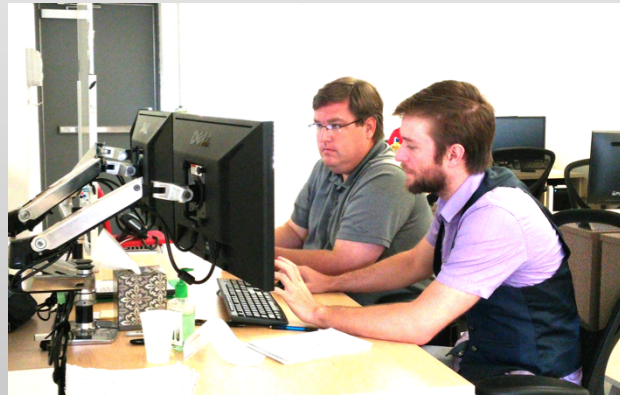


BDD Explained Through Real World Examples

Todd Brunia - @BruniaTodd
Cecil G. Williams - @cecilgwilliams





HELLO

my name is

Cecil

HELLO

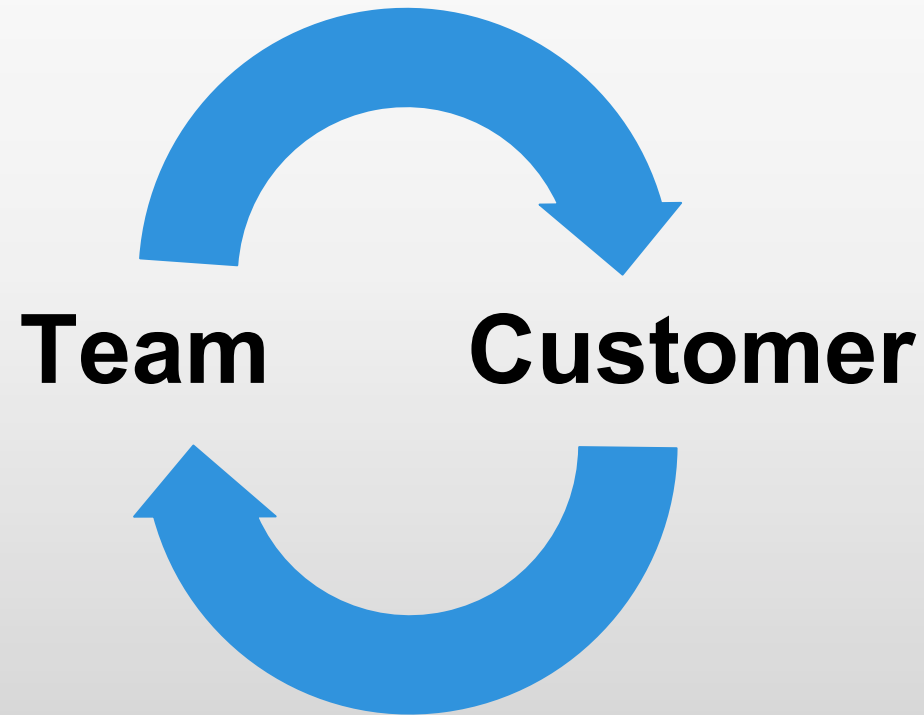
my name is

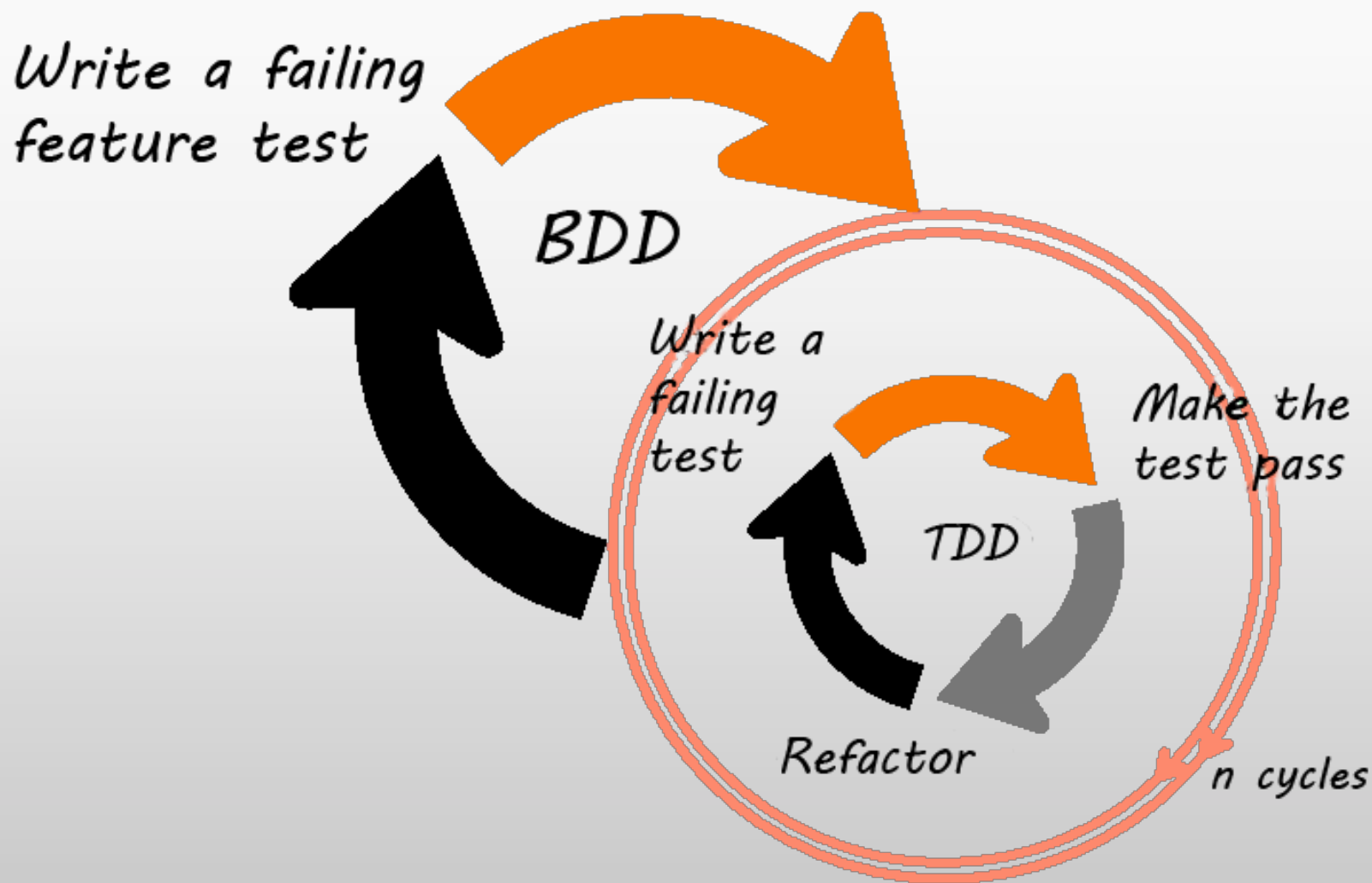
Todd



AND







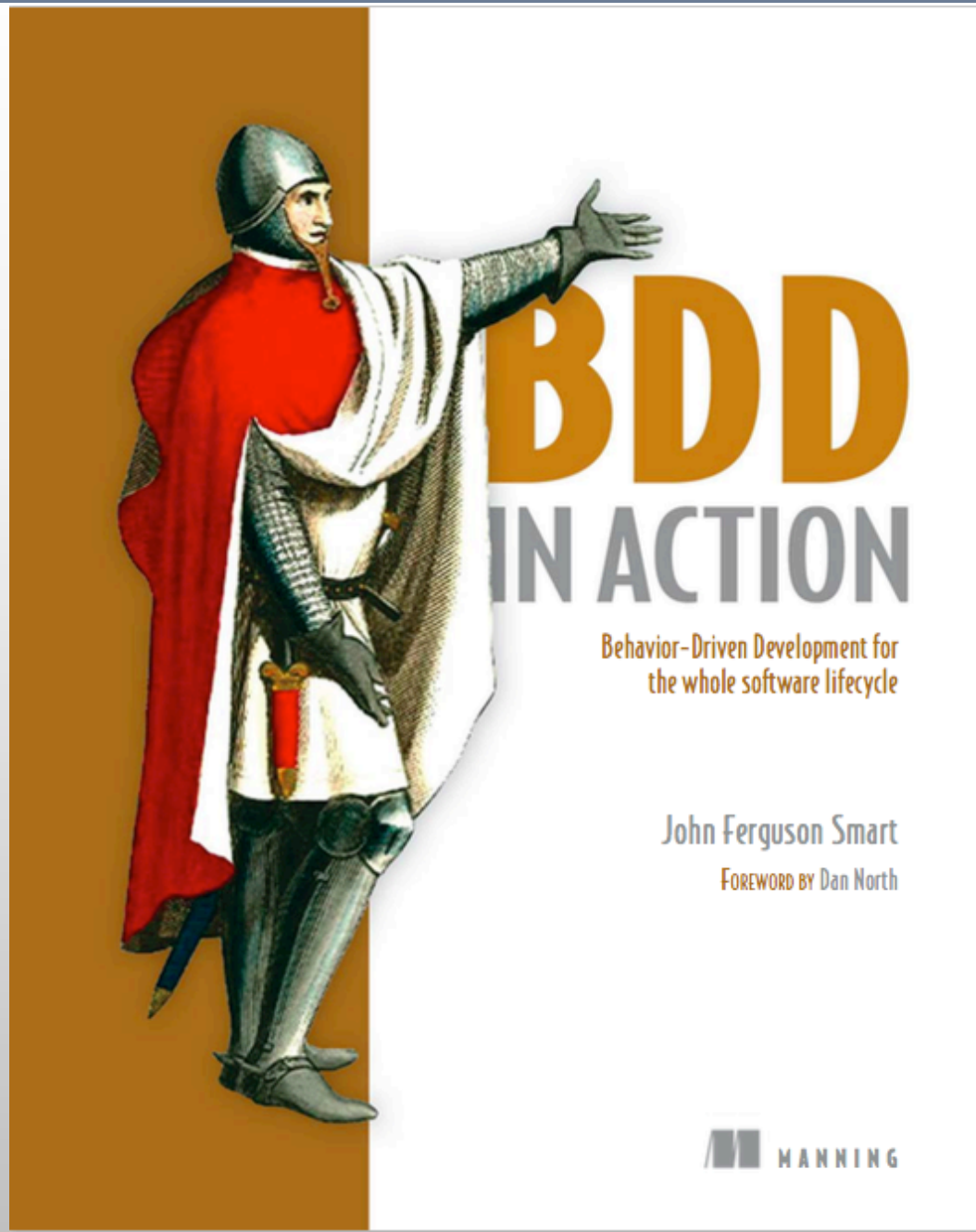
GOJKO ADZIC



SPECIFICATION BY EXAMPLE

How successful teams deliver the *right* software

