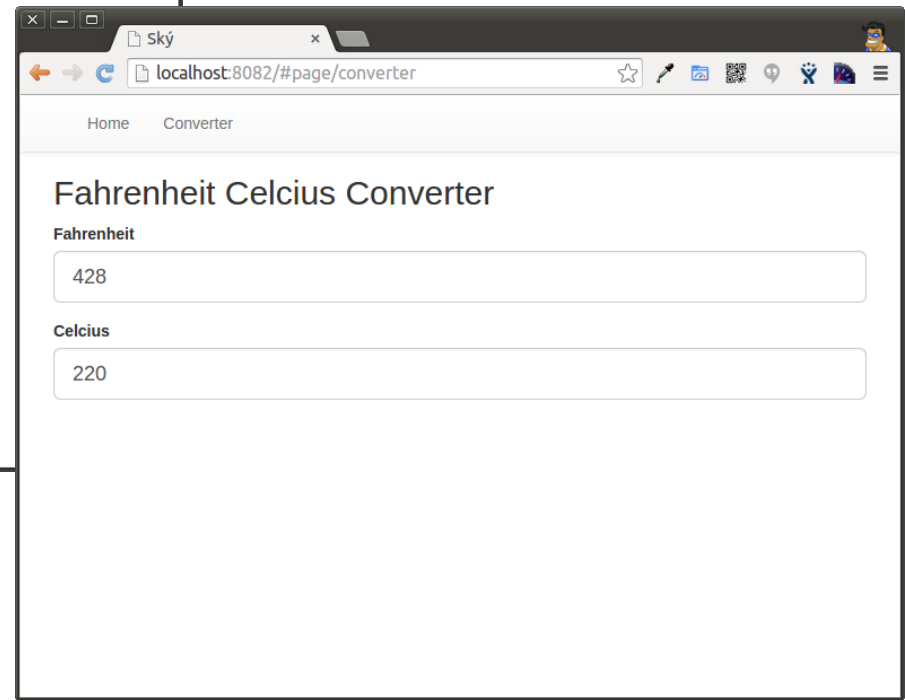
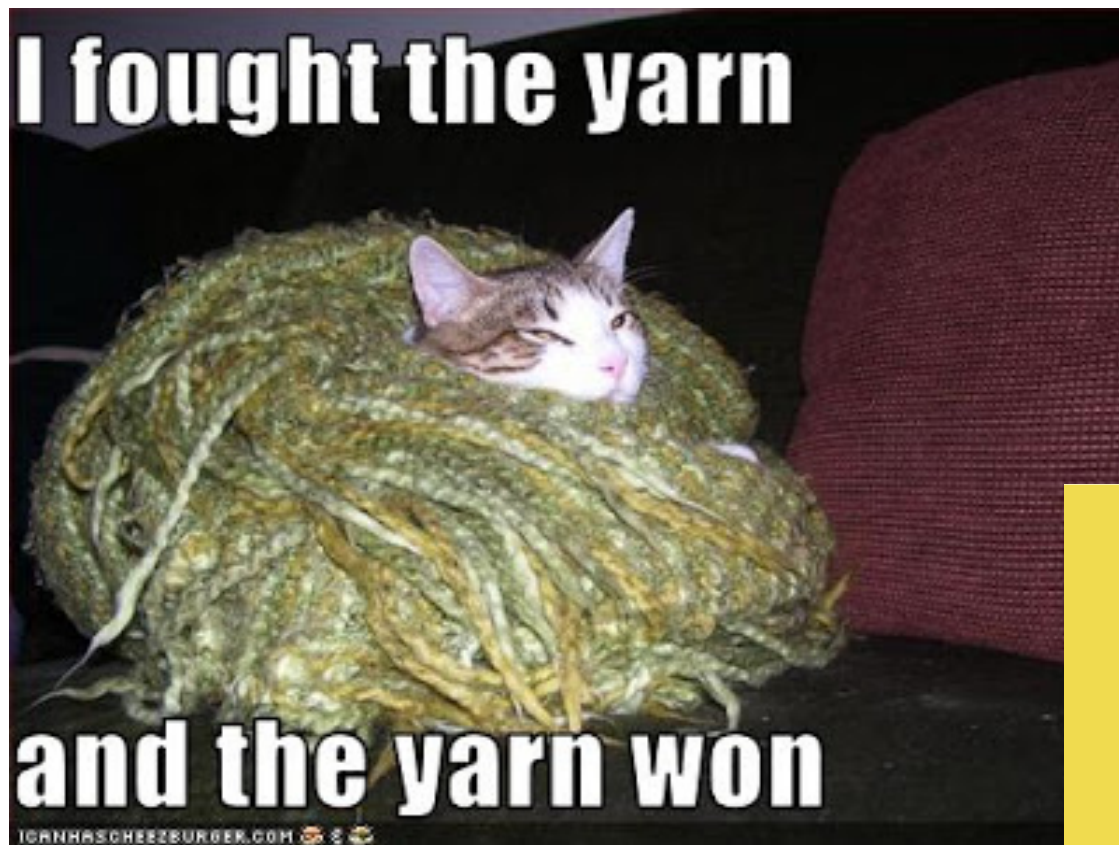


