Agile Acceptance Tests

bdd, cucumber, cuke4duke, groovy, selenium2, webdriver

Richard Paul, June 2010

Behaviour Driven Development (BDD)

Feature
In order to ...
As a ...
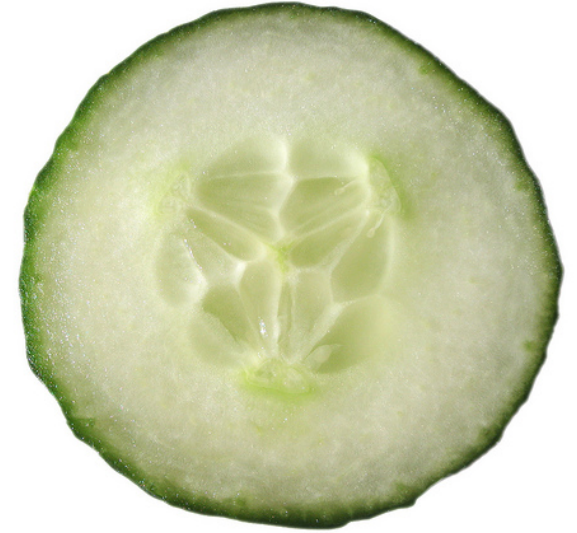I want ...

Scenario
Given ...
When ...
Then ...

This is just a small part of BDD directly related to acceptance testing.

Cucumber

BDD testing framework written in Ruby

Cucumber + JRuby + Cuke4Duke

=

BDD testing framework for the **JVM**

Languages: **Groovy**, Java, Scala, Javascript, Ioke, Ruby
Frameworks: Spring, Guice, WebDriver, Maven, Ant

Kick Start

$ git clone http://github.com/aslakhellesoy/cuke4duke.git
$ cd examples/groovy-webdriver
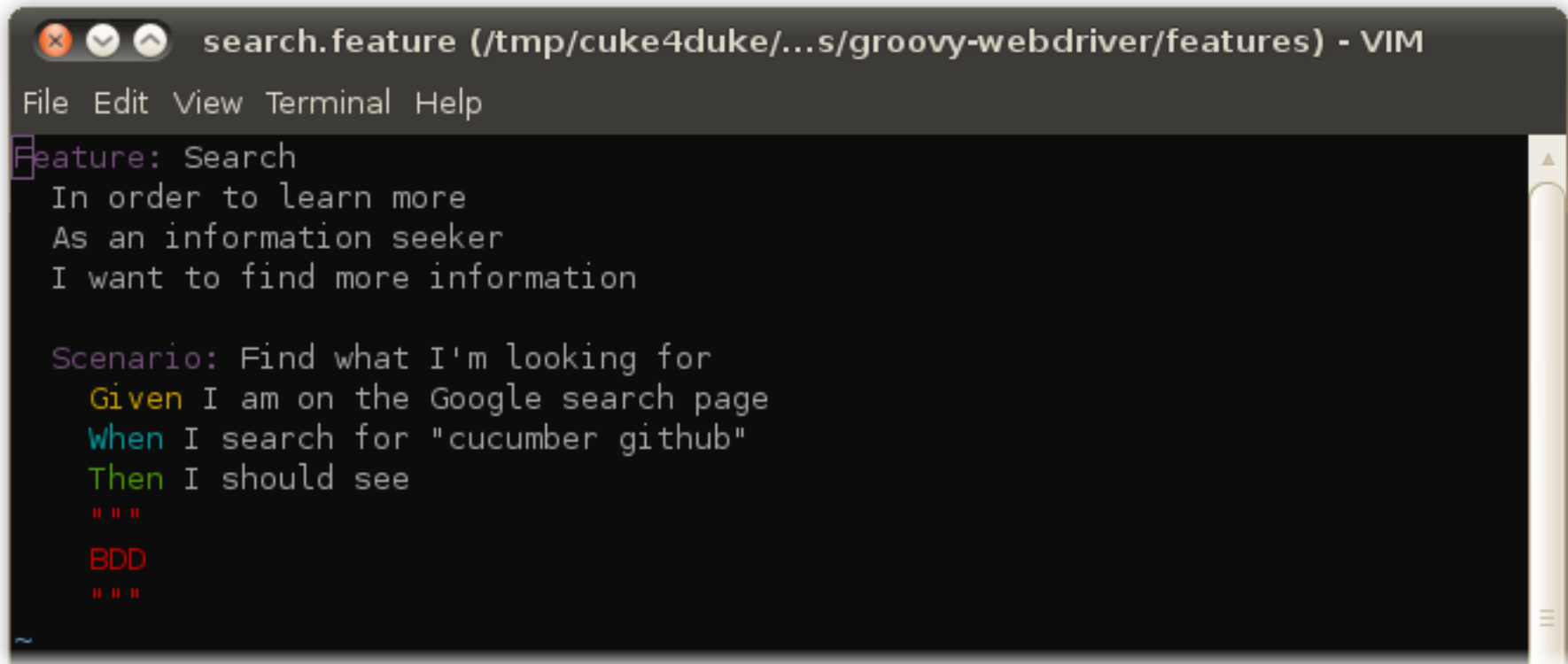**$ mvn integration-test**

