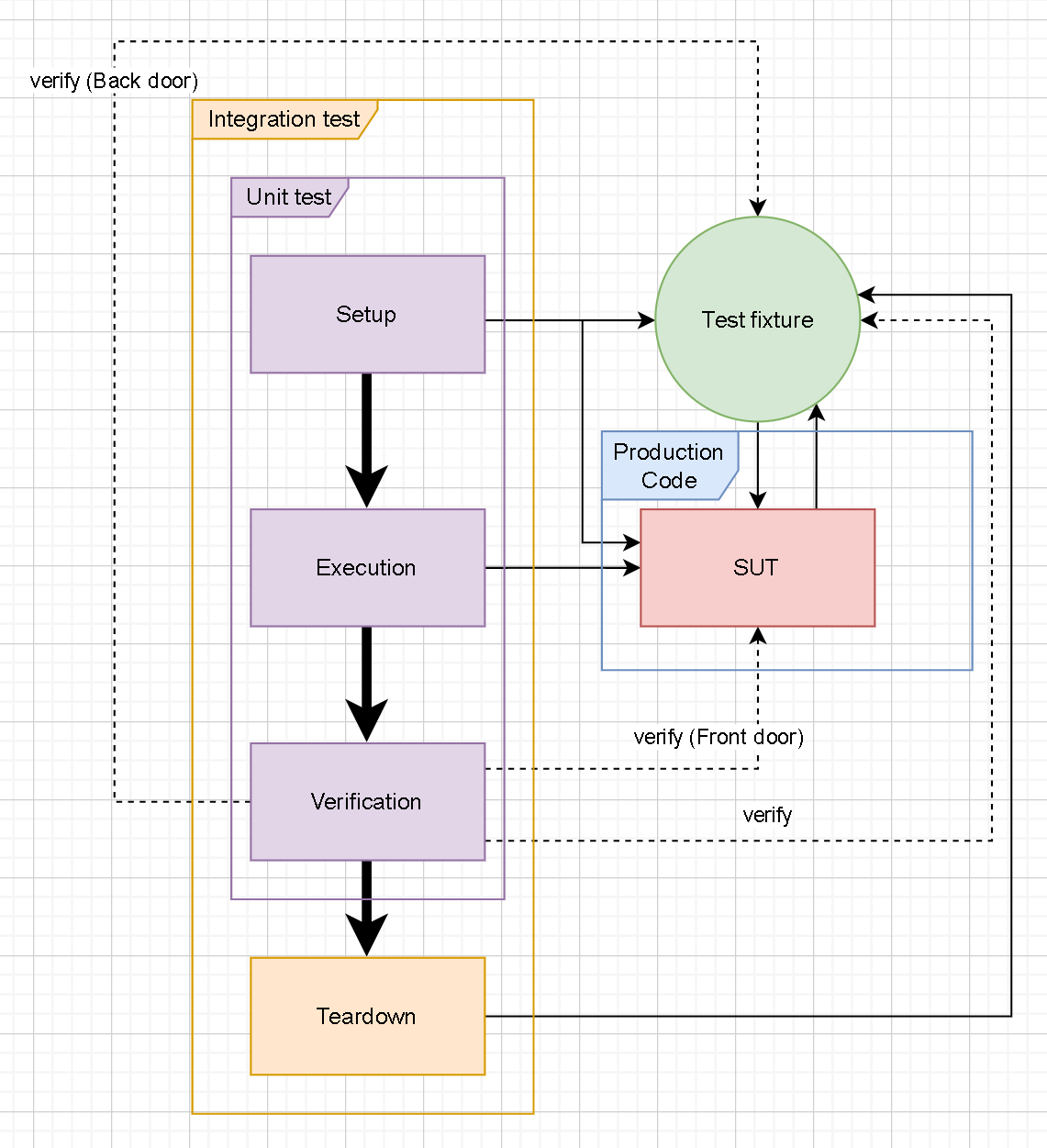
**Four phases of Automated Test**

****

**Terminology:**

**SUT**: System Under Test

**Test fixture**: SUT dependencies (environment)

**Phases:**

**Setup:** create/find SUT or Test fixture

**Execution**: execute something on SUT.

**Verification**: verify state or behavior of SUT/Test fixture.

**Teardown**: clean up after test.

**Unit Test Tools**

**Test Framework**: xUnit (<https://xunit.net/>)

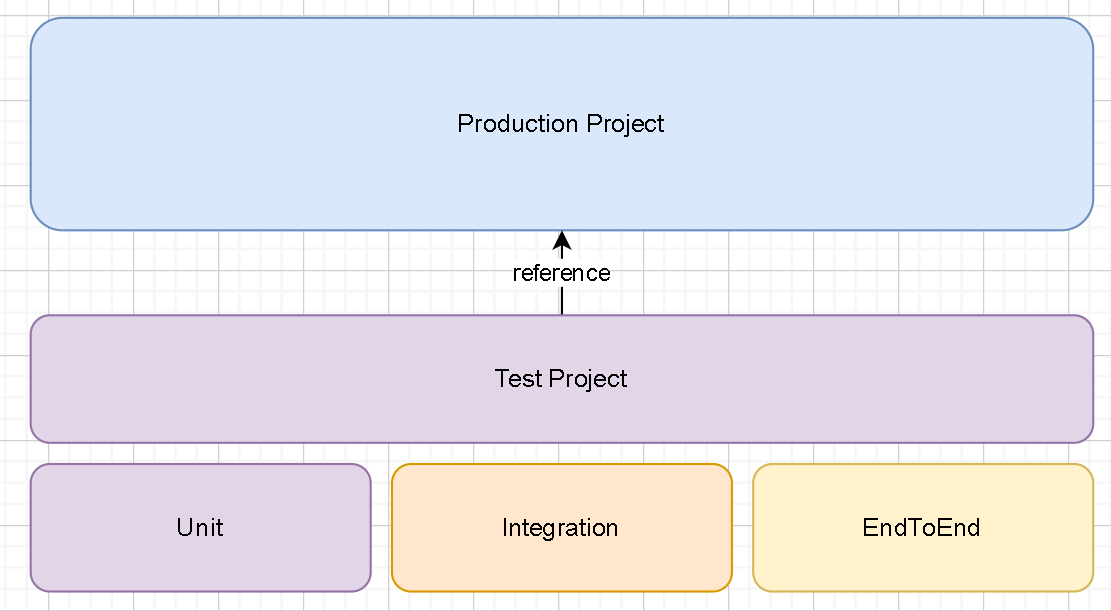
**Test Fixture**: Moq (<https://github.com/devlooped/moq>)

