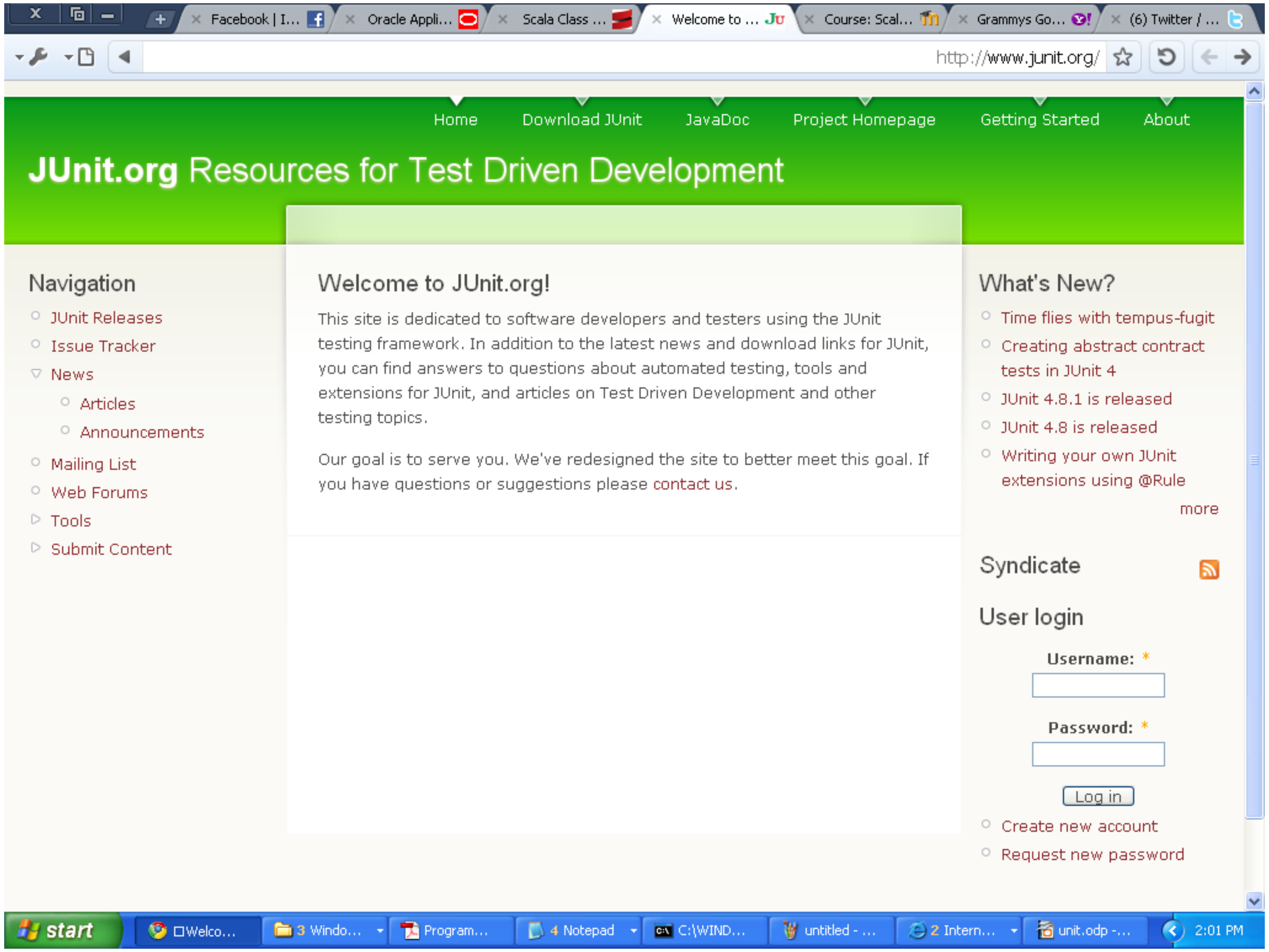
Unit Testing

Introduction

- We can use various tools for performing our unit testing. These tools can be either Java based tools (such as `JUnit` or `TestNG`) or Scala based tools (such as `ScalaTest`, `Specs` and `ScalaCheck`).

