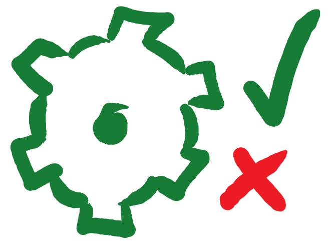
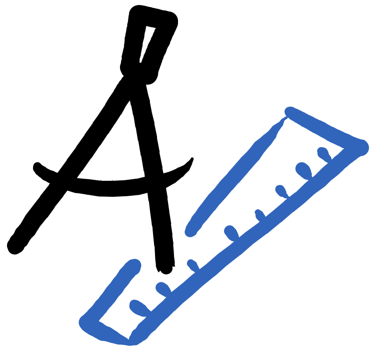
the pyramid is a lie

FrOSCon 2015

@rtens_

This talk is about

Automated testing 

Software Architecture 

Full Disclosure

heavily inspired by

"Modelling by example"

by everzet

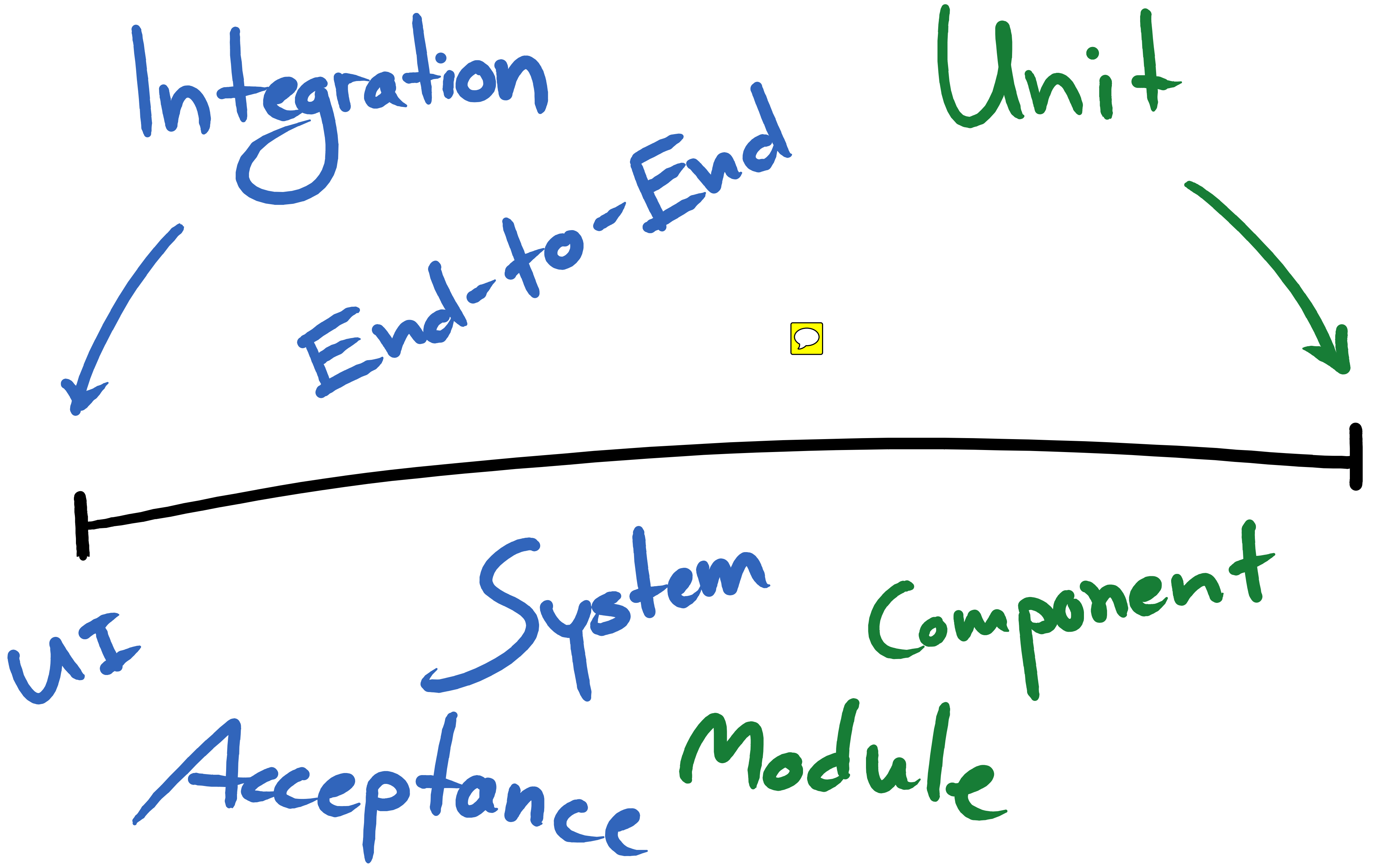
Me: Nikolas Martens

Engineer Coach

Consultant

I ❤ Automated Testing

"Of course. How else could you programm?"


