

Language and Levels of Developer Testing

Test First Development II



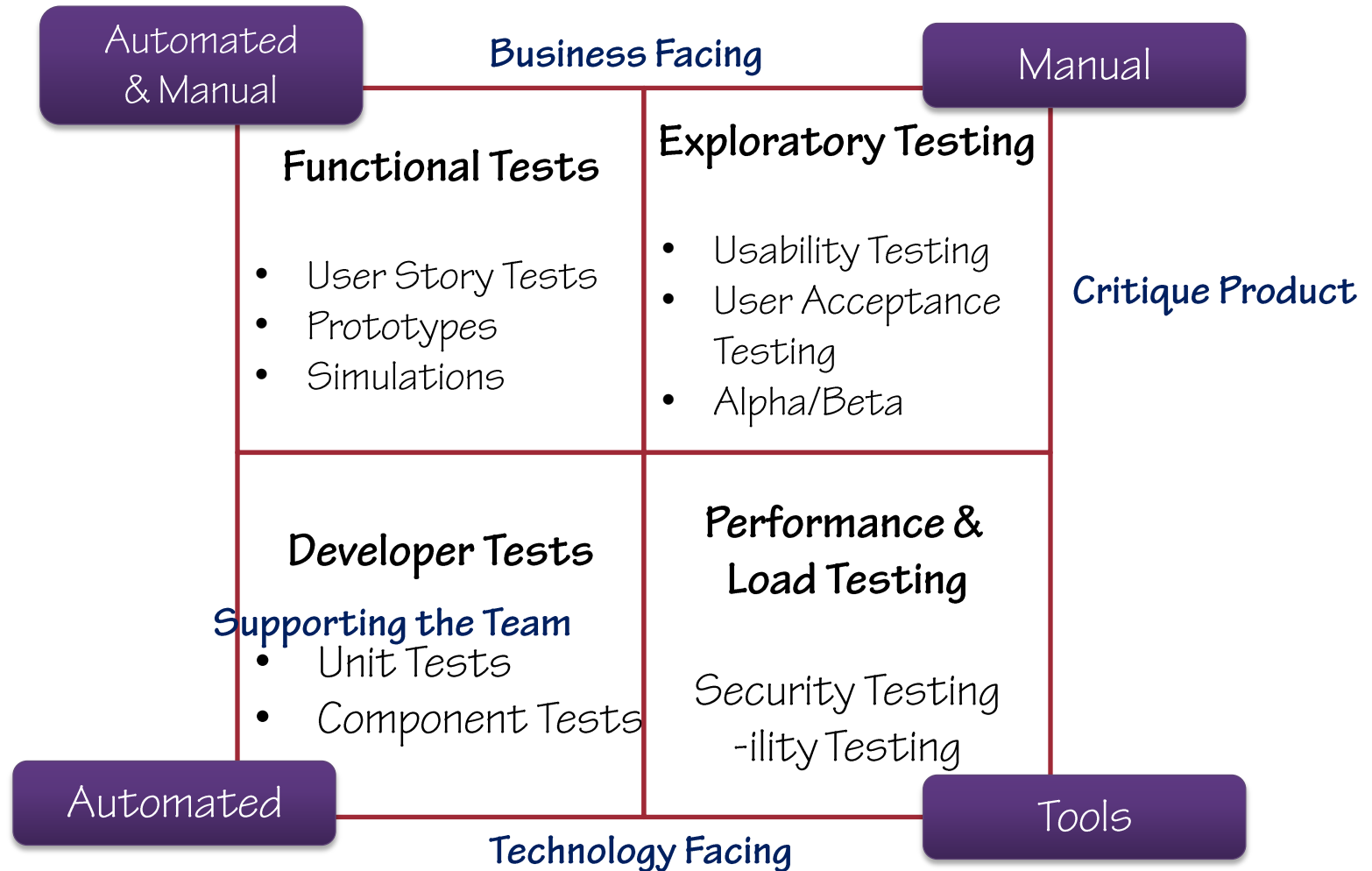
In This Module

- Levels of Testing
- Conversations About Software
- Expressing Desirements Well
- From Desirements to Requirements

