Testing in Sproutcore

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https://github.com/joegaudet

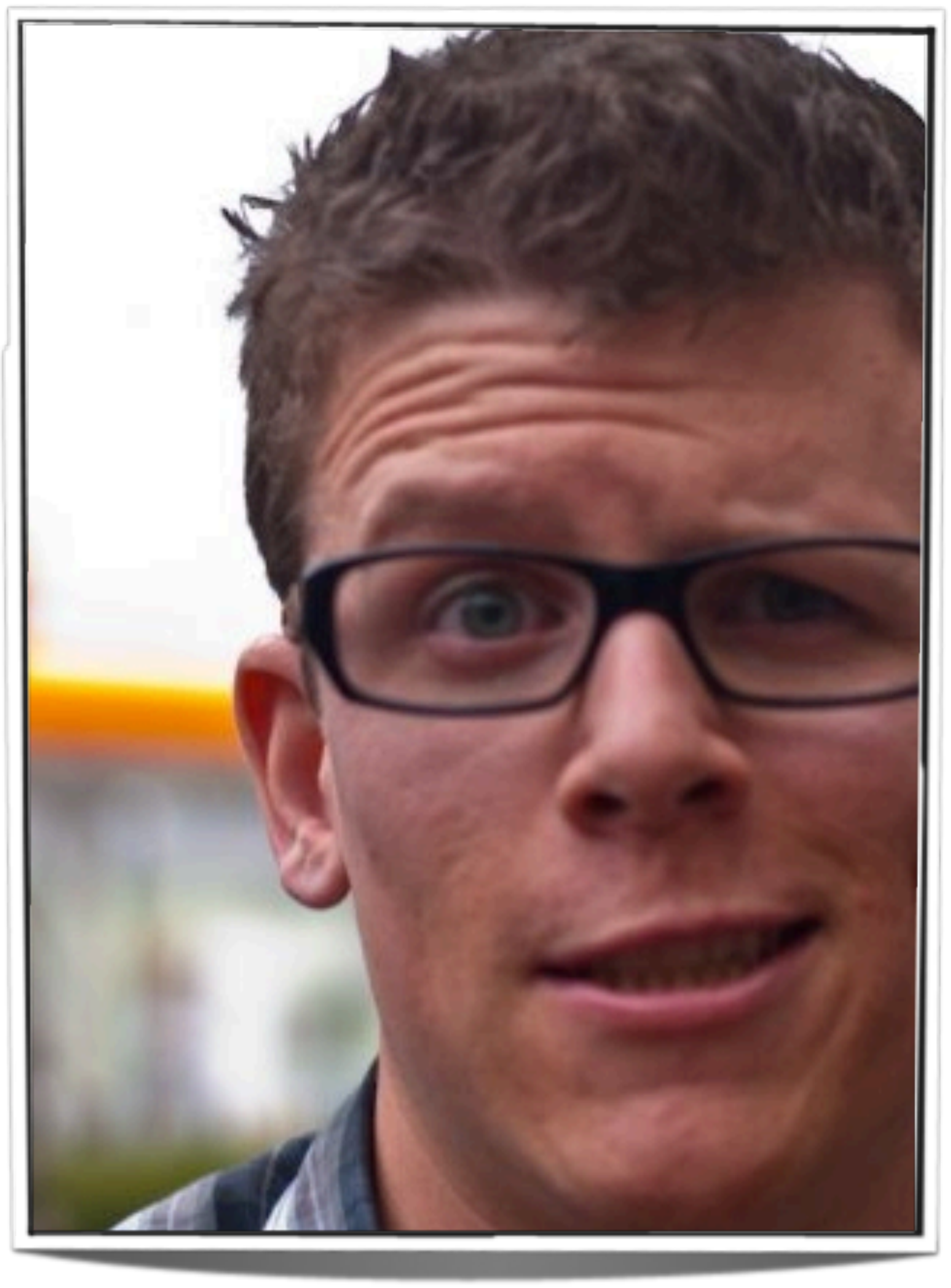
Overview

- Who am I?
- Why Test?
- Examples of Unit Testing
- Headless Execution
- Integration Tests
- Jenkins
- Q/A

Who Am I ?

I’m Joe.

- Technical Lead of Matygo
- BSc/MASC Engineering
- Long time geek
- Minor Contributor to Sproutcore



Why Test?

To err is Human

- Everyone makes mistakes
- Side effects cause regressions [read: rework]
- [js/ruby/python] Lack of compilers to catch interface changes / syntax errors
- Need concrete way to capture expected behaviours

Why not?

- Time
- Ego
- Difficult to do correctly
- My system is too simple

Unit Testing

in

Sproutcore

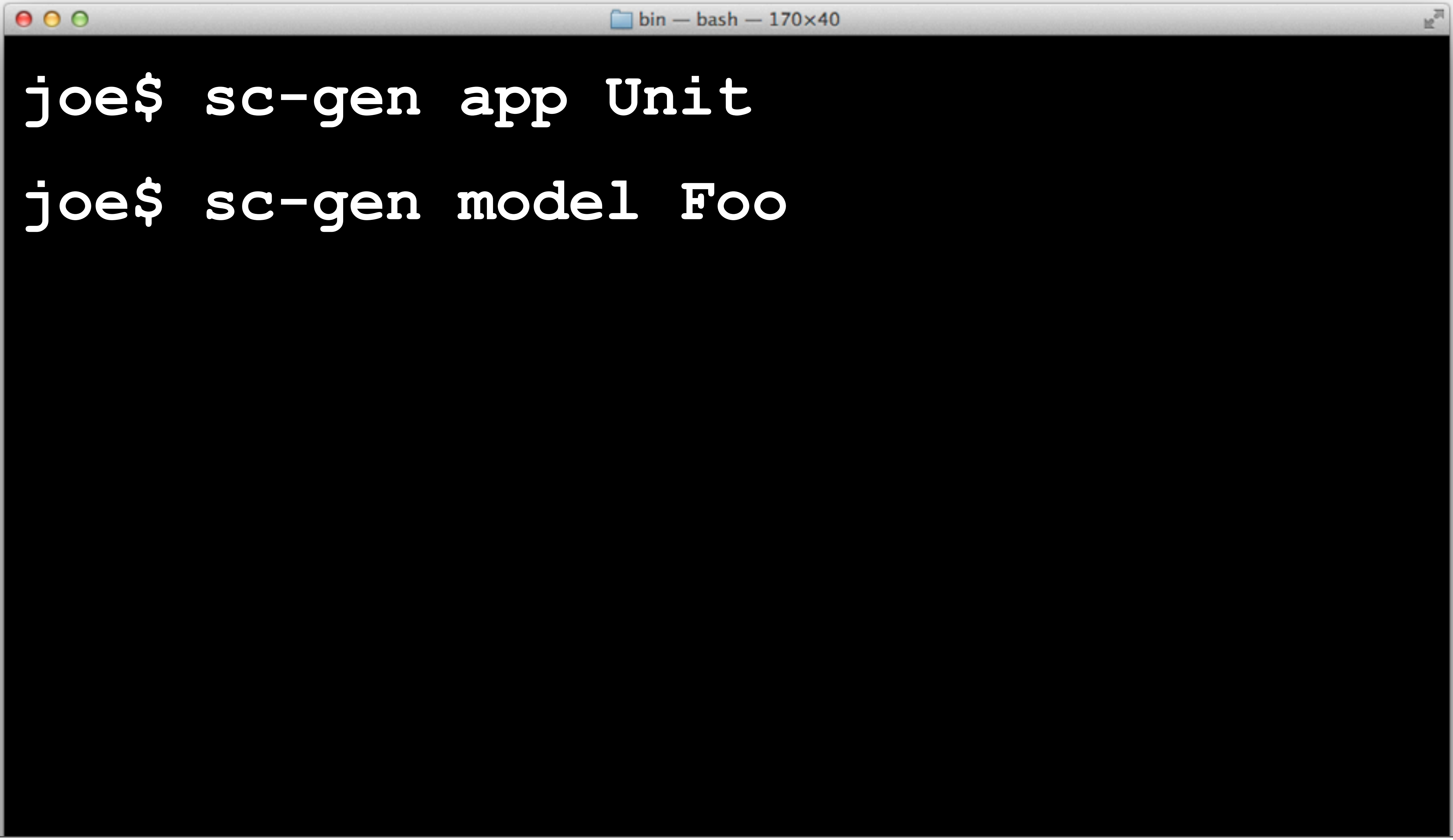
xUnit Pattern

- Setup - put the SUT into the desired state
- Exercise - call functions on the SUT
- Assert - verify appropriate reactions
- Teardown - destroy any created objects

SUT - System Under Test

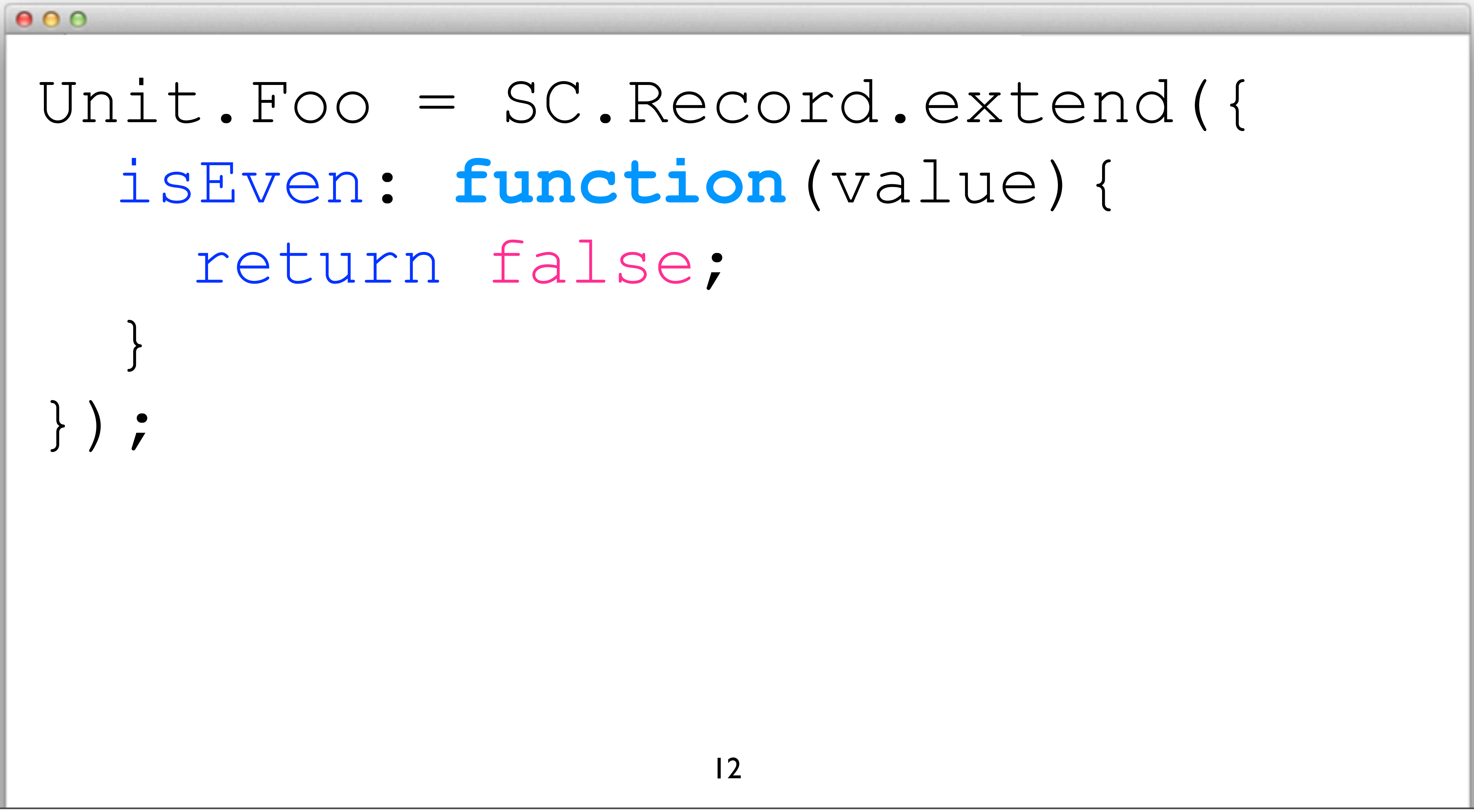
QUnit

Getting Started



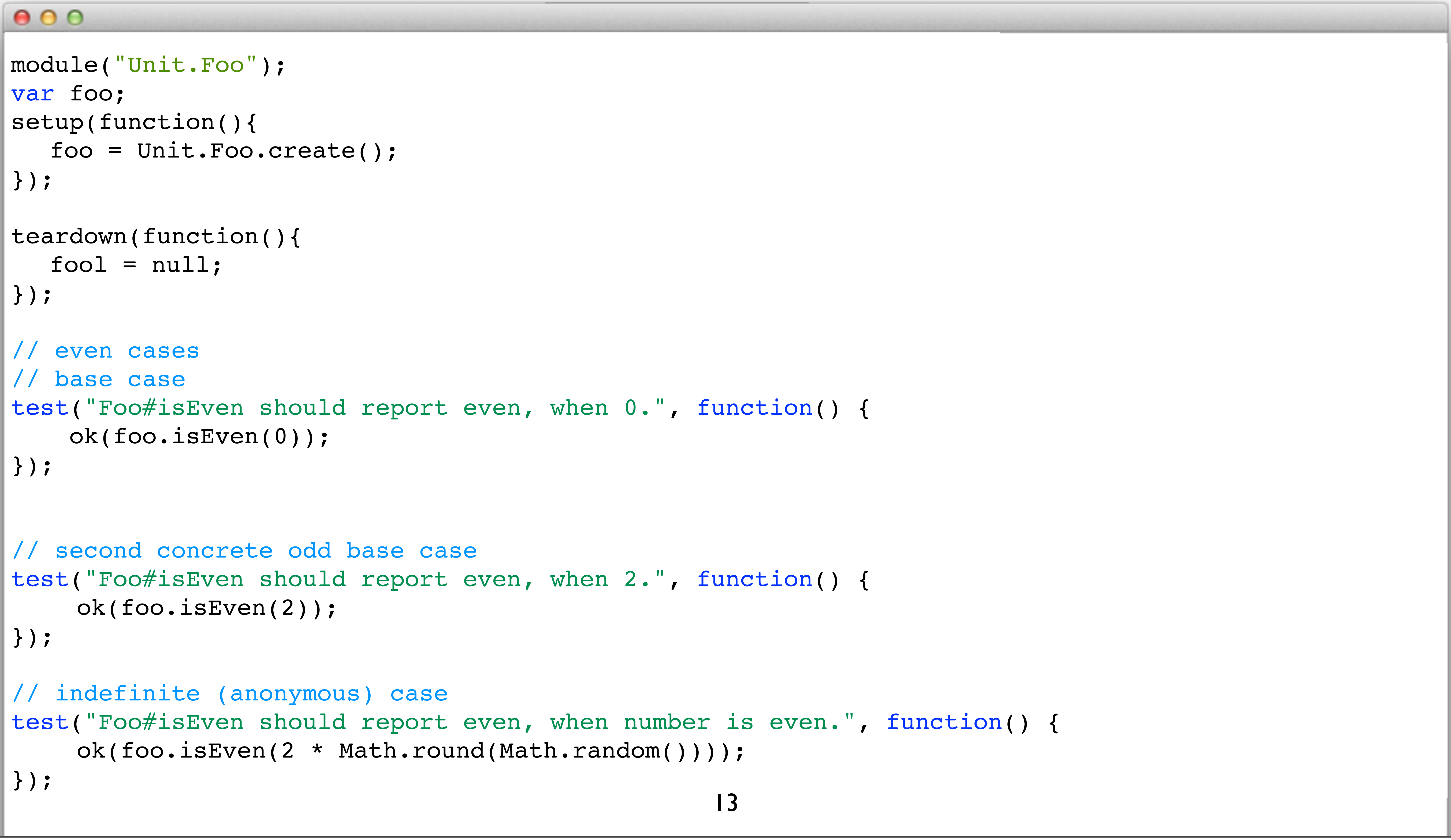
```
joe$ sc-gen app Unit

joe$ sc-gen model Foo
```