The first time you run a version of Cucumber you need to install the Ruby gems:
$ mvn -Dcucumber.installGems=true cuke4duke:cucumber

Warnings: Bleeding edge. First run will download a lot of dependencies.

Syntax - Gherkin

Steps

Given - Set up the context
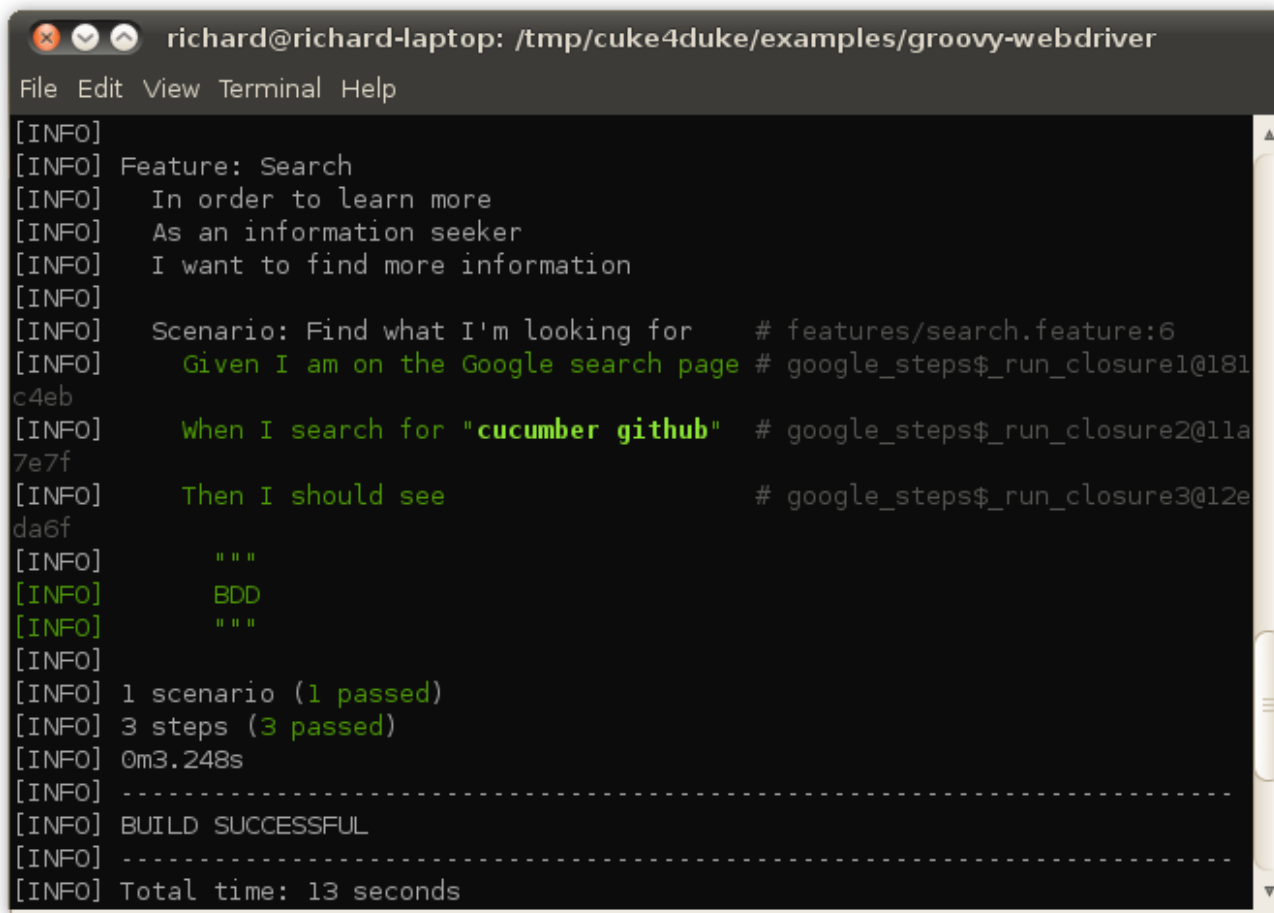
When - Perform an action