**Test Verification**: Fluent Assertions (<https://fluentassertions.com/>)

**Test Runner**: Visual Studio, SonarQube Build Pipeline

**Test Quality**: Code Coverage

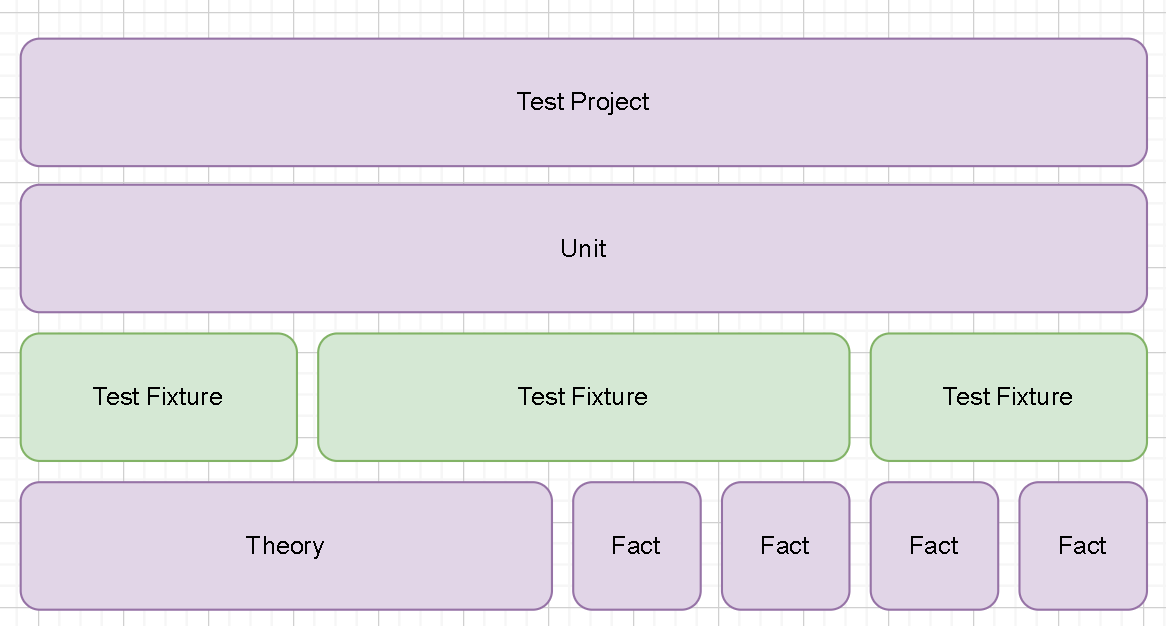
**Unit Test Project Hierarchy**

****

**Code**

Production project

Test project

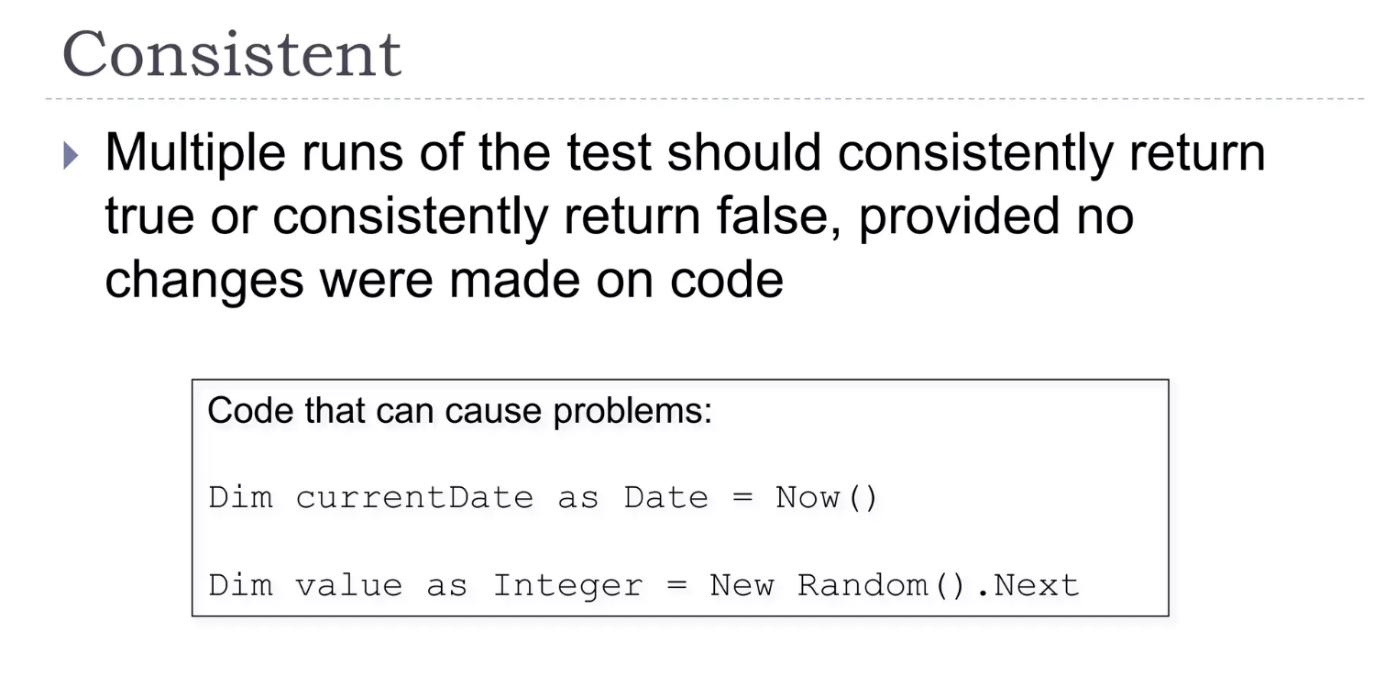
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**Code**