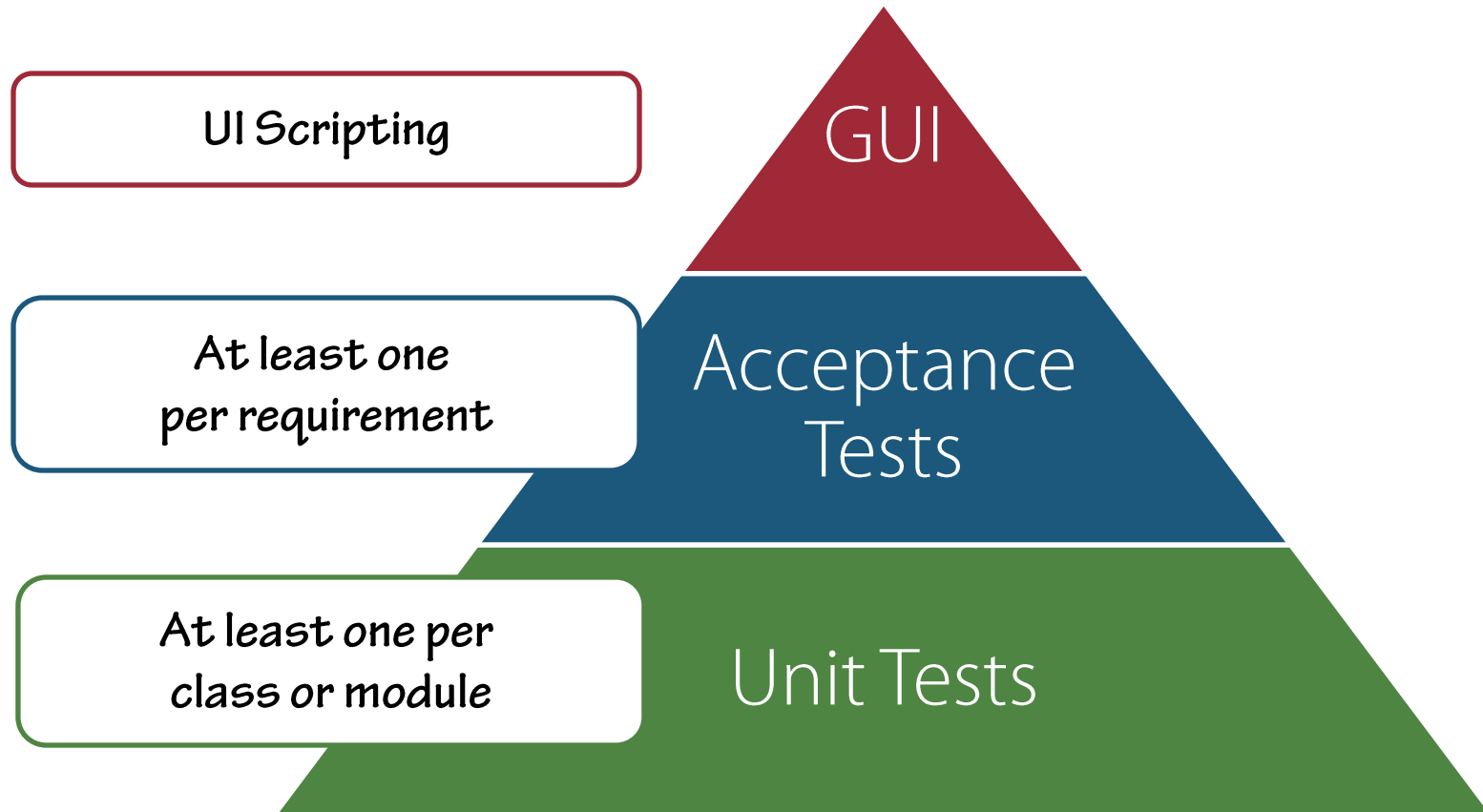
Language and Levels of Developer Testing