Integration
End-to-End
Unit
UI
System
Component
Acceptance
Module

Integration

"Integration Tests are a Scam"

– jbrains

Unit

unit testing

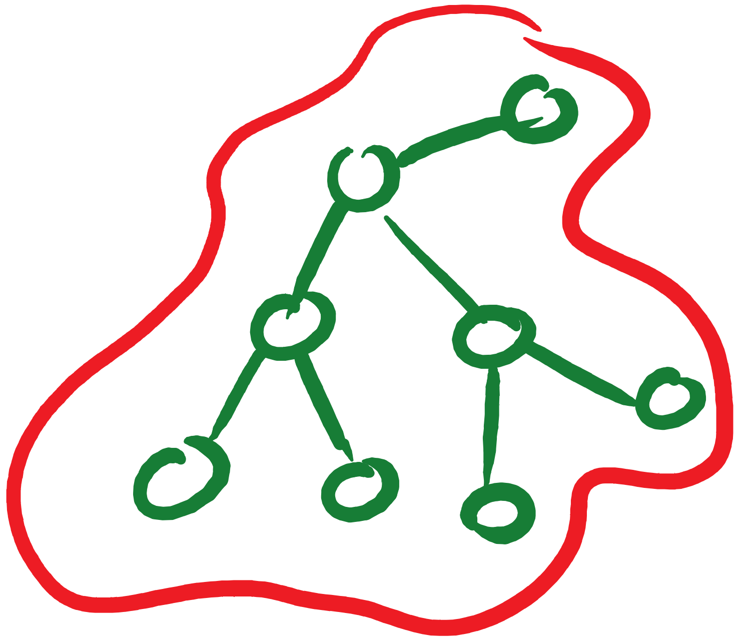
"~~TDD~~ is dead. Long live ~~testing~~."

integration

– DHH

Integration testing

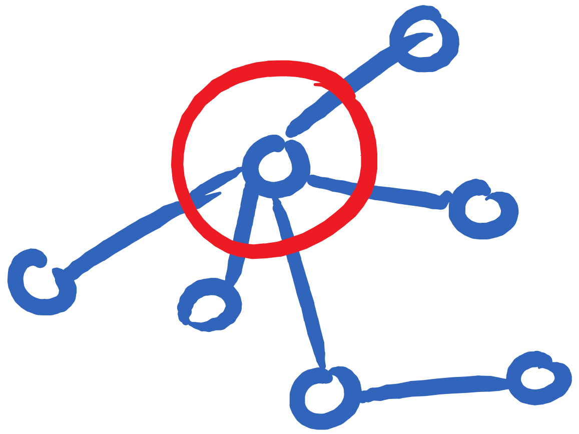
- through browser
- running webserver
  - including databases
    + external services



Integration testing

```
$this->visit('/products');
$product = $this->find('css',
    ".products li:contains('Red Car')");
$product->click('Add to basket');
$this->assertNotNull($this->find('css',
    ".basket li:contains('Red Car')"));
```

Unit testing



- single class/metod
- most/all collaborator faked
- "one reason to fail"

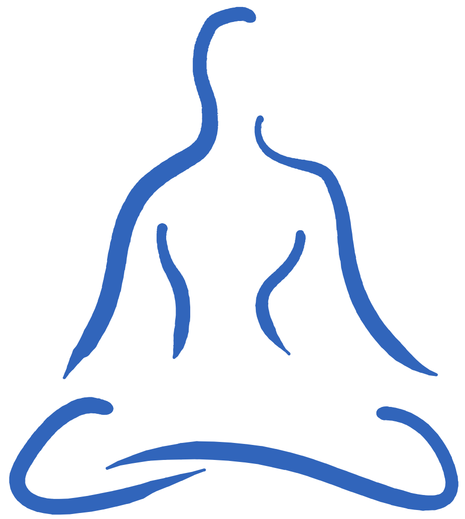
Unit testing

```
$product = new Product('Red Car');
$basket = new Basket();
$basket->add($product);
$this->assertContains($product,
    $basket->getProducts());
```