isEven



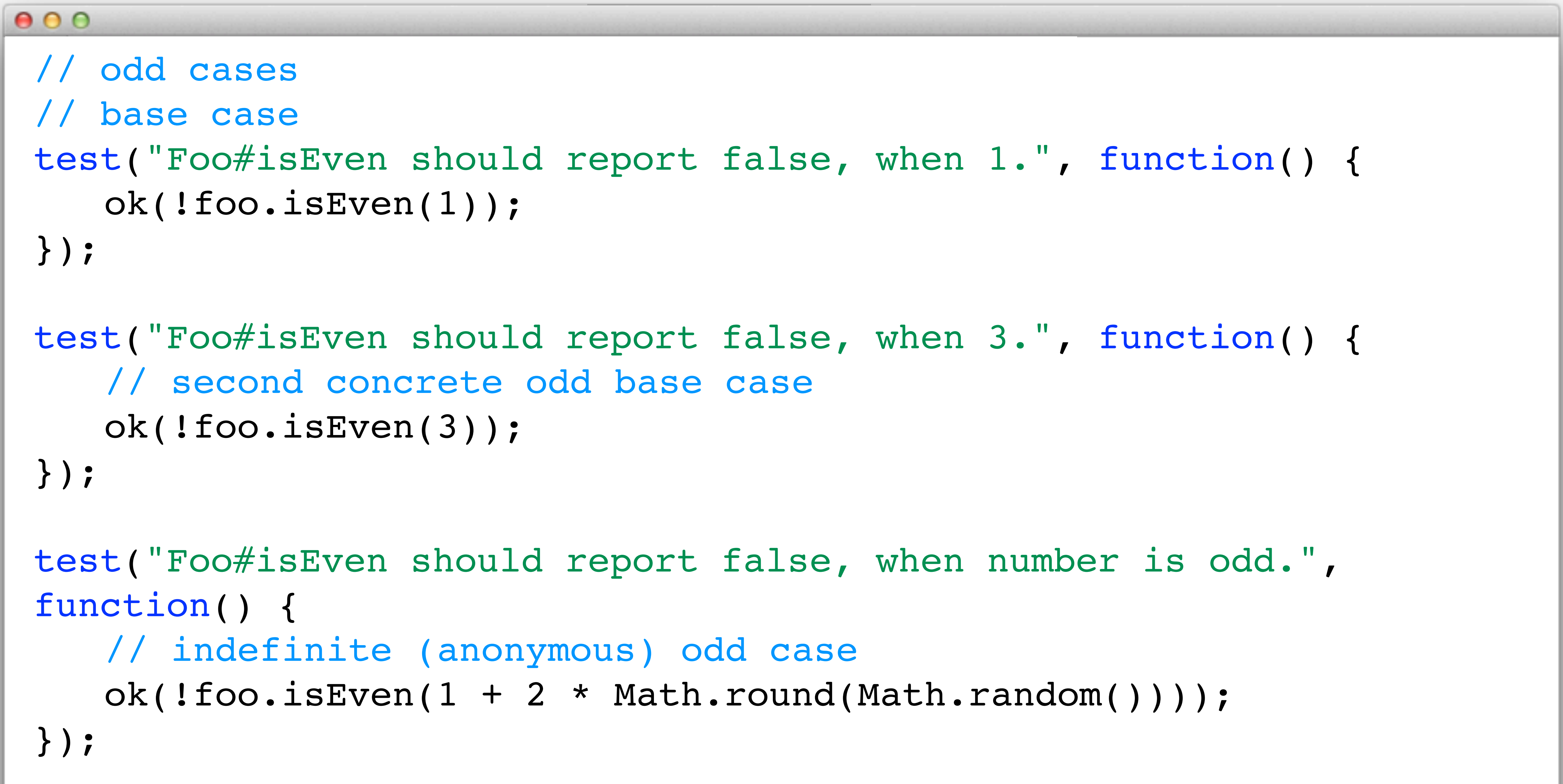
```
Unit.Foo = SC.Record.extend({
  isEven: function(value){
    return false;
  }
});
```

Some Unit Tests



```
module("Unit.Foo");
var foo;
setup(function(){
   foo = Unit.Foo.create();
});

teardown(function(){
   fool = null;
});

// even cases
// base case
test("Foo#isEven should report even, when 0.", function() {
    ok(foo.isEven(0));
});


// second concrete odd base case
test("Foo#isEven should report even, when 2.", function() {
     ok(foo.isEven(2));
});

// indefinite (anonymous) case
test("Foo#isEven should report even, when number is even.", function() {
     ok(foo.isEven(2 * Math.round(Math.random())));
});
```

Some Unit Tests

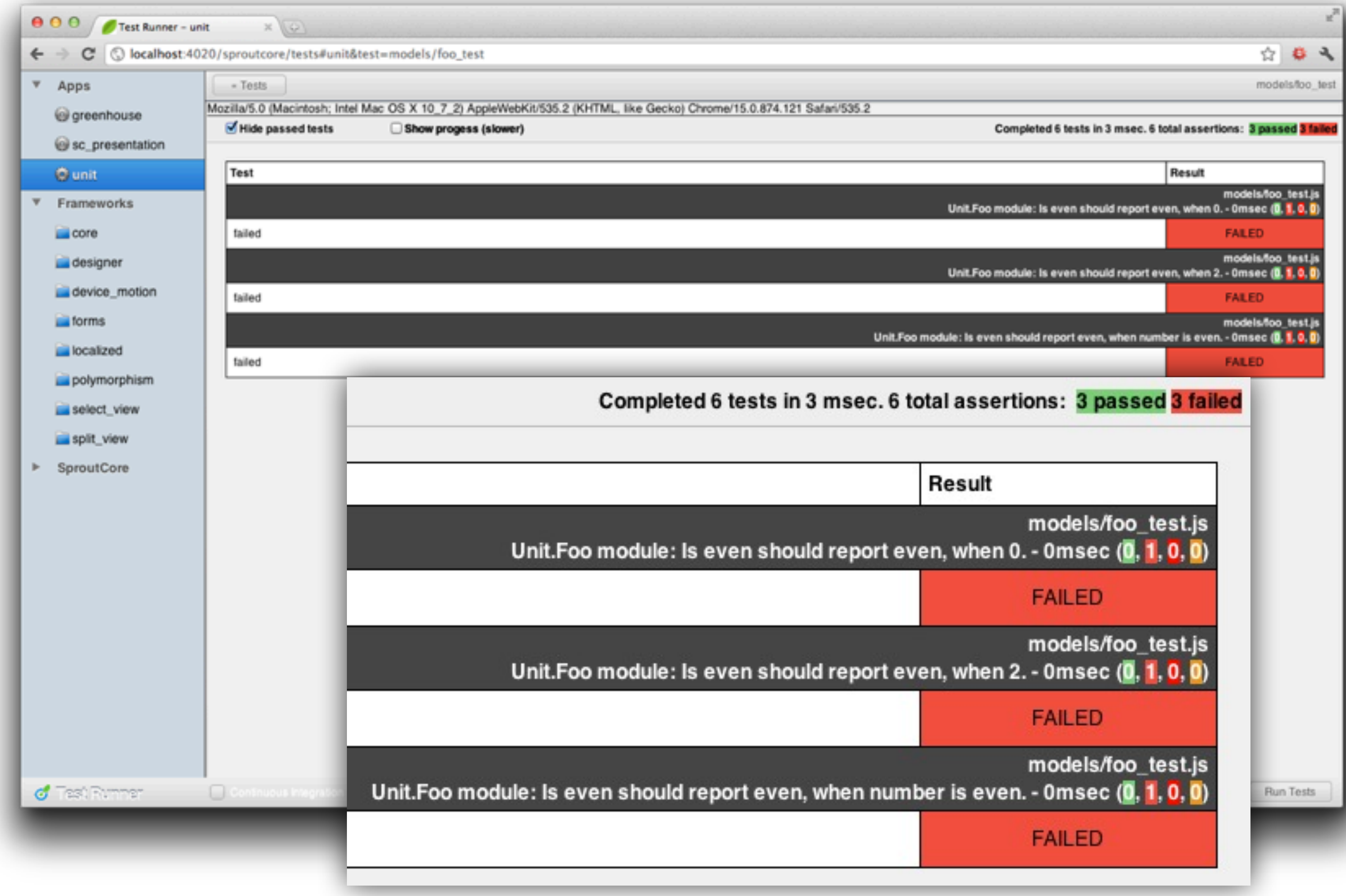


```
// odd cases
// base case
test("Foo#isEven should report false, when 1.", function() {
   ok(!foo.isEven(1));
});

test("Foo#isEven should report false, when 3.", function() {
   // second concrete odd base case
   ok(!foo.isEven(3));
});

test("Foo#isEven should report false, when number is odd.",
function() {
   // indefinite (anonymous) odd case
   ok(!foo.isEven(1 + 2 * Math.round(Math.random())));
});
```

Assertions

- ok - Checks for True
- [not]Equal
- [not]deepEqual
- [not]strictEqual
- raises
- All assertions take an optional message argument - useful if you have multiple assertions.

http://localhost:4020/sproutcore/tests#unit&test=models/foo_test

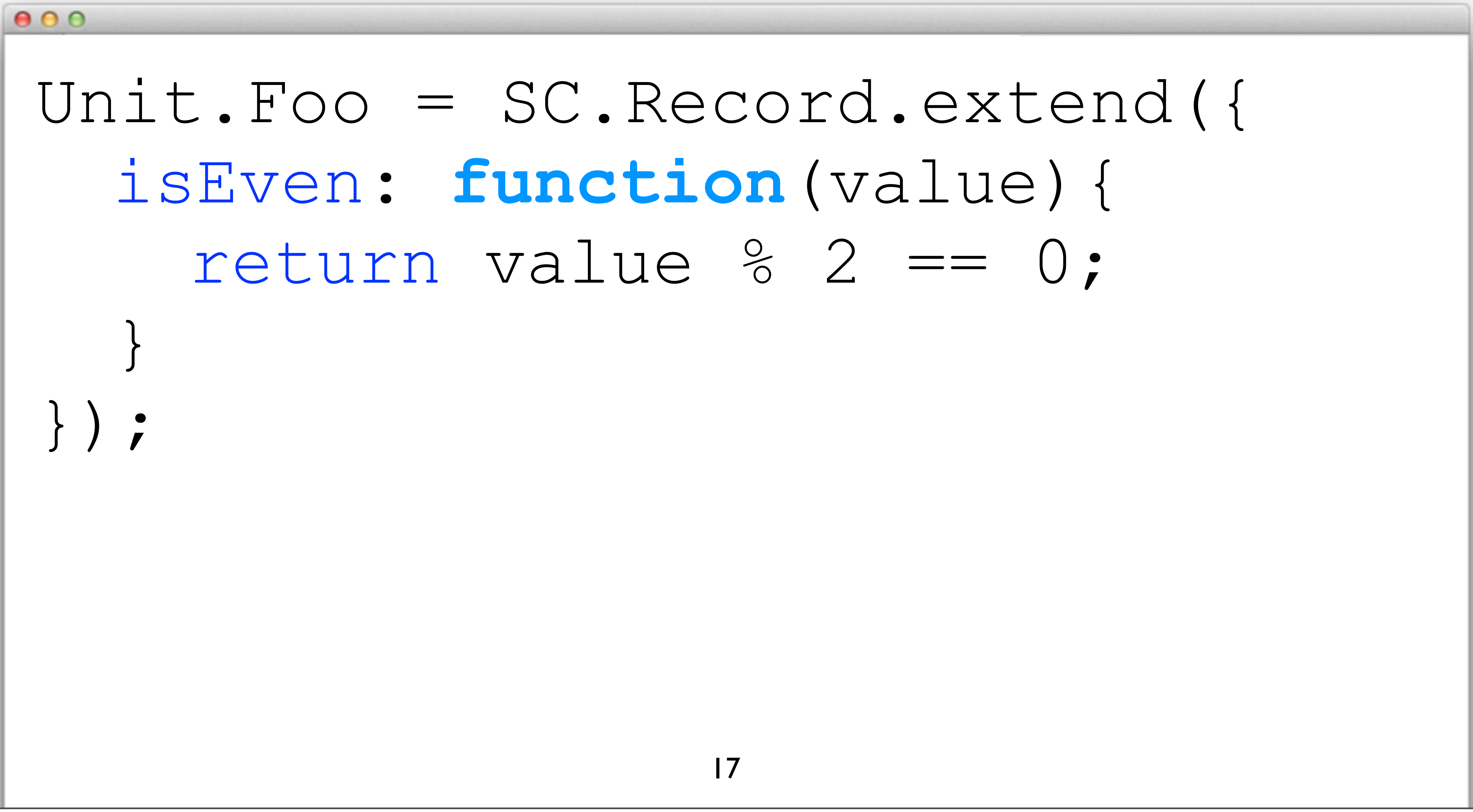


Mozilla/5.0 (Macintosh; Intel Mac OS X 10_7_2) AppleWebKit/535.2 (KHTML, like Gecko) Chrome/15.0.874.121 Safari/535.2