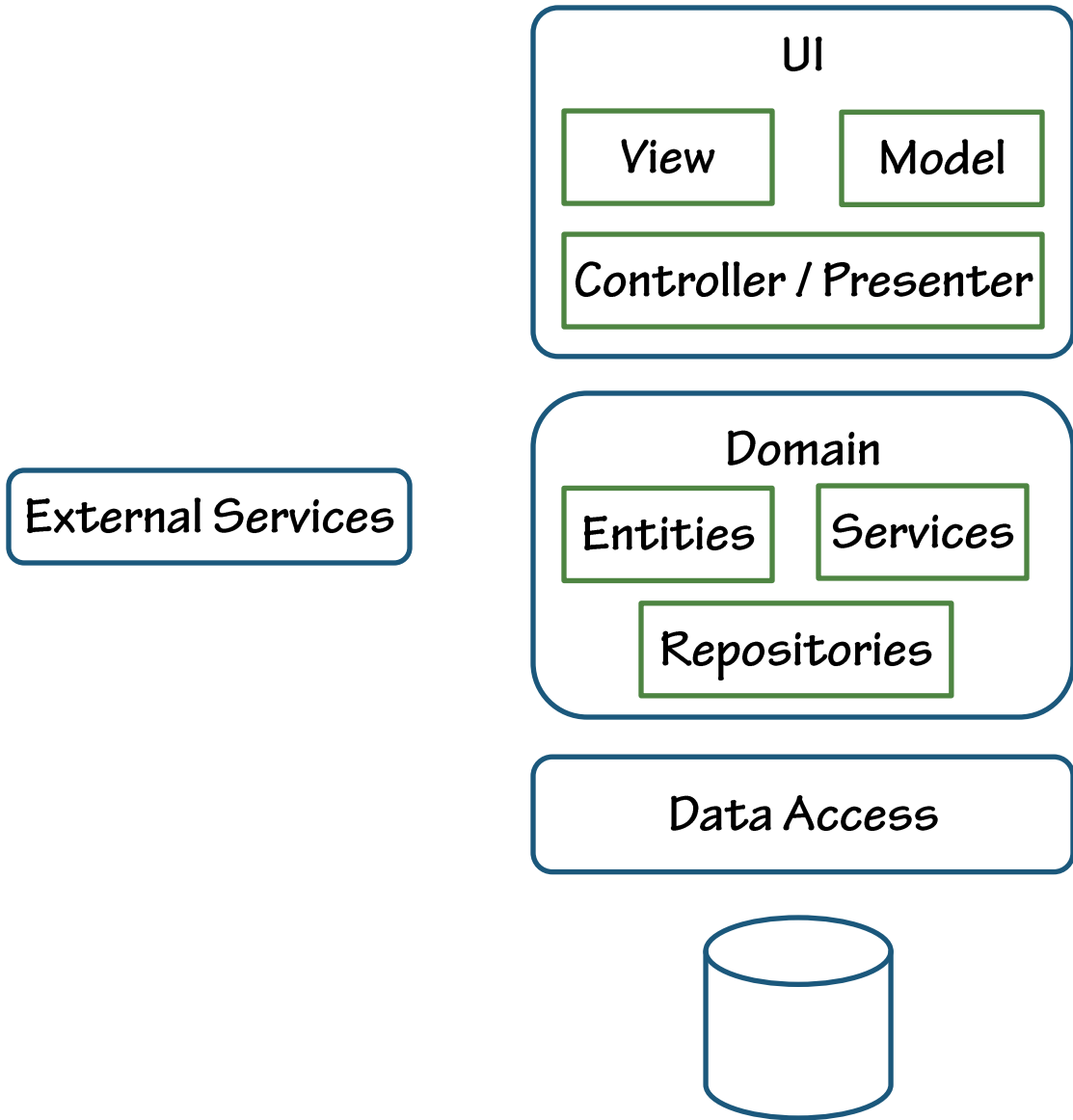
Levels of Testing

Testing Quadrants



Testing Pyramid





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Conversations About Software

