AUTOMATING USER INTERFACE TESTS WITH BDD

Jose Badeau, ESGroup AG
Dietmar Stoll, itemis Schweiz GmbH

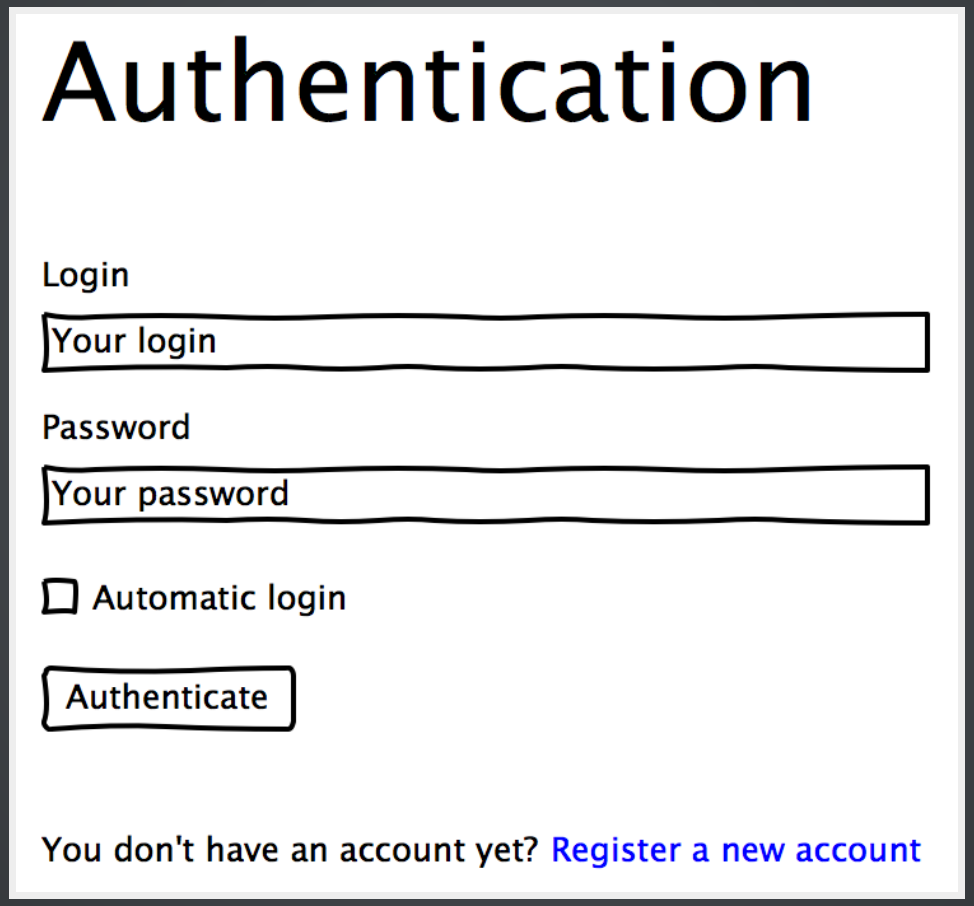
MOTIVATION

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

EXAMPLE LOGIN STORY

WIREFRAME/MOCKUP

Designed by business analysts



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>
```