Automated JavaScript Tests

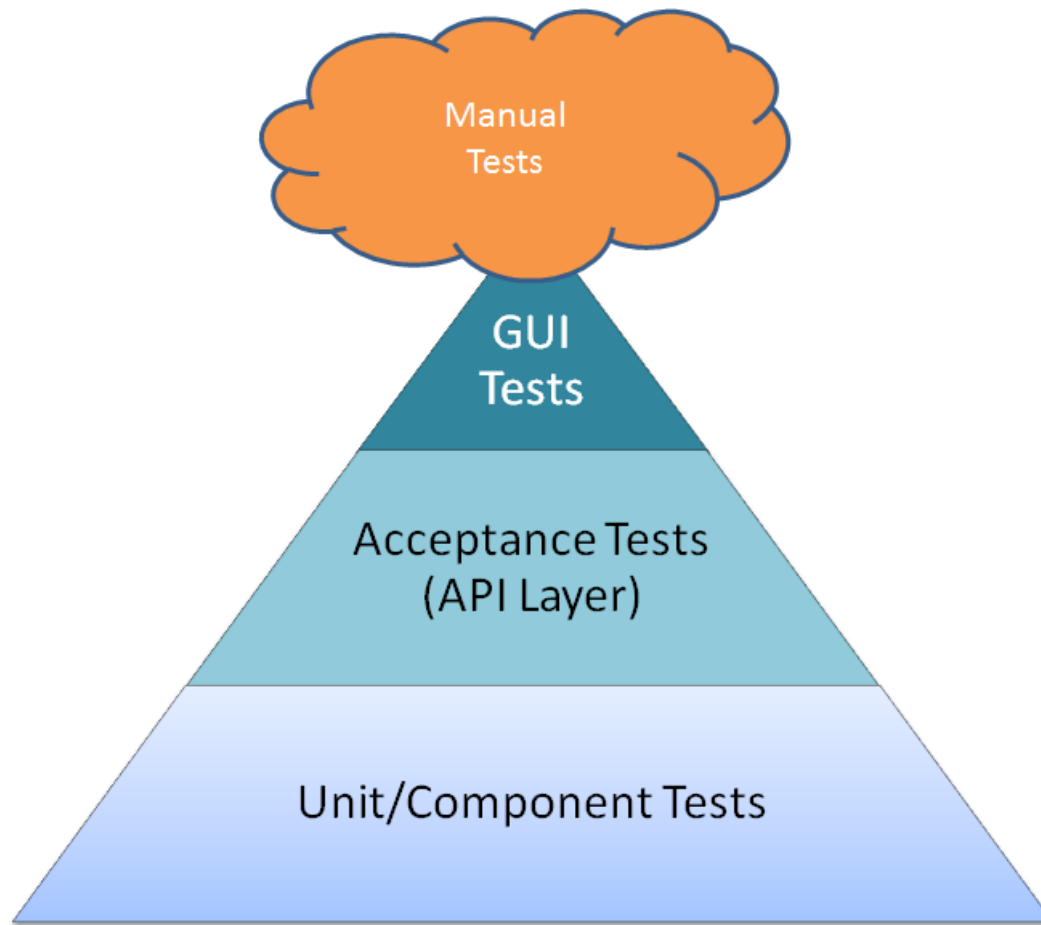
Björn Ingimundarson

What? / Why? / How?