Communication is Still a Big Problem

- So we use documents

- Use Cases, UML diagrams
- Large specification documents



*This isn't what I thought
I agreed to.*

- Document don't work so well

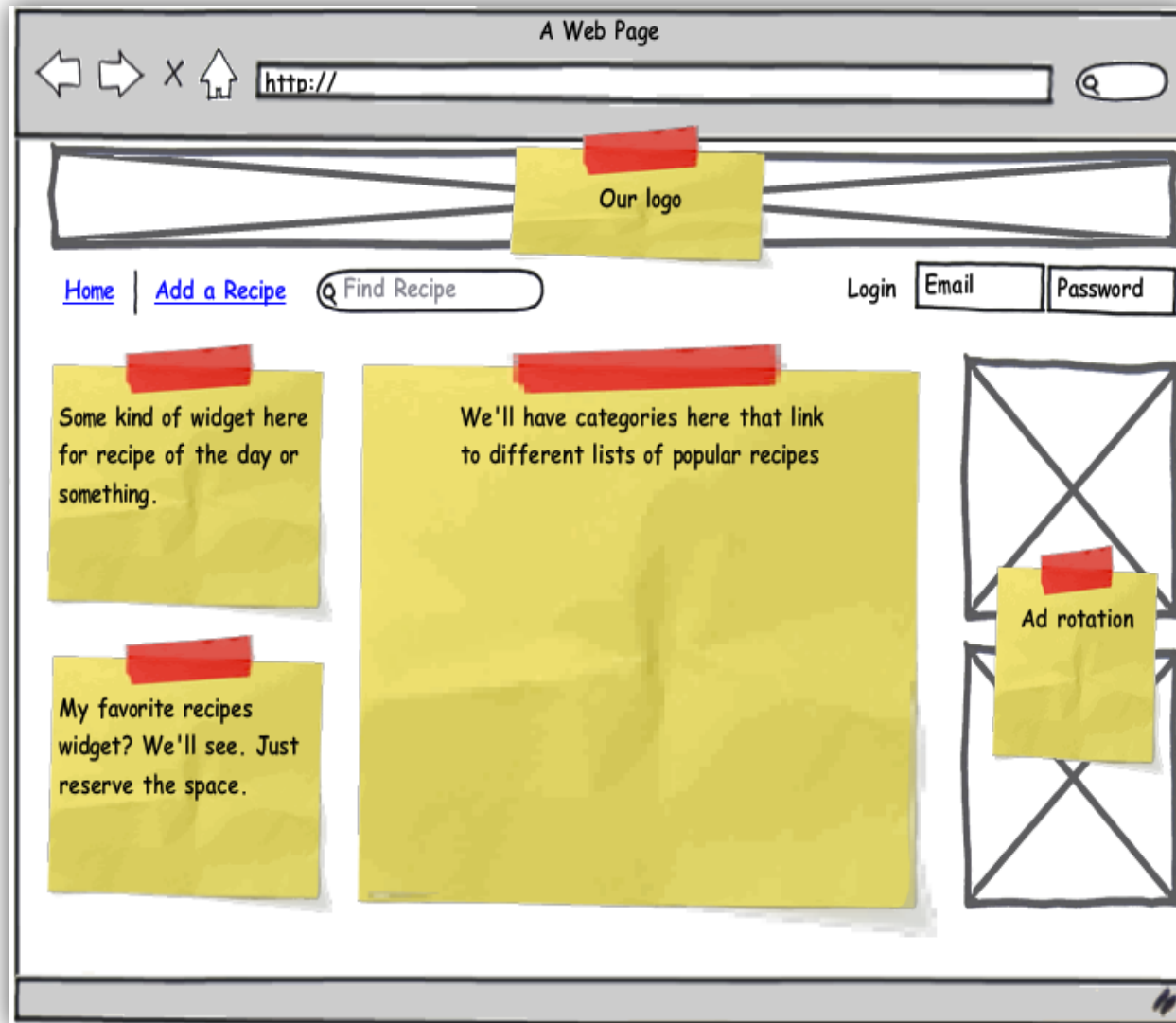
- Often expensive to produce
- No way to prove the intent of the spec is met

I.N.V.E.S.T.