 MANNING





Cucumber



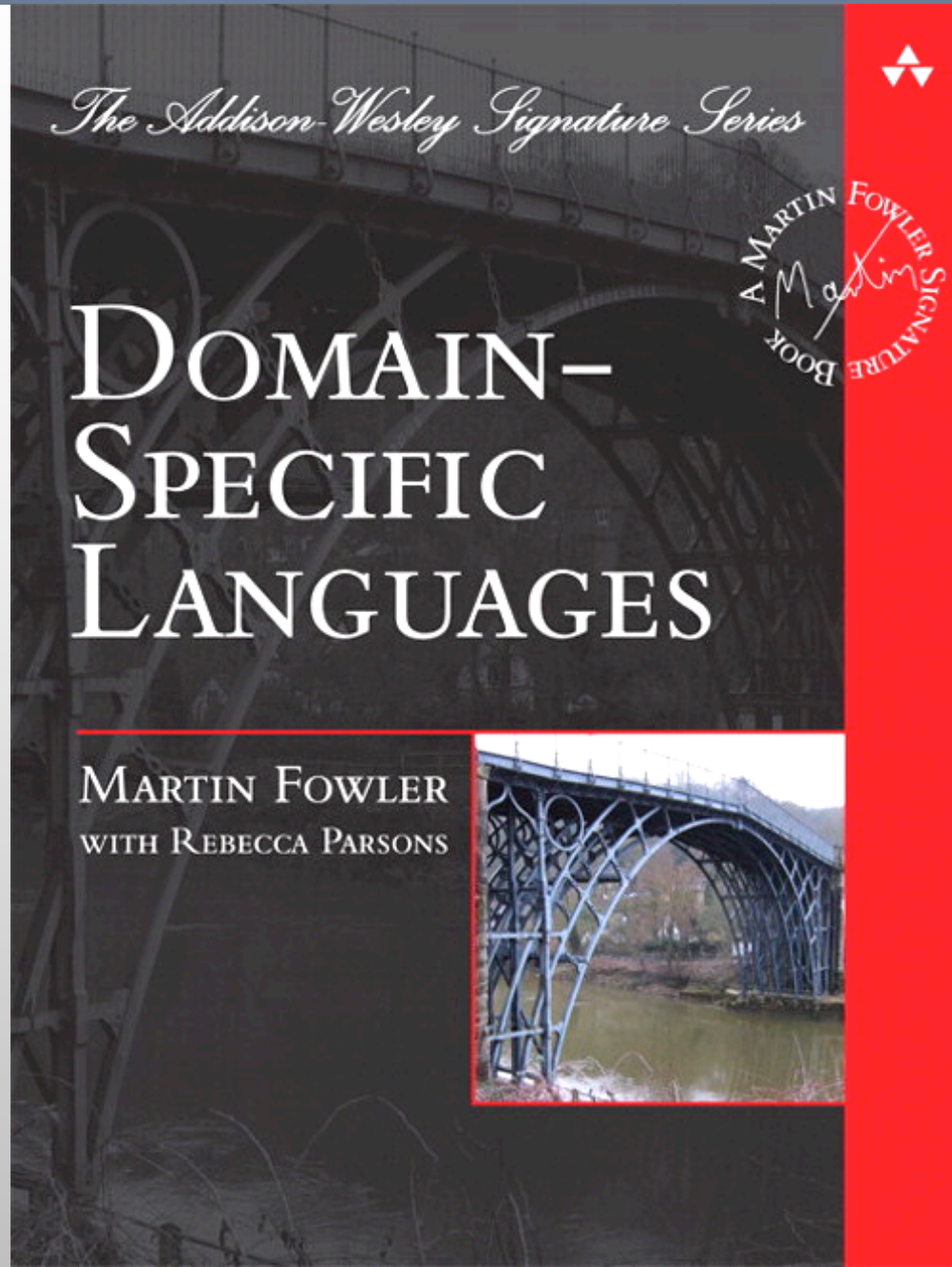
specflow

Cucumber for .NET



PIONEER



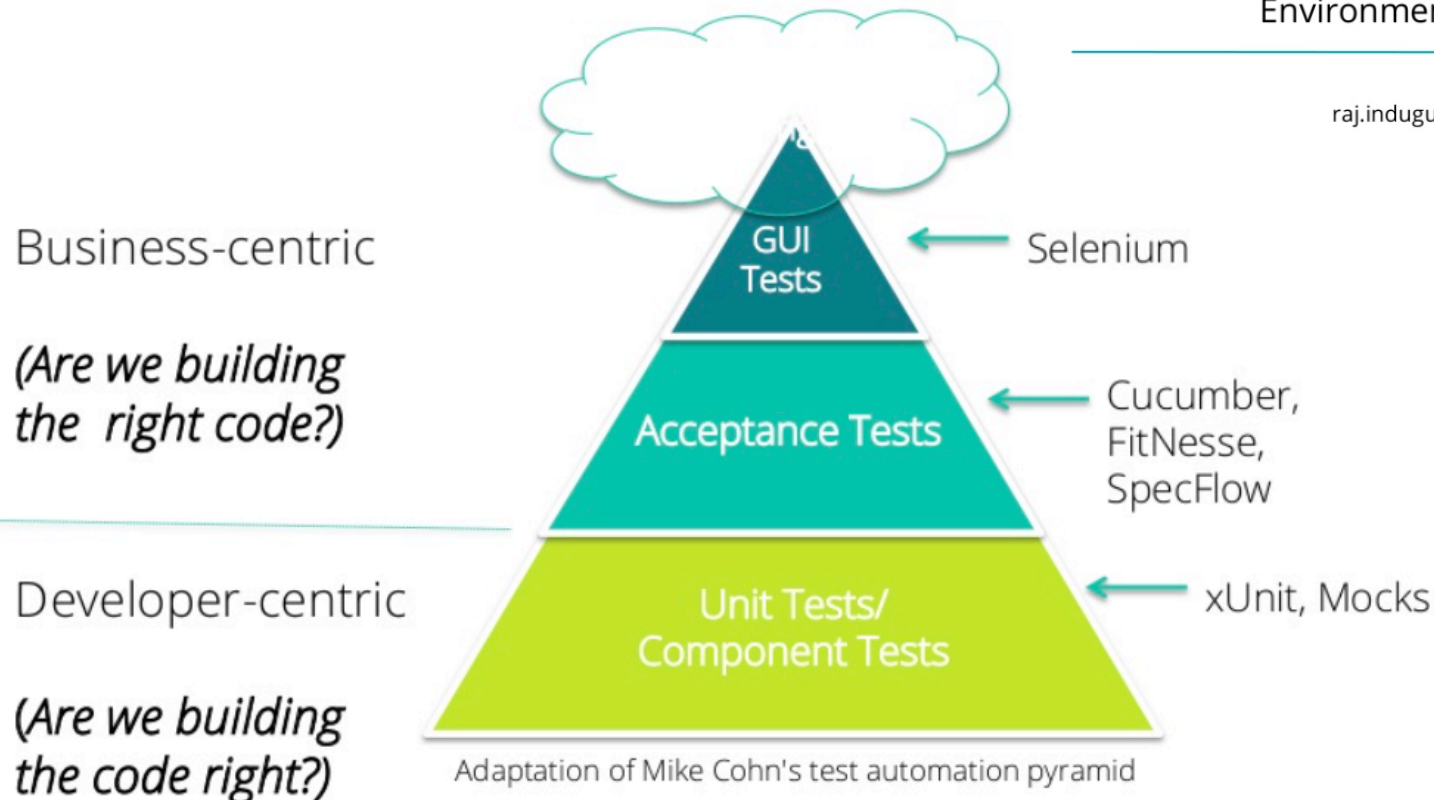




Test Automation Pyramid

Effective Testing Practices in an Agile Environment

Raj Indugula
raj.indugula@lithespeed.com

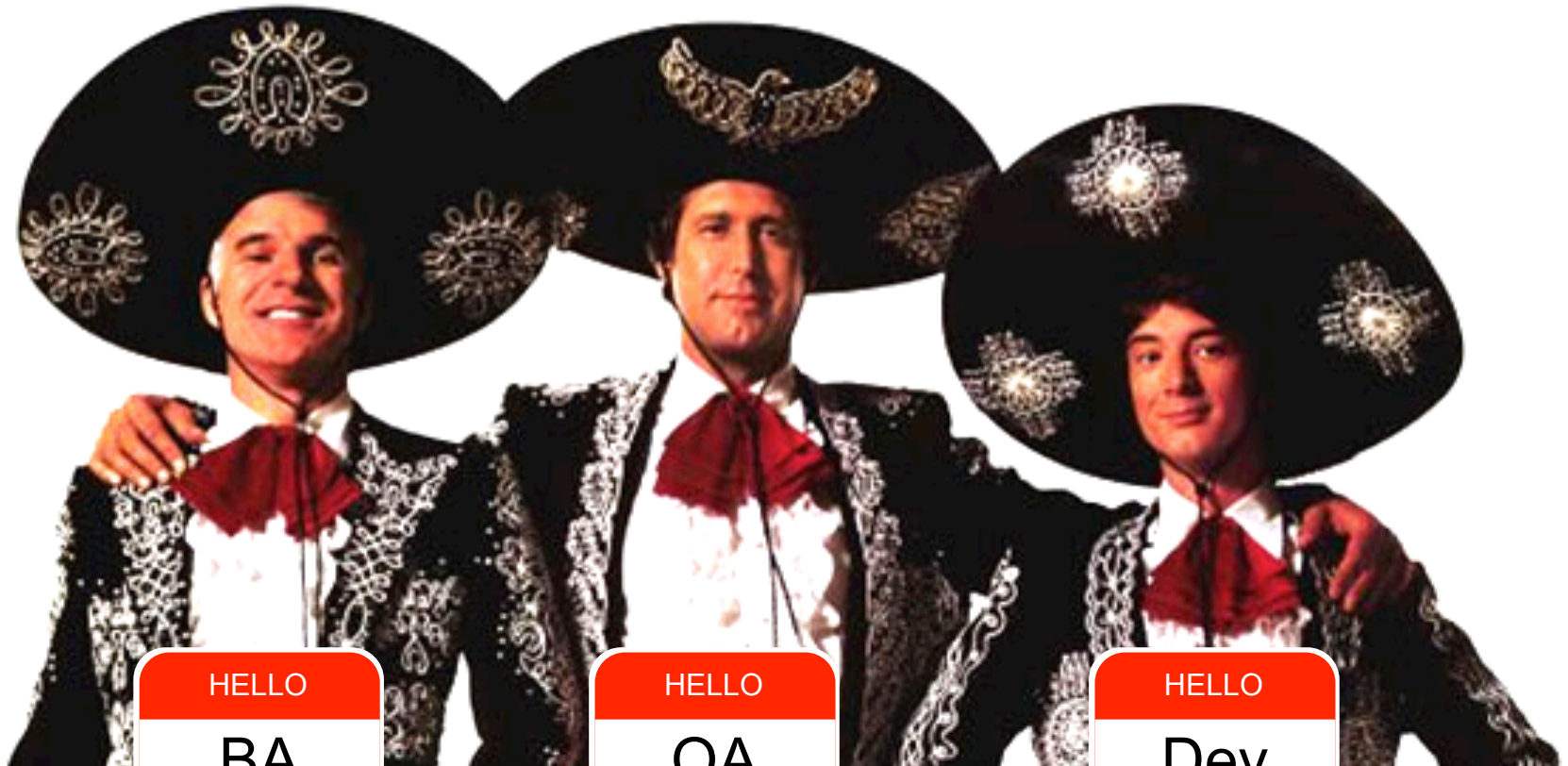




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iTHREE AMIGOS!