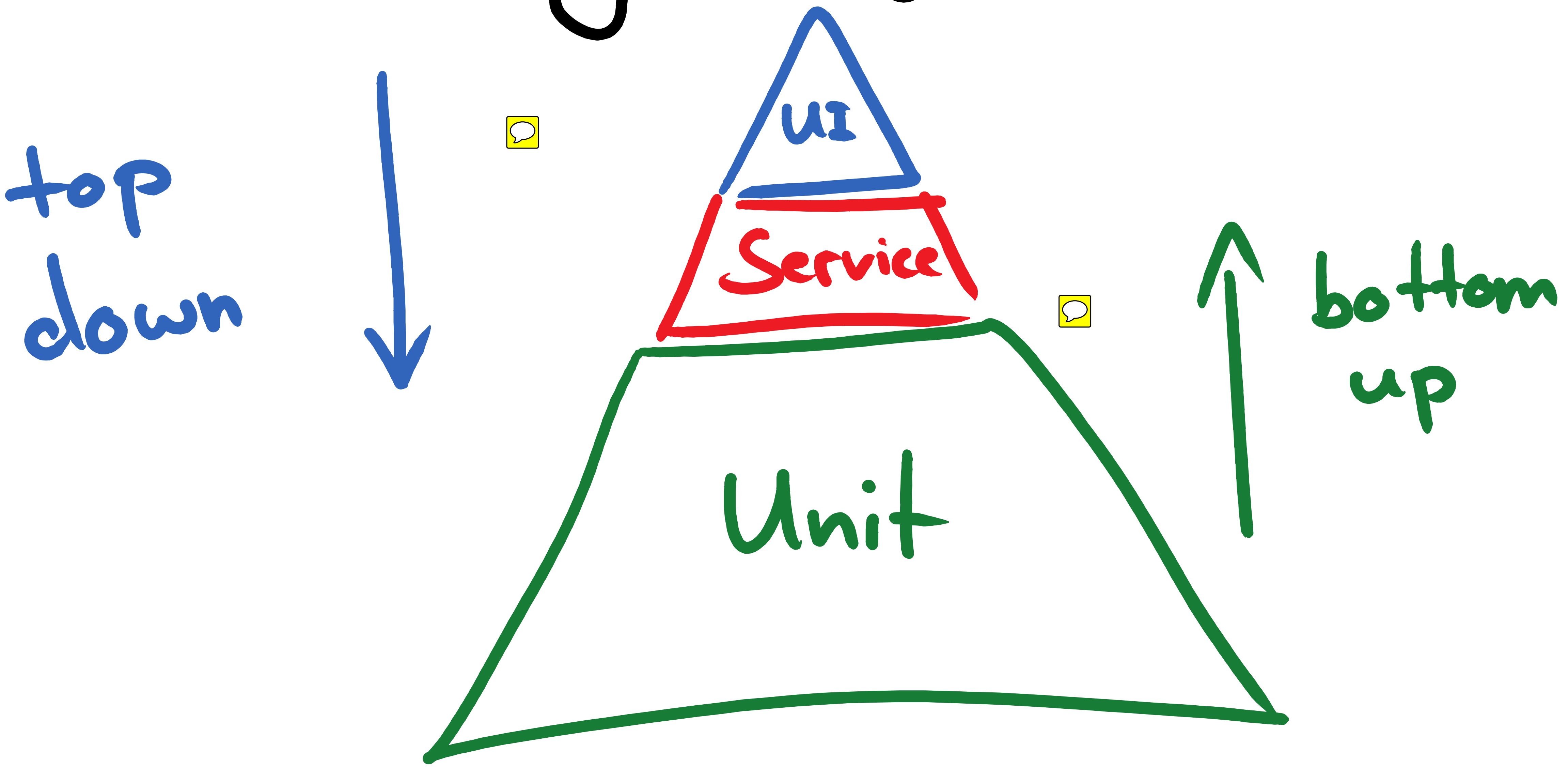
Integration -vs- Unit

confidence

[redacted] $\rightarrow$



Succeeding with Agile - Mike Cohn



Feature A