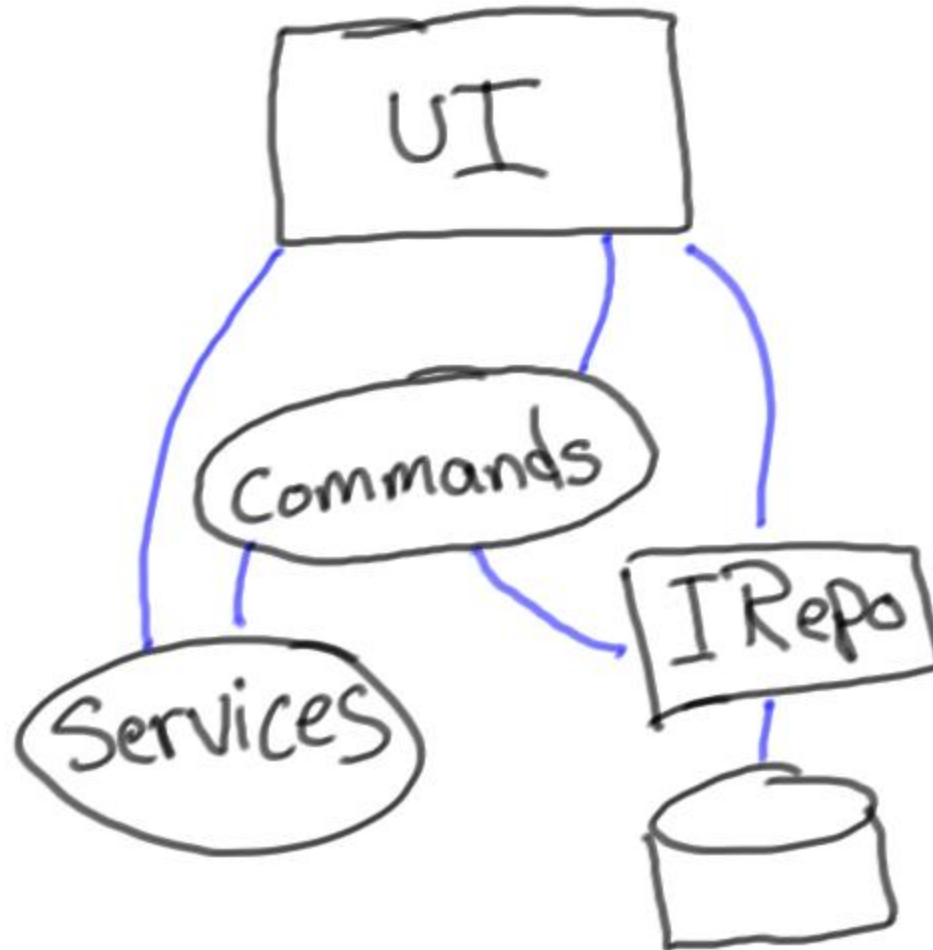
- Independent
- Negotiable
- Valuable
- Estimatable
- Small
- Testable



Draw It First



Or Draw It Like This



Language and Levels of Developer Testing

Expressing Desirements Well

Expressing Desirements

- **User Stories represent needed conversations**
 - As a <application role>
 - I want <some feature or behavior>
 - So that <I get some benefit>
- **Scenarios document the conversation took place**
 - Given <some initial context>
 - When <this happens>
 - Then <this should be the result>

Desirements

Things we
wish the software
did.

But it doesn't. Yet.