Introduction



JUnit.org Resources for Test Driven Development

Navigation

- JUnit Releases
- Issue Tracker
- News
  - Articles
  - Announcements
- Mailing List
- Web Forums
- Tools
- Submit Content

Welcome to JUnit.org!

This site is dedicated to software developers and testers using the JUnit testing framework. In addition to the latest news and download links for JUnit, you can find answers to questions about automated testing, tools and extensions for JUnit, and articles on Test Driven Development and other testing topics.

Our goal is to serve you. We've redesigned the site to better meet this goal. If you have questions or suggestions please contact us.

What's New?

- Time flies with tempus-fugit
- Creating abstract contract tests in JUnit 4
- JUnit 4.8.1 is released
- JUnit 4.8 is released
- Writing your own JUnit extensions using @Rule

more

Syndicate

User login

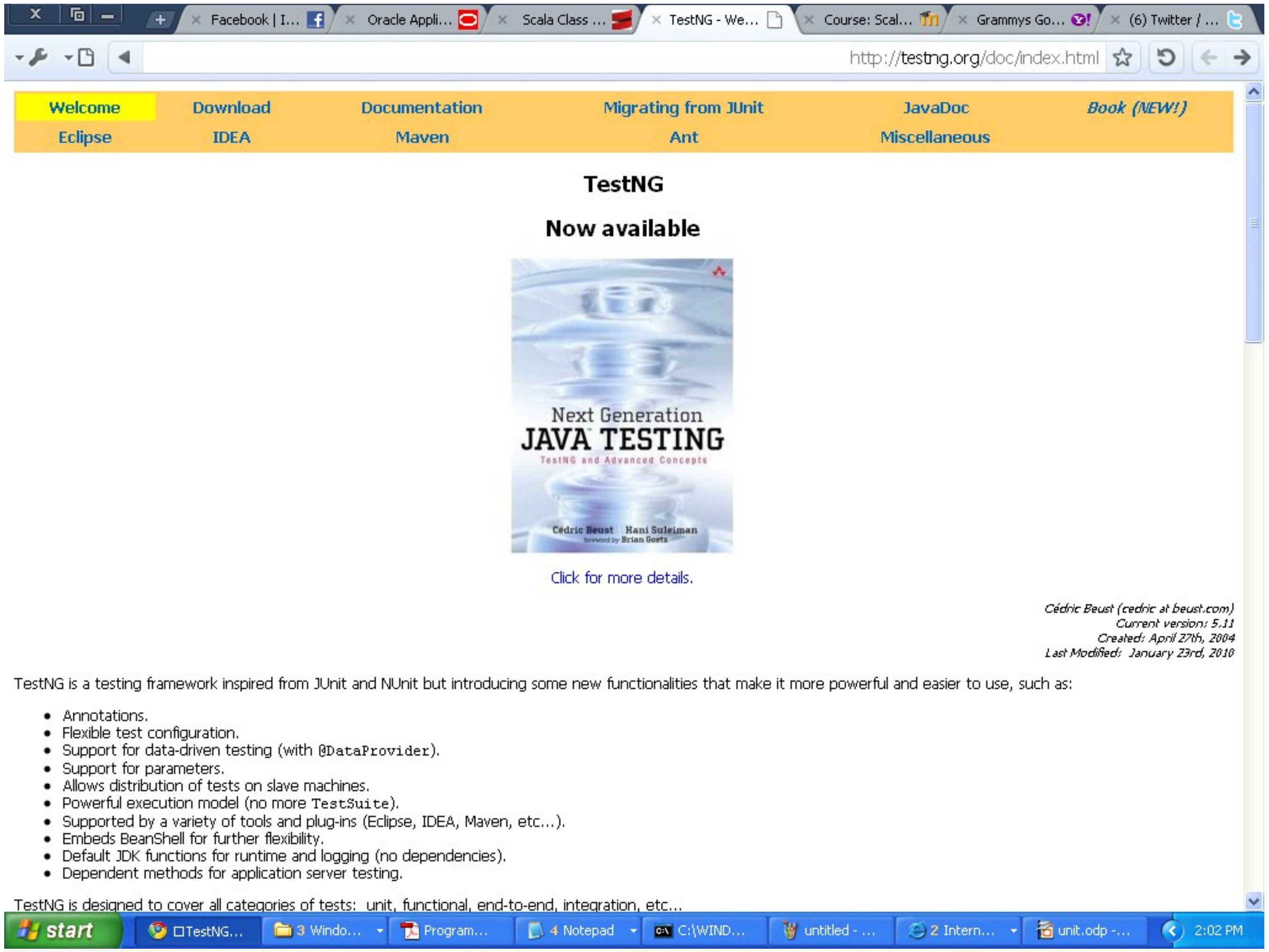
Username: *

Password: *

Log in

- Create new account
- Request new password

Introduction



TestNG

Now available

Click for more details.

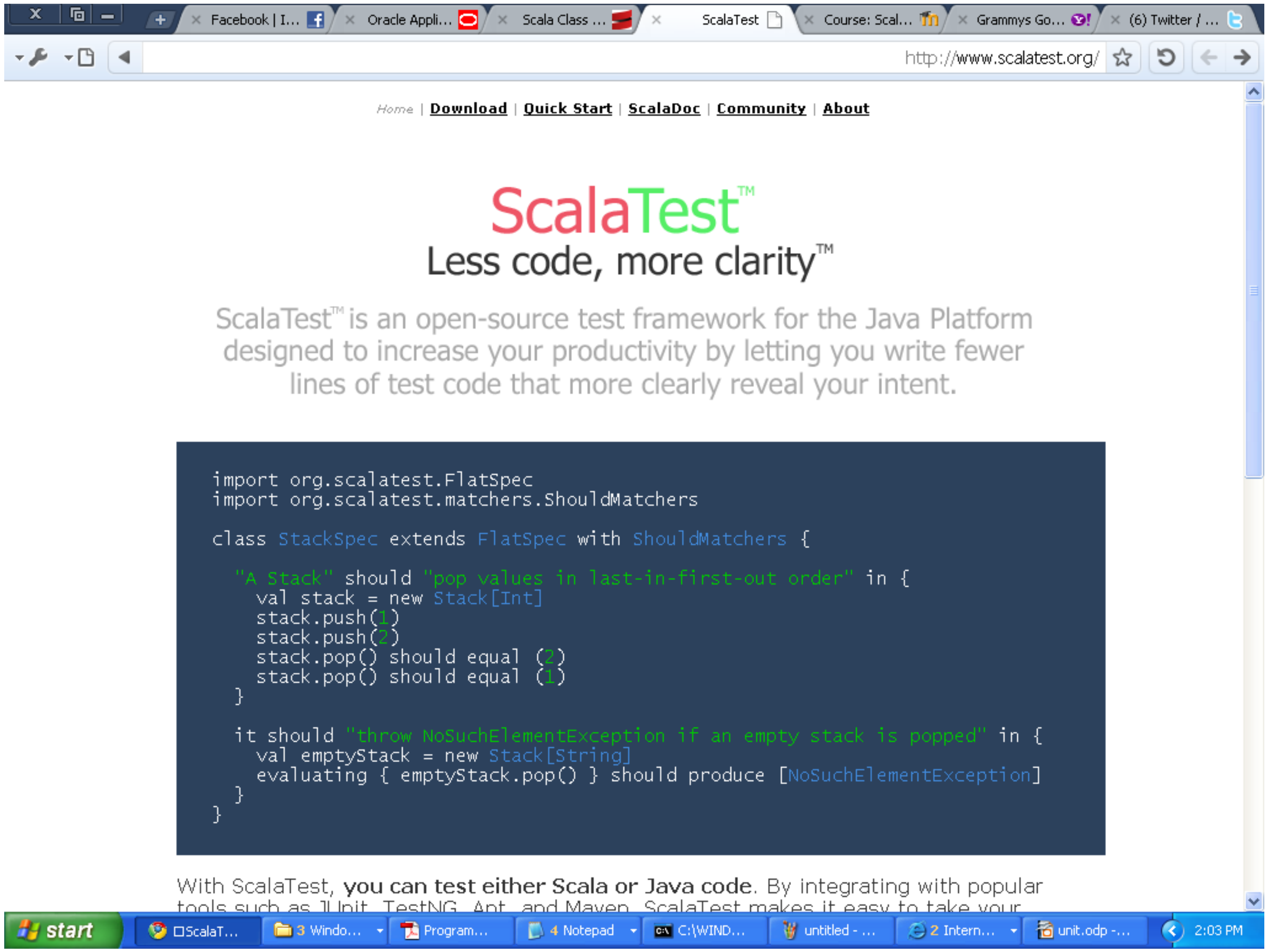
Cédric Beust (cedric at beust.com)
Current version: 5.11
Created: April 27th, 2004
Last Modified: January 23rd, 2010