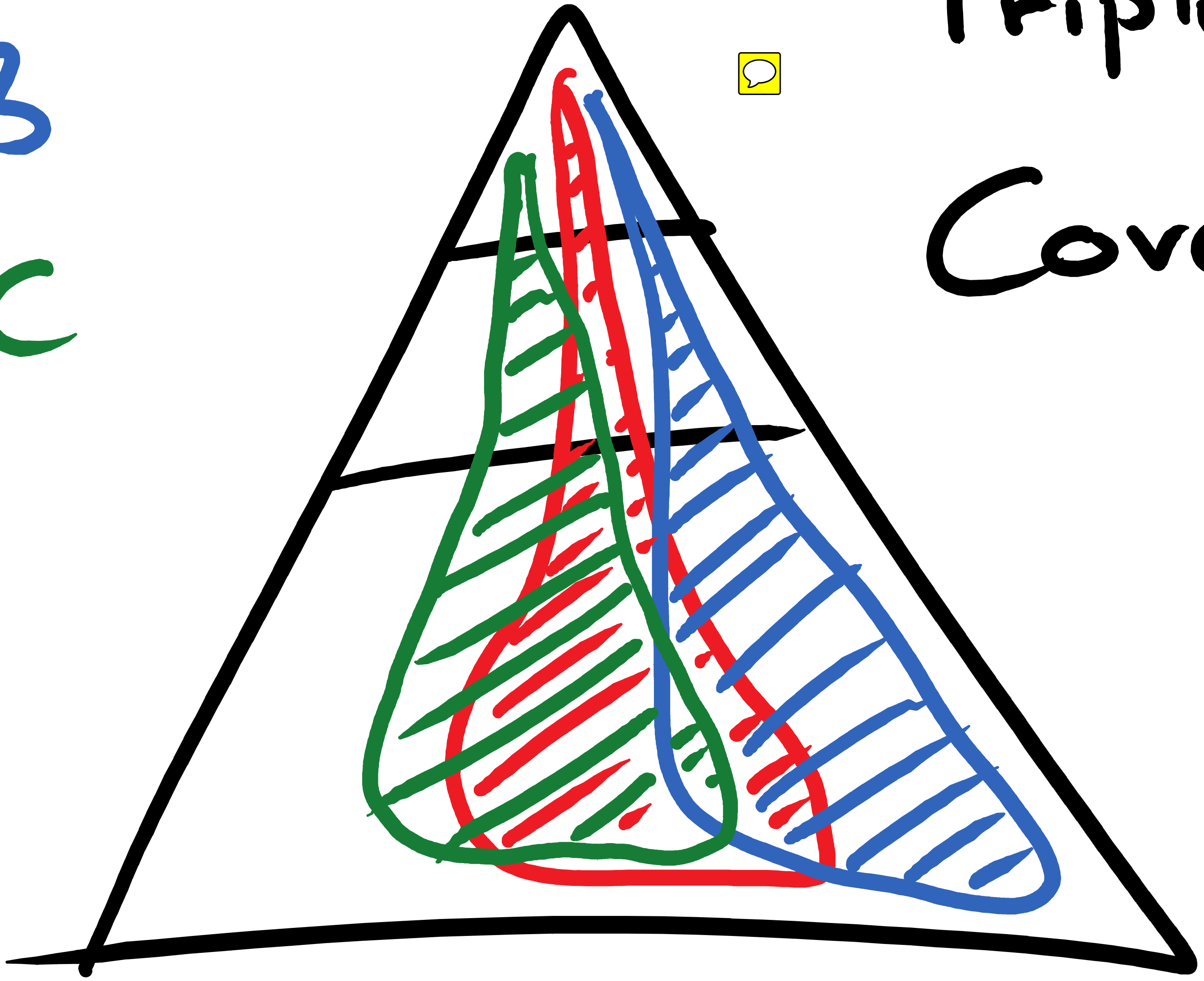
Feature B

Feature C

↑

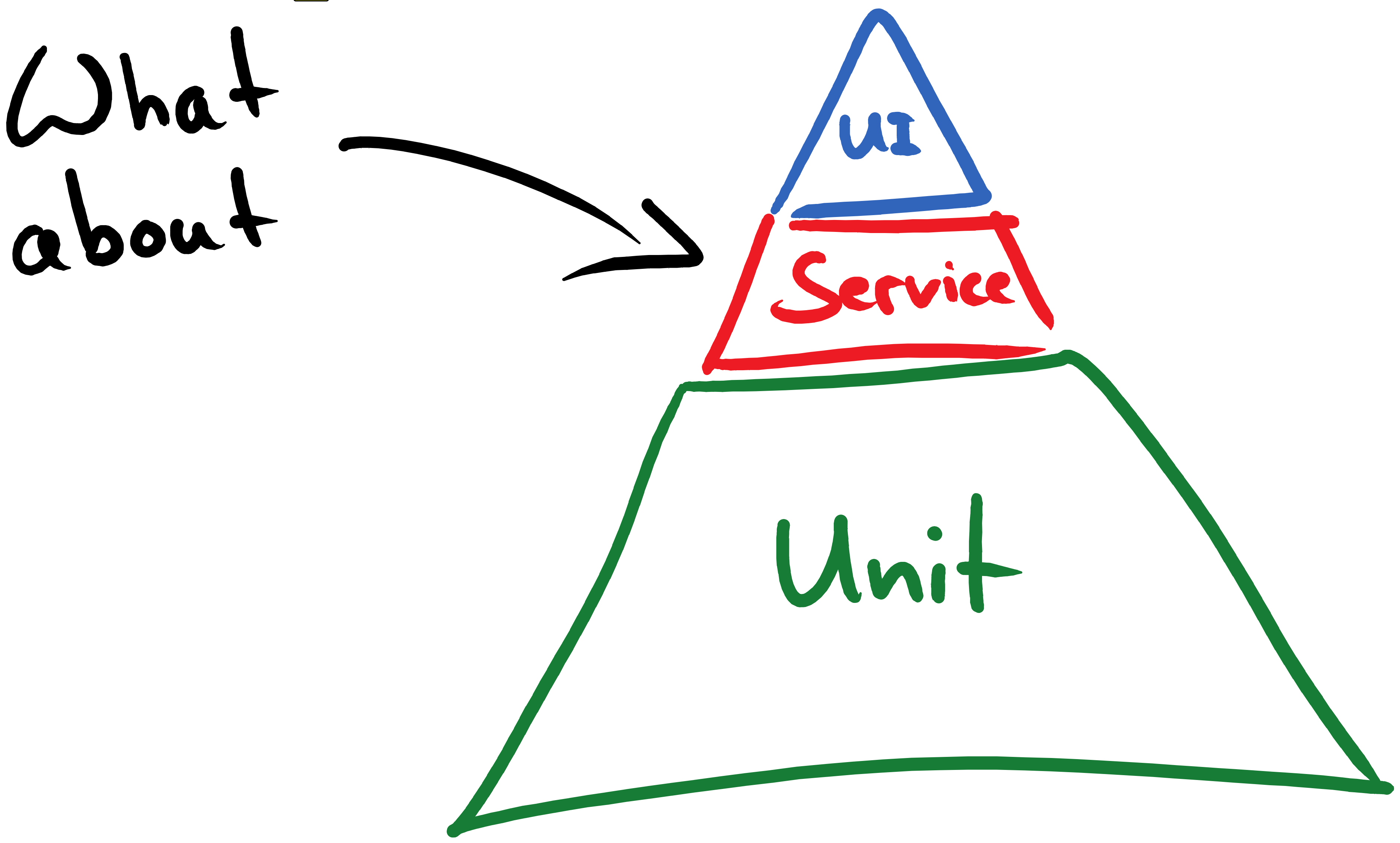
↓

Test



Triple Coverage

:(


What about
UI
Service
Unit