Building a Requirement

Delete Auto Owner

As a Automobile List Owner administrator
I want to delete a auto owner from the list
So that they no longer appear

Delete From Edit Page

Given I am editing the auto owner's information
When I click the Delete button
Then I am redirected to the main list page

Delete No one

Given I am editing the person's information
And the auto owner is no longer in the DB
When I click the Delete button
Then I do not receive a special notification message
And I am redirected to the owner list page



Exercise

Add a Person

As a Person list administrator

I want to add a Person to the List

So that I can increase the number of people in my list

First Name:

Last Name:

Valid Input

Given a valid First Name

And a valid Last Name

When the name is submitted

Then the name is added to the list

And the Person List is displayed

Blank Last Name

Given a valid First Name

And a blank Last Name

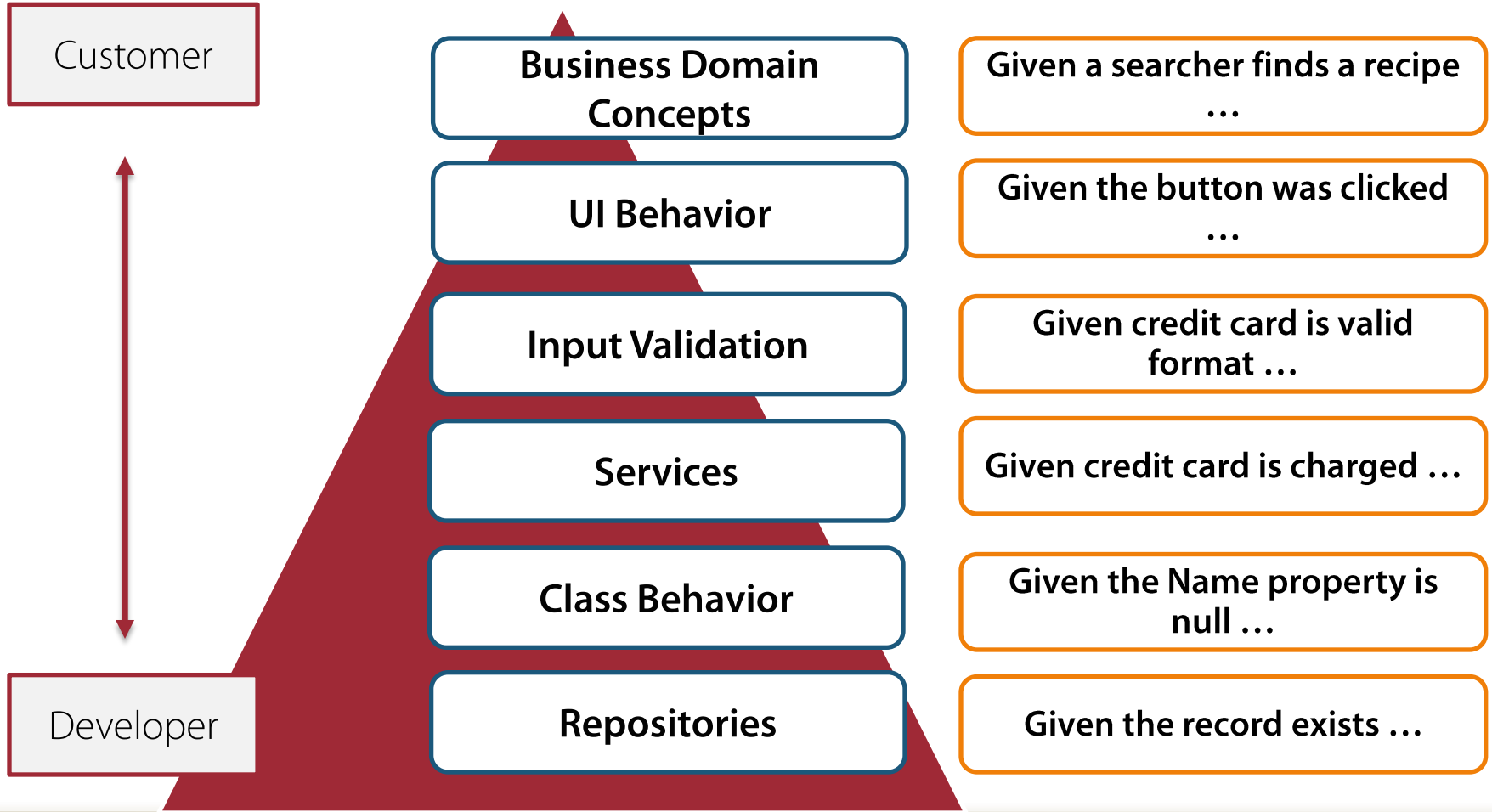