Then - Verify outcome

Can use **And** to chain additional steps of the same type

Running Cucumber

$ mvn integration-test (Maven phase)

$ mvn cuke4duke:cucumber (Maven goal)

Automation - Step Definitions

```groovy
import org.openqa.selenium.By
import static org.junit.Assert.*
import static org.junit.matchers.JUnitMatchers.*

this.metaClass.mixin(cuke4duke.GroovyDsl)

Given(~"I am on the Google search page") { ->
  browser.get("http://google.com/")
}

When(~"I search for \"(.*)\"") { String query ->
  searchField = browser.findElement(By.name("q"))
  searchField.sendKeys(query)
  // WebDriver will find the containing form for us from the searchField element
  searchField.submit()
}

Then(~"I should see") { String text ->
  assertThat(browser.getPageSource(), containsString(text))
}

~
~
~
"features/step_definitions/google_steps.groovy" 21L, 579C        1,1              All
```
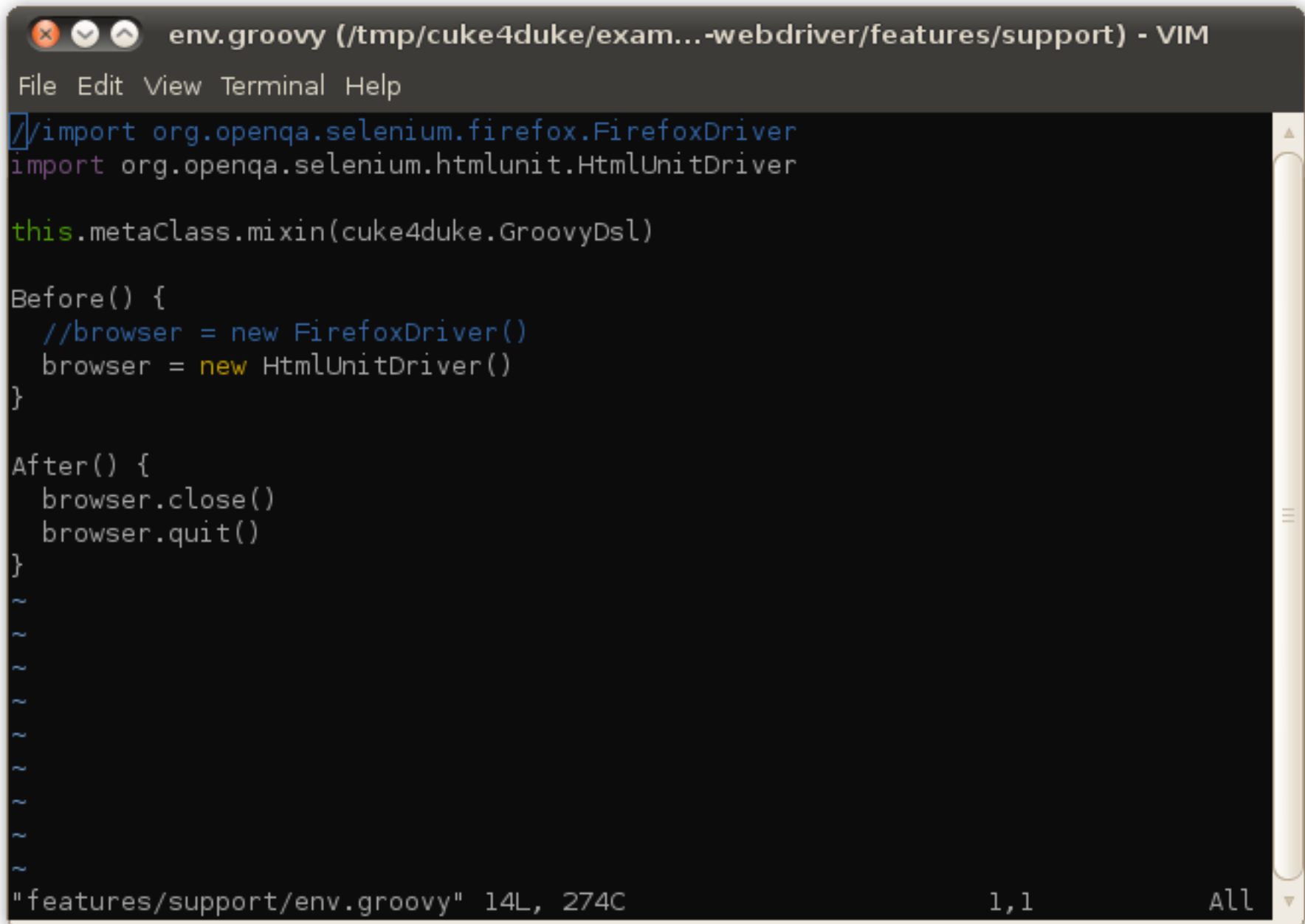
Where does browser come from?


```groovy
//import org.openqa.selenium.firefox.FirefoxDriver
import org.openqa.selenium.htmlunit.HtmlUnitDriver

this.metaClass.mixin(cuke4duke.GroovyDsl)

Before() {
   //browser = new FirefoxDriver()
   browser = new HtmlUnitDriver()
}

After() {
   browser.close()
   browser.quit()
}
```