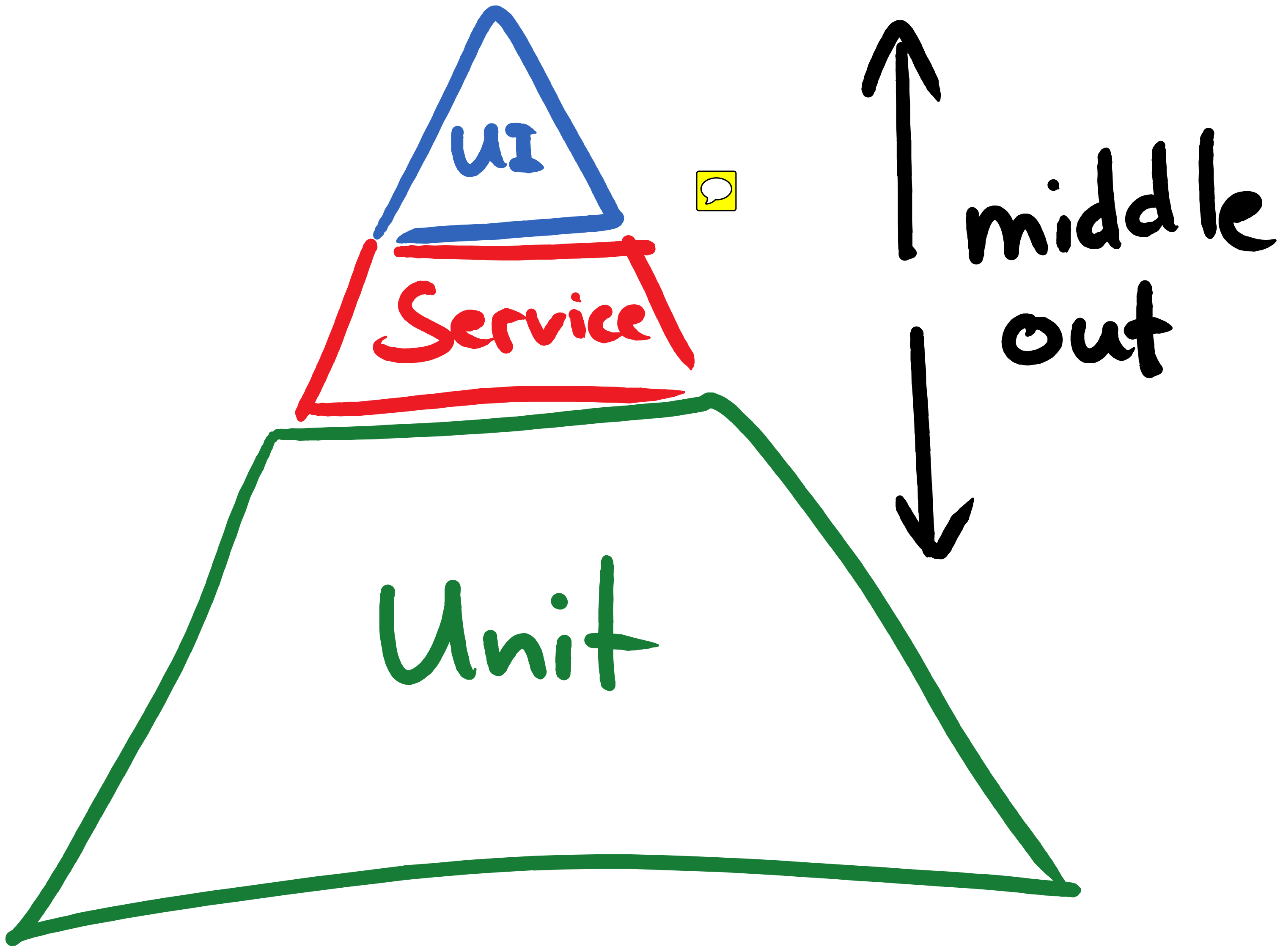
Domain layer testing

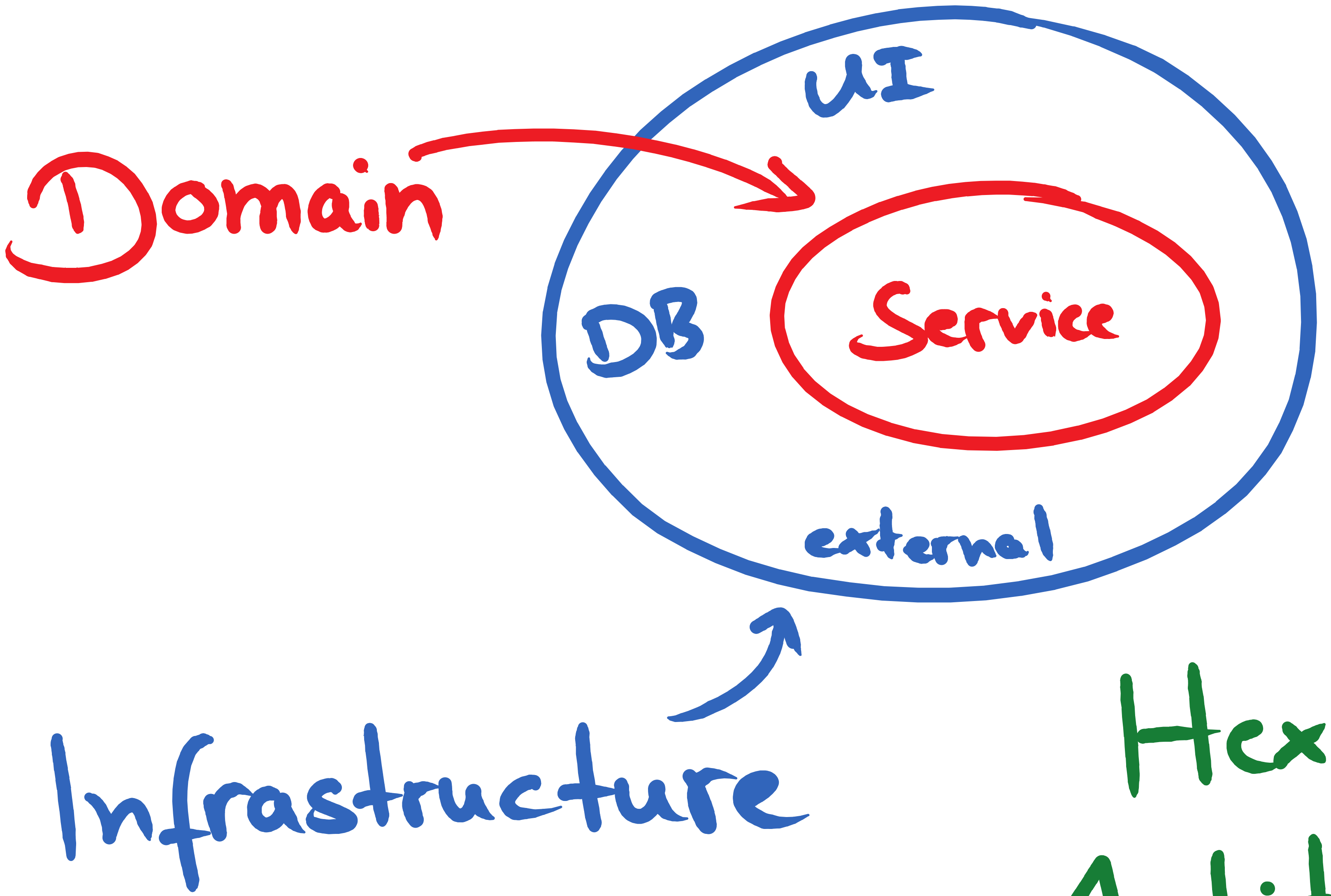
```php
$productCatalogue->addProduct('Red Car', 7);
$productCatalogue->addProduct('Blue Car', 5);
$basketService->addProduct('Red Car');
$basketService->addProduct('Blue Car');
$this->assertEquals(12, $basketService->currentSum());
```