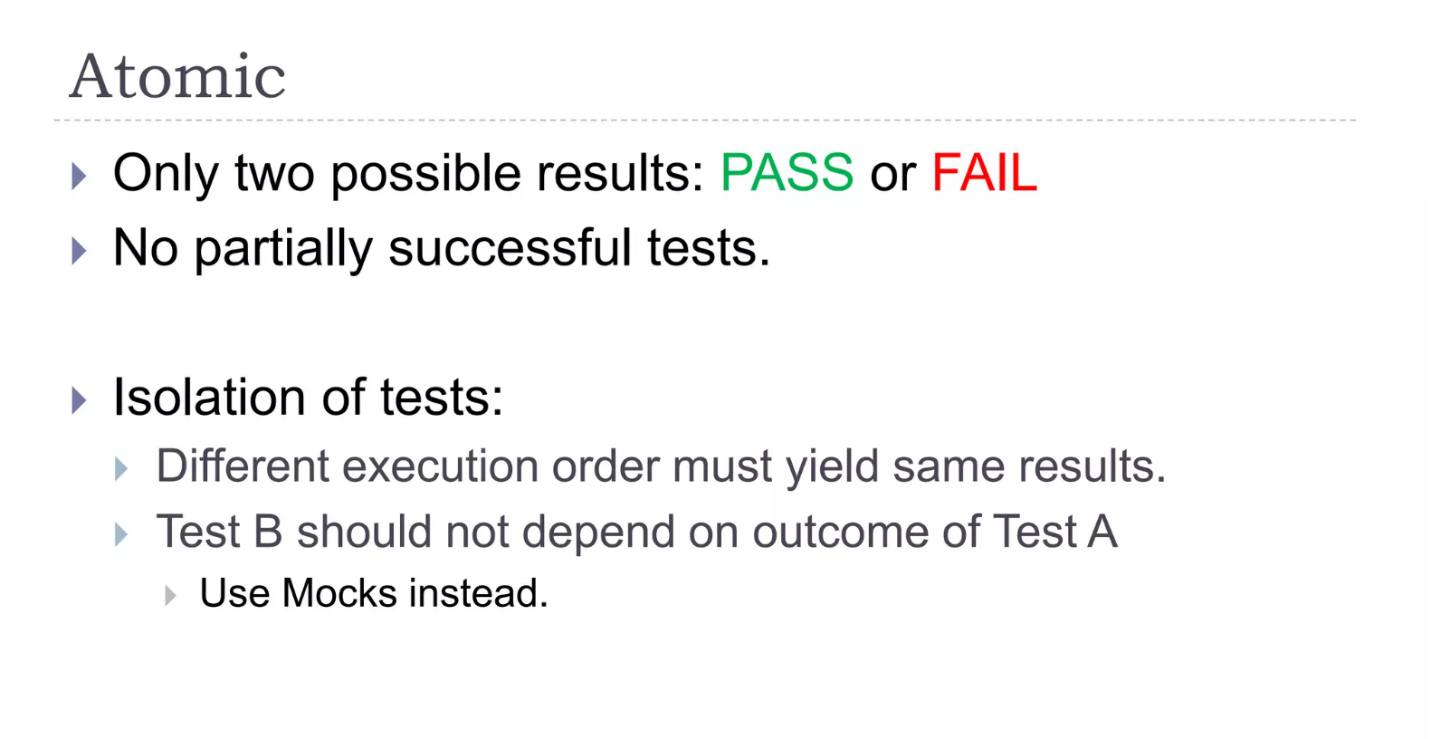
Test project

**Unit Test Best Practices**

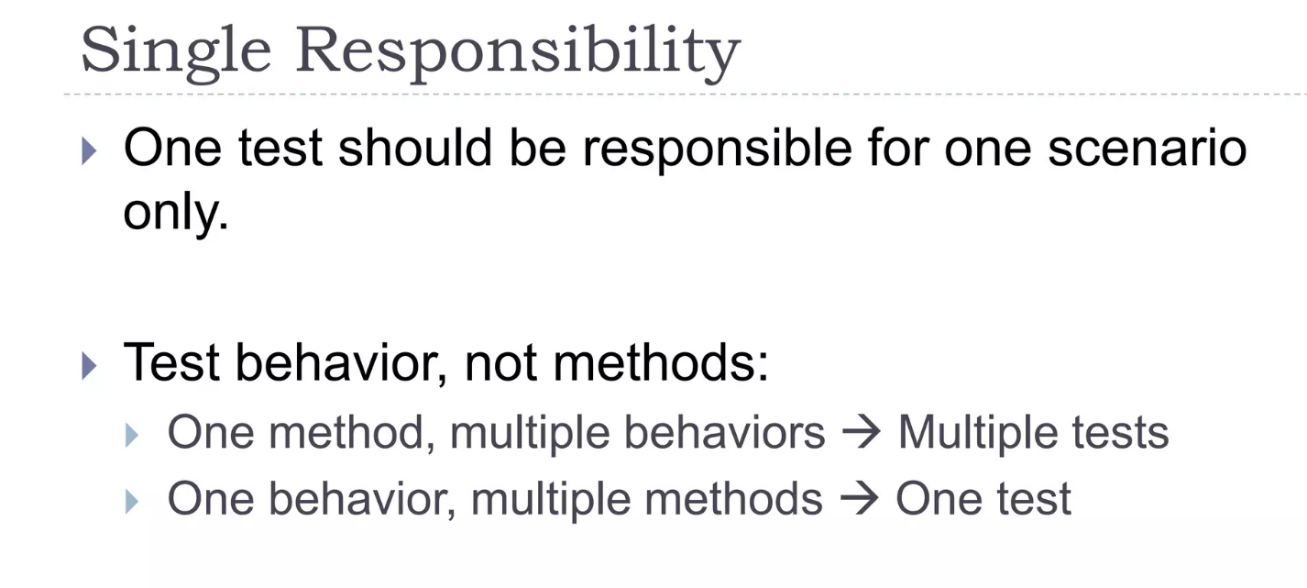
