

# Testing the Application Code



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# Overview



**Understanding the different test types**

**Creating unit tests**

**Writing integration tests**



**Did we create a  
testable code base  
using our architecture?**



# Understanding the Different Test Types

# Different Types of Tests

**Unit test**

**Integration test**

**Functional test**



**A unit test is code that will,  
in an automated way,  
invoke code to be tested.**

**It will check an assumption  
about the behavior of the code  
under test.**



# Unit Tests

**Test public API**

**Run in isolation**

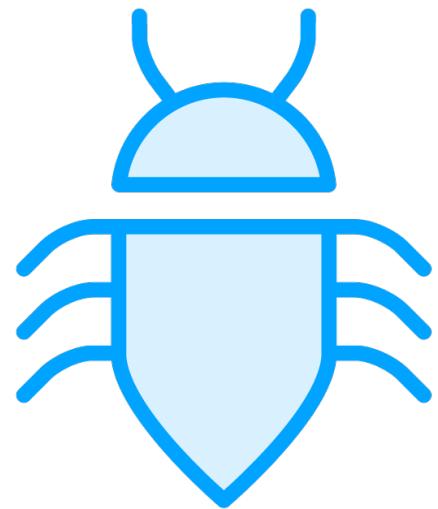
**Consistent results**

**Fast**

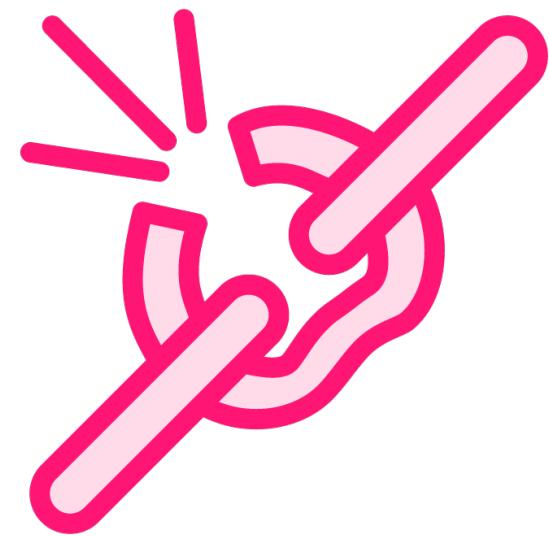
**Often automated**



# Why Do We Need Unit Tests?



**Find bugs**



**Change without  
fear of breaking  
something**



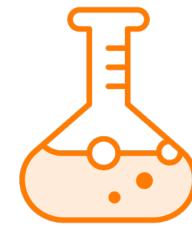
**Improve quality**



**Documentation  
of the code**



# Integration tests



**Test infrastructure code**



**Interaction between different layers**

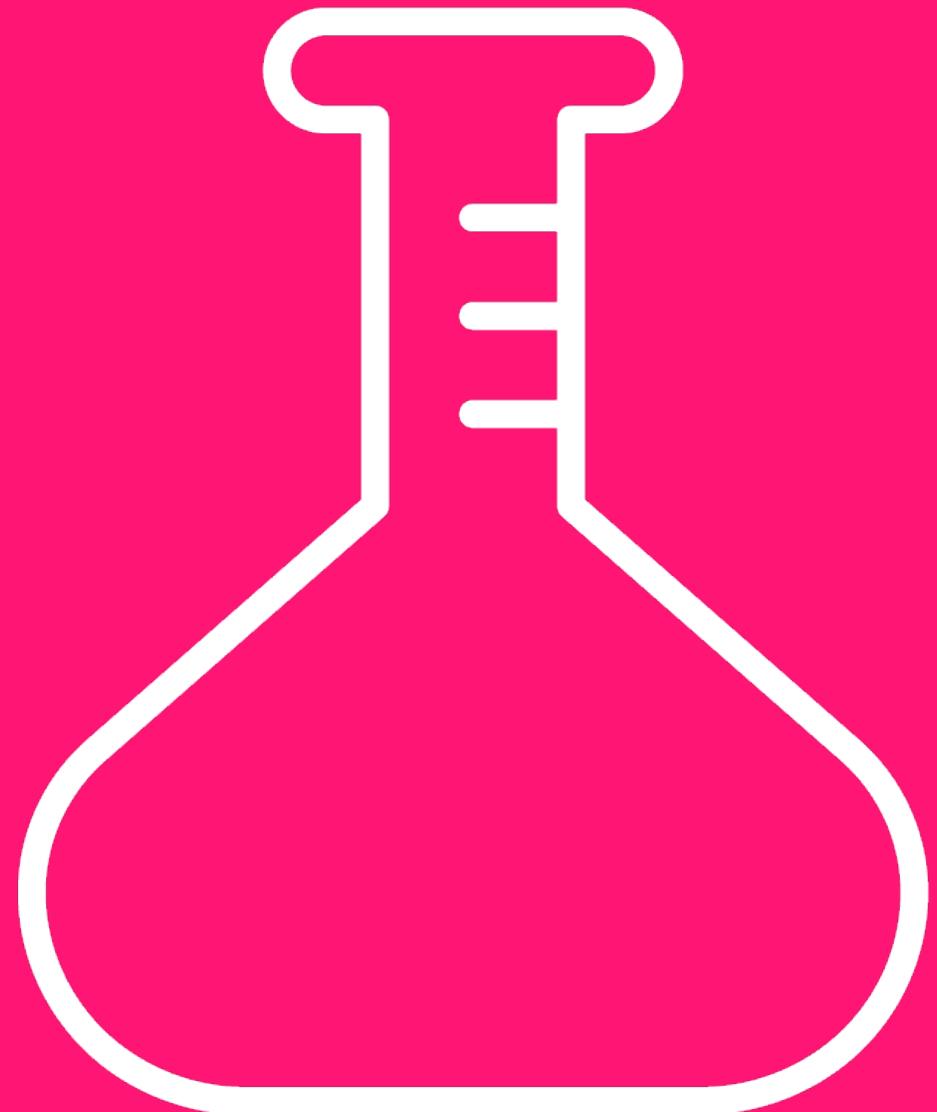


**More work to set up**



**Often linked with database**





## Functional tests

**Test to see if the system behaves as expected**

**Written from the perspective of the user**

**Often involves UI testing**



# Creating Unit Tests



# Setting Up Unit Tests

**Test Project**  
xUnit

