

# AUTOMATING USER INTERFACE TESTS WITH BDD

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# 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

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

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# 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~~

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# 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

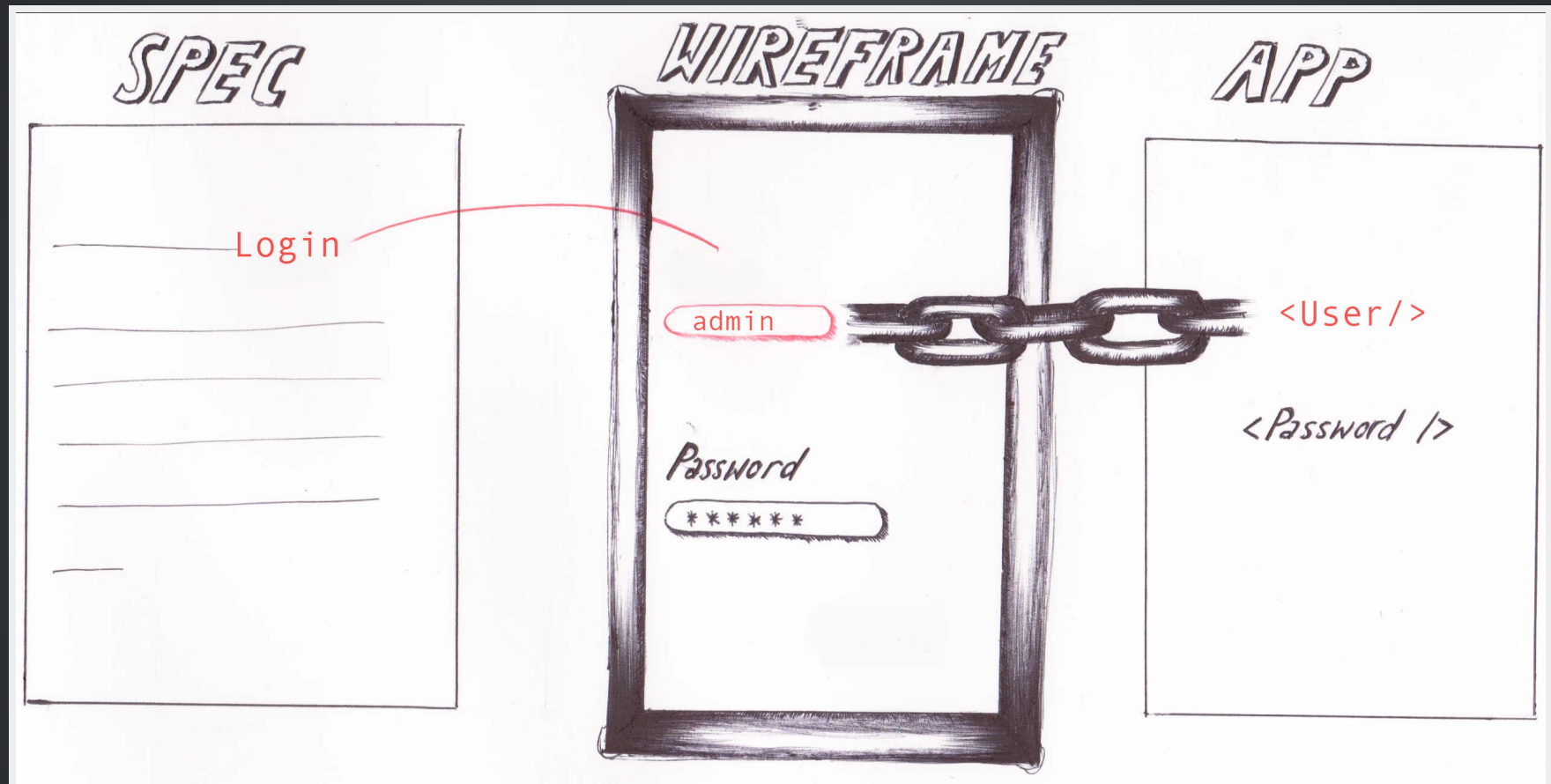
**then** I am on the Home screen

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

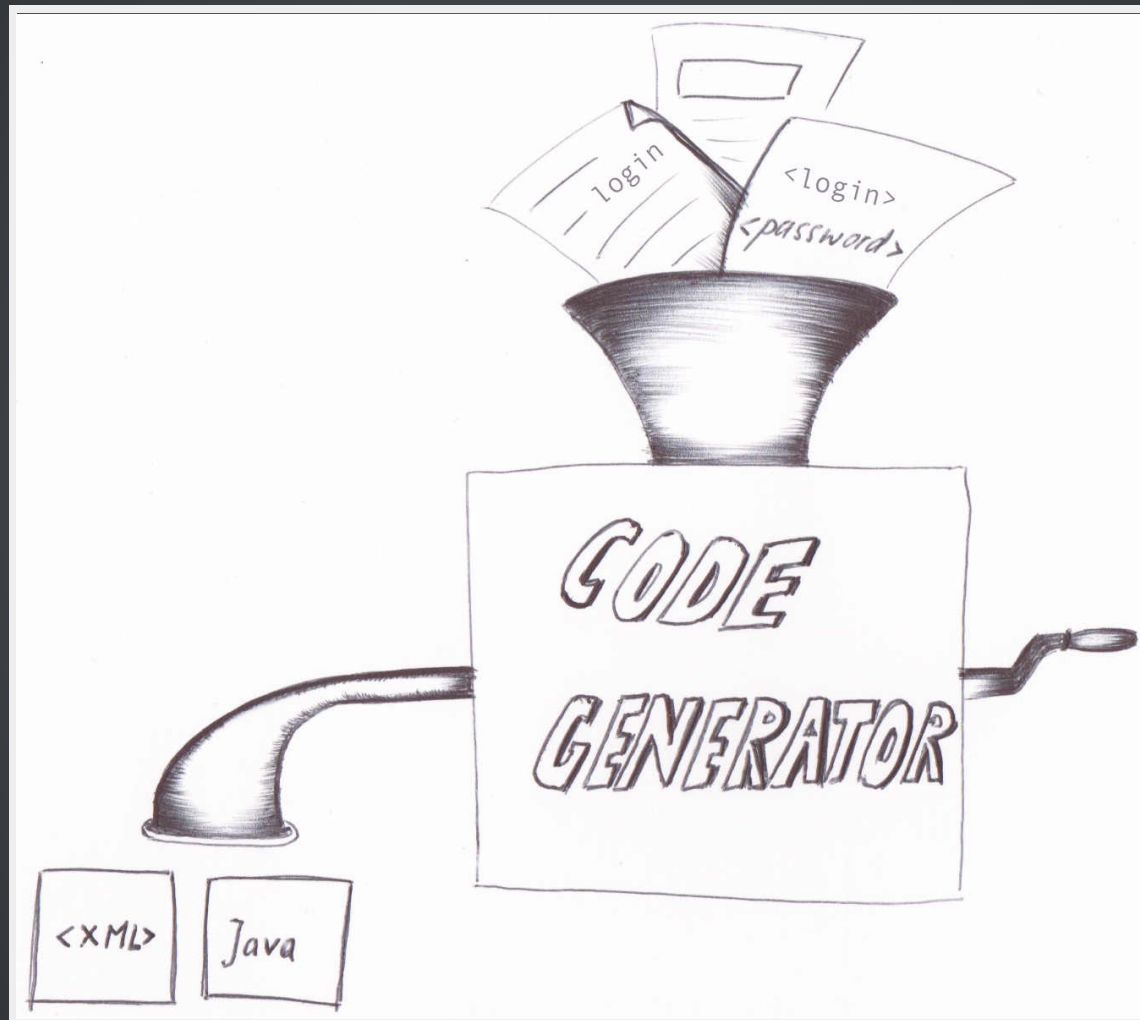
**Scenario** ...

...

# 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 to 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?

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# TOOLS USED

- Wireframesketcher
- Xtext
- Geb/Spock
- JHipster