Consistent



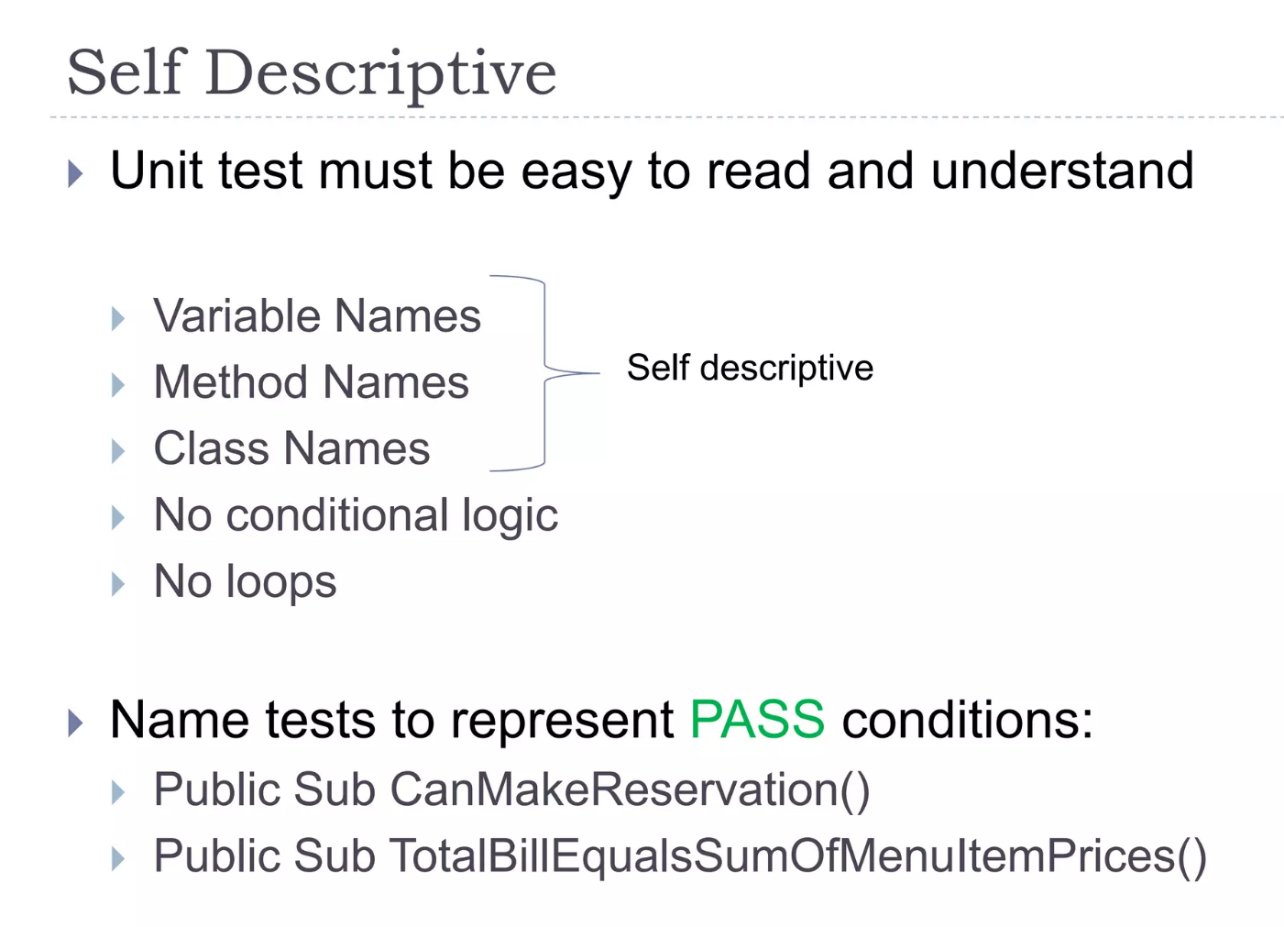
Atomic



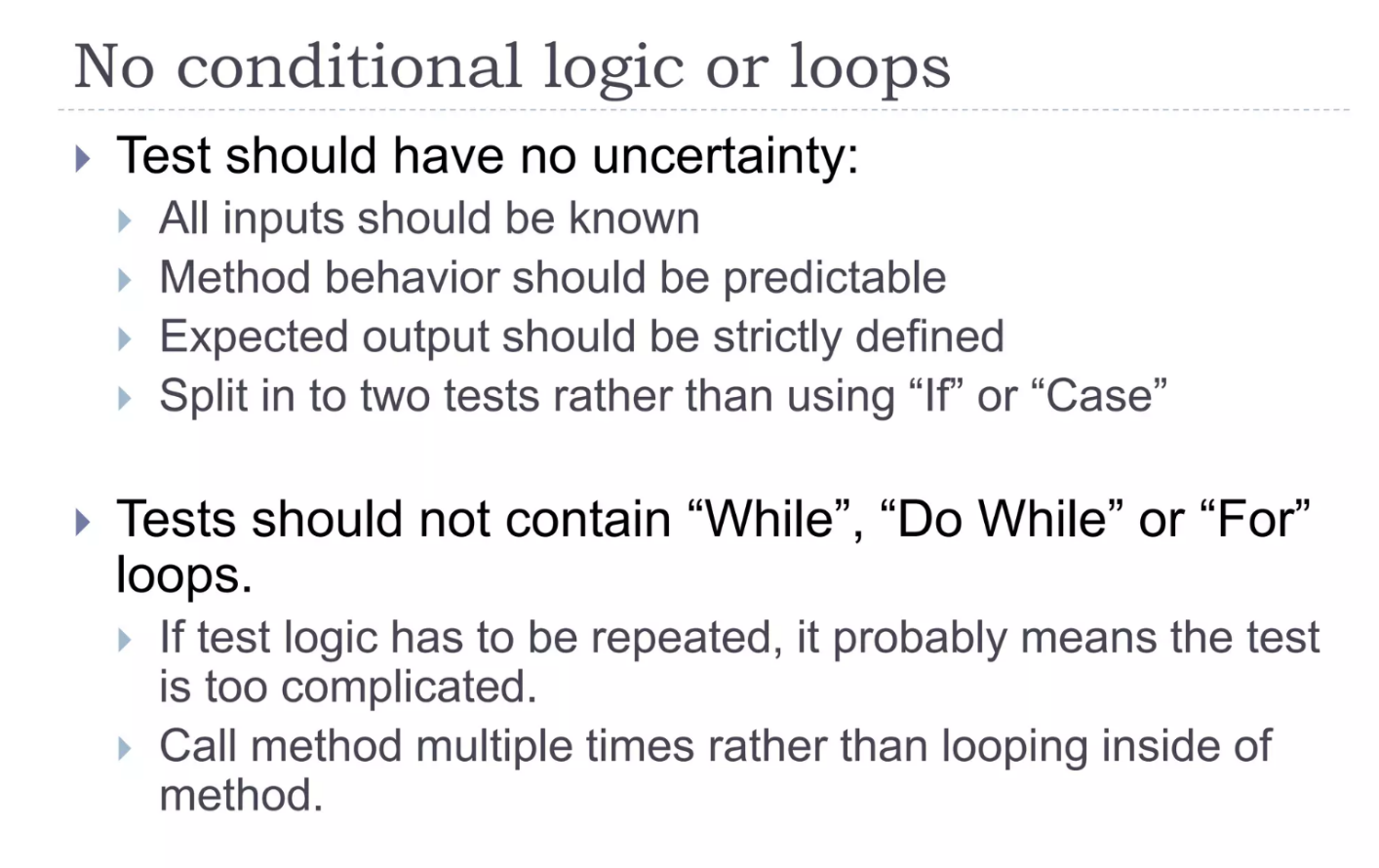
Single Responsibility