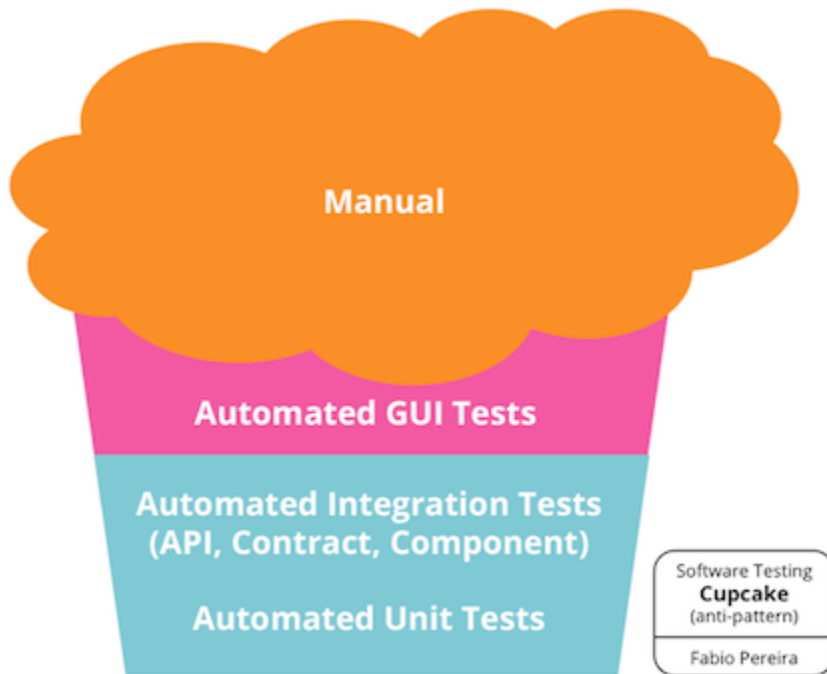


Test Automation Pyramid

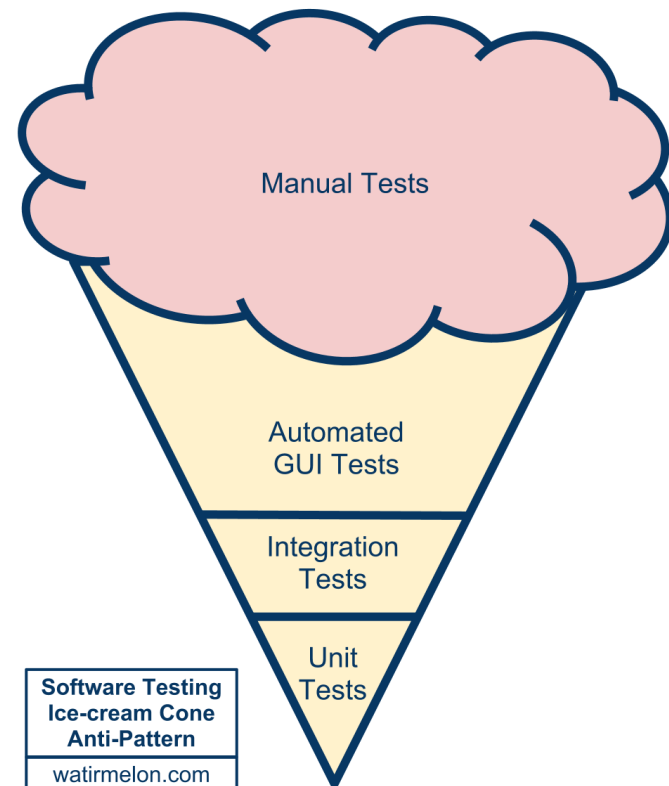


Test Automation Anti-Patterns

Software Testing Cupcake



Ice Cream Cone



“If you are not linting your code go back to square one!”



Jasmine - <http://jasmine.github.io>

- Powerful JavaScript testing framework
- Describes tests in simple natural language
- Can be read by non programmers
- Provides a clean mechanism for testing synchronous and asynchronous code.
- Specs, Suites, Matchers, Spies

```
describe("ConverterViewModel", function() {  
  
    var converter;  
  
    beforeEach(function() {  
        converter = new ConverterViewModel();  
    });  
  
    it("Converts celcius to fahrenheit correctly", function() {  
        converter.celcius(220);  
        expect(converter.fahrenheit()).toBe(428);  
    });  
  
    it("Converts fahrenheit to celcius correctly", function() {  
        converter.fahrenheit(914);  
        expect(converter.celcius()).toBe(490);  
    });  
  
});
```