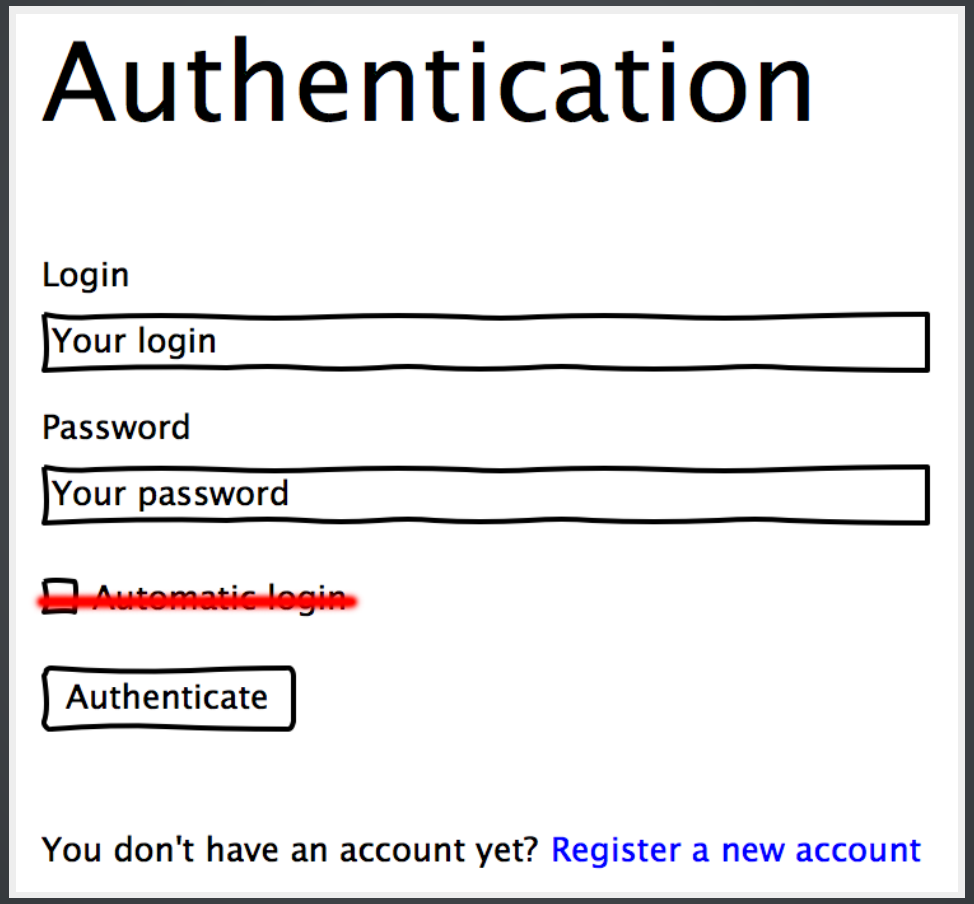
TEST CODE

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



ARTIFACT UPDATES

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

OUR APPROACH

BEHAVIOR DRIVEN DEVELOPMENT (BDD)

- Stakeholder and business-value oriented
- Textual test descriptions

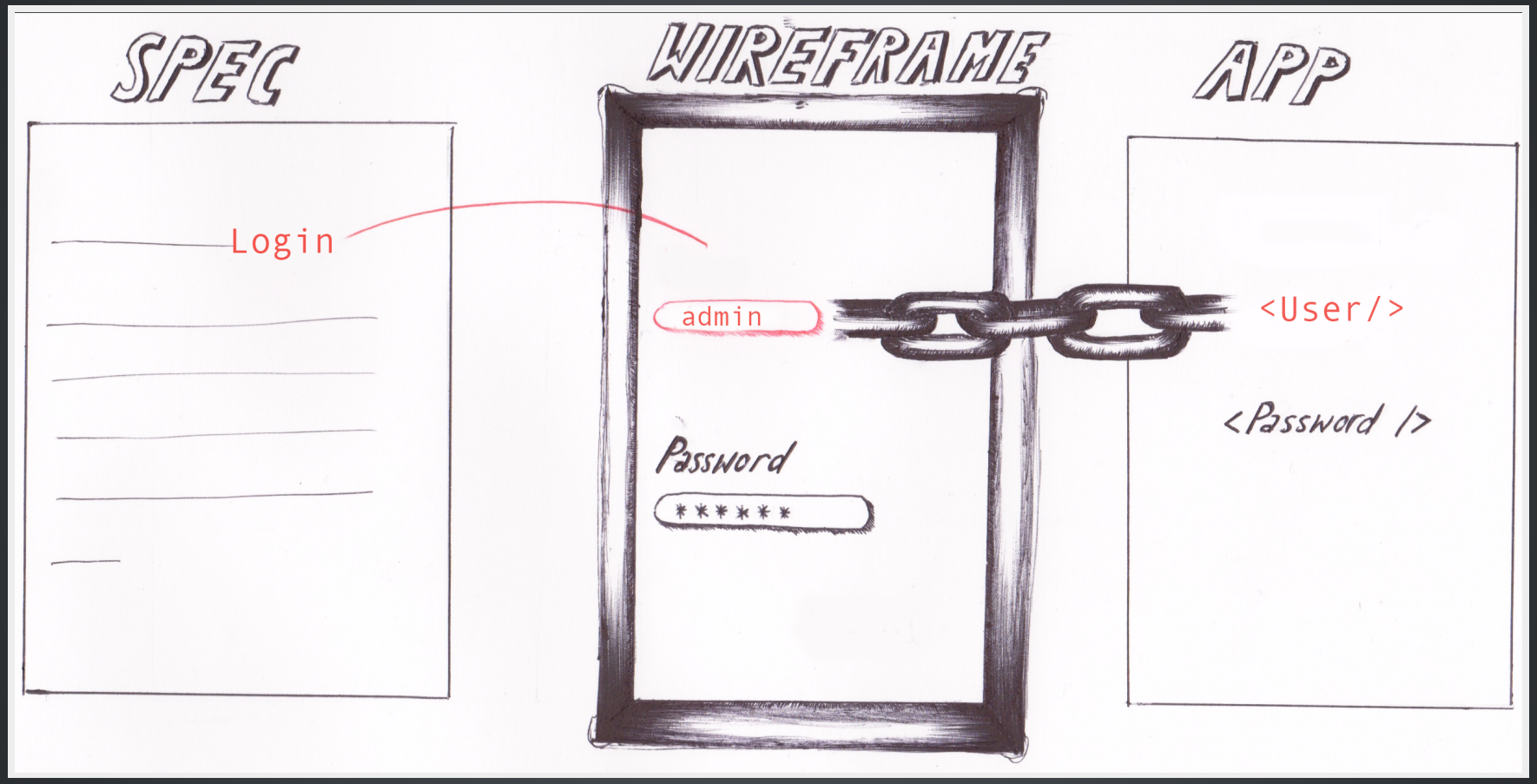
BDD