HELLO

BA

HELLO

QA

HELLO

Dev



Joe Moreau

BPA Persona

Title: Staff Architect**Industry:** Architecture/Engineering

Motto: "I want to bring a sense of design to the project - having empathy toward how someone wants to live their life and making that come alive."

Summary: Joe is a staff architect working for a large firm. This is lorem ipsum text, frequently used in the publishing world as placeholder copy. Aenean dignissim, lorem in tempus volutpat, felis mi malesuada magna, at sagittis ipsum odio id nisl. Sed lacus eros, iaculis nec porttitor sit amet, ornare ac erat. Etiam hendrerit eros luctus dui lacinia ac lacinia odio fermentum. Nullam auctor lectus et velit ultricies condimentum. Ut fermentum pulvinar est quis varius.

Background

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean dignissim, lorem in tempus volutpat, felis mi malesuada magna, at sagittis ipsum odio id nisl. Sed lacus eros, iaculis nec porttitor sit amet, ornare ac erat. Etiam hendrerit eros luctus dui lacinia ac lacinia odio fermentum. Nullam auctor lectus et velit ultricies condimentum. Ut fermentum pulvinar est quis varius. Nunc risus nisi, placerat eget facilisis eu, lacinia ac mauris. Sed pharetra bibendum ante a lobortis. Praesent eu justo a nulla mattis vehicula. Nullam ullamcorper eros in arcu..

Job responsibilities

Joe's job is focused on:

- Phasellus sed nisl ac mauris ullamcorper accumsan.
- Curabitur sodales viverra leo.
- Aenean quis bibendum sapien.
- Vestibulum ante ipsum primis in faucibus orci luctus et ultrices
- Quisque vitae nulla id ipsum euismod
- Curabitur ultrices est vitae justo varius eget aliquet elit pretium.
- Sed facilisis consectetur accumsan.

Software and technology

Phasellus nulla odio, semper quis tempor ut, lobortis id ipsum. Praesent tempus orci in metus lacinia vitae cursus ipsum feugiat. Etiam non dui quam. Etiam tempus euismod sem, vitae cursus nibh porta viverra. Nullam mi nisl, tincidunt nec condimentum nec, pretium at urna. Quisque tellus nibh, fringilla non porttitor sit amet, bibendum non quam. Nullam enim sem, molestie non bibendum vestibulum, congue quis dui.

Team member interactions

Phasellus sed nisl ac mauris ullamcorper accumsan. Curabitur sodales viverra leo, eu interdum velit porttitor id. Nam quis suscipit mauris.

Current painpoints

Sed facilisis consectetur accumsan. Nunc a viverra nunc. Nullam fringilla, augue et ultrices pretium, nunc eros consectetur lacus, eu accumsan dolor leo vel dui. Proin sed neque mi. Nulla quis erat eros, eu egestas orci. Donec congue odio ultricies diam accumsan non placerat sem porta. Suspendisse vitae nisi sapien, nec gravida felis. Fusce facilisis egestas augue, vel cursus ante volutpat ut. Duis rhoncus, dolor et ornare rhoncus, arcu est egestas massa, non elementum est nulla ac lacus. Proin venenatis dui non arcu pellentesque nec tincidunt quam eleifend.

Work environment

Cras eu erat sed nisi rutrum pretium. Suspendisse justo metus, pharetra id vulputate ut, ultrices sit amet nibh. Morbi aliquam, elit a auctor ultricies, arcu ligula eleifend sem, rhoncus tempor nulla eget risus.

Collaboration

Phasellus nulla odio, semper quis tempor ut, lobortis id ipsum. Praesent tempus orci in metus lacinia vitae cursus ipsum feugiat. Etiam non dui quam. Etiam tempus euismod sem, vitae cursus bibendum vestibulum, congue quis dui.

Goals in using BPA tools

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quisque justo id erat pharetra facilisis. Maecenas ultricies, enim at suscipit posuere, justo quam pulvinar sem, venenatis fermentum dolor lorem mattis velit.

Primary Persona: Joe Moreau

Company Type:

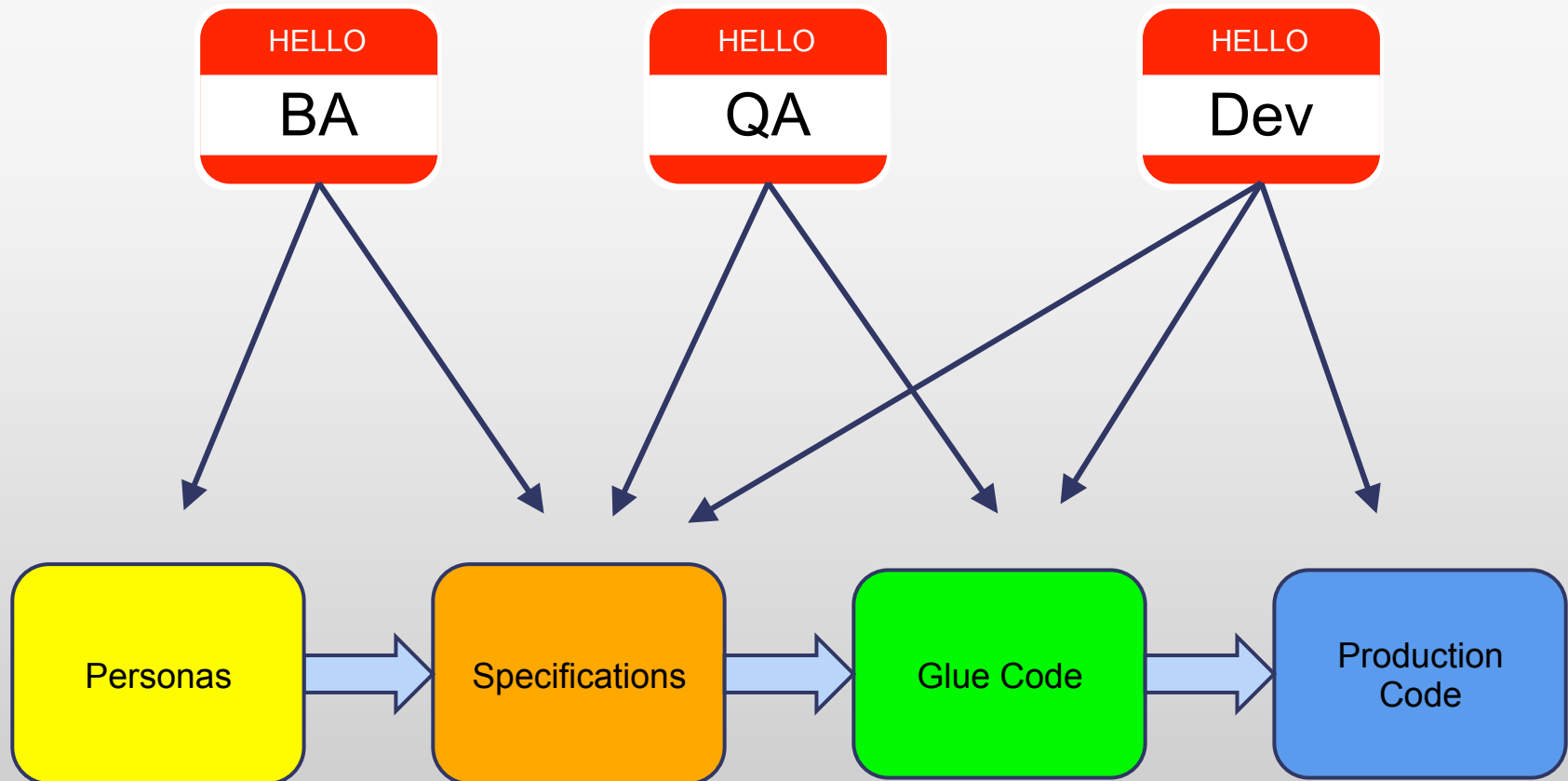
Curabitur sodales viverra leo

Energy analysis/sustainable design knowledge:

Nullam auctor lectus et velit ultricies condimentum.