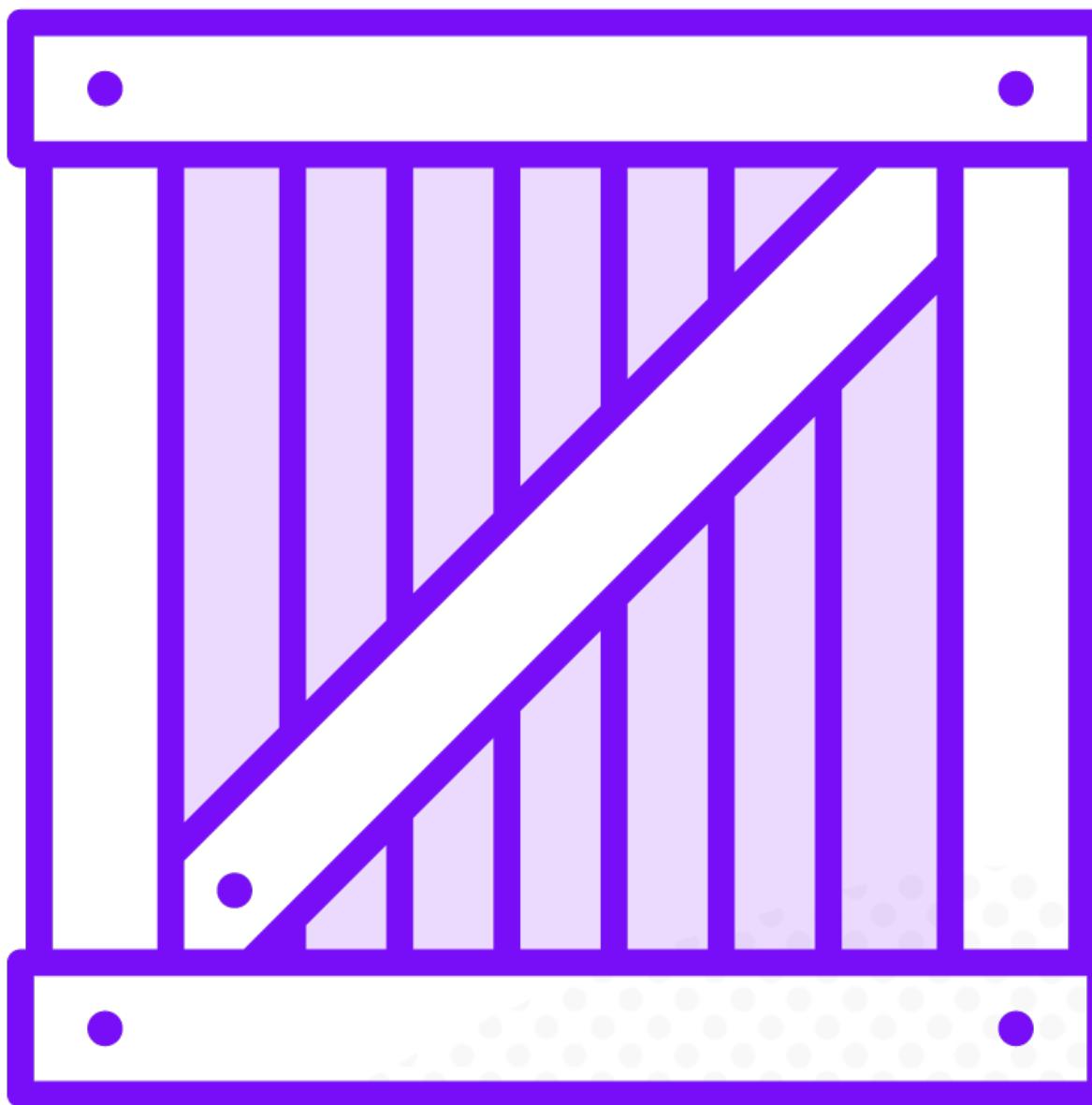
**Mock data**  
Manual or using  
framework

**Dependency  
injection**

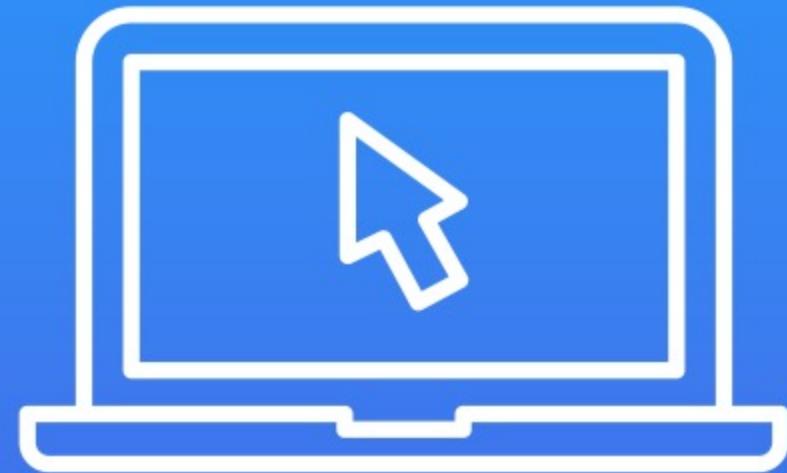


## Used packages

Moq  
Shouldly  
xUnit



# Demo



**Creating unit tests for Core code**  
**Adding mocks**



# Writing Integration Tests



# Demo



## Testing the Infrastructure code



# Demo



## Testing the controller code



# Summary



**Application architecture supports testing  
on different levels**

**Different types of tests are required**



**Up Next:**

# **Adding a Blazor UI**

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