TestNG is a testing framework inspired from JUnit and NUnit but introducing some new functionalities that make it more powerful and easier to use, such as:

- Annotations.
- Flexible test configuration.
- Support for data-driven testing (with `@DataProvider`).
- Support for parameters.
- Allows distribution of tests on slave machines.
- Powerful execution model (no more `TestSuite`).
- Supported by a variety of tools and plug-ins (Eclipse, IDEA, Maven, etc...).
- Embeds BeanShell for further flexibility.
- Default JDK functions for runtime and logging (no dependencies).
- Dependent methods for application server testing.

TestNG is designed to cover all categories of tests: unit, functional, end-to-end, integration, etc...

Introduction



ScalaTest™

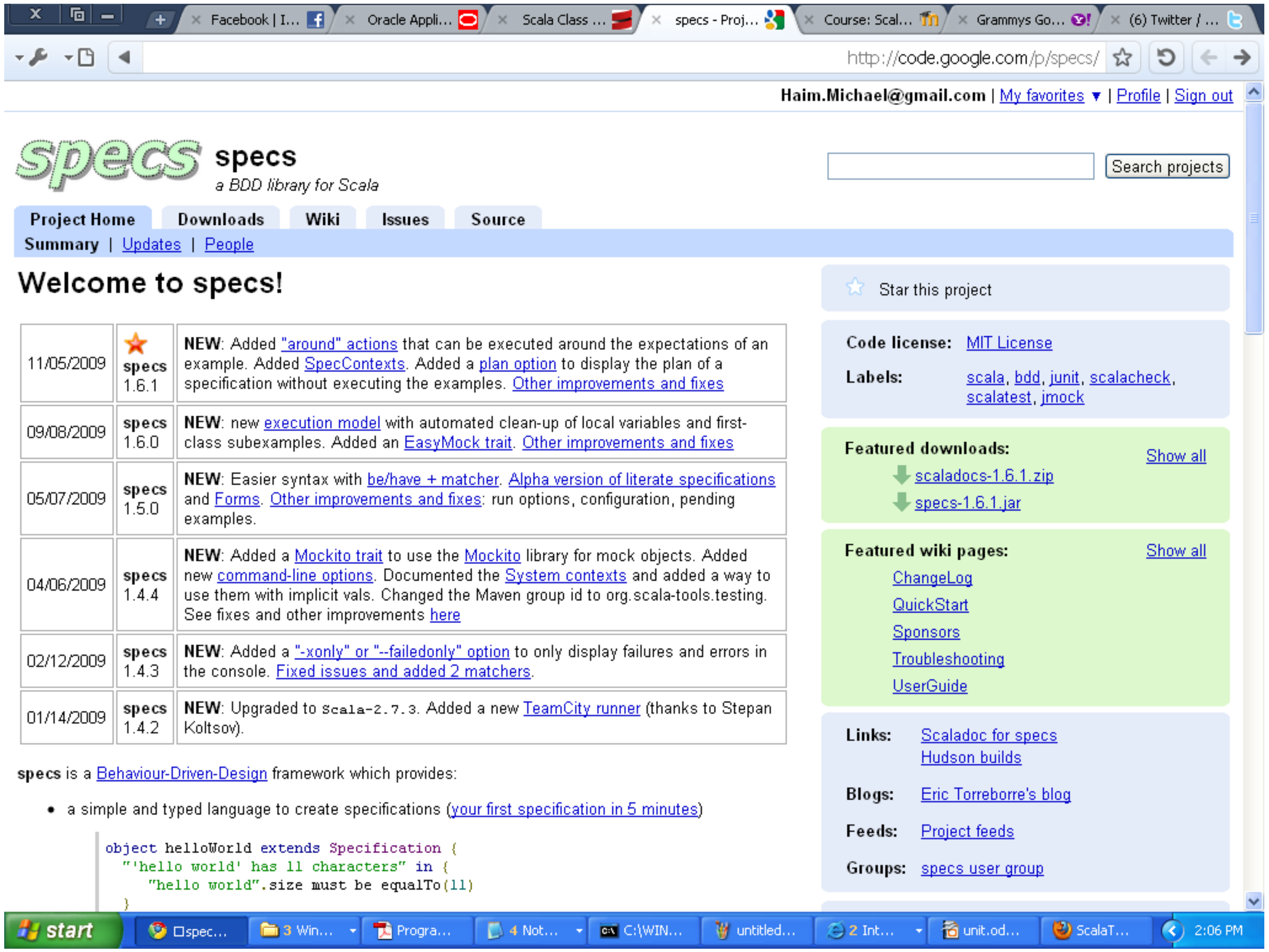
Less code, more clarity™

ScalaTest™ is an open-source test framework for the Java Platform designed to increase your productivity by letting you write fewer lines of test code that more clearly reveal your intent.

```
import org.scalatest.FlatSpec
import org.scalatest.matchers.ShouldMatchers

class StackSpec extends FlatSpec with ShouldMatchers {

  "A Stack" should "pop values in last-in-first-out order" in {
    val stack = new Stack[Int]
    stack.push(1)
    stack.push(2)
    stack.pop() should equal (2)
    stack.pop() should equal (1)
  }

  it should "throw NoSuchElementException if an empty stack is popped" in {
    val emptyStack = new Stack[String]
    evaluating { emptyStack.pop() } should produce [NoSuchElementException]
  }
}
```

With ScalaTest, **you can test either Scala or Java code**. By integrating with popular tools such as JUnit, TestNG, Ant, and Maven, ScalaTest makes it easy to take your