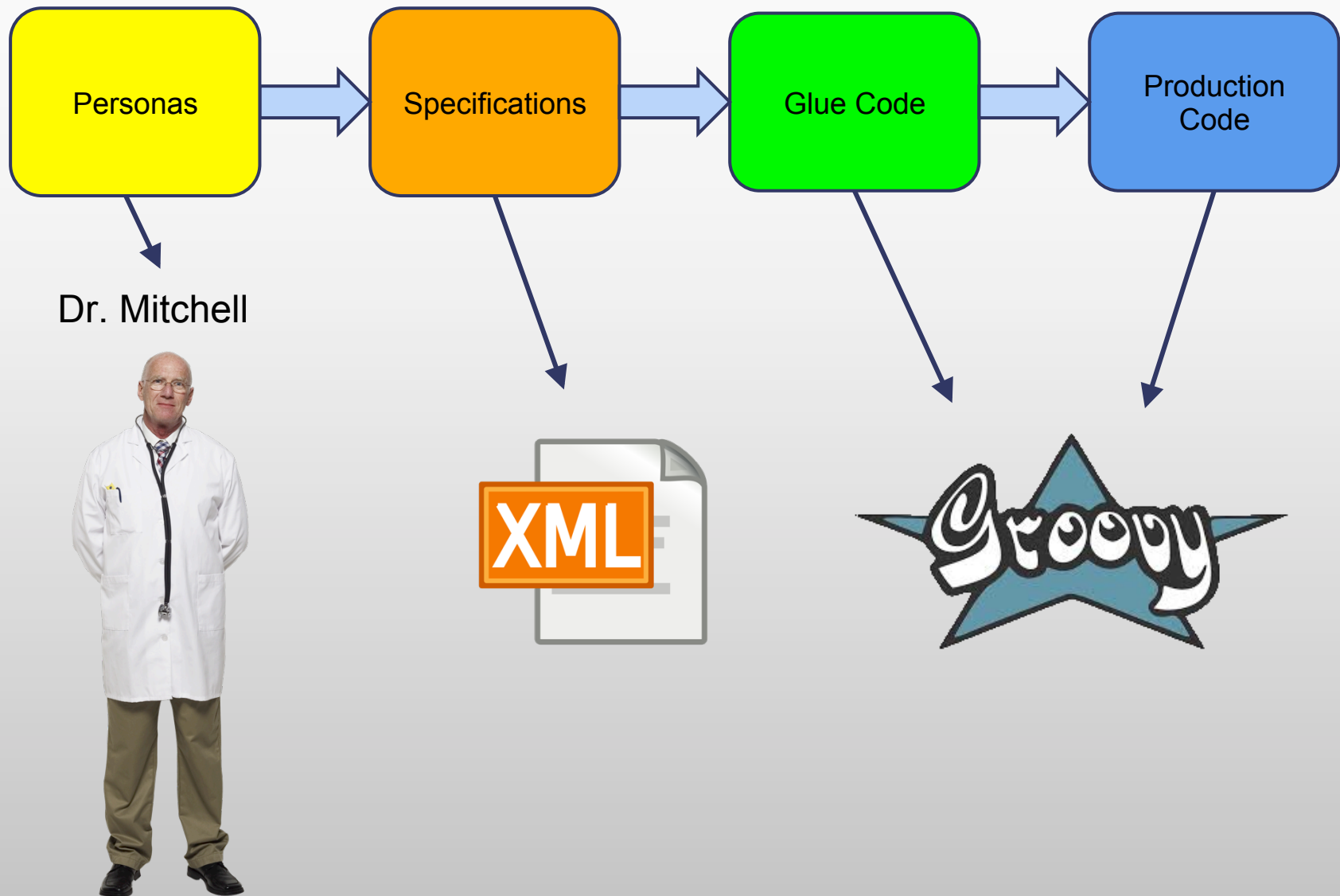
Location:

Lorem ipsum dolor sit amet, consectetur adipiscing elit.





Java EETM





Specifications

XML

```
<?xml version="1.0" encoding="UTF-8"?>
<actions id="viewPatientFromSchedule">
  <action>navigateToDemoSite</action>
  <action>sleep</action>
  <action>loginAsDoctor</action>
  <action>sleep</action>
  <action>viewTodaysVisits</action>
  <action>sleep</action>
  <action>viewSubjectCE</action>
  <action>sleep</action>
  <action>logout</action>
</actions>
```



```
package com.cecilgwilliams.users

import com.cecilgwilliams.browsers.Browser
import com.cecilgwilliams.environments.Environment
import com.cecilgwilliams.pages.WebPage

public class DemoUser {

    private Environment env
    private Browser browser
    private WebPage currentPage

    @Delegate
    private DoctorMitchell doctor
    @Delegate
    private SupervisorOliver supervisor

    DemoUser(Browser browser, Environment env) {
        this.browser = browser
        this.env = env
        doctor = new DoctorMitchell(browser, env)
        supervisor = new SupervisorOliver(browser, env)
    }

    public navigateToDemoSite() {
        currentPage = new WebPage(browser)
        currentPage.navigateTo(env.url)
    }

    public logout(){
        currentPage.findElementById("btnLogout_CD").click()
    }

    public closeBrowser(){
        browser.quit()
    }

    public sleep(){
        sleep(5000)
    }
}
```

Glue Code





```
package com.cecilgwilliams.users
```

```
import com.cecilgwilliams.browsers.Browser
import com.cecilgwilliams.environments.Environment
import com.cecilgwilliams.pages.WebPage
import org.openqa.selenium.Keys
```

```
public class DoctorMitchell {
```

```
    private Environment env
    private Browser browser
    private WebPage currentPage
```

```
    DoctorMitchell(Browser browser, Environment environment) {
        this.browser = browser
        this.env = environment
        currentPage = new WebPage(browser)
    }
```

```
    public loginAsDoctor() {
        currentPage.findElementById("loginPhotoP_dmitchell").click()
        sleep(5000)
        currentPage.findElementById("Passworddmitchell_I").sendKeys(Keys.ENTER)
    }
```

```
    public viewTodaysVisits() {
        currentPage.findElementByXPath("//a[@href='/RWA/ClinicalStudy/DataCapture/Schedule']", 5).click()
    }
```

```
    public viewSubjectCE(){
        currentPage.findElementByLinkText("CE").click()
    }
```

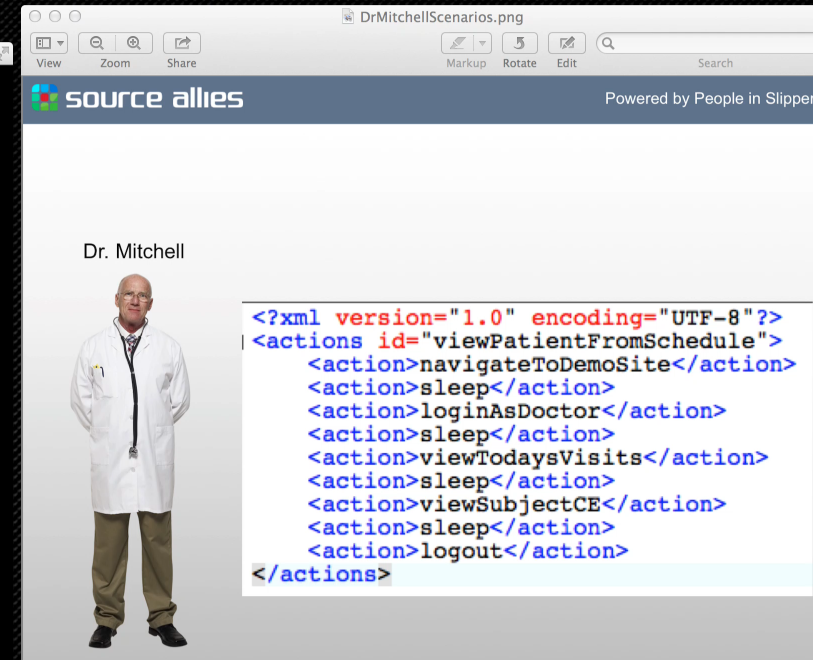
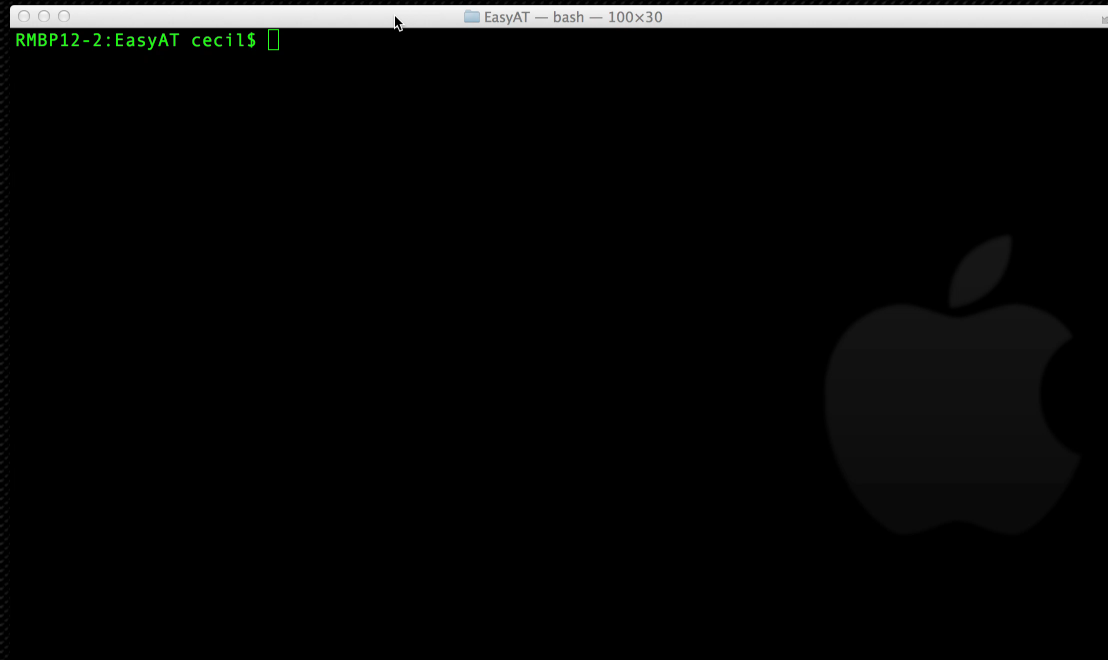
```
}
```

