

Creating Automated Browser Tests with Selenium in C#

INTRODUCING AUTOMATED WEB TESTS WITH SELENIUM



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Course Overview

Introducing
Automated
Web Tests
with
Selenium

Creating a
Selenium
WebDriver
Test Project
in C#

Interacting
with the
Browser
Using
Selenium
WebDriver

Selecting
and
Manipulating
HTML
Elements

Advanced
HTML
Element
Selection
and
Manipulation

Filling out
and
Submitting
HTML Forms
with
Selenium

Advanced
Browser
Manipulation

Creating
Easy to
Maintain
Selenium
Test Code

Course
Summary
and Further
Learning



Overview



Why write automated browser tests?

What kind of errors can be found?

Where do automated web tests fit in?

The difference between Selenium IDE and Selenium WebDriver

Overview of Selenium WebDriver features

Selenium WebDriver testing architecture

Which test scenarios to automate?

The limitations of automated browser tests





Why automated browser tests?



Increased confidence



Why Write Automated Browser Tests?

Automated web tests can lead to fewer production problems, lower overall costs, and increased levels of happiness.



Happier users



Happier developers



Happy management



Why Write Automated Browser Tests?



Breadth



Source controlled tests



Faster & “free” to run



Test on different browsers



More accurate/repeatable



Run automatically with CI





Automated web
tests don't
replace all
manual testing.



What Kind of Errors Can Be Found?

Missing/incorrect data being displayed

Full stack integration errors, e.g.

- Client/server-side validation mismatch
- DB field size too small
- Serialization, data mapping, etc.

Overall user experience, e.g.

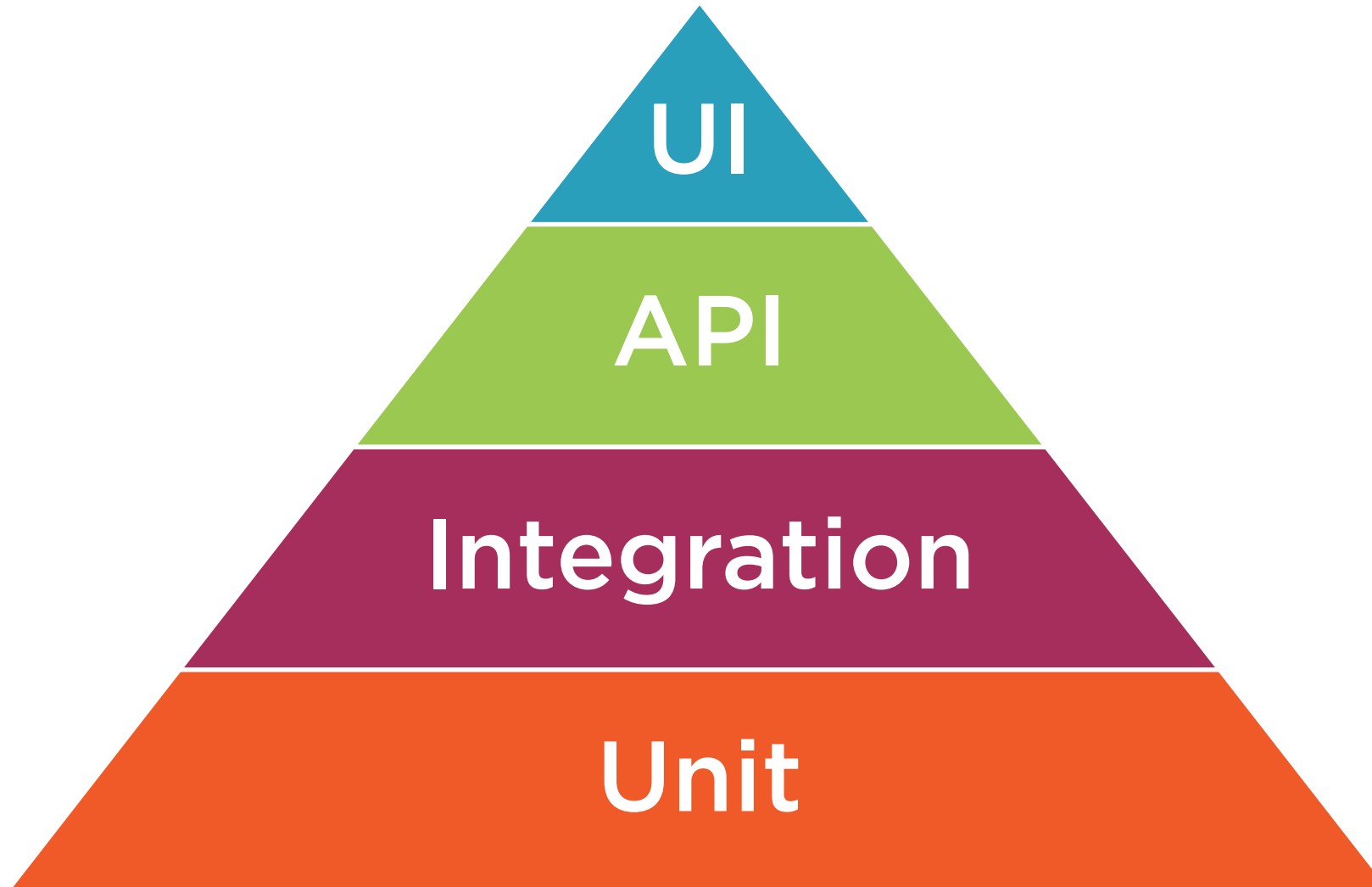
- Application flow/navigation errors
- Validation/help message errors