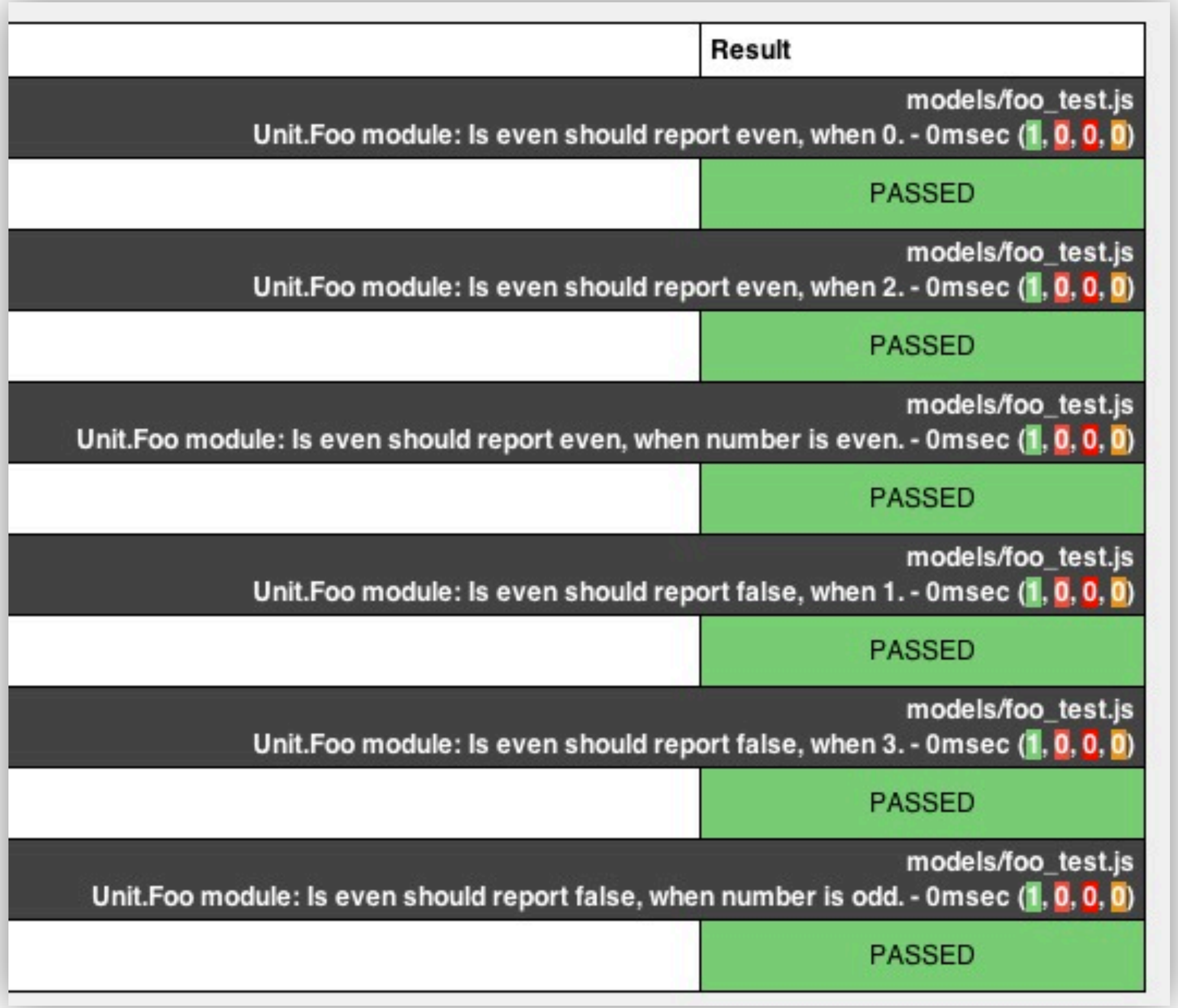
Completed 6 tests in 3 msec. 6 total assertions: 3 passed 3 failed

Test	Result
models/foo_test.js Unit.Foo module: Is even should report even, when 0. - 0msec (0, 1, 0, 0)	
failed	FAILED
models/foo_test.js Unit.Foo module: Is even should report even, when 2. - 0msec (0, 1, 0, 0)	
failed	FAILED
models/foo_test.js Unit.Foo module: Is even should report even, when number is even. - 0msec (0, 1, 0, 0)	
failed	FAILED

isEven



```
Unit.Foo = SC.Record.extend({
  isEven: function(value){
    return value % 2 == 0;
  }
});
```



	Result
models/foo_test.js Unit.Foo module: Is even should report even, when 0. - 0msec (1, 0, 0, 0)	
	PASSED
models/foo_test.js Unit.Foo module: Is even should report even, when 2. - 0msec (1, 0, 0, 0)	
	PASSED
models/foo_test.js Unit.Foo module: Is even should report even, when number is even. - 0msec (1, 0, 0, 0)	
	PASSED
models/foo_test.js Unit.Foo module: Is even should report false, when 1. - 0msec (1, 0, 0, 0)	
	PASSED
models/foo_test.js Unit.Foo module: Is even should report false, when 3. - 0msec (1, 0, 0, 0)	
	PASSED
models/foo_test.js Unit.Foo module: Is even should report false, when number is odd. - 0msec (1, 0, 0, 0)	
	PASSED

Jasmine

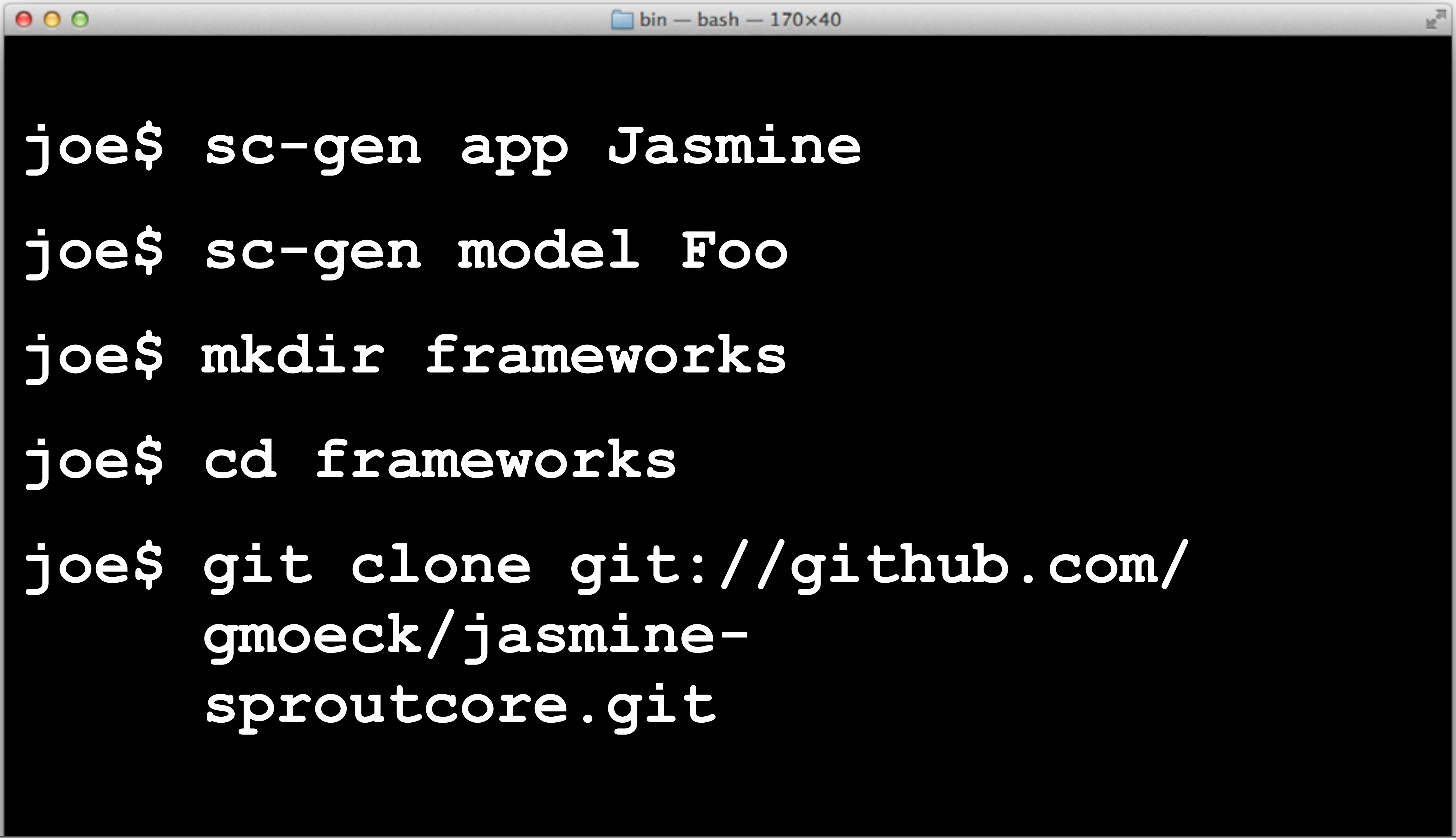
http://pivotal.github.com/jasmine/

Jasmine

https://github.com/gmoeck/jasmine-sproutcore

- BDD style tests for JS
- Specs are easy to read / write
- Great for involving non-tech in Q/A
- Spies useful for Mocking / Spying / Faking / Stubbing etc.

Getting Started

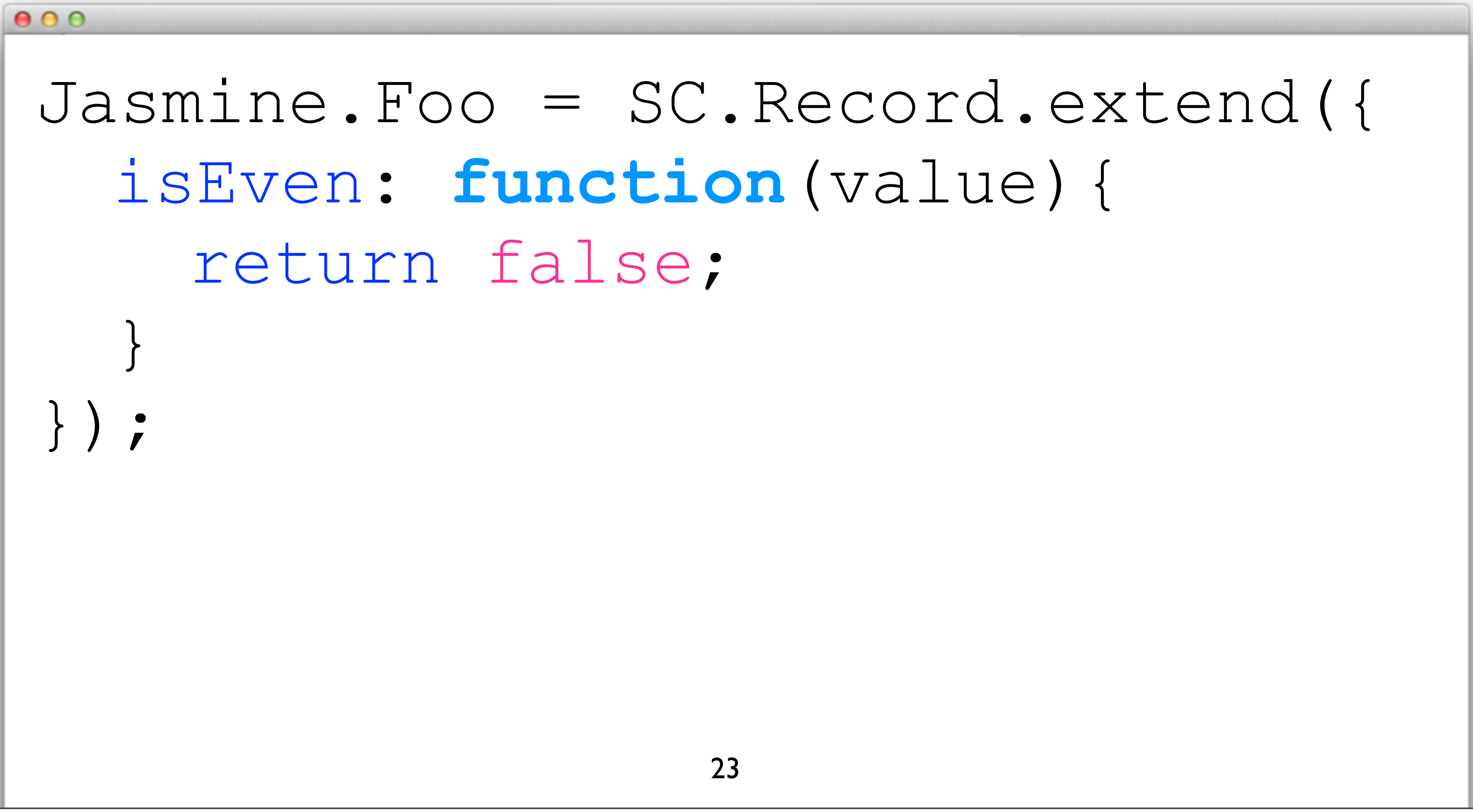


```
joe$ sc-gen app Jasmine

joe$ sc-gen model Foo

joe$ mkdir frameworks

joe$ cd frameworks

joe$ git clone git://github.com/
     gmoeck/jasmine-
     sproutcore.git
```