Introduction



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specs
a BDD library for Scala

Project Home | Downloads | Wiki | Issues | Source

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Welcome to specs!

11/05/2009	specs 1.6.1	NEW: Added "around" actions that can be executed around the expectations of an example. Added SpecContexts. Added a plan option to display the plan of a specification without executing the examples. Other improvements and fixes
09/08/2009	specs 1.6.0	NEW: new execution model with automated clean-up of local variables and first-class subexamples. Added an EasyMock trait. Other improvements and fixes
05/07/2009	specs 1.5.0	NEW: Easier syntax with be/have + matcher. Alpha version of literate specifications and Forms. Other improvements and fixes: run options, configuration, pending examples.
04/06/2009	specs 1.4.4	NEW: Added a Mockito trait to use the Mockito library for mock objects. Added new command-line options. Documented the System contexts and added a way to use them with implicit vals. Changed the Maven group id to org.scala-tools.testing. See fixes and other improvements here
02/12/2009	specs 1.4.3	NEW: Added a "-xonly" or "--failedonly" option to only display failures and errors in the console. Fixed issues and added 2 matchers.
01/14/2009	specs 1.4.2	NEW: Upgraded to scala-2.7.3. Added a new TeamCity runner (thanks to Stepan Koltsov).

specs is a Behaviour-Driven-Design framework which provides:

- a simple and typed language to create specifications (your first specification in 5 minutes)

```
object helloWorld extends Specification {
  "'hello world' has 11 characters" in {
     "hello world".size must be equalTo(11)
  }
```

