

AUTOMATING USER INTERFACE TESTS WITH BDD

Jose Badeau, [ESGroup AG](#)
Dietmar Stoll, [itemis Schweiz GmbH](#)

MOTIVATION

- Improve test automation efficiency
- Reduce technical know-how for automation

EXAMPLE LOGIN STORY

WIREFRAME/MOCKUP

Designed by business analysts

Authentication

Login

Password

Automatic login

You don't have an account yet? [Register a new account](#)

TEST SPECIFICATION

Written by test writers

Test Login

Step 1: Navigate to the Login screen

Step 2: Enter "admin" into the Login field

Step 3: Enter "admin" into the Password field

Step 4: Check *Automatic Login*

Step 5: Click the Sign In button

Assert 1: You are on the Home Page

Assert 2: The title is "Welcome, Java Hipster!"

...

APPLICATION CODE

Implemented by app developer

```
<input type="text" id="username">  
<input type="password" id="password">  
<input type="checkbox" id="rememberMe">  
<button type="submit" id="signIn">Authenticate</button>
```

TEST CODE

Implemented by test or app developer

```
class LoginFeature {  
    public void loginWithAdminUser() {  
        driver.get("http://eclipse-finance-day/login");  
        WebElement element = driver.findElement(By.id("user"));  
        element.sendKeys("admin");  
        element = driver.findElement(By.id("password"));  
        element.sendKeys("admin");  
        element = driver.findElement(By.id("automaticLogin"));  
        element.check();  
        element = driver.findElement(By.id("signIn"));  
        element.submit();  
  
        Assert.true(driver.getTitle(), "Welcome, Java Hipster!");  
    }  
}
```

WIREFRAME/MOCKUP

Automatic login element is removed

Authentication

Login

Password

~~Automatic login~~

You don't have an account yet? [Register a new account](#)

ARTIFACT UPDATES

Case	Wireframe	Test spec	Test code	App code	Test Result
1	✓	X	X	✓	runtime fail
2	✓	✓	X	✓	runtime fail
...					

OUR APPROACH

BEHAVIOR DRIVEN DEVELOPMENT (BDD)

- Stakeholder and business-value oriented
- Textual test descriptions

BDD

Feature Login

As a registered user

I want to login

In order to use the application

Scenario Authenticate with admin user

Given I am on the Login screen

when I type "admin" into the Login textfield

and I type "admin" into the Password textfield

and I check the AutomaticLogin checkbox

and I click the Authenticate button

then I am on the Home screen

and the Title label contains "Welcome, Java Hipster!"

Scenario ...

...