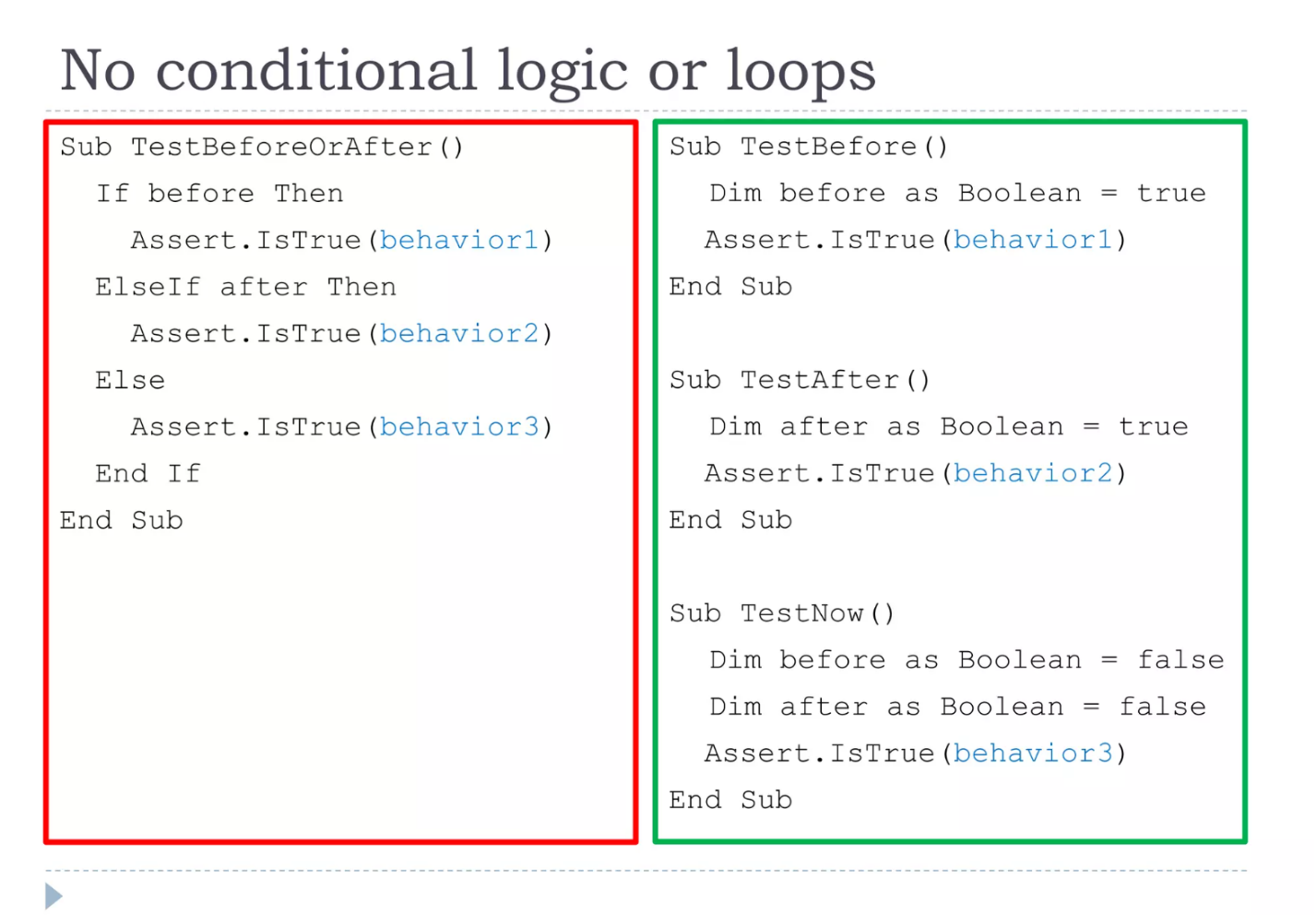


Self-descriptive

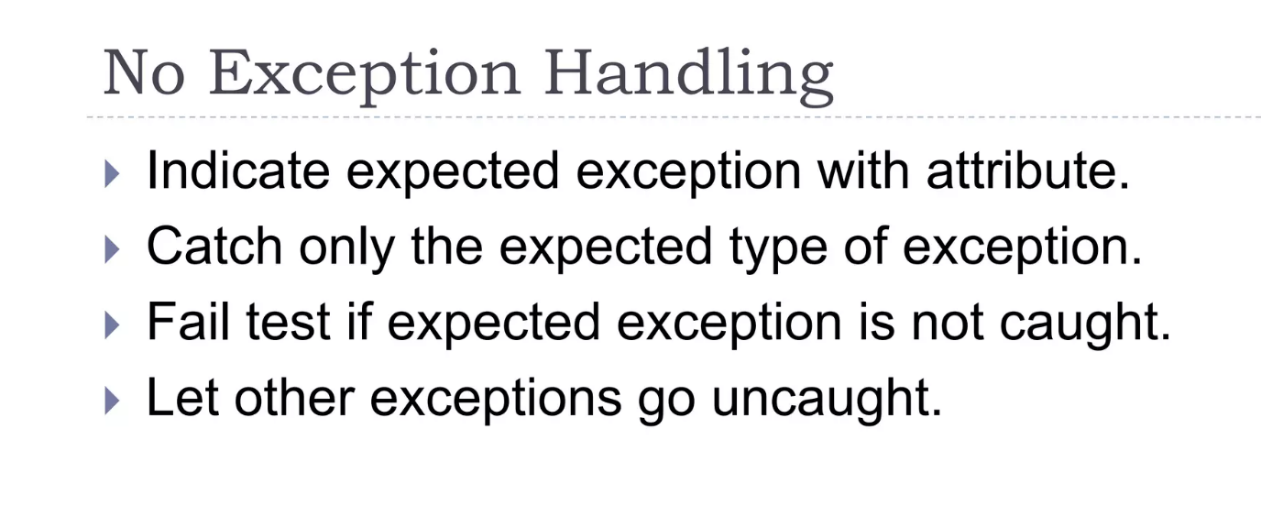