Star this project

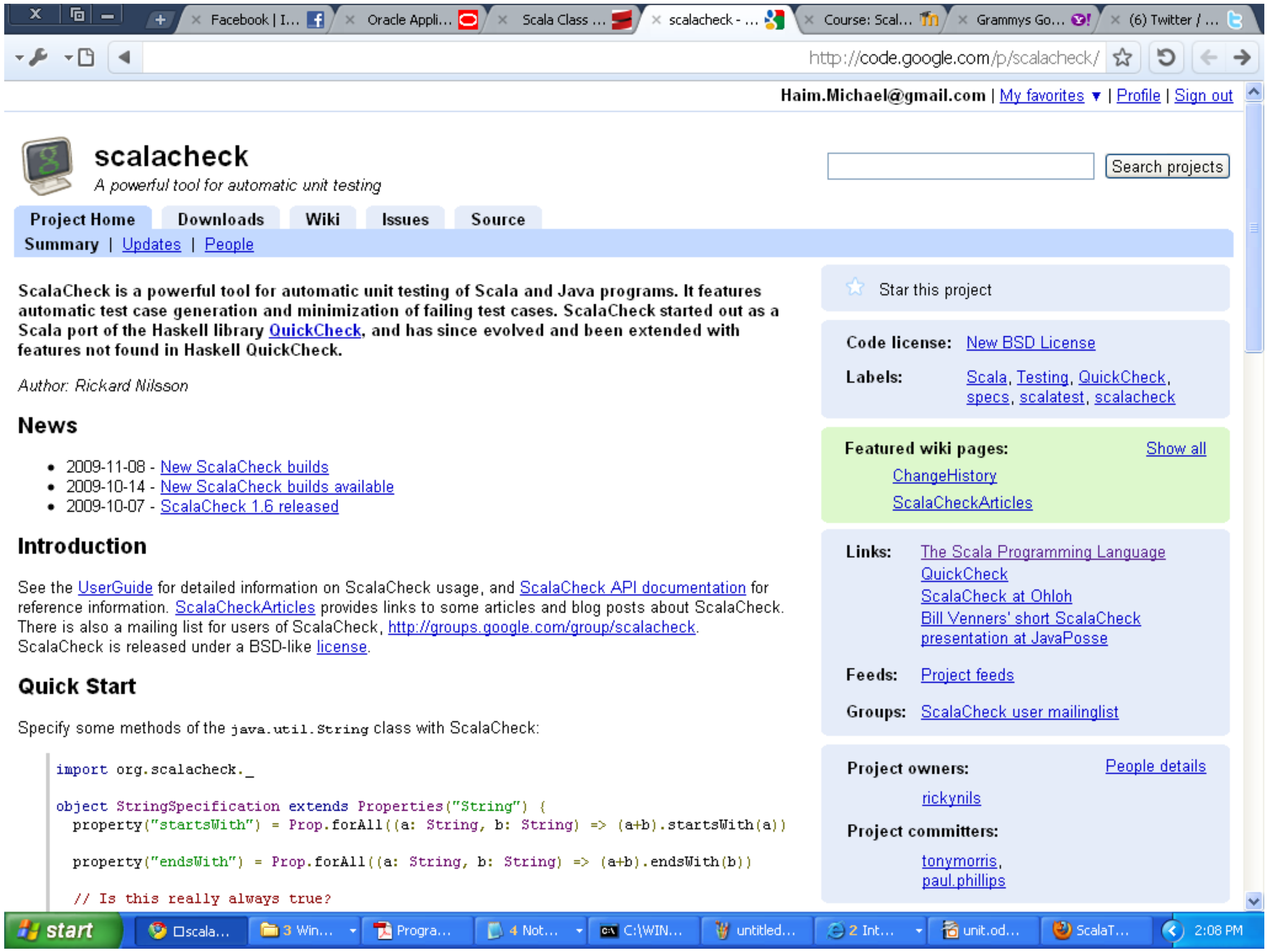
Code license: MIT License
Labels: scala, bdd, junit, scalacheck, scalatest, jmock

Featured downloads: Show all
scaladocs-1.6.1.zip
specs-1.6.1.jar

Featured wiki pages: Show all
ChangeLog
QuickStart
Sponsors
Troubleshooting
UserGuide

Links: Scaladoc for specs, Hudson builds
Blogs: Eric Torreborre's blog
Feeds: Project feeds
Groups: specs user group

Introduction



scalacheck

A powerful tool for automatic unit testing

ScalaCheck is a powerful tool for automatic unit testing of Scala and Java programs. It features automatic test case generation and minimization of failing test cases. ScalaCheck started out as a Scala port of the Haskell library QuickCheck, and has since evolved and been extended with features not found in Haskell QuickCheck.