When the name is submitted

Then the name is not added to the list

And an error is displayed

“A valid last name is required”

Scenarios Work at Many Levels



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From Desirements to Requirements

Making Requirements from Desirements

- Executable Specifications

Expressing requirements such that they are also automated tests

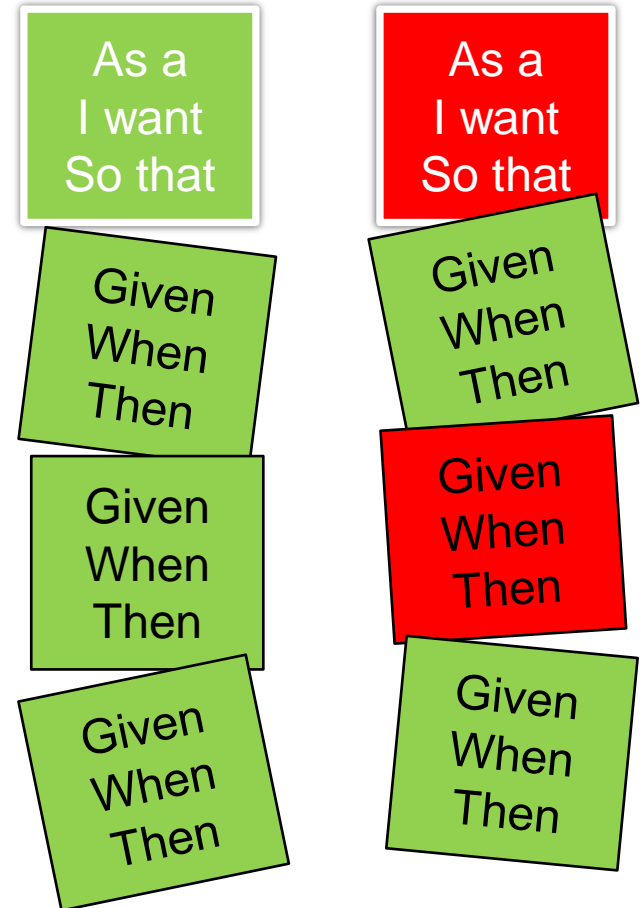
- Because Microsoft Word documents can't prove software works

- Sweet Aromas of Executable Specifications

- Meaningful to all interested parties
- Unambiguously demonstrate if the requirement is met
- Drive out a testable design
- Simple

Using Executable Specifications

- Make tests that read as Desirements
- Tests fail against the SUT
- Tests pass against the SUT
- Discuss results with customer
- Add more and refine as conversations occur



[TestMethod]

1, 2, 3

public void

Total_Should_Be_1_When_1_Product_Added()

{

Given

var cart = new ShoppingCart("TEST");