Domain layer testing

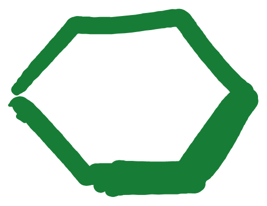
```
Given the Product "Red Car" priced 7 Euro
Given the Product "Blue Car" priced 5 Euro

When I add "Red Car" and "Blue Car" to the basket

Then the sum of the basket should be 12 Euro
```

ubiquitous language :)


UI
Service
Unit
middle out



Hexagonal Architecture



Ubiquitous language

```
When I add "Red Car" to the basket
```

Service context

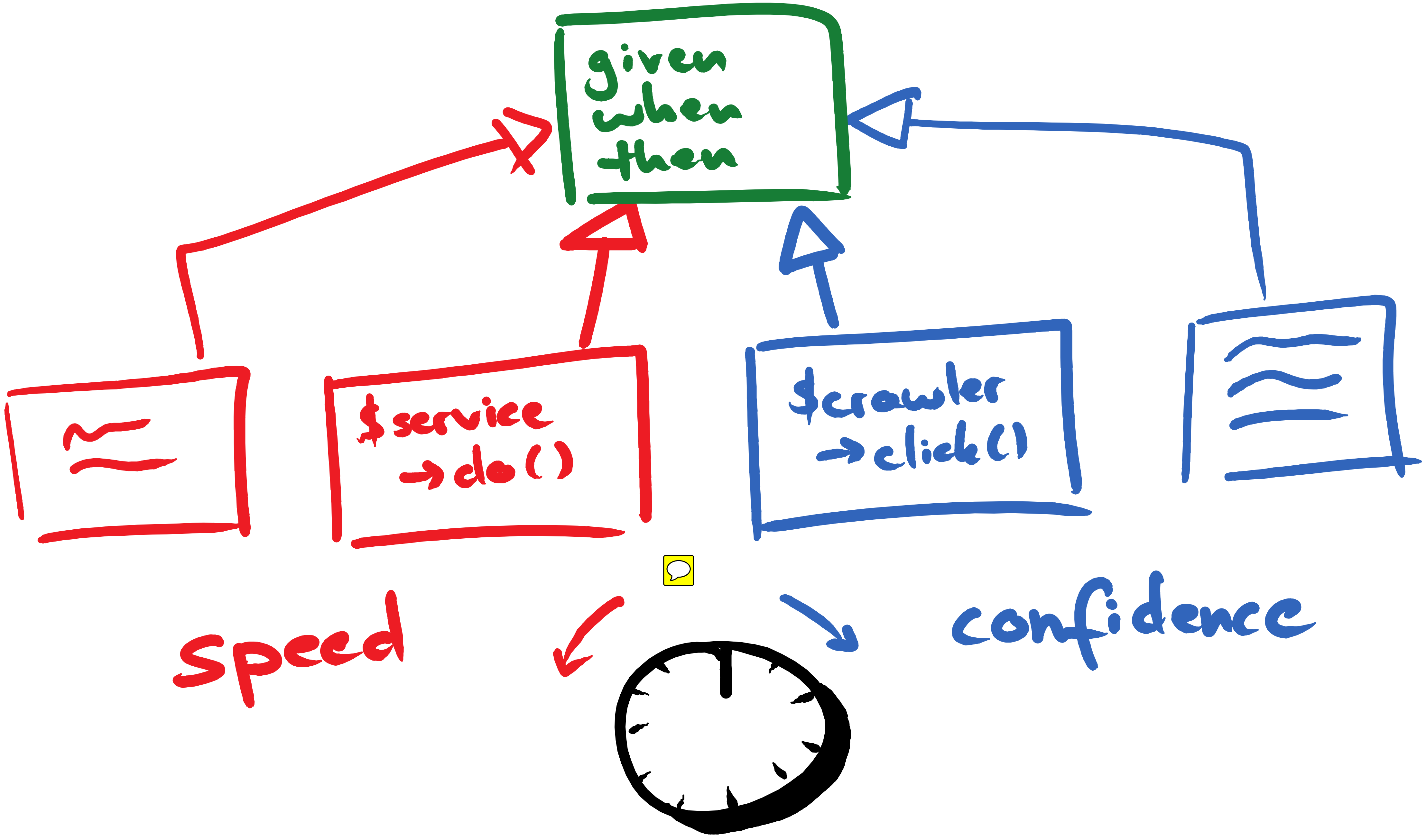
```php
$basketService->addProduct('Red Car');
```