```
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 ...
...
```

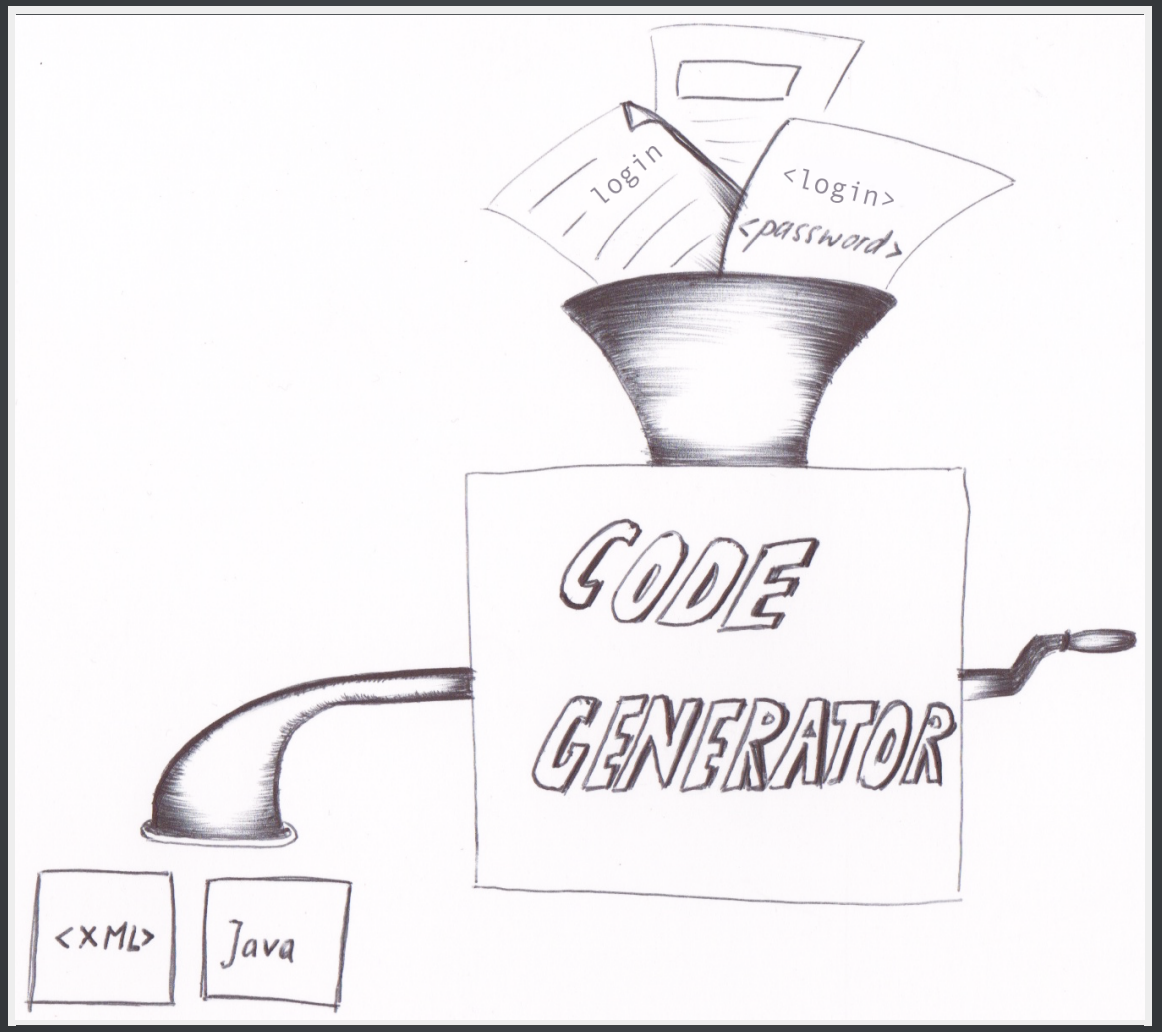
BDD DSL

```
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?

info at esgroup.ch
info at itemis-schweiz.ch

TOOLS USED

- Wireframesketcher
- Xtext
- Geb/Spock
- JHipster