Configuration

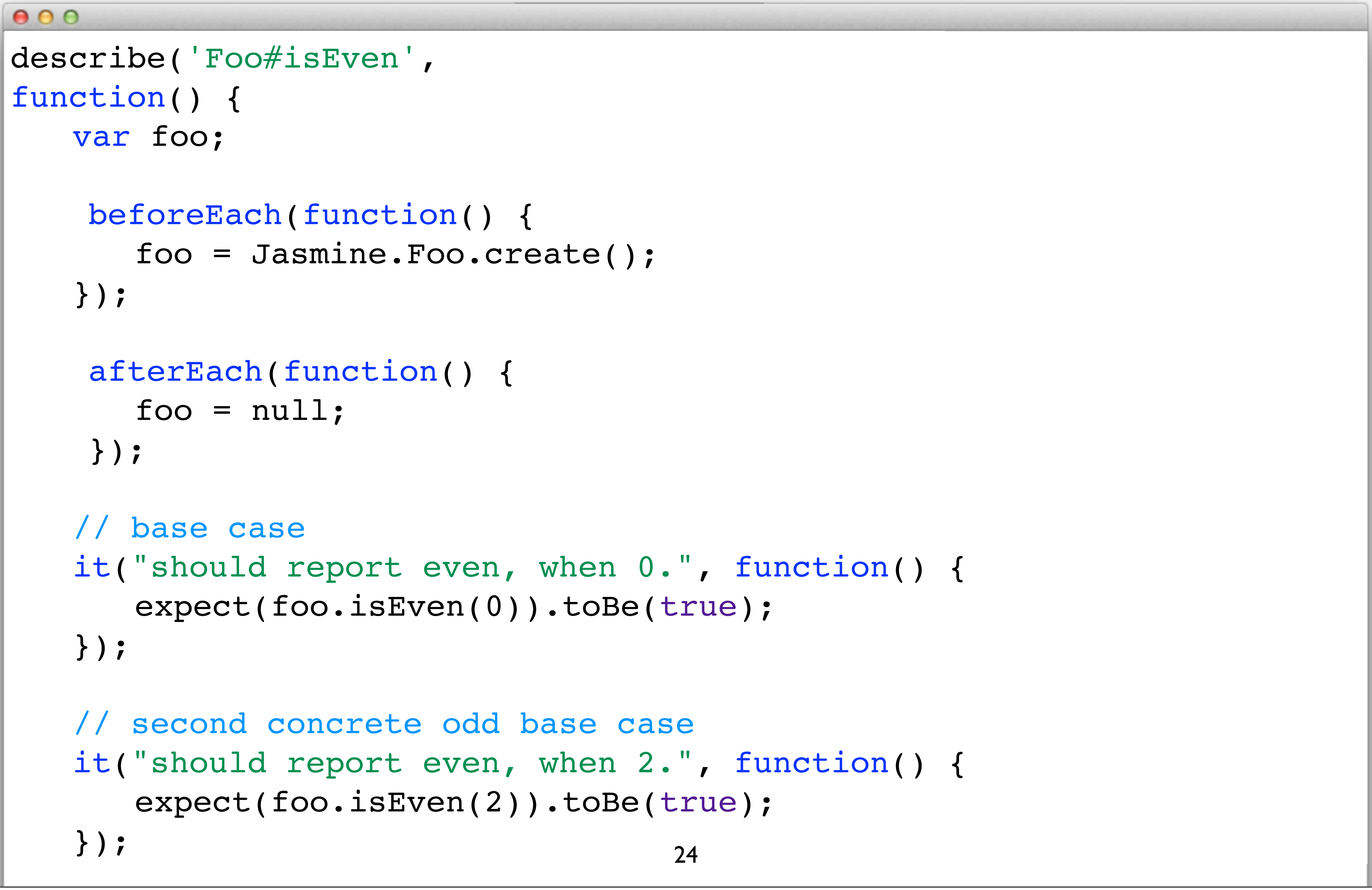
```
require
File.expand_path(<relativePathToJasmine>,
__FILE__)
// Your normal build config goes here
//
//
namespace :build do
  desc "builds a jasmine unit test"
  build_task :test do
    Jasmine::Builder::Test.build ENTRY, DST_PATH
  end
end
```

isEven



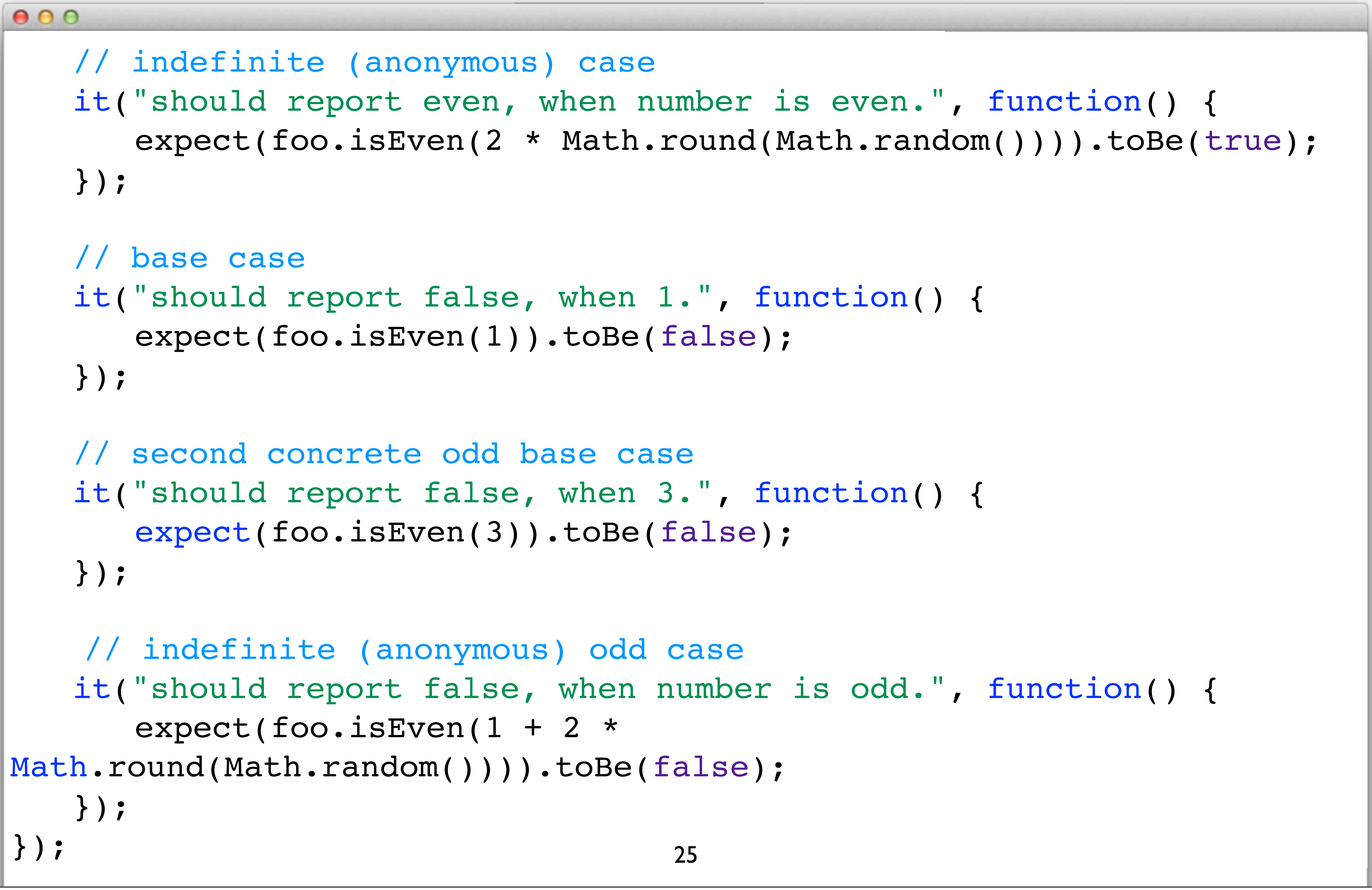
```
Jasmine.Foo = SC.Record.extend({
  isEven: function(value){
    return false;
  }
});
```

Some Unit Tests



```
describe('Foo#isEven',
function() {
    var foo;

     beforeEach(function() {
        foo = Jasmine.Foo.create();
    });

     afterEach(function() {
        foo = null;
     });

    // base case
    it("should report even, when 0.", function() {
        expect(foo.isEven(0)).toBe(true);
    });

    // second concrete odd base case
    it("should report even, when 2.", function() {
        expect(foo.isEven(2)).toBe(true);
    });
```

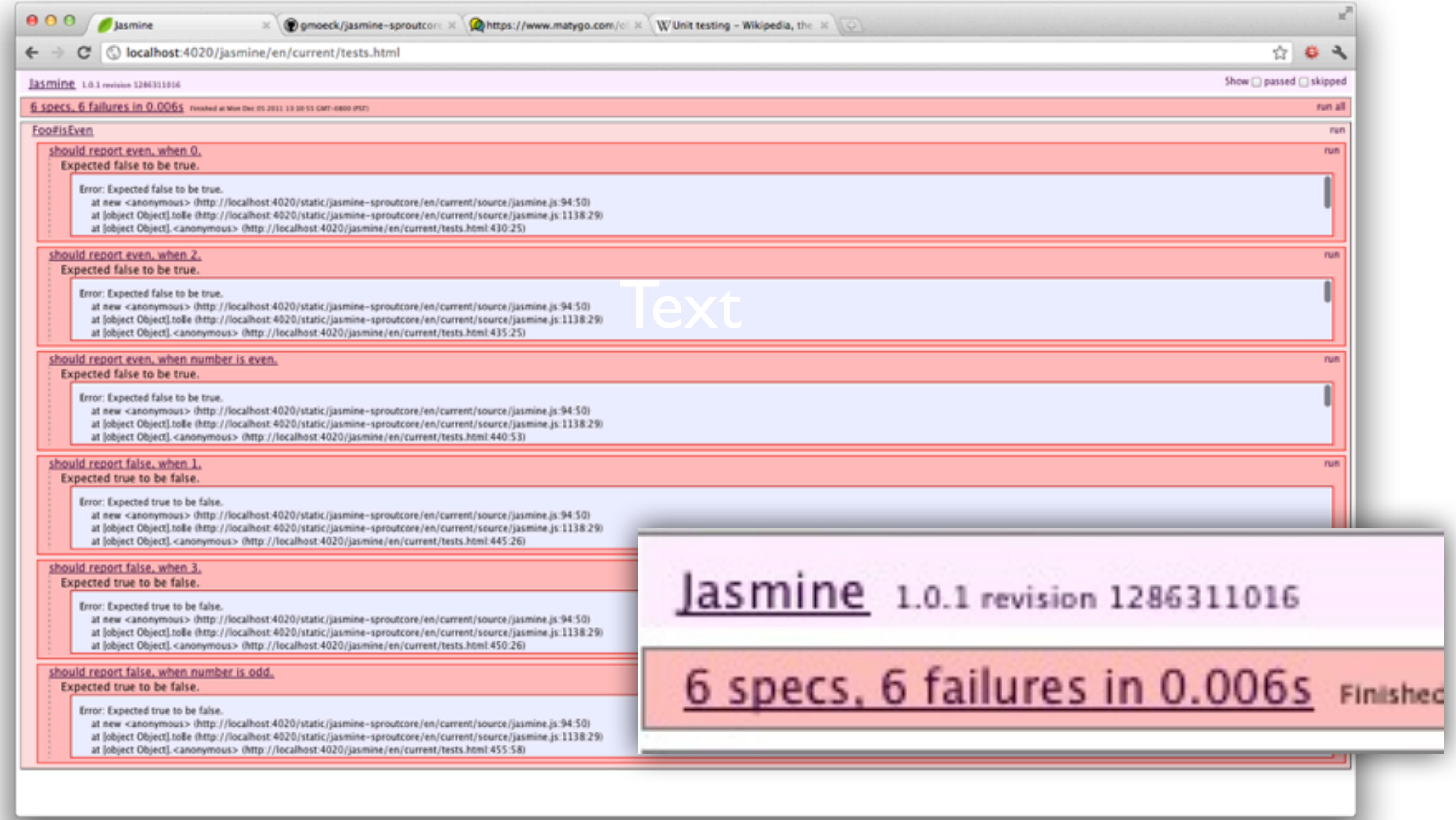
Some Unit Tests



```
    // indefinite (anonymous) case
    it("should report even, when number is even.", function() {
        expect(foo.isEven(2 * Math.round(Math.random()))).toBe(true);
    });

    // base case
    it("should report false, when 1.", function() {
        expect(foo.isEven(1)).toBe(false);
    });

    // second concrete odd base case
    it("should report false, when 3.", function() {
        expect(foo.isEven(3)).toBe(false);
    });

     // indefinite (anonymous) odd case
    it("should report false, when number is odd.", function() {
        expect(foo.isEven(1 + 2 *
Math.round(Math.random()))).toBe(false);
    });
});
```