BDD DSL

Feature Login

As a registered user

I want to login

In order to use the application

Scenario Authenticate with admin user

Given I am on the Login screen

when I type "admin" into the Login textfield

and I type "admin" into the Password textfield

and I check the AutomaticLogin checkbox

and I click the Authenticate button

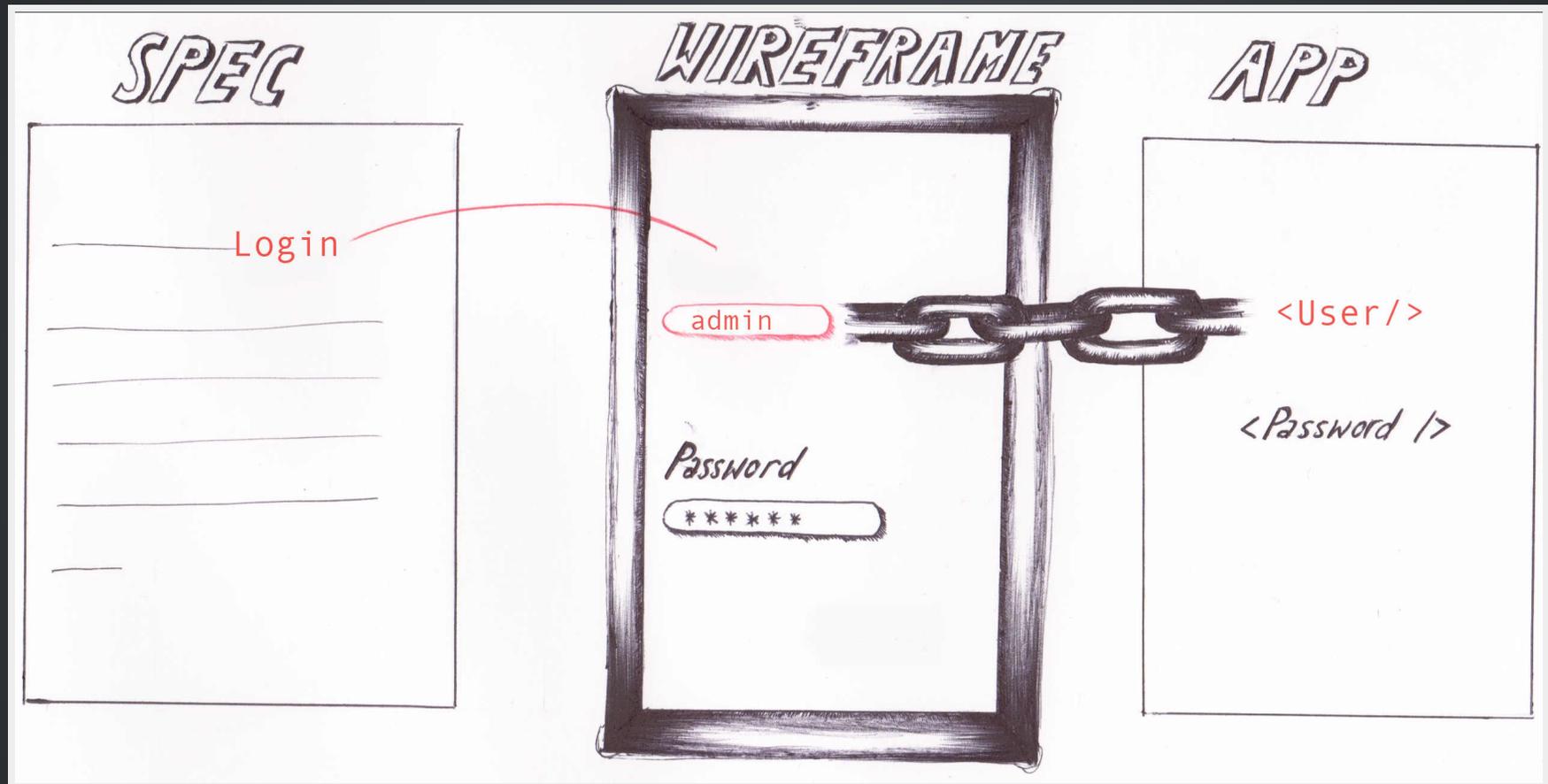
then I am on the Home screen

and the Title label contains "Welcome, Java Hipster!"