GroovyDsl

Given(~'repeated \d+ times') { times ->
  // check something appears x times
}
Same applies for **When, Then, And**

Before('tag') {
  // run code before a scenario
}
After('tag') {
  // run code after a scenario
}
World() {
  // see http://bit.ly/davWpW for more details
}

Selenium 2 - WebDriver

Selenium 2 is the melding of Selenium and the WebDriver API

```
browser = new FirefoxDriver() // Or IE etc
browser.get('http://example.com')
browser.findElementByClassName('navigation')
browser.findElementsByCssSelector('#results li')
findElementByXXX returns a WebElement for first match
findElementsByXXX return a collection of matches

element.text    // getText() in Java
element.click()
element.sendKeys('type something')
element.value
element.selected
element.getAttribute('href')
```

Groovyisms - Collections

```
<ul>
  <li>1</li>
  <li>2</li>
  <li>3</li>
</ul>

def elements = browser.findElementsByTagName('li')
elements.text
> ['1', '2', '3']

// Check the numbers increase
elements.eachWithIndex { element, i ->
  assertThat(element.text, is(i + ''))
}
```

When? Why?

- Acceptance tests are written up front
- Defines the scenarios you need to code
- Facilitates discussion on different scenarios
- Once green you are done
- Leads to no unnecessary code (YAGNI)
- Acceptance criteria automatically becomes regression suite

Amber > Red > Green
Pending > Failing > Passing

How?

- Acceptance tests are first class artifacts
- Keep code DRY by reusing steps
- Refactor steps to keep them clean
- Focus on actions not tasks

Good
Given I am signed in as an administrator
When I view the list of signed in users
Then I should see ...

Bad (unless you are trying to test sign in)
Given I am on the home page
And I click 'Sign in'
And I fill in username with 'admin'
And I fill in password with 'secret'
And I press 'Sign in'

Links

http://cukes.info/
http://wiki.github.com/aslakhellesoy/cuke4duke/
http://github.com/tpope/vim-cucumber
http://selenium.googlecode.com/svn/trunk/docs/api/java/index.html
http://www.rapaul.com/tag/bdd/

Cucumber photo (creative commons) http://www.flickr.com/photos/vizzzual-dot-com/2738586453/

Thanks!

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