Output

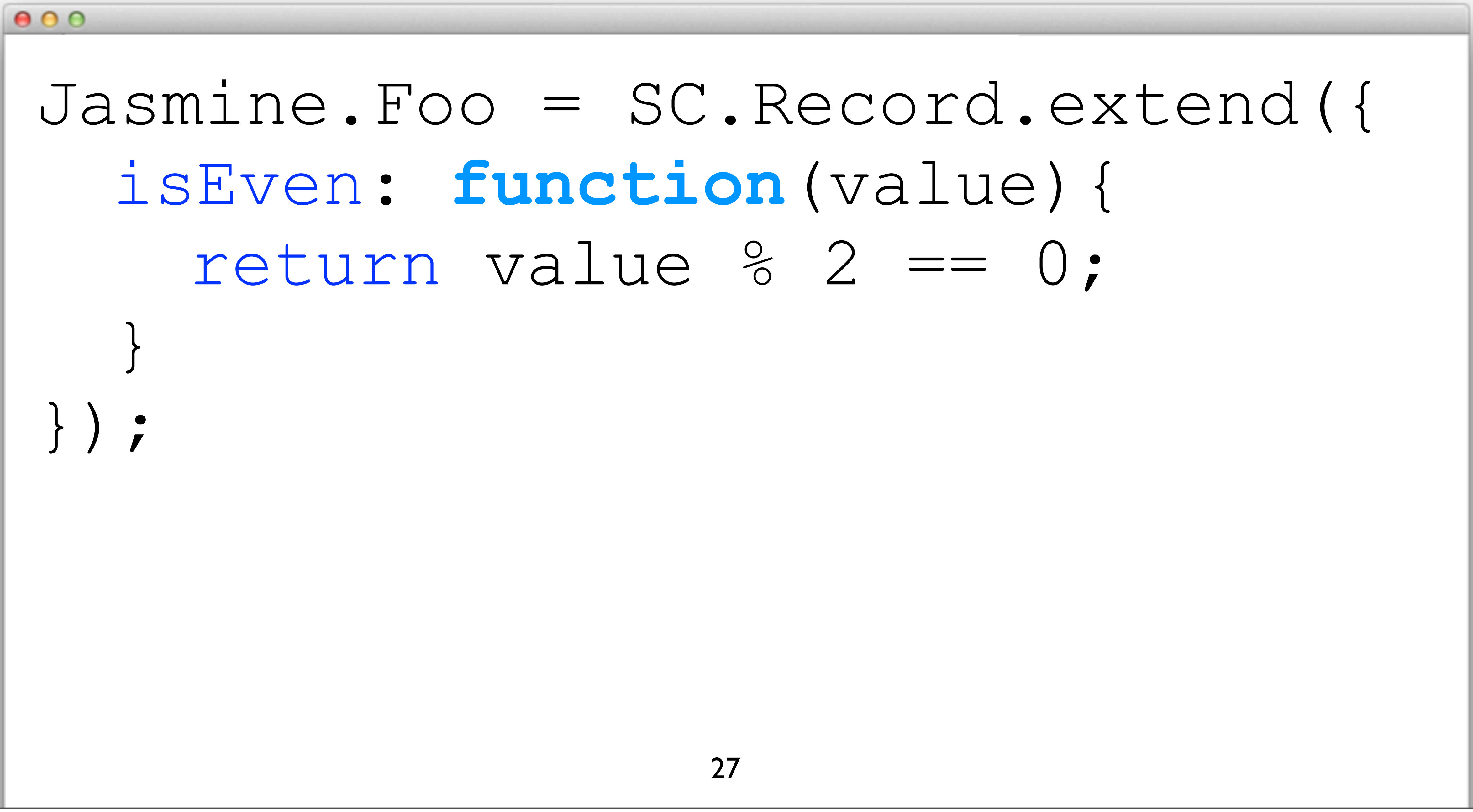
http://localhost:4020/<myApp>/en/current/tests.html


Jasmine
gmoeck/jasmine-sproutcore
https://www.matygo.com/
Unit testing – Wikipedia, the
localhost:4020/jasmine/en/current/tests.html
Text

```
Jasmine 1.0.1 revision 1286311016                                   Show ☐ passed ☐ skipped
6 specs, 6 failures in 0.006s Finished at Mon Dec 05 2011 13:10:51 GMT-0800 (PST)   run all
Foo#isEven                                                                            run
  should report even, when 0.                                                         run
    Expected false to be true.
      Error: Expected false to be true.
        at new <anonymous> (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:94:50)
        at [object Object].toBe (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:1138:29)
        at [object Object].<anonymous> (http://localhost:4020/jasmine/en/current/tests.html:430:25)
  should report even, when 2.                                                         run
    Expected false to be true.
      Error: Expected false to be true.
        at new <anonymous> (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:94:50)
        at [object Object].toBe (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:1138:29)
        at [object Object].<anonymous> (http://localhost:4020/jasmine/en/current/tests.html:435:25)
  should report even, when number is even.                                            run
    Expected false to be true.
      Error: Expected false to be true.
        at new <anonymous> (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:94:50)
        at [object Object].toBe (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:1138:29)
        at [object Object].<anonymous> (http://localhost:4020/jasmine/en/current/tests.html:440:53)
  should report false, when 1.                                                        run
    Expected true to be false.
      Error: Expected true to be false.
        at new <anonymous> (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:94:50)
        at [object Object].toBe (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:1138:29)
        at [object Object].<anonymous> (http://localhost:4020/jasmine/en/current/tests.html:445:26)
  should report false, when 3.
    Expected true to be false.
      Error: Expected true to be false.
        at new <anonymous> (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:94:50)
        at [object Object].toBe (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:1138:29)
        at [object Object].<anonymous> (http://localhost:4020/jasmine/en/current/tests.html:450:26)
  should report false, when number is odd.
    Expected true to be false.
      Error: Expected true to be false.
        at new <anonymous> (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:94:50)
        at [object Object].toBe (http://localhost:4020/static/jasmine-sproutcore/en/current/source/jasmine.js:1138:29)
        at [object Object].<anonymous> (http://localhost:4020/jasmine/en/current/tests.html:455:58)
```

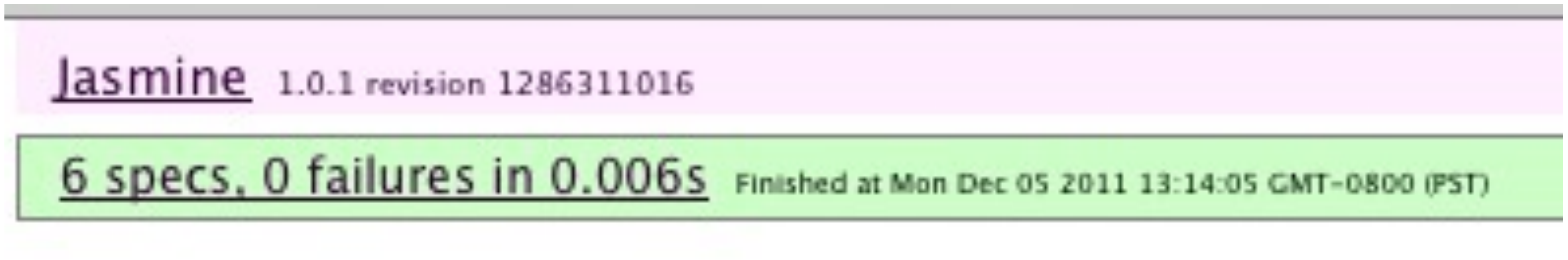
```
Jasmine 1.0.1 revision 1286311016
6 specs, 6 failures in 0.006s Finished
```

isEven



```
Jasmine.Foo = SC.Record.extend({
  isEven: function(value){
    return value % 2 == 0;
  }
});
```

Output



```
Jasmine 1.0.1 revision 1286311016
6 specs, 0 failures in 0.006s Finished at Mon Dec 05 2011 13:14:05 GMT-0800 (PST)
```

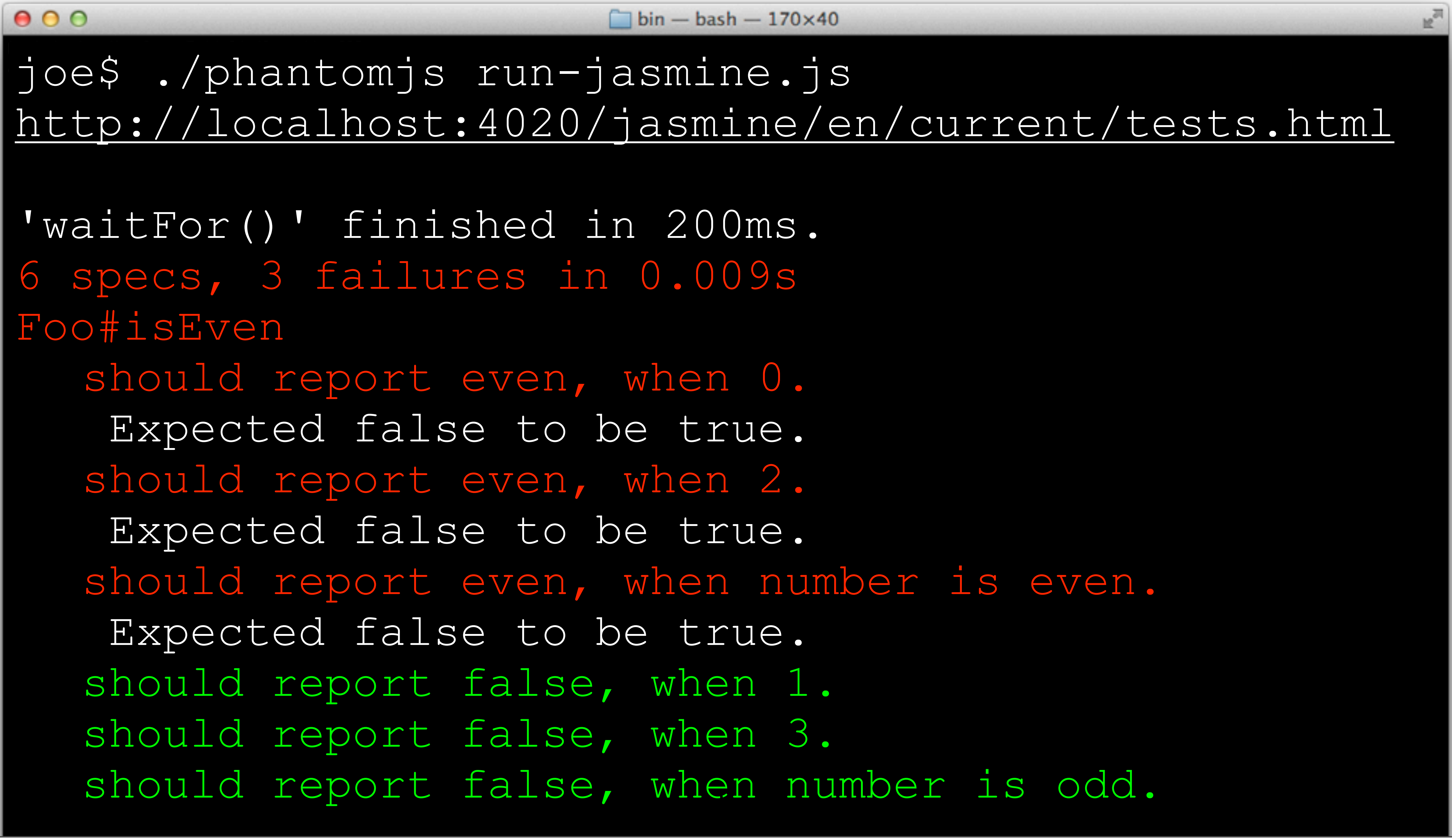
Headless Execution

PhantomJS

PhantomJS

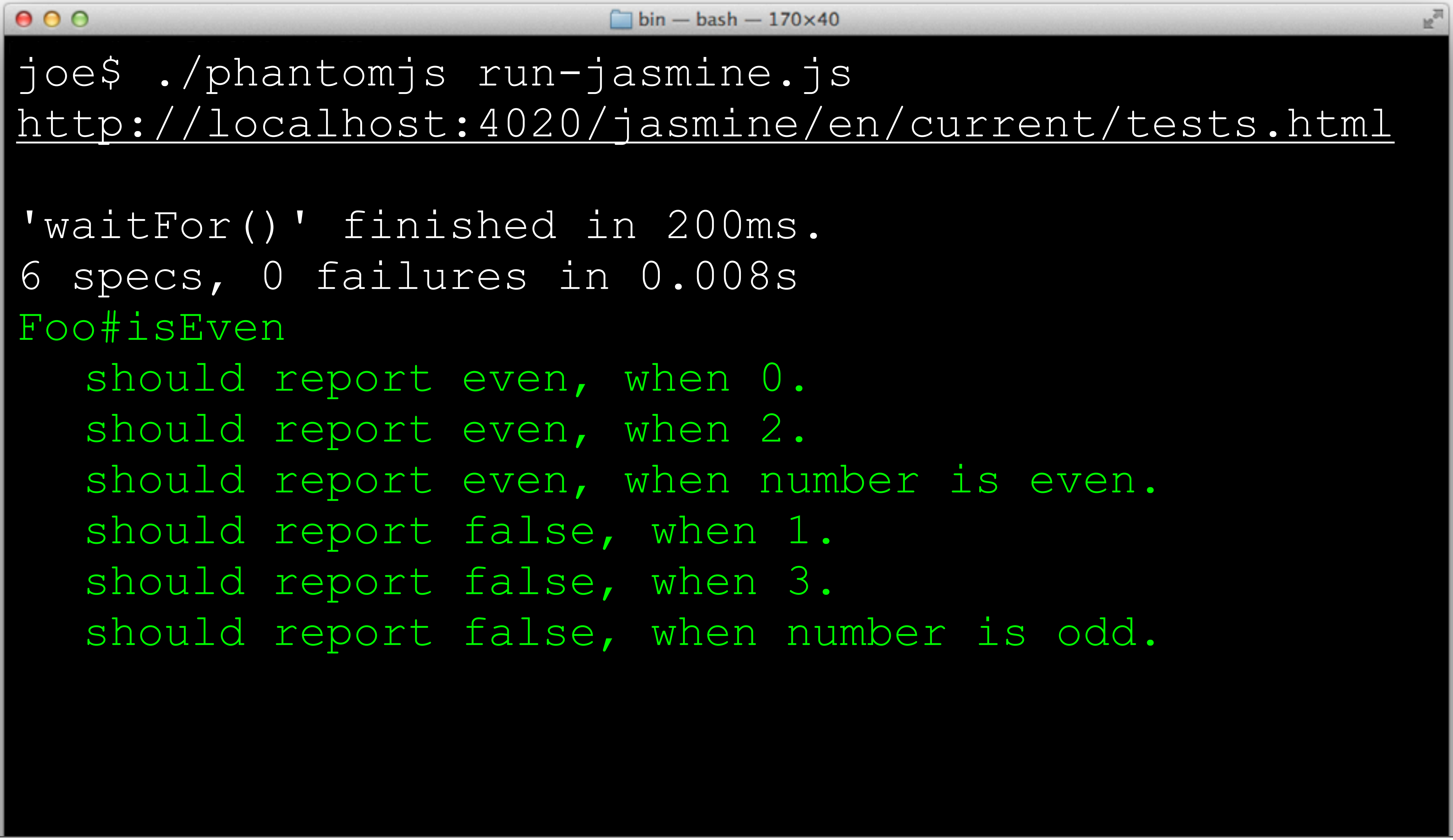
- http://www.phantomjs.org/
- Allows for headless (scriptable) execution of JS
- Great for fitting into integration pipeline
- Has test runners for QUnit and Jasmine

Now With Colour



```
joe$ ./phantomjs run-jasmine.js
http://localhost:4020/jasmine/en/current/tests.html

'waitFor()' finished in 200ms.
6 specs, 3 failures in 0.009s
Foo#isEven
   should report even, when 0.
    Expected false to be true.
   should report even, when 2.
    Expected false to be true.
   should report even, when number is even.
    Expected false to be true.
   should report false, when 1.
   should report false, when 3.
   should report false, when number is odd.
```