When

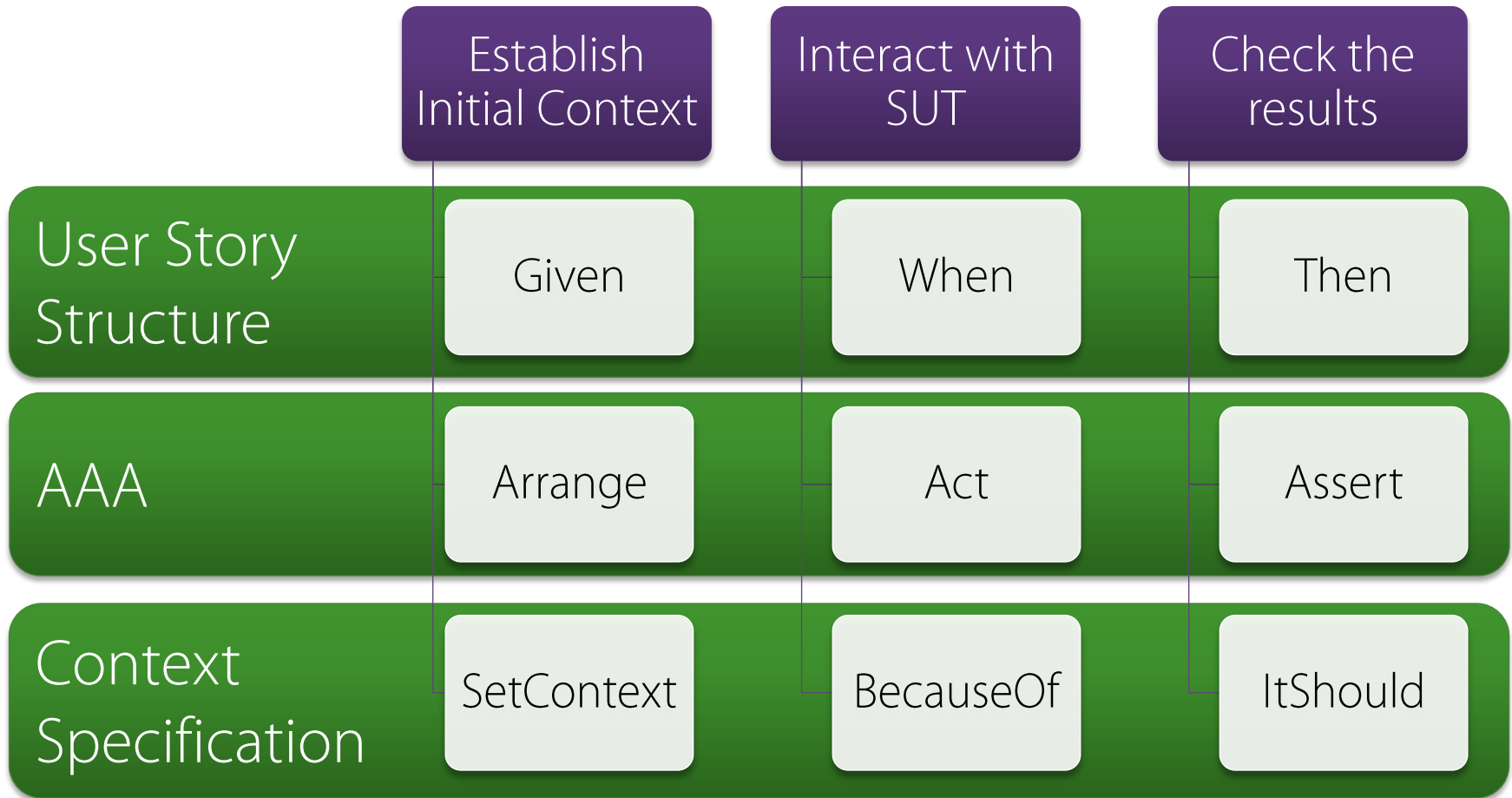
cart.AddItem(new Product("SKU"));

Then

Assert.AreEqual(1, cart.TotalItems);

}

Variations on a Theme



Final Thoughts

- Better understanding before coding
- Desirements express well as User Story with Scenarios
- Sharing test results is key to discussion
- There are many supporting tools to help

References

1. *Agile Testing, a Practical Guide for Testers and Agile Teams*
Lisa Crispin, Janet Gregory
2. *Testing Quadrants*
Brian Marrick
3. TRX2HTML
trx2html.codeplex.com