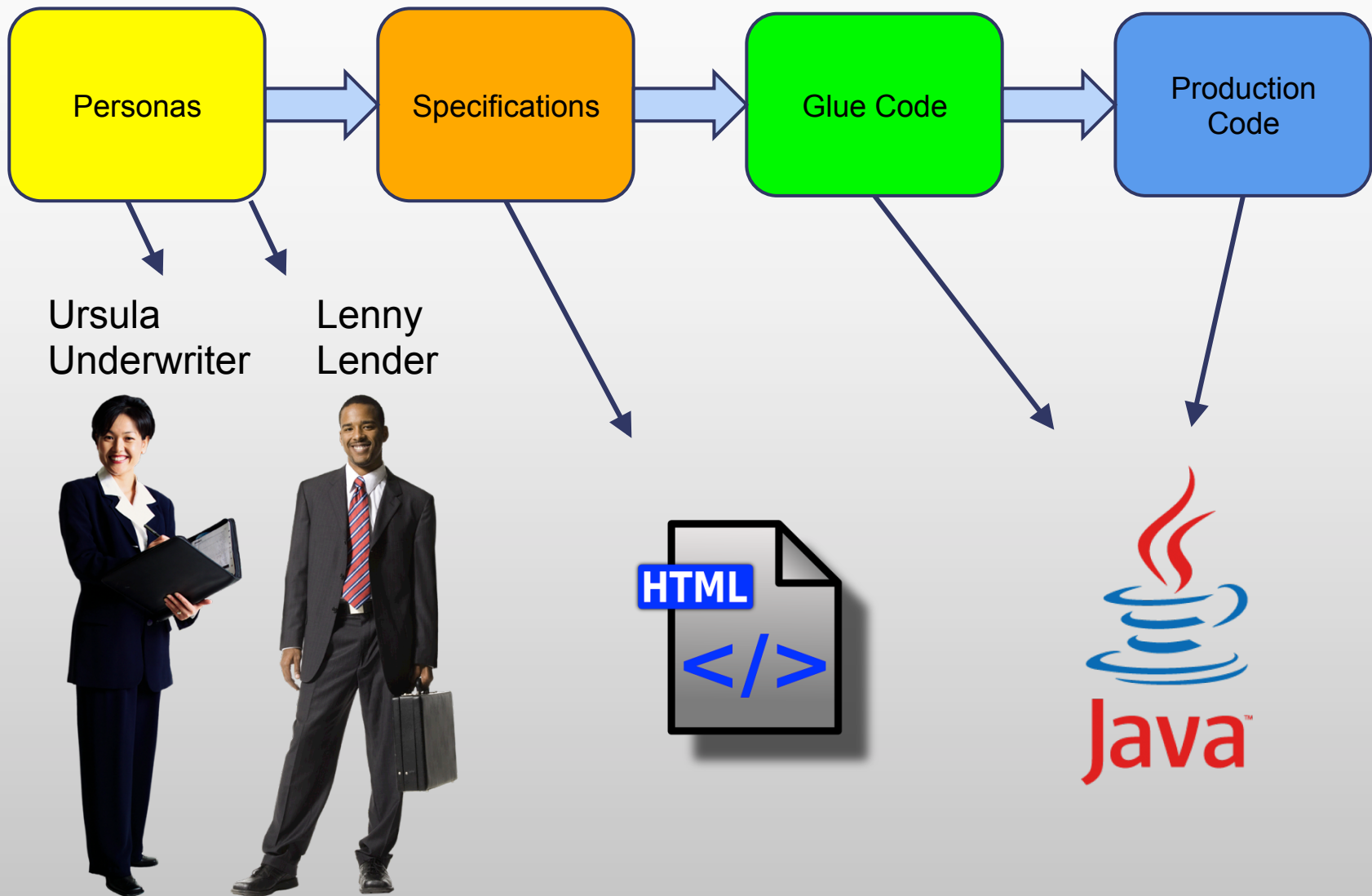
Glue Code





Macintosh HD







Specifications



[FrontPage](#). [IntegrationTests](#). [NewAlpha](#). [UnderWritingScreen](#).

ReDecisionTierUntilTitleX



Last modified anonymously on Sep 09, 2014 at 10:15:19 AM

► [Set Up: .FrontPage.IntegrationTests.SetUp \(edit\)](#)

[Expand All](#) | [Collapse All](#)

- 1) Credit Worthy Applicant Only Boris applies for a Loan Type with 3 Tiers
- 2) The app proceeds to underwriting
- 3) Underwriting is complete and Boris is assigned the lowest (3rd) tier
- 4) Lender Cert is Requested
- 5) Ursula receives additional Income information and enters it on the Underwriting screen
- 6) The Tier is redecisioned to Tier 2
- 7) Lender Cert is received and School Cert is requested
- 8) Ursula receives additional Income information and enters it on the Underwriting screen
- 9) The Tier is redecisioned to Tier 1
- 10) School Cert is Received, Title X Disclosures are Requested
- 11) Ursula receives more income information; he goes to the Underwriting screen, but the Doc and Debt sections are all Uneditable; the Tier cannot be redecisioned



FrontPage. IntegrationTests. NewAlpha. UnderWritingScreen.

ReDecisionTierUntilTitleX

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[Expand All](#) | [Collapse All](#)

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- 10) School Cert is Received, Title X Disclosures are Requested
- 11) Ursula receives more income information; he goes to the Underwriting screen, but the Doc and Debt sections are all Uneditable; the Tier cannot be redecisioned

connie	
Configures Tiers For Loan Type	Beta Credit Union Credit Worthy ISU Loan
sort order	minimum annual income
0	25000
1	20000
2	15000

► [\[GENESIS\] Credit Worthy Applicant Only, Request Lender Cert](#)

[Expand All](#) | [Collapse All](#)

▼ [\[ALPHA\] Ursula completes applicant only and boris gets third tier](#)

[Expand All](#) | [Collapse All](#)

variable defined: reqDocs!= |applicantW2Required|true| |applicantW2Received|true| |applicantPaycheckRequired|true|
|applicantAnnualPaycheckAmount|15000|

Ursula		
Goes To Underwriting		
Checks In All Required Documents	applicantW2Required	true
	applicantW2Received	true
	applicantPaycheckRequired	true
	applicantAnnualPaycheckAmount	15000

Ursula	
All Underwriting Fields Editable	
has table	critical_info_tier
	0
0	Price Tier: 3/3

Specifications





LENNY RECEIVES LENDER CERT REQUEST

variable defined: lenderCertRequestField= |ssn| 123456789| |last name| JONES| |first name| JOE|

Lenny							
Receives Lender Certification Request	<table><tr><td>ssn</td><td>123456789</td></tr><tr><td>last name</td><td>JONES</td></tr><tr><td>first name</td><td>JOE</td></tr></table>	ssn	123456789	last name	JONES	first name	JOE
ssn	123456789						
last name	JONES						
first name	JOE						

[Expand All](#) | [Collapse All](#)

URSULA INCREASES INCOME TO 2ND TIER LEVEL (TIER REDECISIONED)

variable defined: reqDocs2= |applicantW2Required| true| |applicantW2Received| true| |applicantPaycheckRequired| true| |applicantAnnualPaycheckAmount| 20000|

Ursula									
Goes To Undervriting									
Checks In All Required Documents	<table><tr><td>applicantW2Required</td><td>true</td></tr><tr><td>applicantW2Received</td><td>true</td></tr><tr><td>applicantPaycheckRequired</td><td>true</td></tr><tr><td>applicantAnnualPaycheckAmount</td><td>20000</td></tr></table>	applicantW2Required	true	applicantW2Received	true	applicantPaycheckRequired	true	applicantAnnualPaycheckAmount	20000
applicantW2Required	true								
applicantW2Received	true								
applicantPaycheckRequired	true								
applicantAnnualPaycheckAmount	20000								

Ursula	
All Undervriting Fields Editable	
has table	critical_info_tier
	0
0	Price Tier: 2/3

[Expand All](#) | [Collapse All](#)

LENDER CERT RECEIVED, SCHOOL CERT REQUESTED

variable defined: fileRequestedEvent=School Certification File Requested

History Does Not Contain	School Certification File Requested
--------------------------	-------------------------------------

Lenny	
certifies Membership	true

History Contains	School Certification File Requested
------------------	-------------------------------------

[Expand All](#) | [Collapse All](#)

Specifications





URSULA INCREASES INCOME TO 1ST TIER LEVEL (TIER REDECISIONED)

variable defined: reqDocs3= |applicantW2Required|true| |applicantW2Received|true| |applicantPaycheckRequired|true| |applicantAnnualPaycheckAmount|25000|

Ursula		
Goes To Underwriting		
Checks In All Required Documents	applicantW2Required	true
	applicantW2Received	true
	applicantPaycheckRequired	true
	applicantAnnualPaycheckAmount	25000

Ursula	
All Underwriting Fields Editable	
has table	critical_info_tier
	0
0	Price Tier: 1/3

[Expand All](#) | [Collapse All](#)

SYLVIA SENDS MATCHING SCHOOL CERT

Incoming Files
Sylvia
Sends Matching Certification File

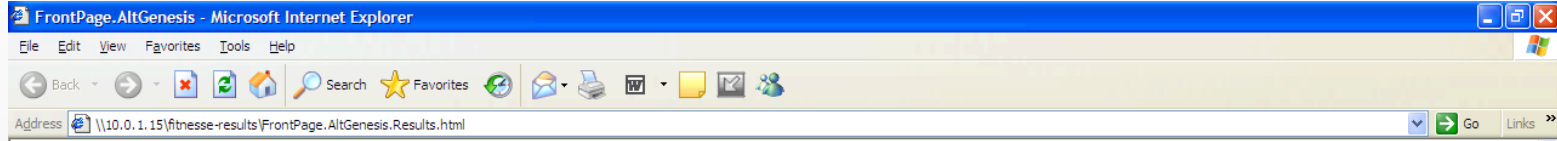
Ursula	
All Underwriting Fields Not Editable	applicantRequiredDocumentsTable
All Underwriting Fields Not Editable	applicantDebtIncomeRatioTable
has table	critical_info_tier
	0
0	Price Tier: 1/3

► Tear Down: [.FrontPage.IntegrationTests.TearDown](#) (edit)

[Expand All](#) | [Collapse All](#)

Specifications





FrontPage.

AltGenesis

COMMAND LINE TEST RESULTS



Test Pages: 112 right, 0 wrong, 0 ignored, 0 exceptions Assertions: 20186 right, 0 wrong, 1013 ignored, 0 exceptions

24 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantLoanInfo.LoanInfoMain.AutomatedTests
65 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantLoanInfo.LoanInfoMain.AutomatedTests
14 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantLoanInfo.LoanInfoMain.AutomatedTests
624 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantLoanInfo.LoanInfoMain.AutomatedTests
180 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantPickSchool.AutomatedTests
31 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantPrintsCosignerAddendum.AutomatedTests
718 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantReferences.AutomatedTests
44 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantReturnsToCompleteSavedApplication.AutomatedTests
132 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantRunCredit.AutomatedTests
4 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ApplicantSelectsOtherFromSchoolListbox.AutomatedTests
29 right, 0 wrong, 10 ignored, 0 exceptions	ApplicantStories.ApplicantViewsCreditStatus.AutomatedTests
306 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.DisplayProgressBar.AutomatedTests
48 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.NoPhone.AutomatedTests
196 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.ParentPartnershipSelectLoanType.AutomatedTests
2107 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.PrintApplication.AutomatedTests
1871 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.PrintParentApplication.AutomatedTests
153 right, 0 wrong, 0 ignored, 0 exceptions	ApplicantStories.SelectLoanType.AutomatedTests
668 right, 0 wrong, 0 ignored, 0 exceptions	BudgetWorksheet.BudgetWorksheetStandAlone.AutomatedTests
356 right, 0 wrong, 0 ignored, 0 exceptions	BudgetWorksheet.BudgetWorksheetWebPage.AutomatedTests
44 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.ApplicantUnderEighteen.AutomatedTests
10 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareAddresses.AutomatedTests
37 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareApplicantAndReferences.AutomatedTests
6 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareCosignerAndApplicant.AutomatedTests
17 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareCosignerAndApplicantReference.AutomatedTests
40 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareCosignerAndCosignerReferences.AutomatedTests
24 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareCosignerOneAndCosignerTwo.AutomatedTests
10 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.ComparePersons.AutomatedTests
5 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareStudentAndApplicant.AutomatedTests
7 right, 0 wrong, 8 ignored, 0 exceptions	BusinessRules.CompareStudentAndApplicantReference.AutomatedTests
7 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareStudentAndCosigner.AutomatedTests
9 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CompareStudentAndCosignerReferences.AutomatedTests
6 right, 0 wrong, 0 ignored, 0 exceptions	BusinessRules.CreateCommonLineUniqueId.AutomatedTests
25 right, 0 wrong, 0 ignored, 0 exceptions	CosignerStories.CosignerAttemptsToCosignApprovedLoan.CosignerAttemptsToCosignApprovedLoan.AutomatedTests
1099 right, 0 wrong, 0 ignored, 0 exceptions	CosignerStories.CosignerDemographics.AutomatedTests