Now With Colour



```
joe$ ./phantomjs run-jasmine.js
http://localhost:4020/jasmine/en/current/tests.html

'waitFor()' finished in 200ms.
6 specs, 0 failures in 0.008s
Foo#isEven
   should report even, when 0.
   should report even, when 2.
   should report even, when number is even.
   should report false, when 1.
   should report false, when 3.
   should report false, when number is odd.
```

Lebowski

Q/A and Integration Testing

https://github.com/FrozenCanuck/Lebowski

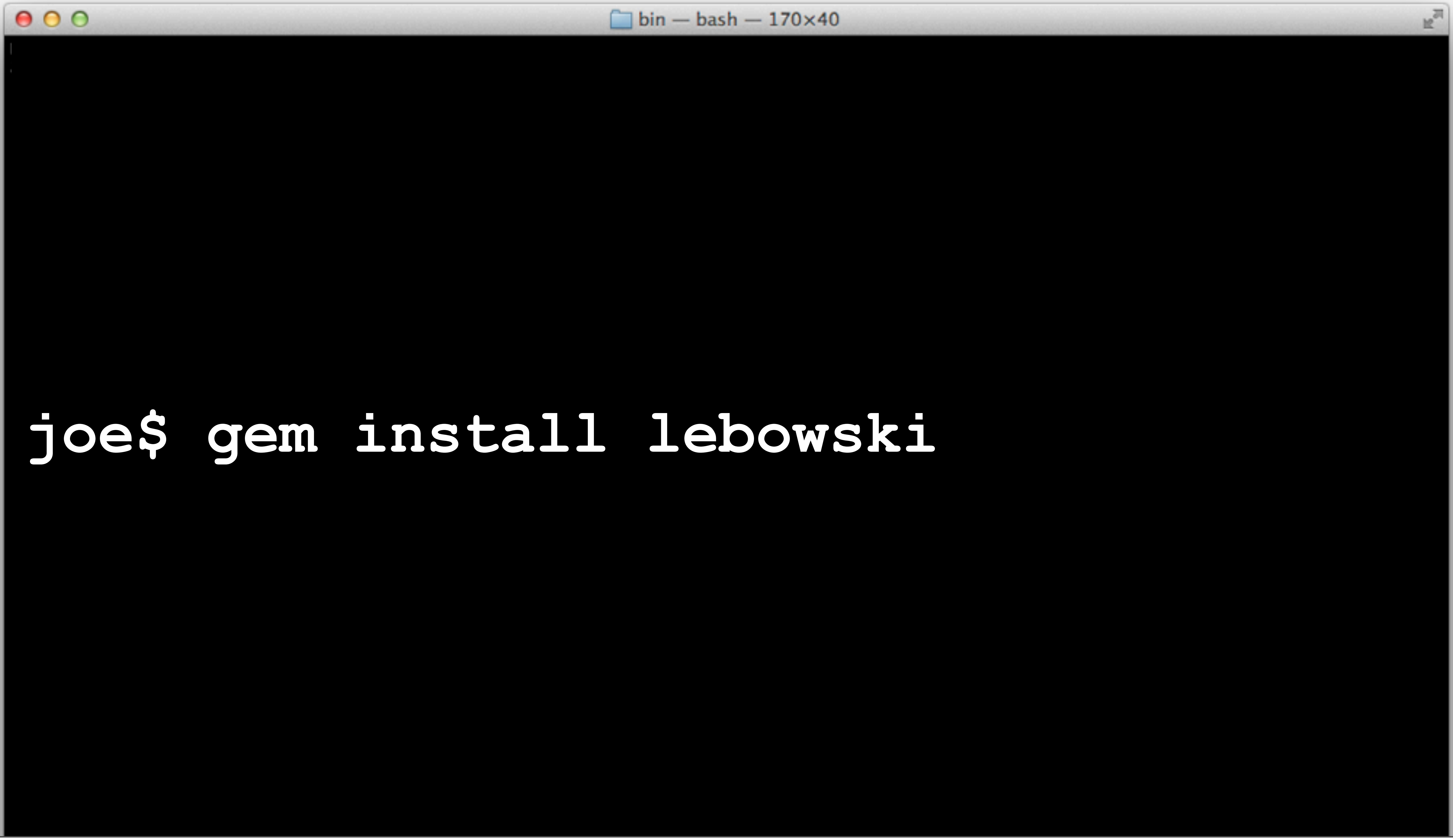
Lebowski

- Written by @FrozenCanuck
(Michael Cohen)
- Unit test are great - for units of code
- Need full feature integration testing
that starts at the UI
- These are slow
(run nightly - pre deploys)

Lebowski

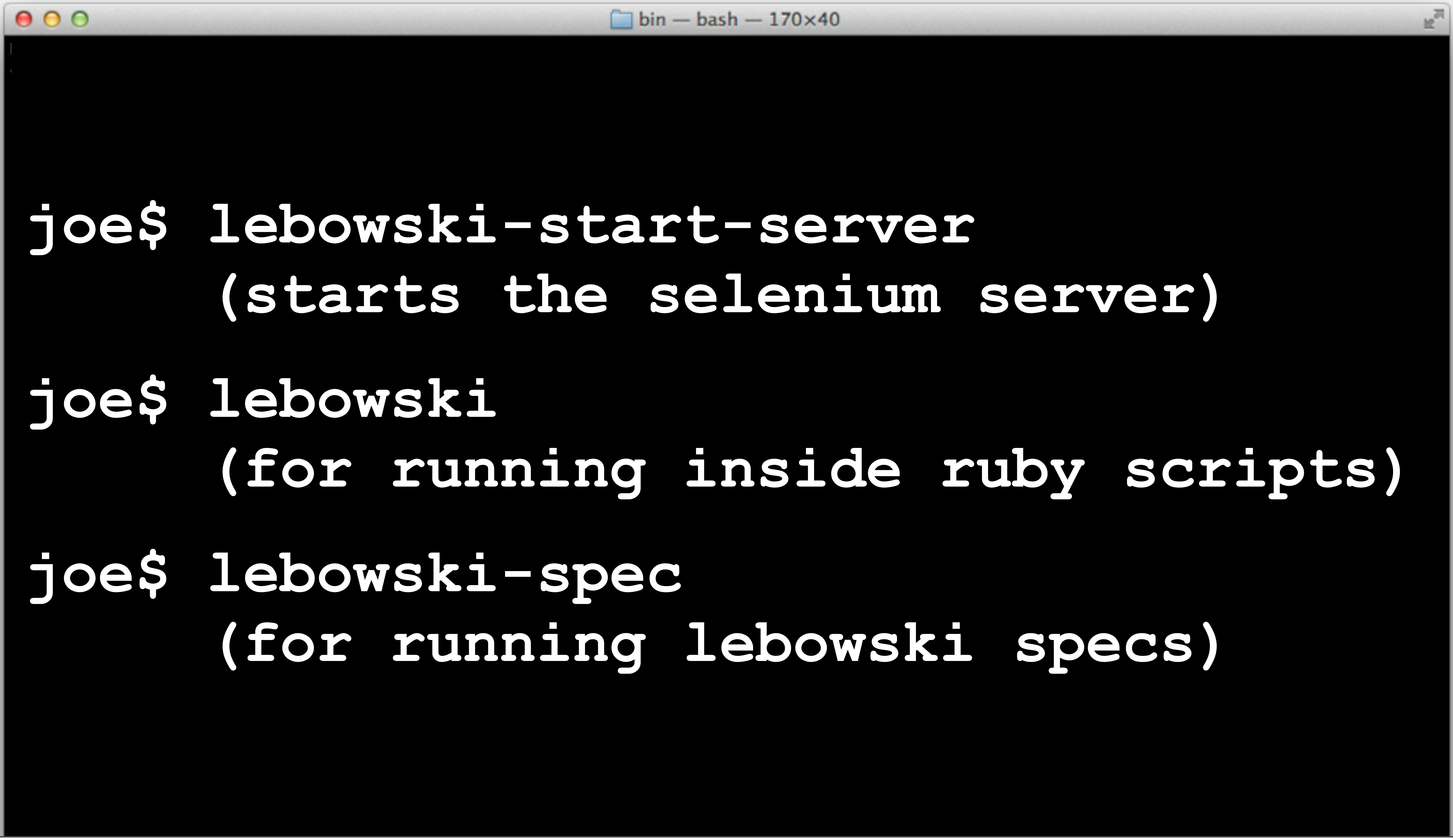
- Based on Selenium
- RSpec tests [works with other test frameworks as well]
- Uses Ruby proxy objects to access SC objects by path.
  - MyApp.mainPane.labelView.value

Installation



```
joe$ gem install lebowski
```

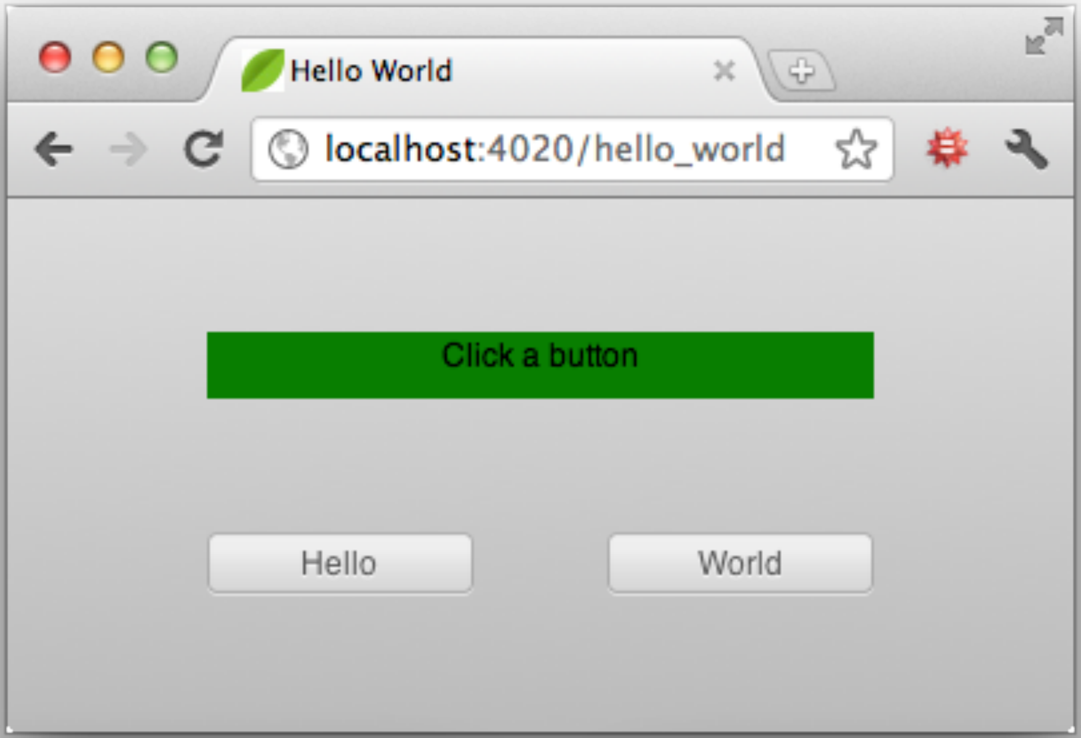
Useful Commands

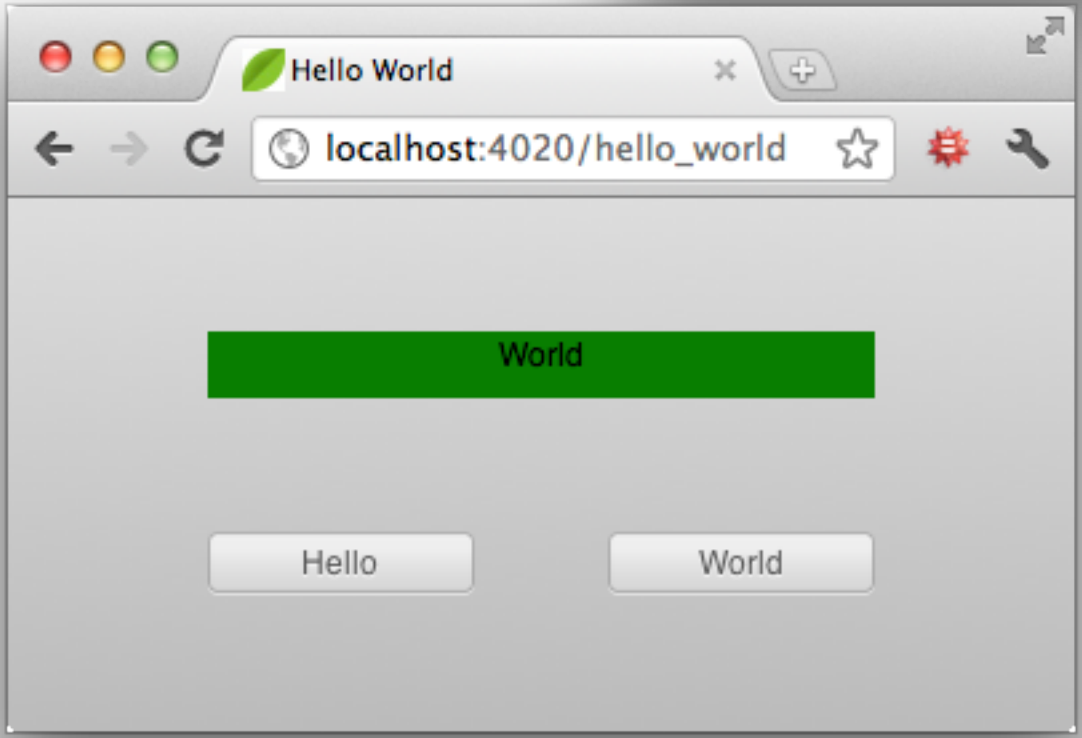

bin — bash — 170×40

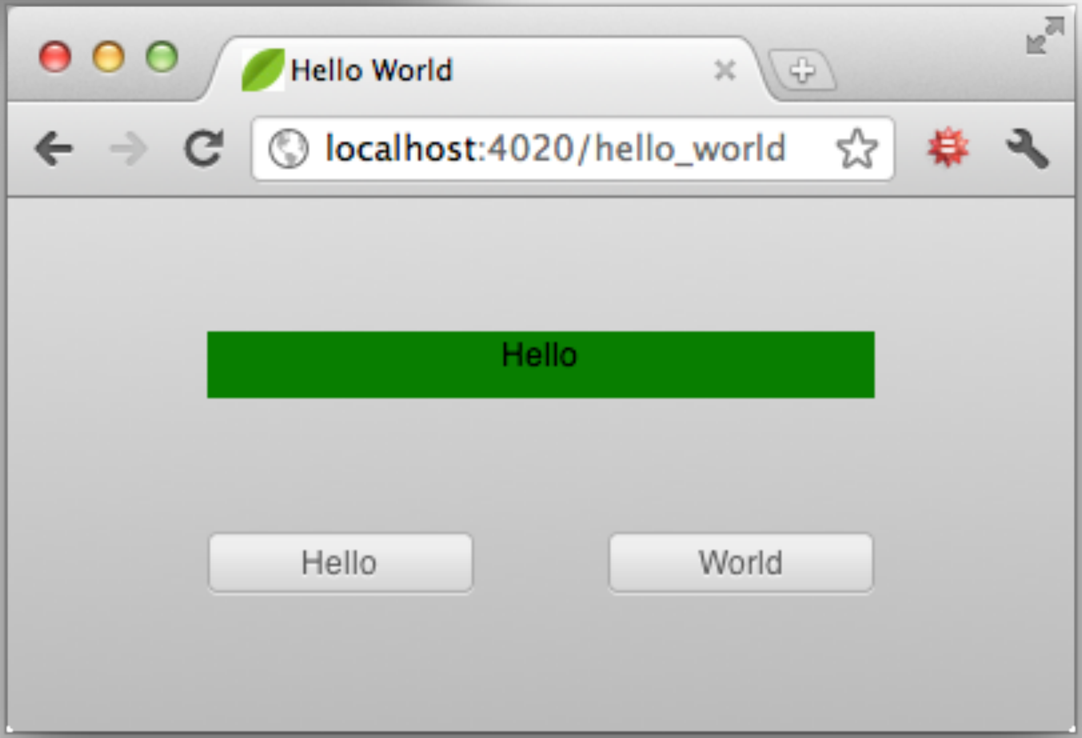
```
joe$ lebowski-start-server
      (starts the selenium server)

joe$ lebowski
      (for running inside ruby scripts)

joe$ lebowski-spec
      (for running lebowski specs)
```