Web site configuration errors

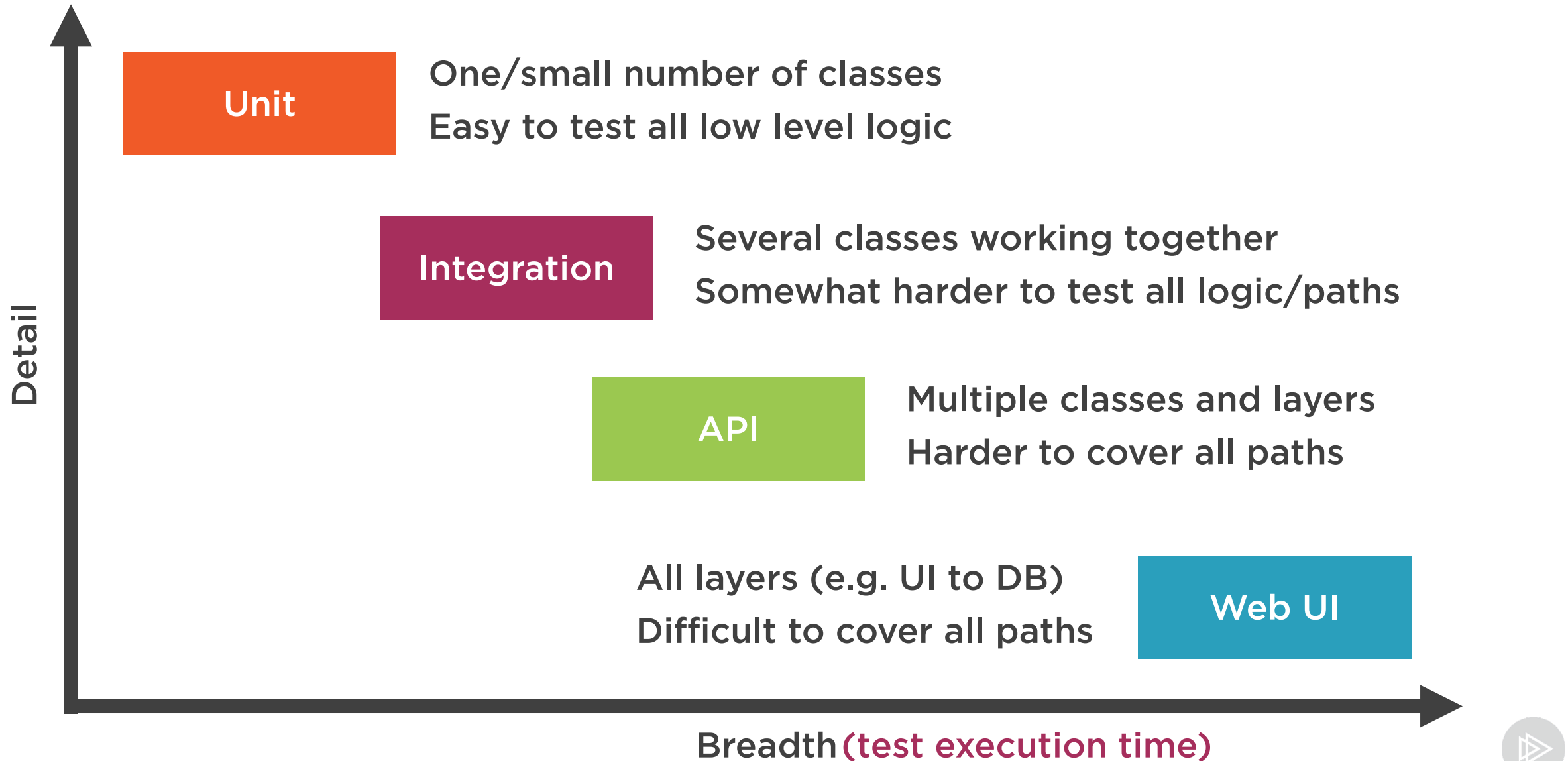
Not usually testing visual design