Author: Rickard Nilsson

News

- 2009-11-08 - New ScalaCheck builds
- 2009-10-14 - New ScalaCheck builds available
- 2009-10-07 - ScalaCheck 1.6 released

Introduction

See the UserGuide for detailed information on ScalaCheck usage, and ScalaCheck API documentation for reference information. ScalaCheckArticles provides links to some articles and blog posts about ScalaCheck. There is also a mailing list for users of ScalaCheck, http://groups.google.com/group/scalacheck. ScalaCheck is released under a BSD-like license.

Quick Start

Specify some methods of the `java.util.String` class with ScalaCheck:

```
import org.scalacheck._

object StringSpecification extends Properties("String") {
  property("startsWith") = Prop.forAll((a: String, b: String) => (a+b).startsWith(a))

  property("endsWith") = Prop.forAll((a: String, b: String) => (a+b).endsWith(b))

  // Is this really always true?
```

Code license: New BSD License

Labels: Scala, Testing, QuickCheck, specs, scalatest, scalacheck

Featured wiki pages: Show all
ChangeHistory
ScalaCheckArticles

Links: The Scala Programming Language
QuickCheck
ScalaCheck at Ohloh
Bill Venners' short ScalaCheck presentation at JavaPosse

Feeds: Project feeds

Groups: ScalaCheck user mailinglist

Project owners: People details
rickynils

Project committers:
tonymorris,
paul.phillips

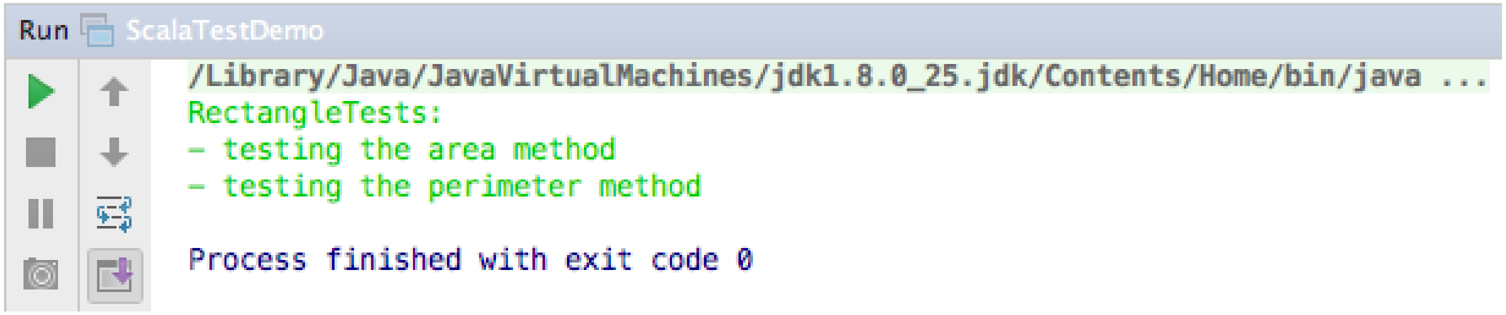
The `FunSuite` Class

- The simplest way of using the ScalaTest framework is by defining a new class that extends `FunSuite` and specify the tests within it.

The FunSuite Class

```
object ScalaTestDemo {
  def main(args:Array[String]):Unit = {
    new RectangleTests().execute
  }
}

class Rectangle(private var width:Double, private var height:Double) {
  def area():Double = width*height
  def perimeter():Double = 2*(width+height)
}

class RectangleTests extends FunSuite {

  test("testing the area method") {
    var ob = new Rectangle(3,4)
    assert(ob.area==12)
  }
  test("testing the perimeter method") {
    var ob = new Rectangle(3,4)
    assert(ob.perimeter==14)
  }

}
```

The FunSuite Class



```
/Library/Java/JavaVirtualMachines/jdk1.8.0_25.jdk/Contents/Home/bin/java ...
RectangleTests:
- testing the area method
- testing the perimeter method

Process finished with exit code 0
```