A Simple Example

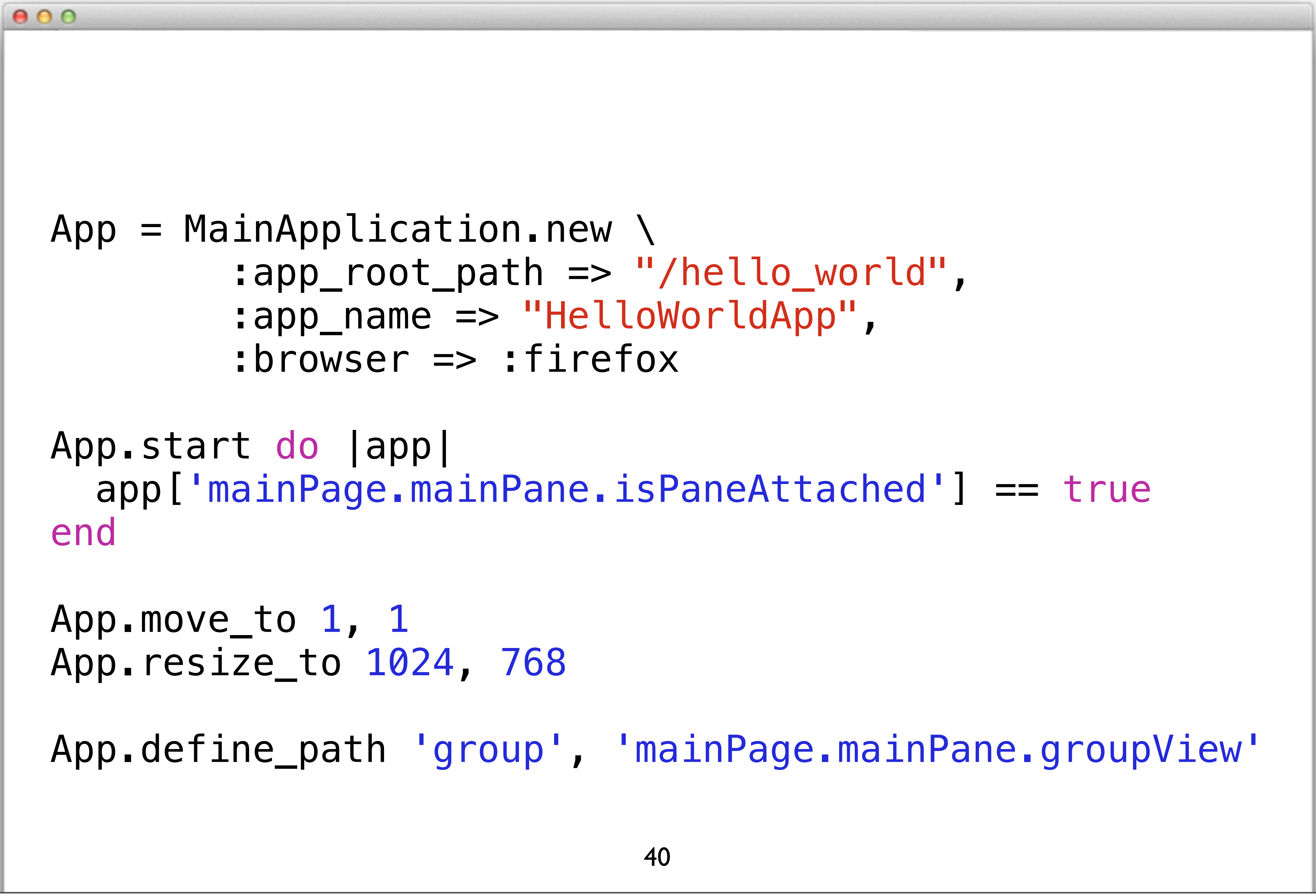
Hello World


Hello World
localhost:4020/hello_world
Click a button
Hello
World


Hello World
localhost:4020/hello_world
World
Hello
World

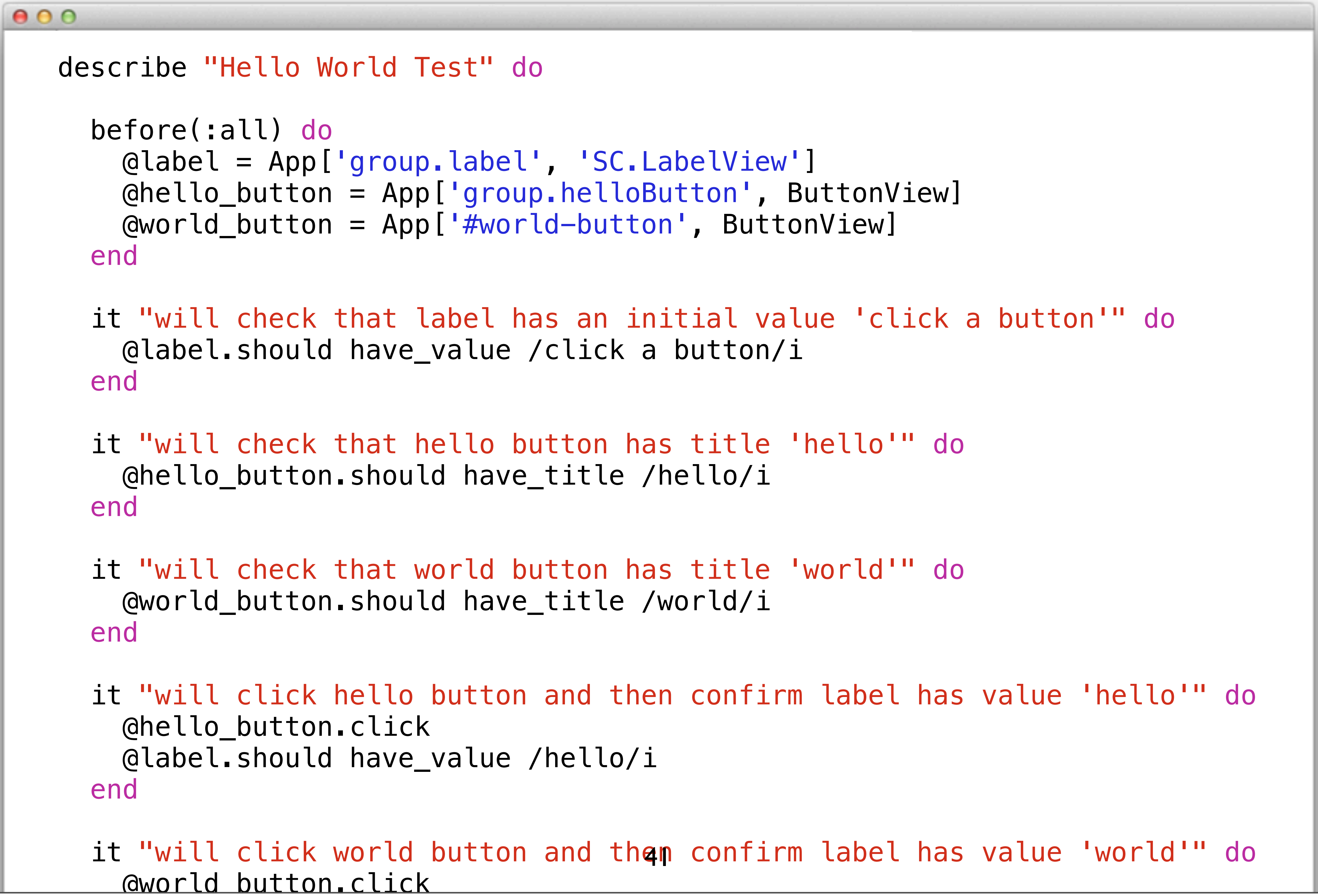

Hello World
localhost:4020/hello_world
Hello
Hello
World

Setup



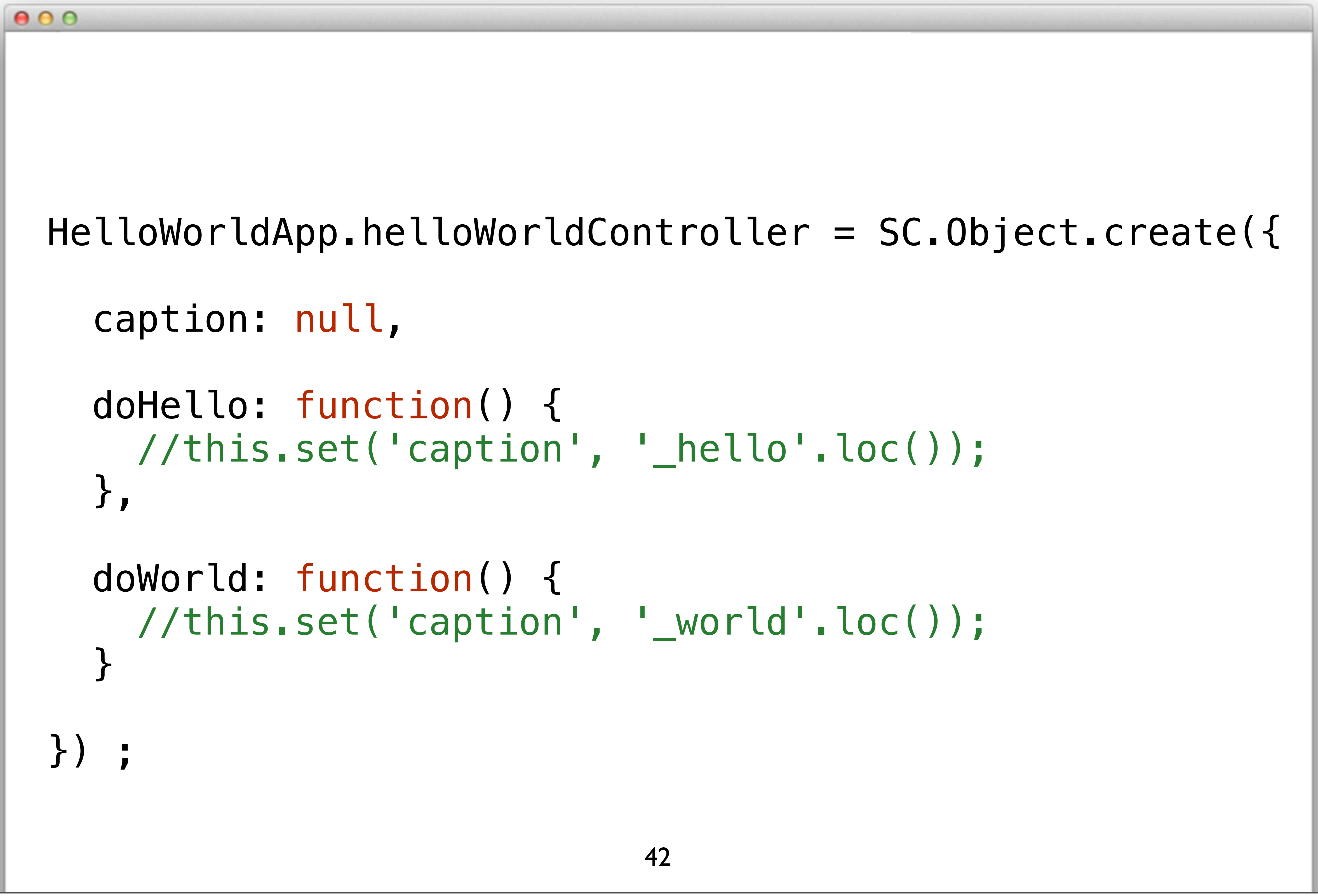
```ruby
App = MainApplication.new \
        :app_root_path => "/hello_world",
        :app_name => "HelloWorldApp",
        :browser => :firefox

App.start do |app|
  app['mainPage.mainPane.isPaneAttached'] == true
end

App.move_to 1, 1
App.resize_to 1024, 768

App.define_path 'group', 'mainPage.mainPane.groupView'
```

A Spec



```
describe "Hello World Test" do

  before(:all) do
    @label = App['group.label', 'SC.LabelView']
    @hello_button = App['group.helloButton', ButtonView]
    @world_button = App['#world-button', ButtonView]
  end

  it "will check that label has an initial value 'click a button'" do
    @label.should have_value /click a button/i
  end

  it "will check that hello button has title 'hello'" do
    @hello_button.should have_title /hello/i
  end

  it "will check that world button has title 'world'" do
    @world_button.should have_title /world/i
  end

  it "will click hello button and then confirm label has value 'hello'" do
    @hello_button.click
    @label.should have_value /hello/i
  end

  it "will click world button and then confirm label has value 'world'" do
    @world_button.click
```