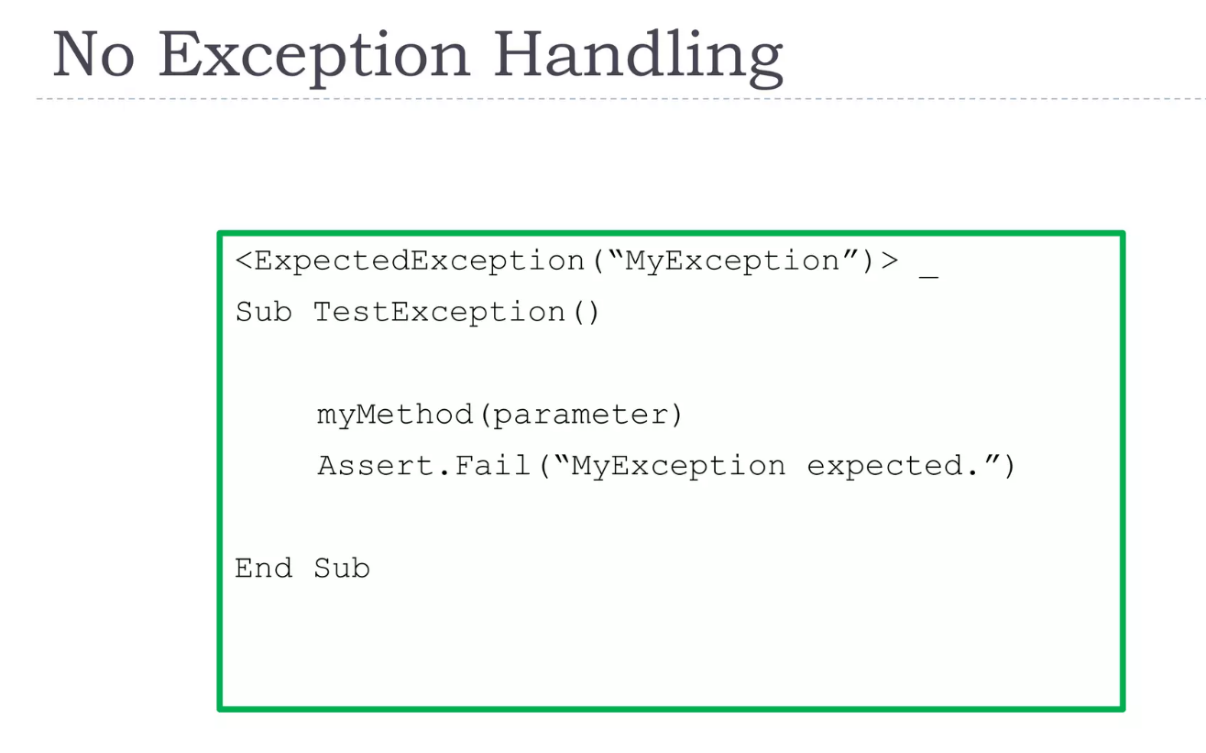
No conditional logic or loops

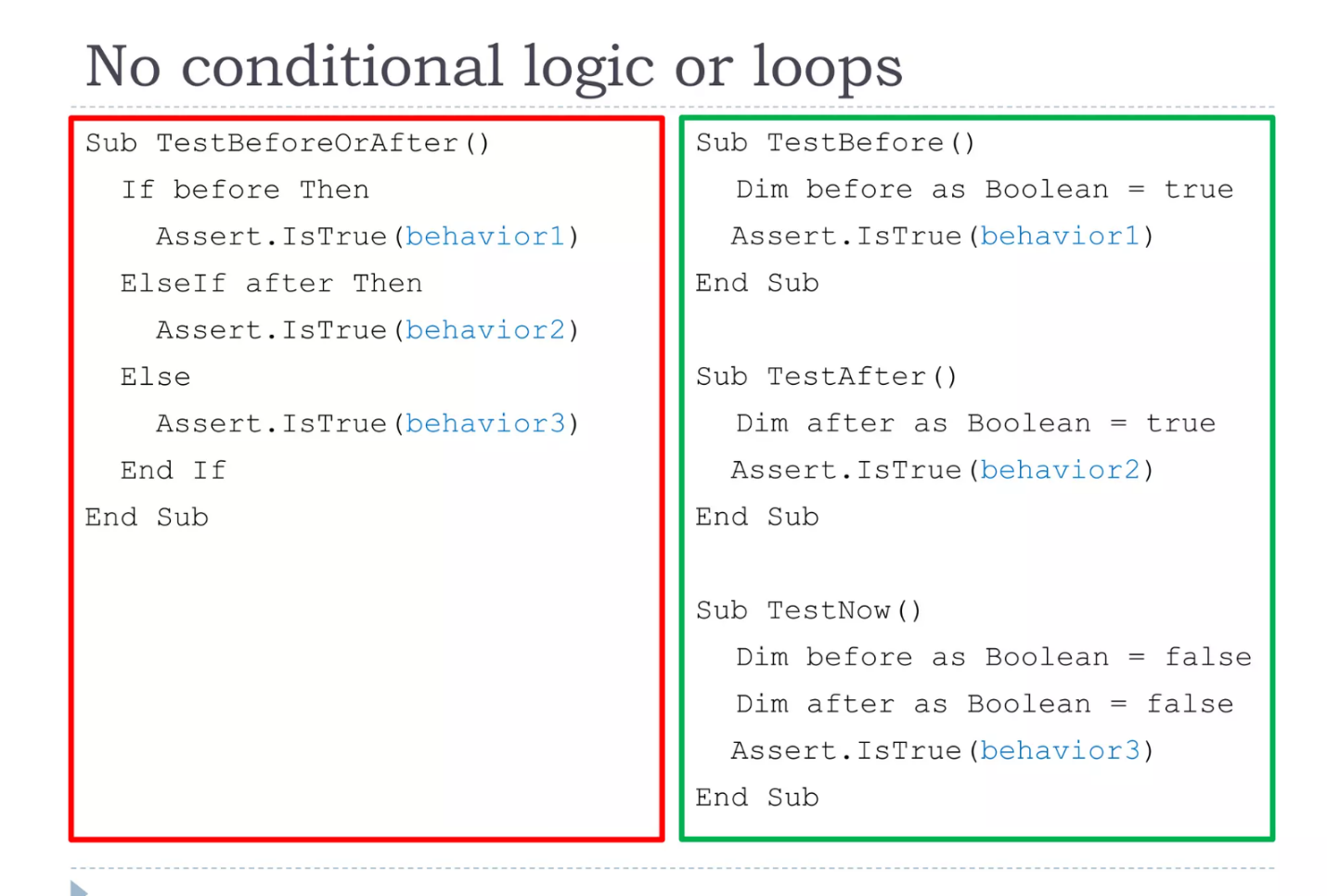




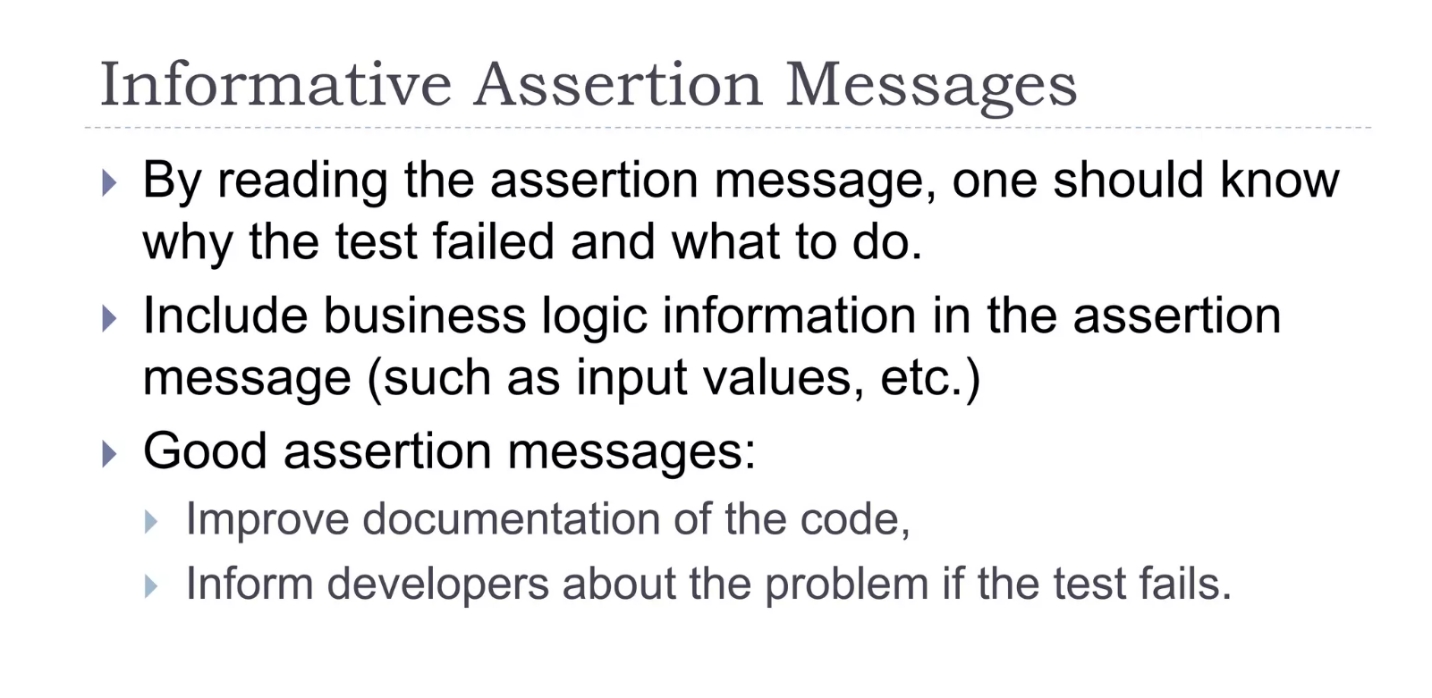