Istanbul - <http://gotwarlost.github.io/istanbul>

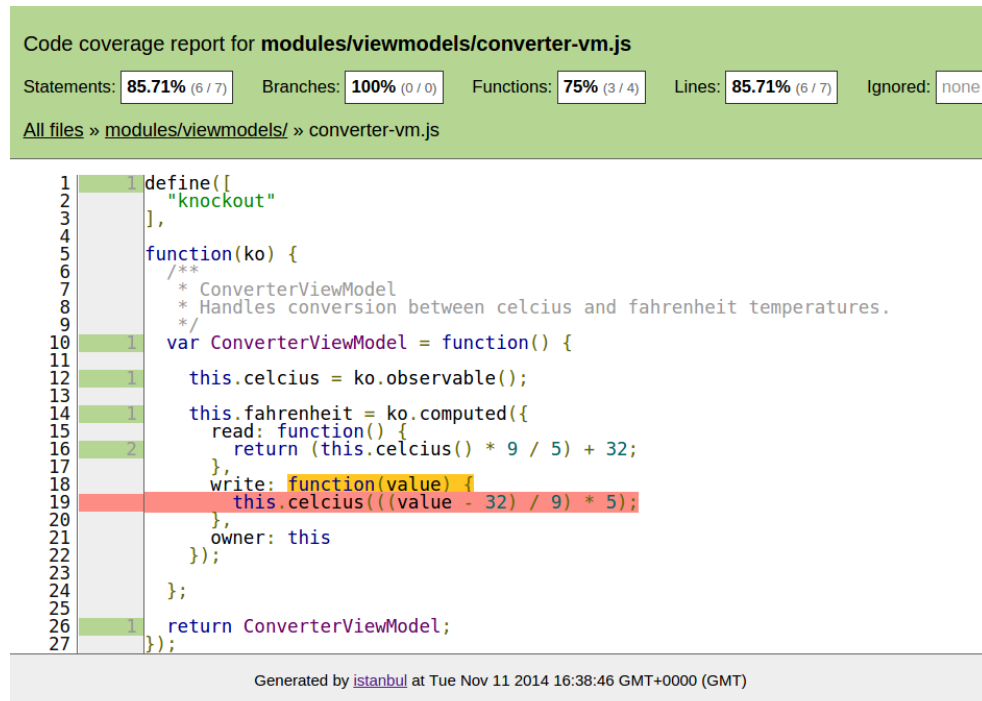
- Yet another JS code coverage tool
- Computes statement, line, function and branch coverage.
- Supports all JS coverage use cases
 - unit tests
 - server side functional tests
 - browser tests.
- Built for scale
- Based on
 - [esprima](#) parser
 - [escodegen](#) code generator



npm install istanbul -g

13 dependencies version 0.3.2
 111 dependents updated 2 months ago
 452,705 downloads in the last month
 download rank: 338th of 111,000 packages

32 ★



Karma - <http://karma-runner.github.io>

- Created by the Angular team
- Modern JavaScript Test Runner
- Test Framework Agnostic
 - Jasmine, Mocha, QUnit....
- Can be used to automate tests
- Based on Node.js and distributed as a Node package
- Can run tests in multiple browsers at once
- Code Coverage using Istanbul
- Continuous Integration
- JUnit reporters, yay Enterprise :)



`npm install karma`

17 dependencies version 0.12.24
75 dependents updated a month ago
484,512 downloads in the last month
download rank: 325th of 111,000 packages