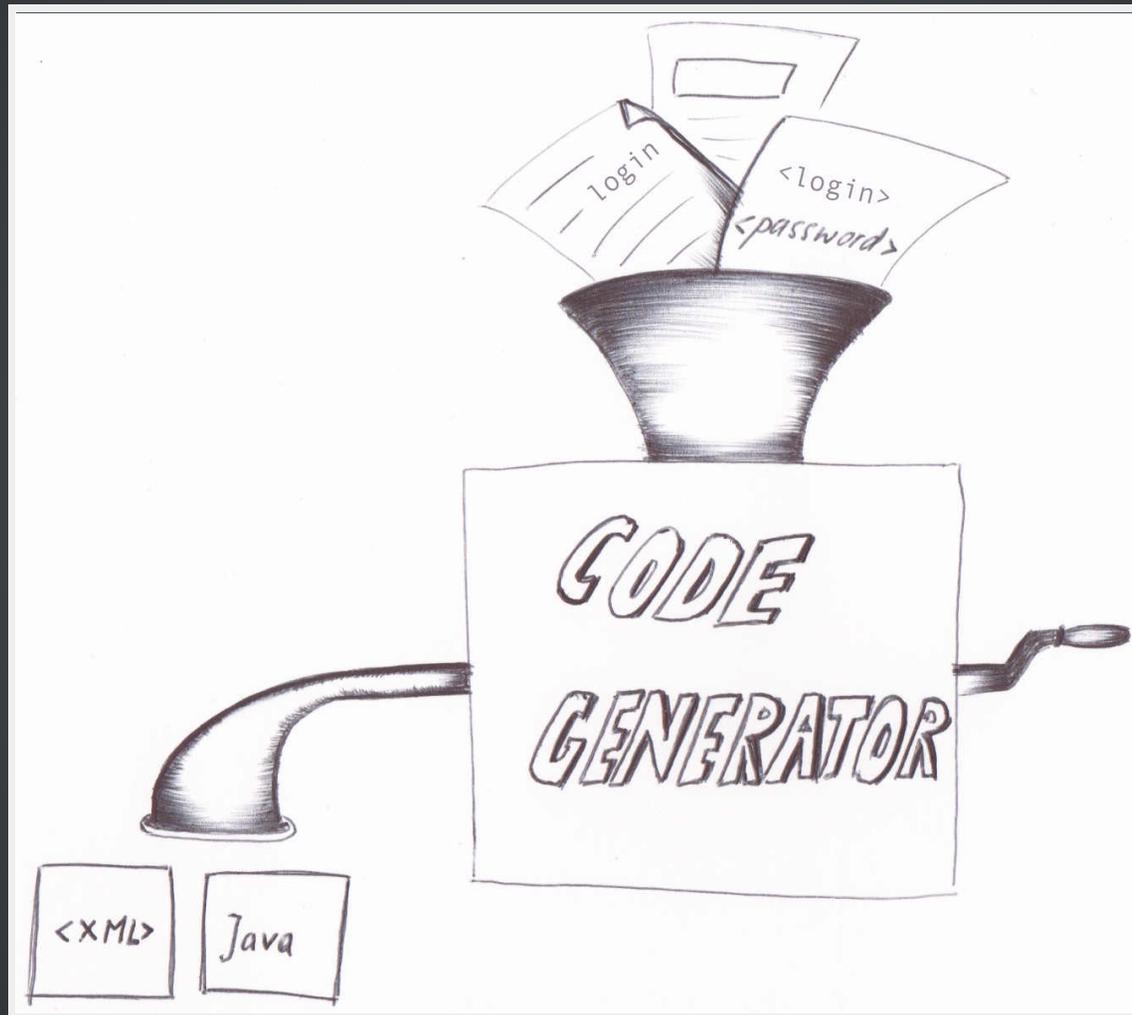
Scenario ...

...

LINK THE ARTIFACTS



CODE GENERATOR



DEMO

Let's go!

PROS

- Separation of Concerns
 - Wireframe - Business Analyst
 - BDD DSL - Test Writer
 - Mapping - App Developer
- Detect breaking tests at development time
- Self documenting, clearly readable tests
- Encourages reuse
- Generate test code for multiple drivers e.g. Jubula, Tosca
- Ability to integrate with vendor testing stack and processes like agile, TDD, waterfall

CONS

- Test writers have to learn BDD DSL
- Business analysts must keep wireframes up to date

FUTURE

- Open source
- Web-based wireframes
- Integrate perceptual diff support (already partially available)
- Migrate to Gherkin syntax
- Additional generators (TOSCA, JUBULA, QTP)

QUESTIONS?

info at [esgroup.ch](mailto:info@esgroup.ch)

info at [itemis-schweiz.ch](mailto:info@itemis-schweiz.ch)

TOOLS USED

- Wireframesketcher
- Xtext
- Geb/Spock
- JHipster