The
Pragmatic
Programmers

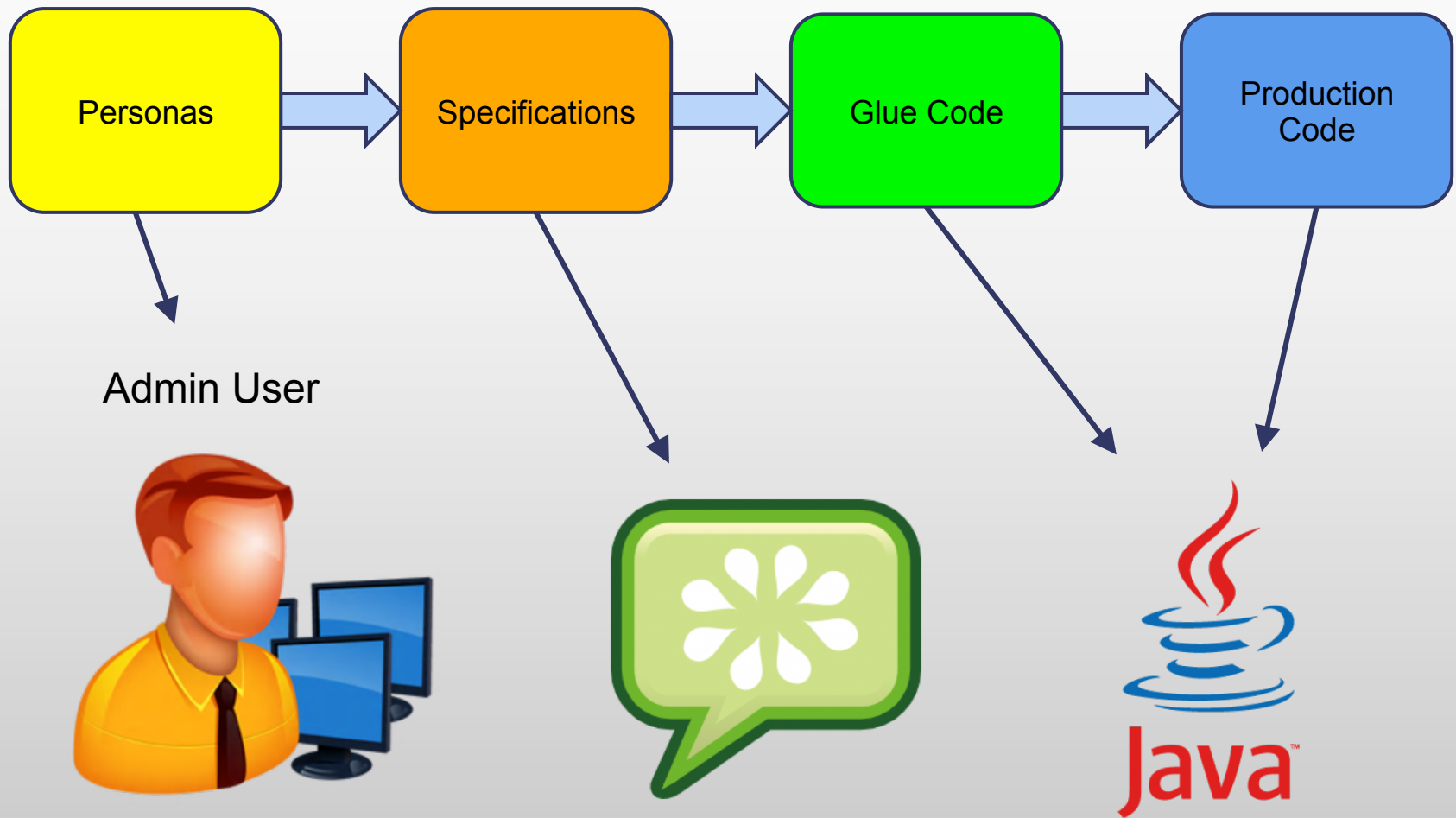
The Cucumber Book

Behaviour-Driven
Development for
Testers and
Developers

Matt Wynne
and Aslak Helleøy

edited by Jacquelyn Carter







Feature: Login

As an Admin

I want to be able to log in and out of ARMs

So that I can access my ARMs account securely

Specifications

Scenario: Login as admin

Given the user admin exists

And the user is on the login page

When admin authenticates with valid login information

Then admin should see his user information in the badge on the home page



Scenario: Log out as admin

Given admin is logged in at the home page

When admin clicks log out on the home page

Then the user should be on the login page



Cucumber



```
@ContextConfiguration(classes=CucumberConfig.class, loader=AnnotationConfigContextLoader.class)
public class AdminHomePageStepDefs {
    @Autowired
    HomePage homePage;

    @Autowired
    ScenarioContext context;

    private static final Log LOG = LoggerFactory.getLog(AdminHomePageStepDefs.class);

    @Given("^the user admin exists")
    public void admin_exists() {

    }

    @Given("^admin is logged in at the home page$")
    public void admin_logged_in() {
        assert context.browser.isCurrentUrl(context.get("basePath", String.class) + HomePage.path);
        assert homePage.isUserBadgeName("");
        assert homePage.isUserCompanyName("");
        assert homePage.isUserRoleName("Admin");
    }

    @When("^admin clicks log out on the home page$")
    public void admin_log_out() {
        homePage.logout();
    }
}
```

Glue Code



Cucumber



```
@ContextConfiguration(classes=CucumberConfig.class, loader=AnnotationConfigContextLoader.class)
public class HomePage {
```

```
    @Autowired
```

```
    private ScenarioContext context;
```

```
    public boolean isUserBadgeName(String username){
```

```
        WebElement userName = context.browser.findElementById("employeeName");
```

```
        return userName.getText().trim().equals(username);
```

```
    }
```

```
    public void logout() {
```

```
        context.browser.clickAndWait("signout");
```

```
    }
```

```
    public boolean isUserCompanyName(String companyName) {
```

```
        WebElement userCompanyName = context.browser.findElementById("employeeCompany");
```

```
        return userCompanyName.getText().trim().equals(companyName);
```

```
    }
```

```
    public boolean isUserRoleName(String roleName) {
```

```
        WebElement userRole = context.browser.findElementById("employeeRole");
```

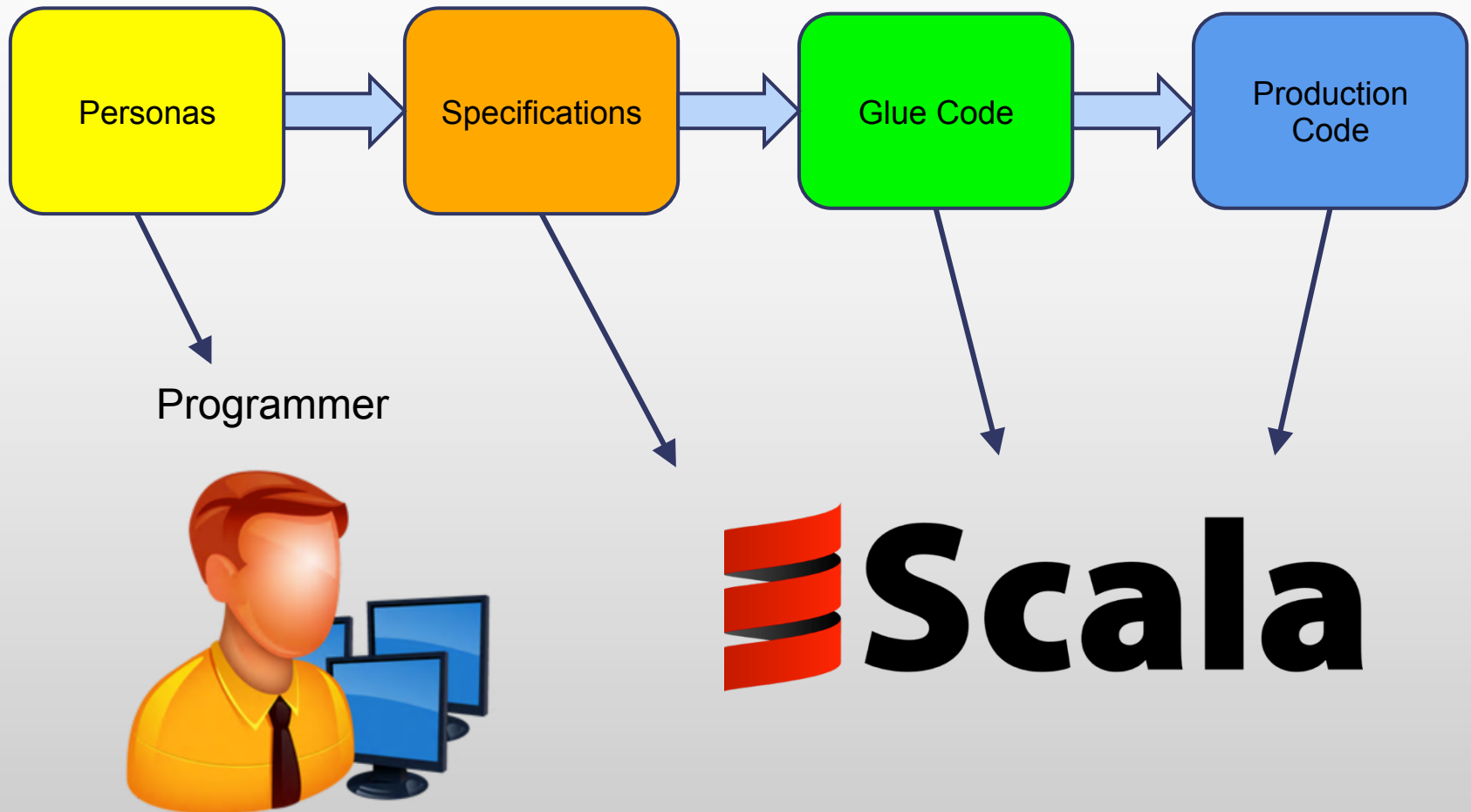
```
        return userRole.getText().trim().equals(roleName);
```

```
    }
```