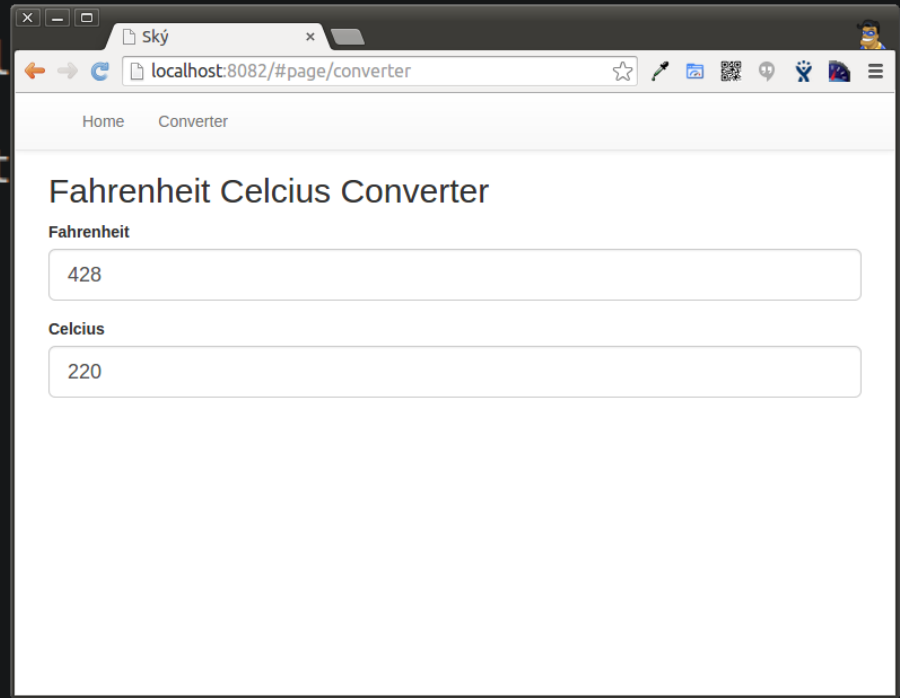
24 ★

```
1 define([
2     "knockout"
3 ],
4
5 function(ko) {
6     /**
7      * ConverterViewModel
8      * Handles conversion between celcius and fahrenheit temperatures.
9      */
10    var ConverterViewModel = function() {
11
12        this.celcius = ko.observable();
13
14        this.fahrenheit = ko.computed({
15            read: function() {
16                return (this.celcius() * 9 / 5) + 32;
17            },
18            write: function(value) {
19                this.celcius(((value - 32) / 9) * 5);
20            },
21            owner: this
22        });
23
24    };
25
26    return ConverterViewModel;
27 }):
```

```

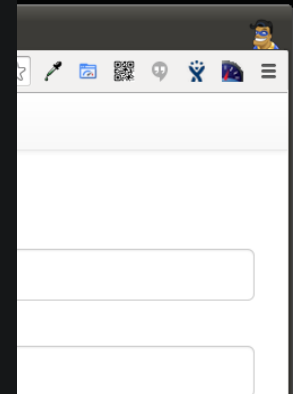
1 define([
2     "knockout"
3 ],
4
5 function(ko) {
6     /**
7      * ConverterViewModel
8      * Handles conversion between celcius and fahrenheit temperatures.
9      */
10    var ConverterViewModel = function() {
11
12        this.celcius = ko.observable()
13
14        this.fahrenheit = ko.computed({
15            read: function() {
16                return (this.celcius() * 9 / 5 + 32);
17            },
18            write: function(value) {
19                this.celcius(((value - 32) * 5) / 9);
20            },
21            owner: this
22        });
23
24    };
25
26    return ConverterViewModel;
27 });

```



```
1 define([
2   "knockout"
3
4   describe("ConverterViewModel", function() {
5
6     var converter;
7
8     beforeEach(function() {
9       converter = new ConverterViewModel();
10    });
11
12    it("Converts celcius to fahrenheit correctly", function() {
13      converter.celcius(220);
14      expect(converter.fahrenheit()).toBe(428);
15    });
16
17    it("Converts fahrenheit to celcius correctly", function() {
18      converter.fahrenheit(914);
19      expect(converter.celcius()).toBe(490);
20    });
21  });
22
23  return ConverterViewModel;
24
25  });
26
27  });
```

temperatures.



A screenshot of a web browser window. The browser's address bar and tabs are visible at the top. The main content area of the browser shows a temperature converter interface. It consists of two input fields, one above the other, both of which are currently empty. The interface is simple and clean, with a white background and a thin border around the input fields.

Code coverage report for **modules/viewmodels/converter-vm.js**

Statements: **85.71%** (6 / 7)

Branches: **100%** (0 / 0)

Functions: **75%** (3 / 4)

Lines: **85.71%** (6 / 7)

Ignored: n

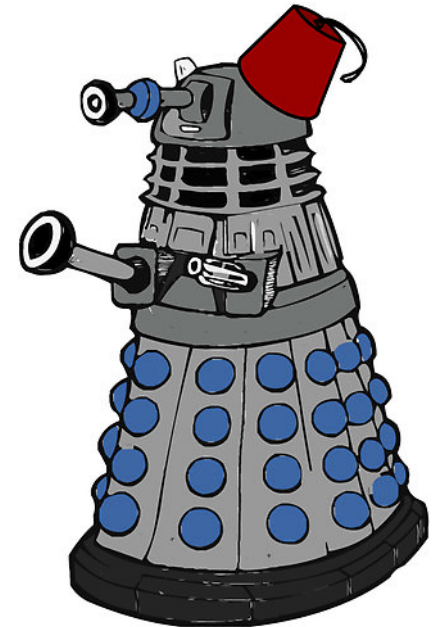
[All files](#) » [modules/viewmodels/](#) » converter-vm.js

```
1 1 define([
2   "knockout"
3 ],
4
5 function(ko) {
6   /**
7    * ConverterViewModel
8    * Handles conversion between celcius and fahrenheit temperatures.
9    */
10  1 var ConverterViewModel = function() {
11
12  1    this.celcius = ko.observable();
13
14  1    this.fahrenheit = ko.computed({
15      read: function() {
16  2      return (this.celcius() * 9 / 5) + 32;
17      },
18      write: function(value) {
19      this.celcius(((value - 32) / 9) * 5);
20      },
21      owner: this
22    });
23
24  };
25
26  1 return ConverterViewModel;
27 });
```