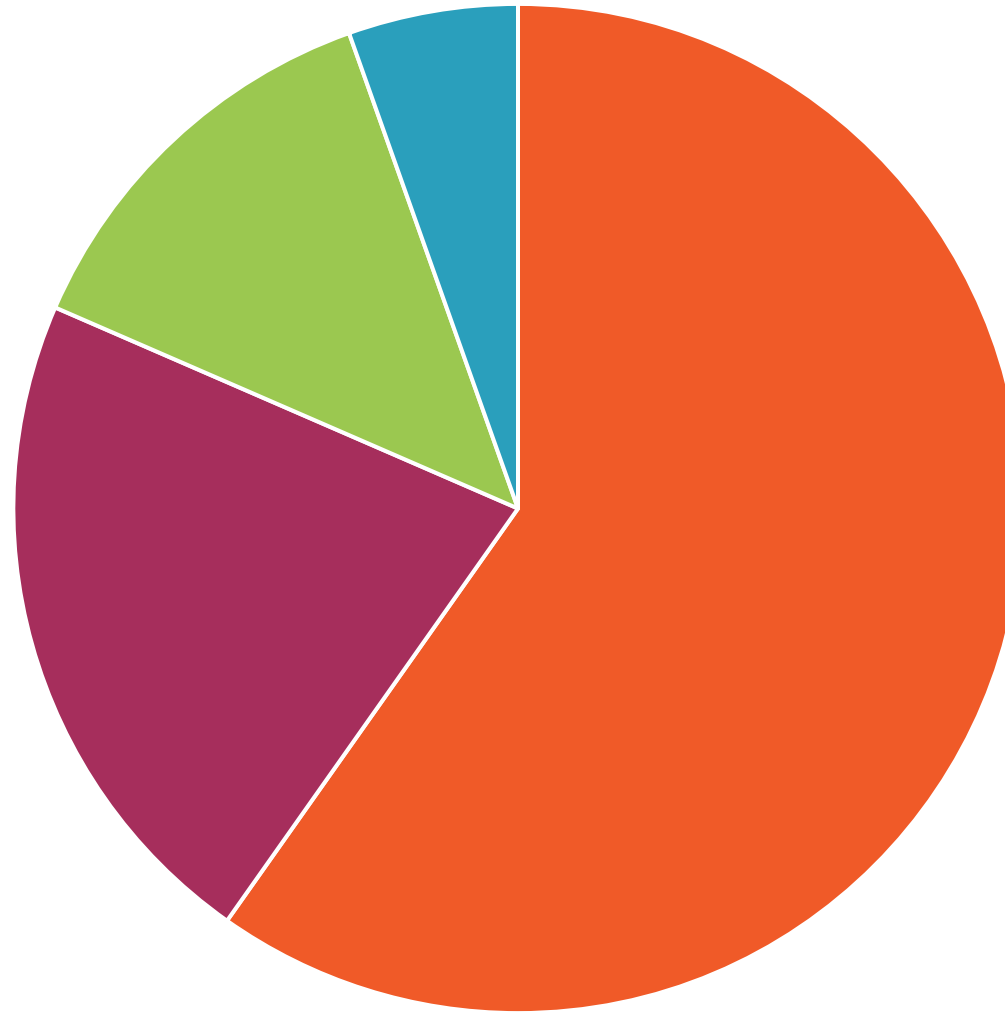
Where Do Automated Web Tests Fit In?