UI context

```php
$product = $this->find('css',
    ".products li:contains('Red Car')");
$product->click('Add to basket');
```

or

both


given
when
then
$service
→do()
$crawler
→click()
speed
confidence

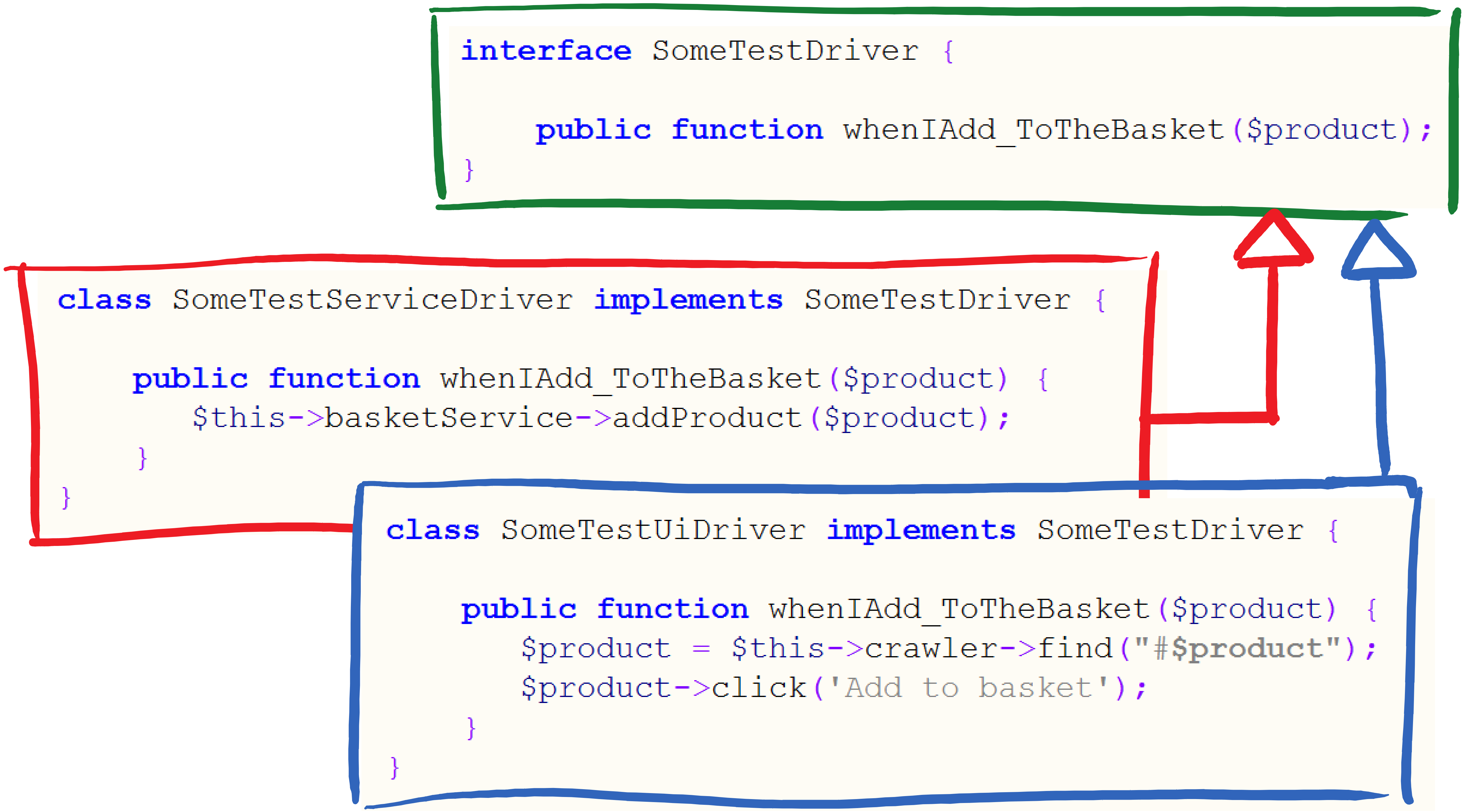
How to ?

Cucumber: worlds

Behat: suites

PhpUnit: data providers

```php
class SomeTest extends PHPUnit_Framework_TestCase {

    /** @dataProvider driveServiceAndUi */
    function testStuff(SomeTestDriver $driver) {
        // ...
        $driver->whenIAdd_ToTheBasket('Red Car');
        // ...
    }

    function driveServiceAndUi() {
        return [
            [new SomeTestServiceDriver()],
            [new SomeTestUiDriver()]
        ];
    }
}
```



```php
interface SomeTestDriver {

    public function whenIAdd_ToTheBasket($product);
}
```

```php
class SomeTestServiceDriver implements SomeTestDriver {

    public function whenIAdd_ToTheBasket($product) {
        $this->basketService->addProduct($product);
    }
}
```

```php
class SomeTestUiDriver implements SomeTestDriver {

    public function whenIAdd_ToTheBasket($product) {
        $product = $this->crawler->find("#$product");
        $product->click('Add to basket');
    }
}
```

Recap

1. Write tests on domain level

2. Use ubiquitous language

3. Implement on multiple levels

4. Profit!

Further Information

"Architecture - The lost Years"
Uncle Bob

"Modelling by Example"
everzet

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