Glue Code



Cucumber





```
import org.scalatest.FeatureSpec

class ExampleSpec extends FeatureSpec {

  feature("The user can pop an element off the top of the stack") {
    scenario("pop is invoked on a non-empty stack") (pending)
    scenario("pop is invoked on an empty stack") (pending)
  }
}
```

Specifications



```
$ scala -cp scalatest-2.2.4.jar org.scalatest.run ExampleSpec
Run starting. Expected test count is: 2
ExampleSpec:
Feature: The user can pop an element off the top of the stack
  Scenario: pop is invoked on a non-empty stack (pending)
  Scenario: pop is invoked on an empty stack (pending)
Run completed in 65 milliseconds.
Total number of tests run: 0
Suites: completed 1, aborted 0
Tests: succeeded 0, failed 0, ignored 0, pending 2
All tests passed.
```

Specifications

```
import org.scalatest.FeatureSpec
import org.scalatest.GivenWhenThen

class ExampleSpec extends FeatureSpec with GivenWhenThen {

  feature("The user can pop an element off the top of the stack") {

    info("As a programmer")
    info("I want to be able to pop items off the stack")
    info("So that I can get them in last-in-first-out order")

    scenario("pop is invoked on a non-empty stack") {

      given("a non-empty stack")
      when("when pop is invoked on the stack")
      then("the most recently pushed element should be returned")
      and("the stack should have one less item than before")
      pending
    }

    scenario("pop is invoked on an empty stack") {

      given("an empty stack")
      when("when pop is invoked on the stack")
      then("NoSuchElementException should be thrown")
      and("the stack should still be empty")
      pending
    }
  }
}
```

Glue Code

```
scenario("pop is invoked on a non-empty stack") {  
  given("a non-empty stack")  
  val stack = new Stack[Int]  
  stack.push(1)  
  stack.push(2)  
  val oldSize = stack.size  
  
  when("when pop is invoked on the stack")  
  val result = stack.pop()  
  
  then("the most recently pushed element should be returned")  
  assert(result === 2)  
  
  and("the stack should have one less item than before")  
  assert(stack.size === oldSize - 1)  
}
```

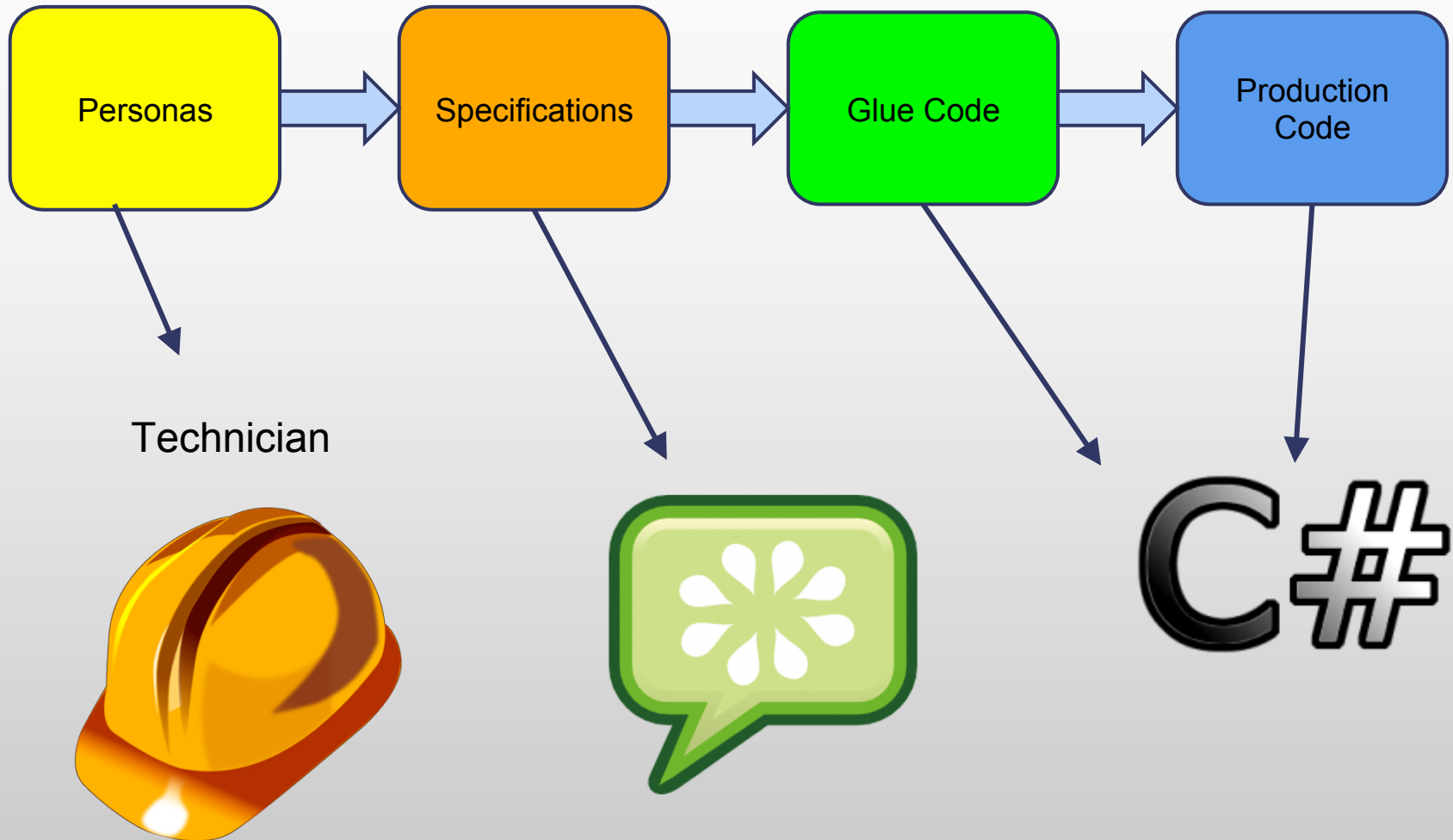
ScalaTest™

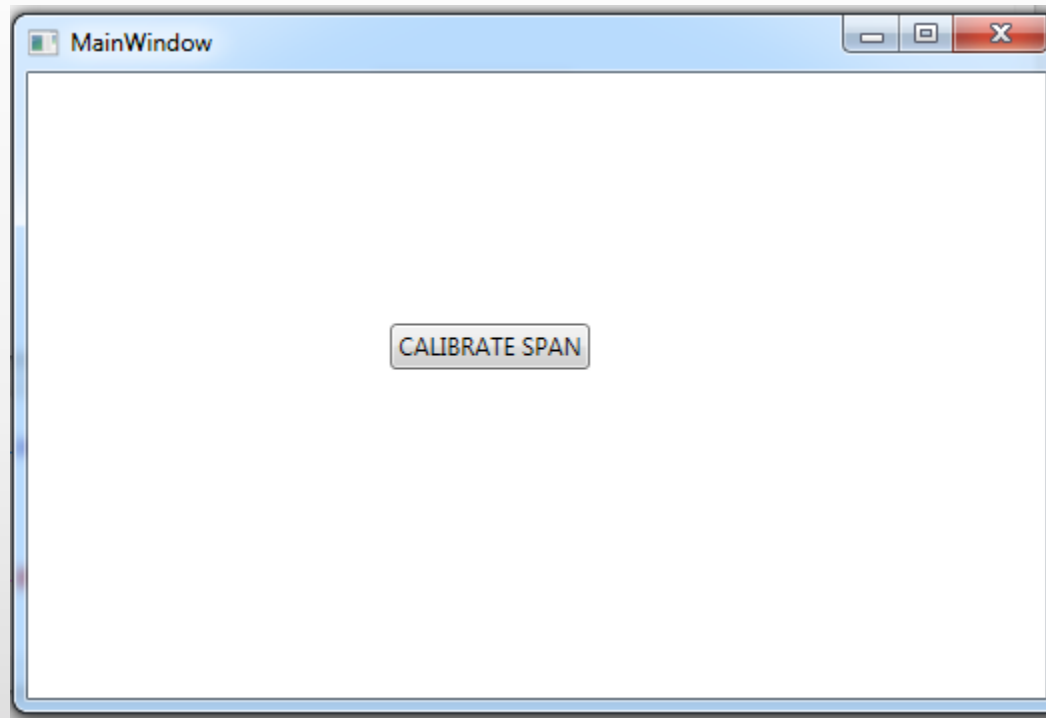


```
$ scala -cp scalatest-2.2.4.jar org.scalatest.run ExampleSpec
Run starting. Expected test count is: 2
ExampleSpec:
Feature: The user can pop an element off the top of the stack
  As a programmer
    I want to be able to pop items off the stack
    So that I can get them in last-in-first-out order
  Scenario: pop is invoked on a non-empty stack
    Given a non-empty stack
      When when pop is invoked on the stack
      Then the most recently pushed element should be returned
      And the stack should have one less item than before
  Scenario: pop is invoked on an empty stack
    Given an empty stack
      When when pop is invoked on the stack
      Then NoSuchElementException should be thrown
      And the stack should still be empty
Run completed in 96 milliseconds.
Total number of tests run: 2
Suites: completed 1, aborted 0
Tests: succeeded 2, failed 0, ignored 0, pending 0
All tests passed.
```




Windows
Presentation
Foundation





```
<Button DockPanel.Dock="Top" Content="CALIBRATE SPAN"
  Command="{Binding CalibrationViewModel.CalibrationCommand}"
  HorizontalAlignment="Center" Focusable="False" Margin="5"
  Padding="15,2">
```



Specifications

Feature: CalibrateTheInstrument

As a Technician,
I want to calibrate the instrument
So that the instrument will operate properly



Scenario: Instrument Calibration

Given Technician starts the application

And Technician views the instrument configuration

When Technician invokes an instrument calibration

Then Technician should see the calibration status message "Calibration in progress . . ."