Where Do Automated Web Tests Fit In?



Web Tests as Part of the Overall Test Suite



■ Unit ■ Integration ■ API ■ Web UI



The exact ratio of tests will be dependent on the specific application you are building.



The Difference between Selenium IDE and Selenium WebDriver



Selenium



The Difference between Selenium IDE and Selenium WebDriver



Selenium

Control browser



The Difference between Selenium IDE and Selenium WebDriver



Selenium

Control browser

Simulate human



The Difference between Selenium IDE and Selenium WebDriver

Selenium

Control browser

Simulate human

Test via web UI

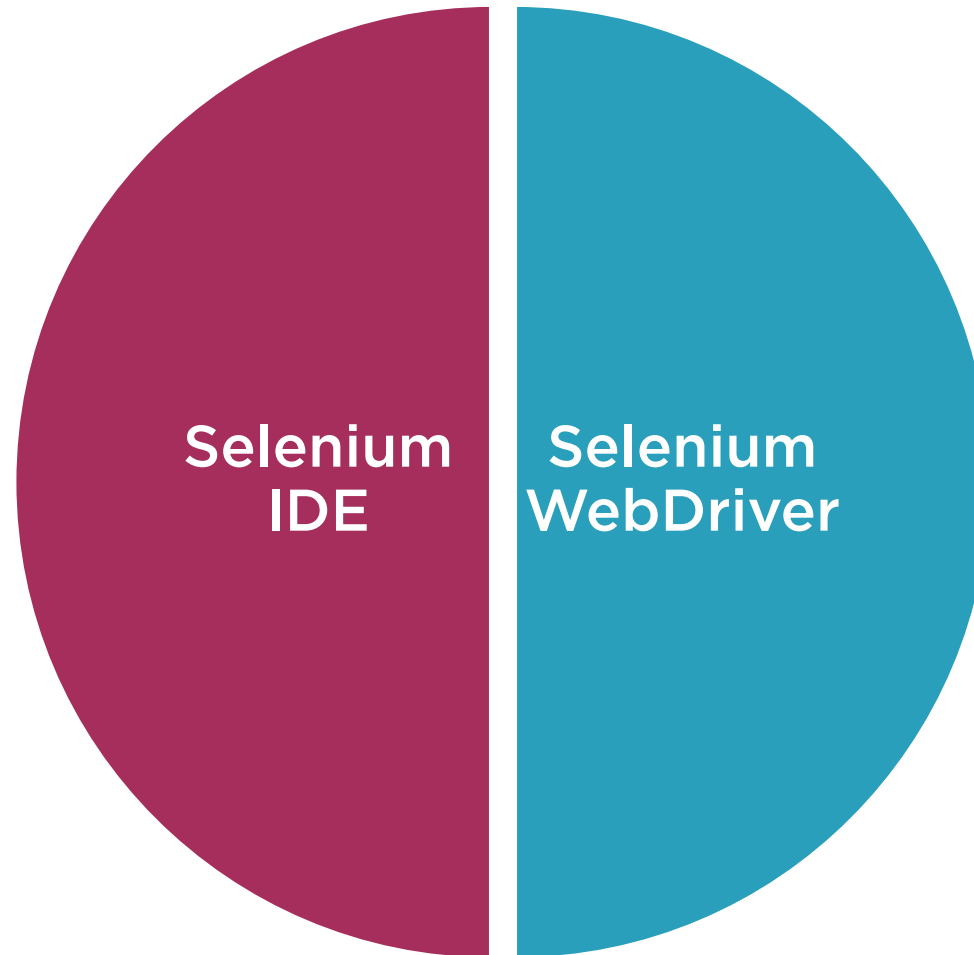


The Difference between Selenium IDE and Selenium WebDriver

**Record automation
test scripts**

Playback scripts

Edit scripts



Code-based

More maintainable

**Full power of
programming
languages**



The Difference between Selenium IDE and Selenium WebDriver



Overview of Selenium WebDriver Features

Navigate to a specific page/forward/back

Click the button with an ID of “apply”

