COMP5222 Group Project
Behavior-Driven Development Survey Taken Cucumber As An Example

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What Is Behavior-Driven Development

Behavior-driven development (BDD) is a software development process developed on test-driven development (TDD) in software engineering field. The traditional techniques and principles of TDD and thoughts from domain-driven design and object-oriented analysis and design are combined togother. It provides software developers and business analysts with common tools and a common process to cooperate in software development process.

BDD is principally based on the concept that software development should be performed by both business side and technical side.The practice of BDD relys on the use of customized software tools to support this development process. This development environment is not only specifically developed for use in BDD projects, but also it can be used as a specialized forms of the tool-chain that supports test-driven development. The central theme of BDD is the tools who automate the testing from specifications written with ubiquitous language.

The most important includes:

1. The Acceptance Test is not written by coder, but by the client. (features and scenarios)
2. The Acceptance Test can be written in natural language, but not in programming languages.
3. The defination of the product is consistent with the code, testable and reliable through the whole life cycle of the product.

Definition of BDD

Agile testing, the philosophy behind BDD

1. human
2. less is more
3. fast iteration
4. testable
5. refactor

The concept of behavior-driven development

1. the outer and inner circles
2. cucumber and rspec

Steps and processes of BDD

1. client spec
2. begin iter
3. write feature
4. falling the feature
5. pass the feature
6. refactor the code
7. end iter

BDD softwares in different languages

See references from here http://behaviordrivendevelopment.wikispaces.com/MoreTools.

- ASSpec - ActionScript 3
- Aero - PHP 5
- Aubergine - .NET
- BDoc - Extracting documentation from unit tests, supporting behavior driven development

- BDD in Python - is core module doctest
- Bumblebee - Extract documentation from JUnit tests with support for adding text, code-snippets, screenshots and more. Puts focus on the end-user.
- beanSpec - Java
- Behat - PHP implementation of the Gherkin Domain-specific language
- Cedar - Objective C
- CppSpec - C++
- cfSpec - ColdFusion
- CSpec - C
- dSpec - Delphi
- Concordion - a Java automated testing tool for BDD that uses plain English to describe behaviors.
- Cucumber - Plain text + Ruby. Works against Java, .NET, Ruby, Flex or any web application via Watir or Selenium.
- easyb - Groovy/Java
- EasySpec - Groovy, usable in Java. Developer also working on Perception a tool for doing Context/Specification reporting for many different tools.
- EXTasy - Behavior-driven framework for ExtJS interfaces. Written in python.
- FitNesse - Java, .NET, C++, Delphi, Python, Ruby, Smalltalk, Perl. Now supports BDD directly with plain text tables and scenarios.
- Freshen - Python - clone of the Cucumber BDD framework
- GivWenZen - Java and FitNesse
- GivWenZen for Flex and ActionScript3 - Flex cousin of Java GivWenZen
- GSpec - Groovy
- Igloo - C++
- Instinct - Java
- Jasmine - JavaScript - framework-independent BDD with easy CI integration
- JavaStubs - Java - BDD framework supporting partial-mocking/method stubbing

- JBee - Java
- JBehave - Java - The first BDD framework, now at version 3.x
- JDave - Java
- JFXtras Test - JavaFX
- JSpec - JavaScript - BDD framework independent, async support, multiple reporters (terminal, dom, server, console, etc.), Rhino support, over 50 matchers and much more
- JSSpec - JavaScript
- Kiwi - RSpec like BDD library for iOS
- Lettuce - a Cucumber-like BDD tool for Python
- Morelia viridis - Cucumber clone for Python
- MSpec - .NET
- NBehave - .NET
- NSpec - .NET
- NUnit - A TDD framework in .NET which can be used for BDD examples and scenarios
- ObjectiveMatchy - iPhone - A Matcher System for iPhone development.
- Pyccuracy - Behavior-driven framework in Python.
- Pyhistorian - General purpose BDD Story Runner in Python (internal DSL, not plain-text)
- PyCukes - Cucumber-like BDD tool built on top of Pyhistorian
- Robot Framework - Generic keyword-driven test automation framework for acceptance level testing and acceptance test-driven development (ATDD) written in Python
- RSpec - Ruby
- Spock - Spock is a testing and specification framework for Java and Groovy
- SSpec - SSpec is the BDD framework for Smalltalk (multiple dialects) created by Dave Astels
- SpecFlow - SpecFlow is inspired by Cucumber and the community around it. Binding business requirements to .NET code
- screw-unit - JavaScript

- ScalaTest - Scala
- specs - Scala
- spec-cpp - C++
- Spectacular - Open source BDD and ATDD tool incorporating several types of tests in a single document and introduces Executable Use Cases
- Specter - Another implementation of BDD framework in .NET with focus on specification readability
- StoryQ - .NET 3.5, can be integrated with NUnit to provide both specification readability and testing
- TickSpec - Gherkin based framework supporting F# and C#
- tspec - Groovy/Java (Thai syntax)
- Tumbler - Java. Integrated with JUnit
- Twist - Commercial Eclipse-based tool for creating executable specifications
- Vows - JavaScript
- XSpec - XPath, XSLT and XQuery

Cucumber - A Ruby Based BDD Software

Specification based acceptance testing

Features and scenarios

Structure of scenarios

Gherkin, a language describing the specification

Organizing and tagging of features

An Example Project Using Cucumber

Specifications of a cloud based image processing website

The first prototype, image uploading and showing

The second iteration, core image processing

The third iteration, security and style issue

The fourth iteration, refactoring

Defects And Pitfalls of BDD

How to write great features

How to organize features

BDD using different languages