Dalek*

- This ain't Selenium!
- Automated cross browser testing with JavaScript!
- Launch & automate your browser
- fill & submit forms
- click & follow links
- capture screenshots
- run your functional tests
- JUnit reporters, yay Enterprise :)
- Grunt & Gulp tasks available

* currently a developer preview...



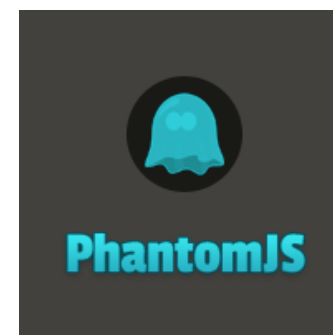
```
1 var url = "http://localhost:8082";
2
3 module.exports = {
4   "Calculates from celcius to fahrenheit correctly": function(test) {
5     test
6       .open(url)
7       .assert.exists("a[href='#page/converter']", "Converter link exists")
8       .click("a[href='#page/converter']", "Clicked converter link")
9       .waitFor(function() {
10         return Boolean(document.querySelector('#converter'));
11       }, [], 3000)
12       .screenshot("screenshots/:browser/converter-ctof.png", "Created screenshot of converter")
13       .type("#celcius", "220")
14       .sendKeys("body", "\u0009")
15       .assert.val('#fahrenheit', "428", "Fahrenheit was calculated correctly")
16       .screenshot("screenshots/:browser/converter-ctof-calc.png", "Created screenshot of calculation")
17       .done();
18   }
19 }
```

```

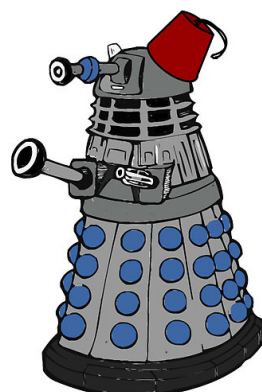
Running tests
Running Browser: PhantomJS
OS: linux unknown 64bit
Browser Version: 1.9.8
beforeEach(function() {
  RUNNING TEST - "Calculates from celcius to fahrenheit correctly"
  ▶ OPEN http://localhost:8082
  ✓ EXISTS Converter link exists
  ▶ CLICK a[href='#page/converter']
  ▶ WAITFOR
  ▶ SCREENSHOT screenshots/phantomjs/converter-ctof.png
  ▶ TYPE #celcius
  ▶ SENDKEYS body
  ✓ VAL Fahrenheit was calculated correctly
  ▶ SCREENSHOT screenshots/phantomjs/converter-ctof-calc.png
  ✓ 2 Assertions run
  ✓ TEST - "Calculates from celcius to fahrenheit correctly" SUCCEEDED
  converter.fahrenheit(10);
  RUNNING TEST - "Calculates from fahrenheit to celcius correctly"
  ▶ OPEN http://localhost:8082
  ✓ EXISTS Converter link exists
  ▶ CLICK a[href='#page/converter']
  ▶ WAITFOR
  ▶ SCREENSHOT screenshots/phantomjs/converter-ftoc.png
  ▶ TYPE #fahrenheit
  ▶ SENDKEYS body
  ✓ VAL Celcius was calculated correctly
  ▶ SCREENSHOT screenshots/phantomjs/converter-ftoc-calc.png
  ✓ 2 Assertions run
  ✓ TEST - "Calculates from fahrenheit to celcius correctly" SUCCEEDED

```


Other tools



simple, flexible, fun



<thak-fyrir>



betware.com/jobs

Node.js Developers

Experienced JavaScript Developers

Senior Java Developers

Software Developers

Software Testers

Web Developer

and more...