Type “Sarah” into the name input

Get the text content of the SPAN that has a CSS class of “confirmation”

Choose the “savings” radio button

Check the tick box with an ID of “terms”

Get the title of the current page

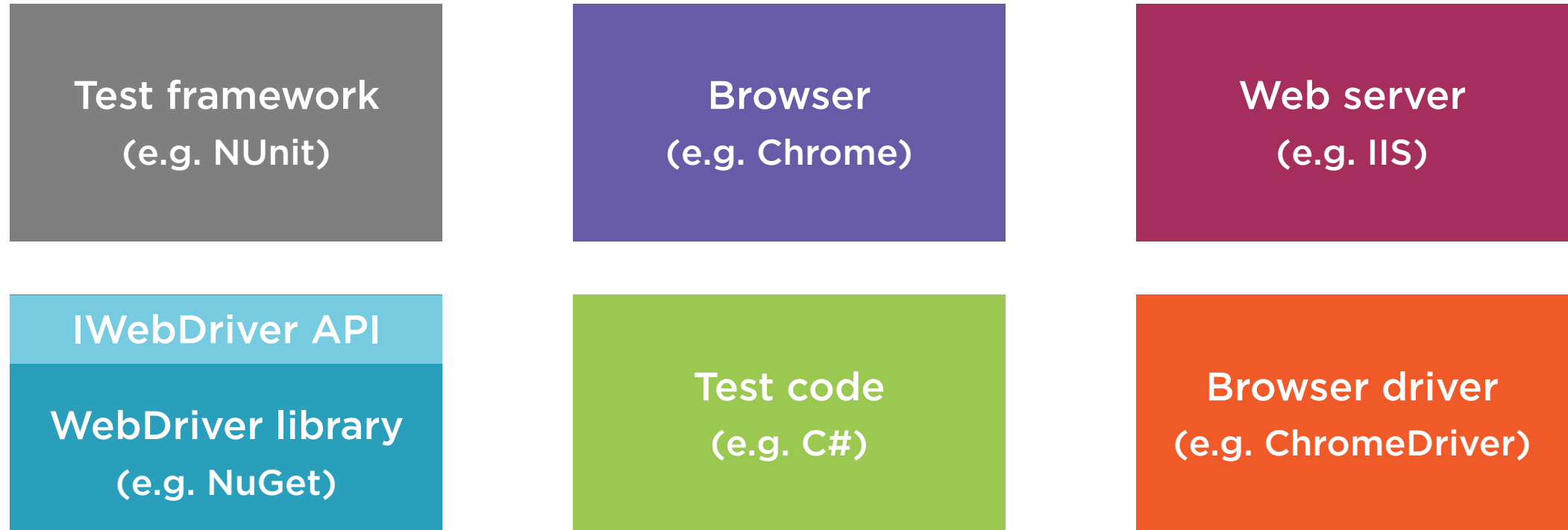
Maximize the browser window

Take a screenshot

Etc.



Selenium WebDriver Testing Architecture





Test framework
(e.g. NUnit)

Test code
(e.g. C#)

This app could
be written in
any language

Type text
Click button
Load URL

WebDriver API

WebDriver library
(e.g. NuGet)

Web server
hosting the app
(e.g. IIS)

Browser
(e.g. Chrome)

Browser driver
(e.g. ChromeDriver)



Which Test Scenarios Should You Automate?

Follow the money

Risk-focused strategy

- Legal implications/requirements
- Reputation of organization
- Data corruption
- Security/privacy protection

Features most-used by users

Unique/differentiating features

Amount of lower level test coverage

Total number of features/pages

At least one “smoke test” for every page?



The Limitations of Automated Browser Tests



Slower than other types of tests (e.g. unit tests)



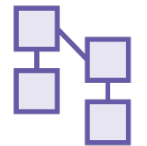
Potentially more brittle



Not a replacement for all manual testing



Additional skill for team to learn



Additional dependencies



Summary



Why write automated browser tests?

The kind of errors that can be found

Where automated web tests fit in

Selenium IDE and Selenium WebDriver

Overview of Selenium WebDriver features

WebDriver testing architecture

Identifying test scenarios to automate

Automated browser tests limitations



Next:

Creating a Selenium
WebDriver Test Project in C#