No exception handling



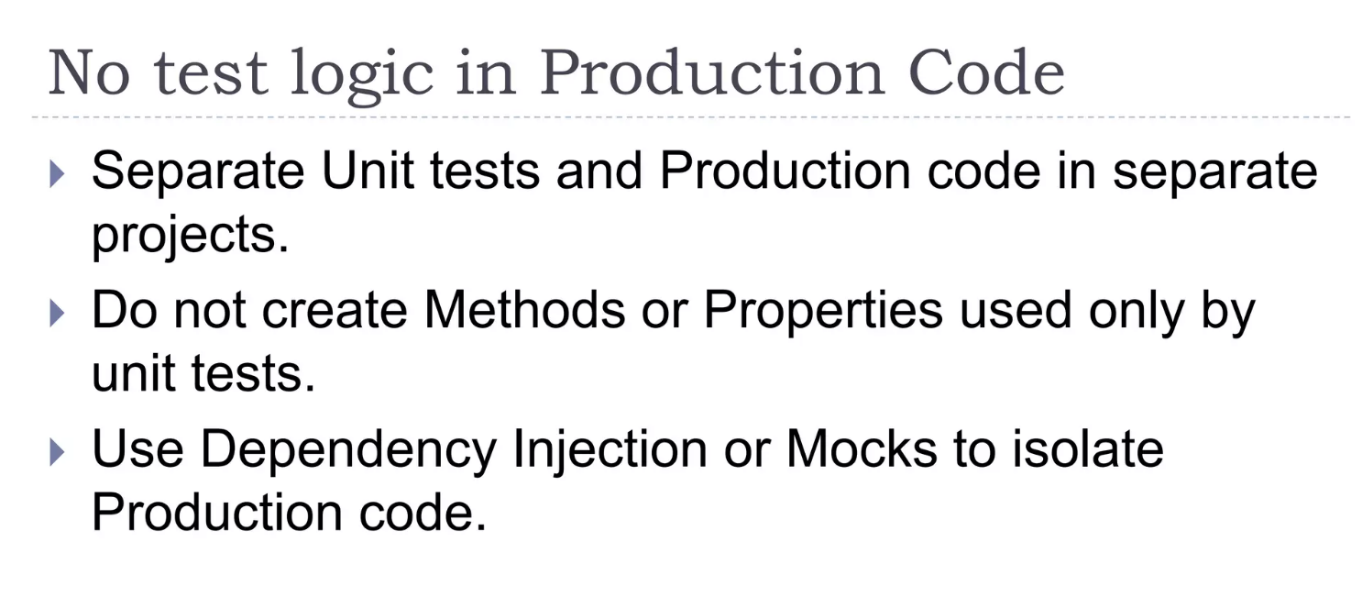




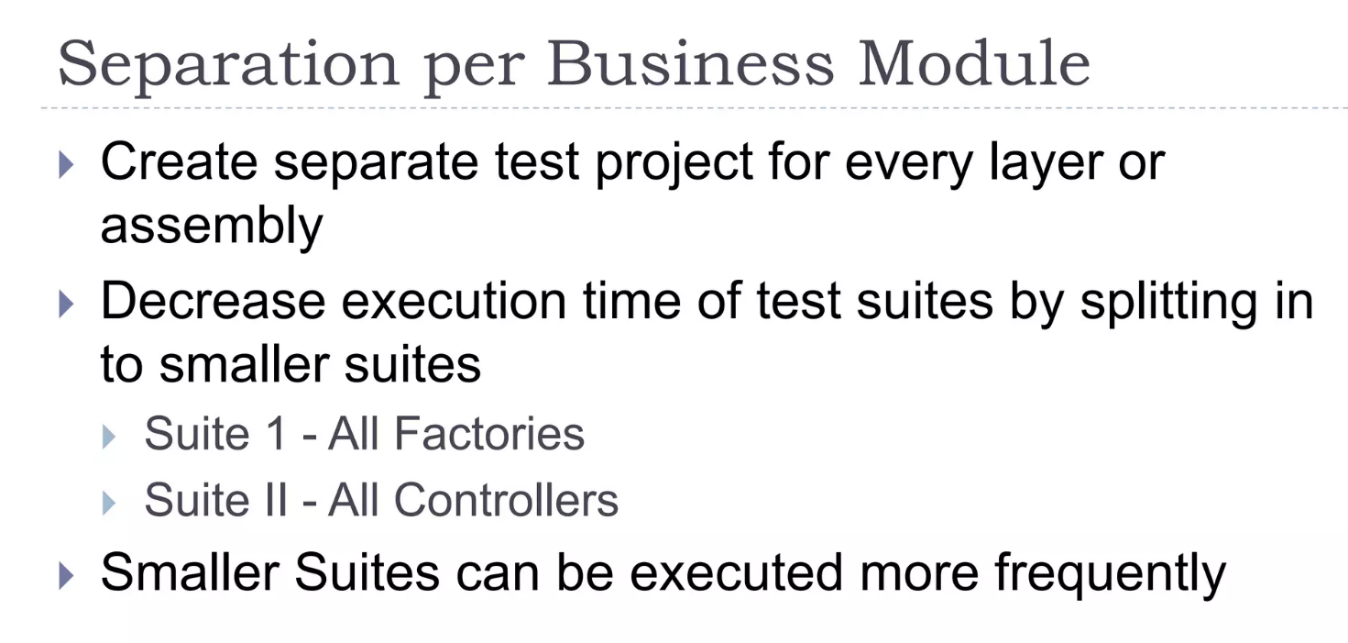
Informative Assertion messages



No test logic in production code



Separation per business module



Separation per type