And Technician is unable to invoke a calibration again

When Technician waits 15 seconds

Then Technician should see the calibration status message "Instrument Calibrated"



```
using AcceptanceTests.Personas;
using TechTalk.SpecFlow;

namespace AcceptanceTests
{
    public class CalibrateTheInstrument
    {
        private Technician _technician = Technician.GetTechnicianInstance();

        [When(@"Technician invokes an instrument calibration")]
        public void WhenTechnicianInvokesAnInstrumentCalibration()
        {
            _technician.InvokeInstrumentCalibration();
        }
    }
}
```

Glue Code



```
namespace AcceptanceTests.Personas
{
    public class Technician
    {
        CalibrationViewModel _calibrationViewModel;

        public bool InvokeInstrumentCalibration()
        {
            _calibrationViewModel.CalibrationCommand.Execute(null);
            return true;
        }
    }
}
```





O'REILLY®

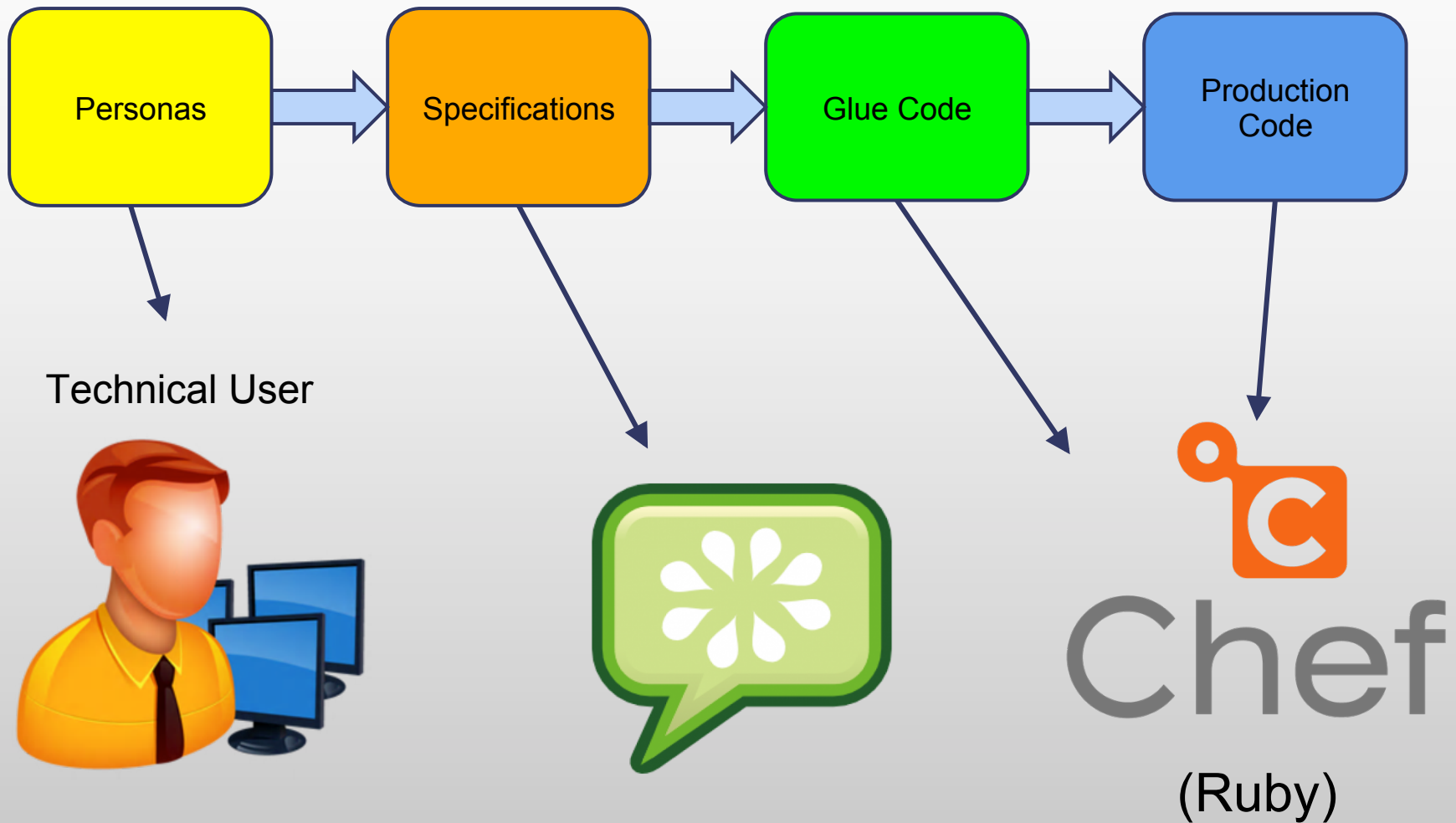
2nd Edition



Test-Driven Infrastructure with Chef

BRING BEHAVIOR-DRIVEN DEVELOPMENT
TO INFRASTRUCTURE AS CODE

Stephen Nelson-Smith



Feature: Technical team members can log into team server

So that we are more efficient with our time

As a technical team

We can connect to a shared server to collaborate on client work

Scenario: Users can connect to server via ssh key

Given a newly bootstrapped server

When the technical users recipe is applied

Then a user should be able to ssh to the server

Scenario: Default shell is bash

Given a newly bootstrapped server

When the technical users recipe is applied

And a user connects to the server via ssh

Then their login shell should be "bash"

Scenario: Users can change the default shell

Given a newly bootstrapped server

But with a user's default shell changed to "ksh"

When the technical users recipe is applied

And the user connects to the server via ssh

Then their login shell should be "ksh"

Specifications





Specifications



Feature: Highly Available Jenkins

Infrastructure developers should be able to enjoy uninterrupted access to their build jobs.

Background:

Given I have provisioned the following infrastructure:

Server Name	Operating System	Architecture	Version	Chef Version	Run List
lb1	CentOS	64 bit	6.4	11.4.4	tedious::ha
lb2	CentOS	64 bit	6.4	11.4.4	tedious::ha
jenkins1	CentOS	64 bit	6.4	11.4.4	tedious::jenkins
jenkins2	CentOS	64 bit	6.4	11.4.4	tedious::jenkins

And 'http://tedio.us' resolves to the virtual IP of the loadbalancer

Scenario: Jenkins should be available

Infrastructure developers should be able to reach and use a Jenkins server.

When I try to download the Jenkins CLI tool

Then the download will succeed

And when I query the version number

Then the version number will be returned

Scenario: Jenkins should be load-balanced

Infrastructure developers should be able to use Jenkins in the event of a Jenkins server failure

Given I am using a Jenkins server

When that Jenkins server is switched off

Then I should be able to reach an alternative Jenkins server

Scenario: Load balancers should be in a redundant pair

Given that I am using Jenkins

When one of the load balancers is switched off

Then I should still be able to use Jenkins



```
require 'leibniz'
require 'faraday'

Given(/^I have provisioned the following infrastructure$/) do |specification|
  @infrastructure = Leibniz.build(specification)
end

Given(/^I have run Chef$/) do
  @infrastructure.destroy
  @infrastructure.converge
end

Given(/^a url "(.*?)"$/) do |url|
  @host_header = url.split('/').last
end

When(/^a web user browses to the URL$/) do
  connection = Faraday.new(:url => "http://#{@infrastructure.
    ['wonderstuff'].ip}",
    :headers => {'Host' => @host_header}) do |faraday|
    faraday.adapter Faraday.default_adapter
  end
  @page = connection.get('/').body
end

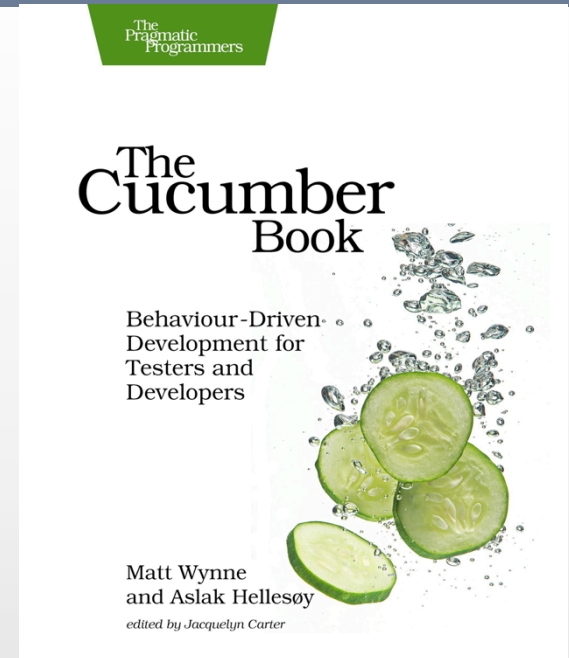
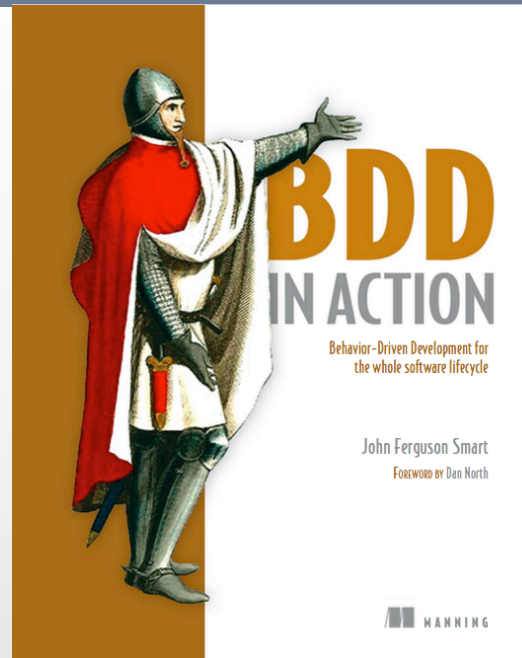
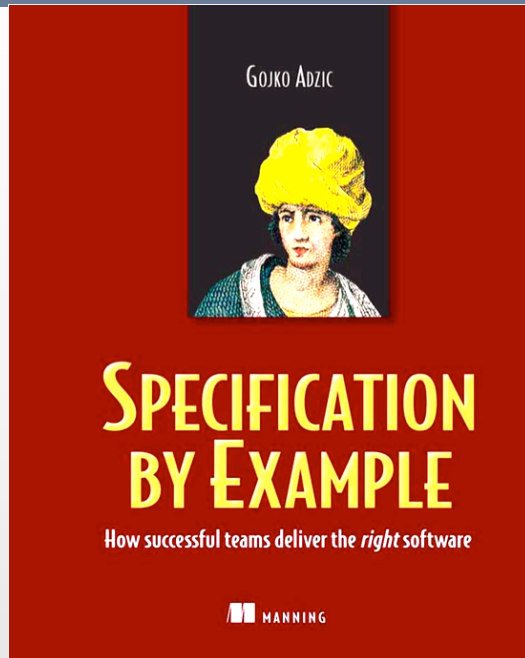
Then(/^the user should see "(.*?)"$/) do |content|
  expect(@page).to match /#{content}/
end
```

Glue Code



Chef

(Ruby)





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