Hello World Controller



```
HelloWorldApp.helloWorldController = SC.Object.create({

  caption: null,

  doHello: function() {
    //this.set('caption', '_hello'.loc());
  },

  doWorld: function() {
    //this.set('caption', '_world'.loc());
  }

}) ;
```

Continuous Integration

Jenkins

Jenkins

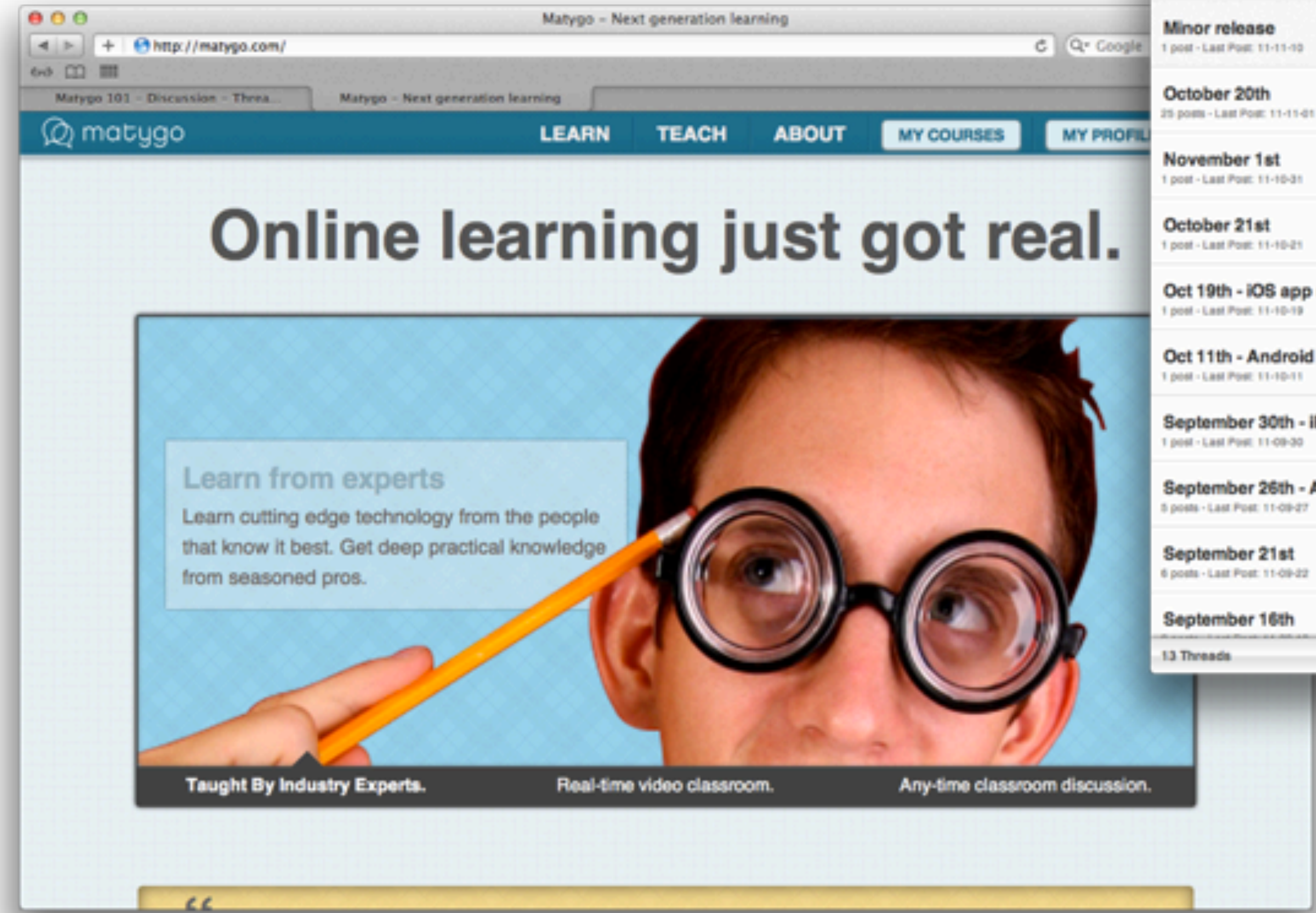
http://jenkins-ci.org/

- OpenSource CI server
- Highly configurable
- Unit tests scriptable through PhantomJS
- Integration Tests scriptable through Lebowski
- Code Quality++ !!!

Basic Loop at Matygo

$$\begin{tikzcd}
\text{Code Commit} \arrow[d] \\
\text{Jenkins Updates Local Code} \arrow[d] \\
\text{Run Backend Unit Tests} \arrow[d] \\
\text{Run Backend Functional Tests [API]} \arrow[d] \\
\text{Run Sproutcore Unit Test} \arrow[d] \\
\text{Run Lebowski Q/A Test} \arrow[d] \\
\text{Push to staging for manual Q/A}
\end{tikzcd}$$

matygo

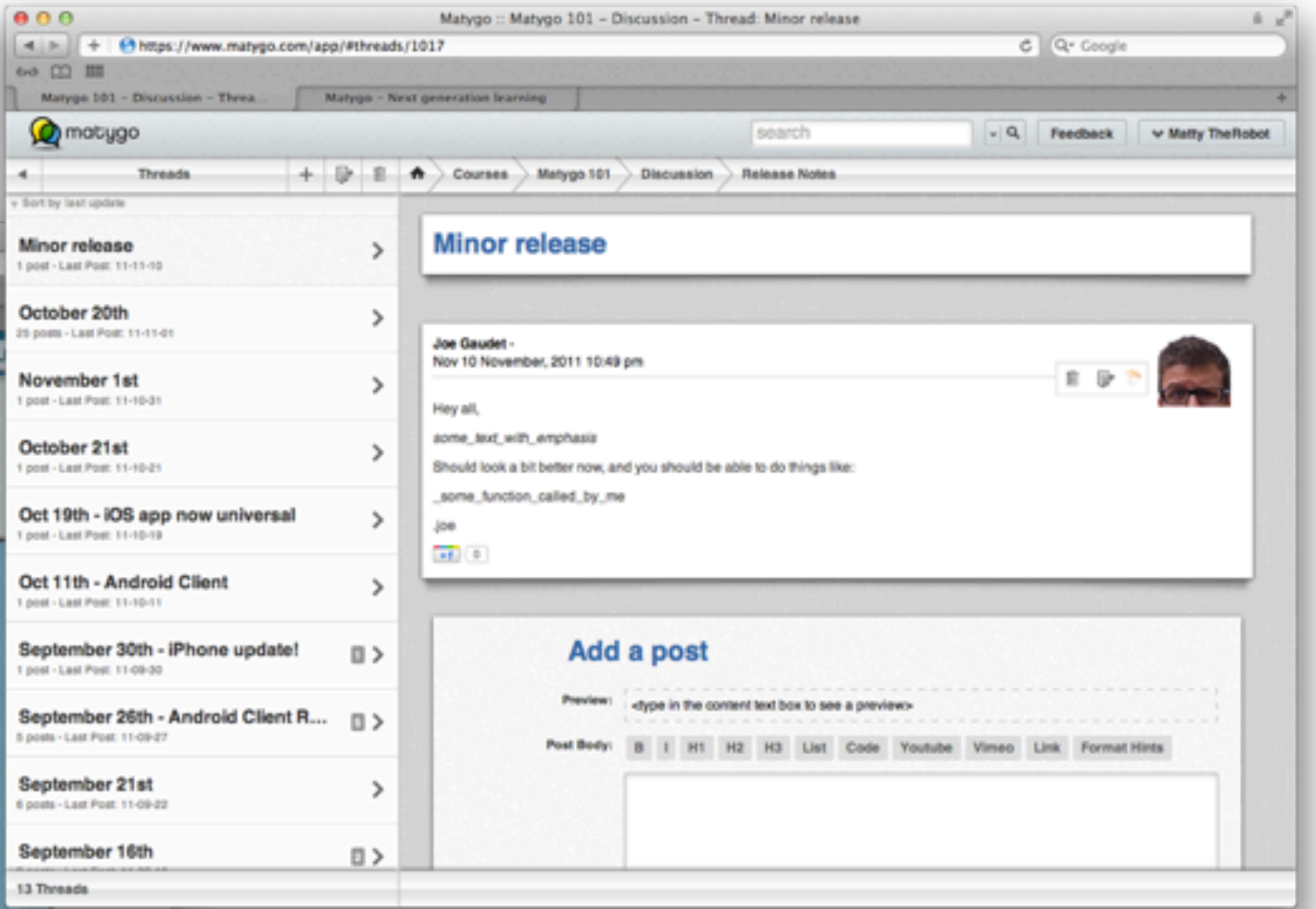

Matygo – Next generation learning
http://matygo.com/
matygo
LEARN
TEACH
ABOUT
MY COURSES
MY PROFILE

Online learning just got real.

Learn from experts

Learn cutting edge technology from the people that know it best. Get deep practical knowledge from seasoned pros.

Taught By Industry Experts.
Real-time video classroom.
Any-time classroom discussion.



Minor release — 1 post - Last Post: 11-11-10

October 20th — 25 posts - Last Post: 11-11-01

November 1st — 1 post - Last Post: 11-10-31

October 21st — 1 post - Last Post: 11-10-21

Oct 19th - iOS app now universal — 1 post - Last Post: 11-10-19

Oct 11th - Android Client — 1 post - Last Post: 11-10-11

September 30th - iPhone update! — 1 post - Last Post: 11-09-30

September 26th - Android Client R... — 5 posts - Last Post: 11-09-27

September 21st — 6 posts - Last Post: 11-09-22

September 16th

13 Threads

Minor release

Joe Gaudet -
Nov 10 November, 2011 10:49 pm

Hey all,

some_text_with_emphasis

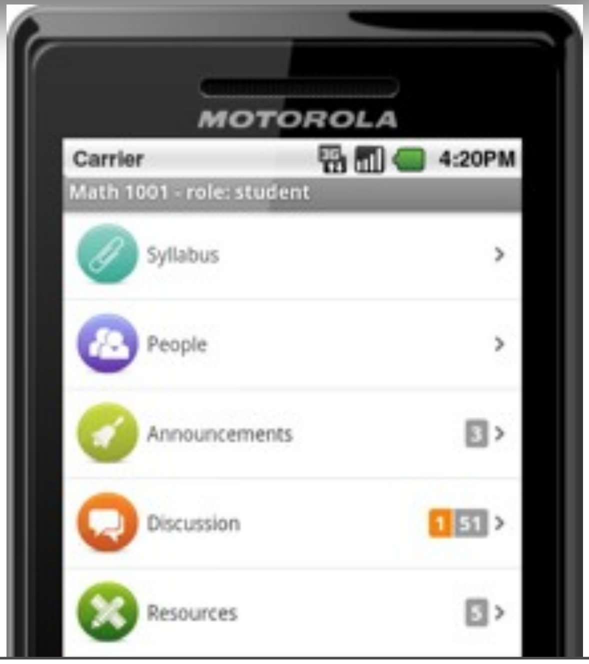
Should look a bit better now, and you should be able to do things like:

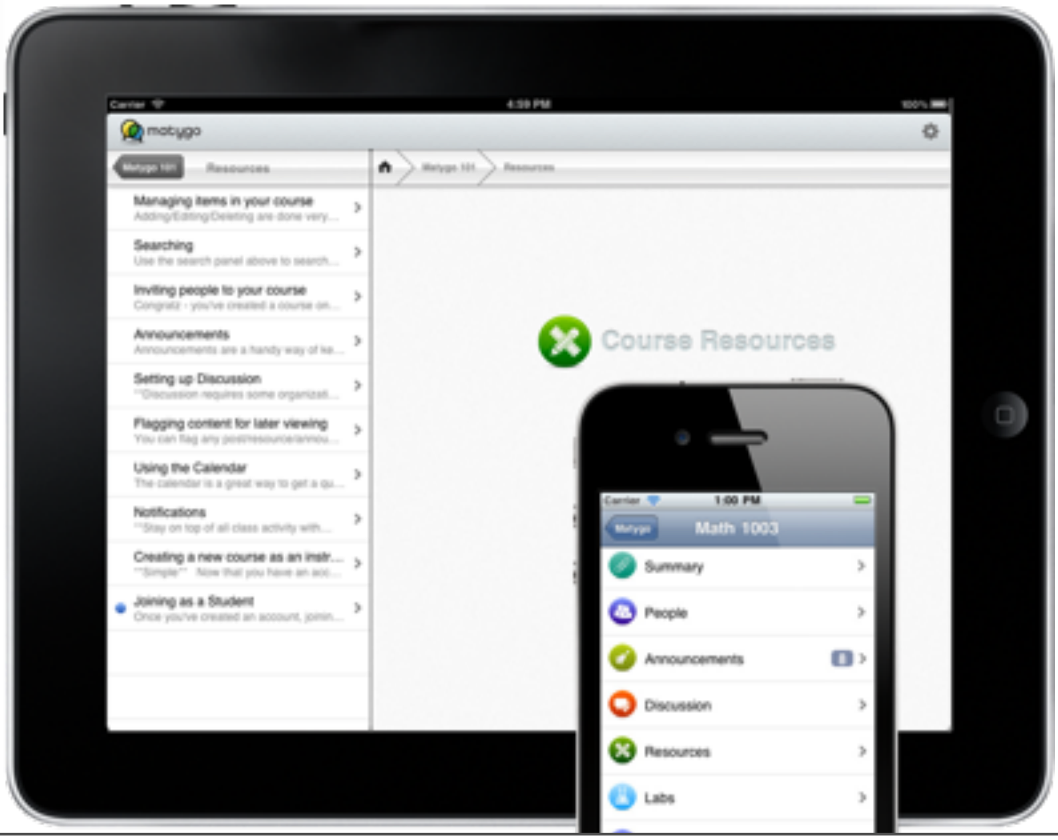
_some_function_called_by_me

joe

Add a post

Preview: <type in the content text box to see a preview>





We are Hiring!!!

- SproutCore / Scala / Ruby On Rails
- Fun / Flexible working environment

- Delivering affordable education
  - Make a dent in the universe :P

Questions?

joe@matygo.com

Recommended Reading:
xUnit Test Patterns - Gerard Meszaros