## Primer Feature Test

* Crear el archivo feature\_spec.js
* Hablar sobre el framework y como agrupa y organiza los tests.
* Crear el sgte test

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 1 | describe("Features", *function*() { | | 2 | it("should let enter the secret word", *function*() { | | 3 | *var* wordInput = $('<input>'); | | 4 | *var* wordForm = $('<button>'); | | 5 | *var* wordOutput = $('<div>'); | | 6 | *var* game = new Game({ | | 7 | wordInput: wordInput, | | 8 | wordForm: wordForm, | | 9 | wordOutput: wordOutput | | 10 | }); | | 11 |  | | 12 | wordInput.val('cocodrillo'); | | 13 | wordForm.submit(); | | 14 | wordOutput.html().should.equal('\_\_\_\_\_\_\_\_\_\_'); | | 15 | }); | | 16 | }); | |  |

* Copiar y pegar el feature\_runner.html

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 1 | <!DOCTYPE HTML> | | 2 | <html lang="en-US"> | | 3 | <head> | | 4 | <title>Test Runner Template</title> | | 5 | <meta http-equiv="Content-Type" content="text/html; charset=UTF-8"> | | 6 | <!-- MOCHA STYLE SHEET --> | | 7 | <link rel="stylesheet" href="../css/mocha.css"> | | 8 | </head> | | 9 | <body> | | 10 | <div id="mocha"></div> | | 11 | <!-- MOCHA LIBRARY--> | | 12 | <script type="text/javascript" src="../lib/mocha-1.4.2.js"></script> | | 13 | <!-- OTRAS LIBRERÍAS--> | | 14 | <script type="text/javascript" src="../lib/chai-1.2.0.js"></script> | | 15 | <script type="text/javascript" src="../lib/jquery-1.8.0.js"></script> | | 16 |  | | 17 | <!-- MOCHA y CHAI CONFIGURATION --> | | 18 | <script type="text/javascript"> | | 19 | /\* | | 20 | Mocha nos permite utilizar diferentes DSL(sintaxis): | | 21 | - BDD (Ejm: RSpec) | | 22 | - TDD (Ejm: JUnit) | | 23 | - QUnit (Similar a otra JS Testing Framework) | | 24 | \*/ | | 25 | mocha.setup('bdd'); | | 26 | chai.should(); | | 27 | </script> | | 28 |  | | 29 | <!-- TEST FILES (SPECS) --> | | 30 | <script type="text/javascript" src="feature\_spec.js"></script> | | 31 |  | | 32 | <!-- SRC FILES (SPECS) --> | | 33 |  | | 34 | <!-- EJECUTAR MOCHA --> | | 35 | <script type="text/javascript"> | | 36 | mocha.run(); | | 37 | </script> | | 38 | </body> | | 39 | </html> | |  |

* Ver que el Test ha fallado.
* Crear el archivo src/game.js y agregarlo al featurerunner.
* Implementar la clase hasta que se vea únicamente error del aserto.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 1 | *function* Game(*attributes*) { | | 2 | this.init(attributes); | | 3 | } | | 4 |  | | 5 | *Game*.prototype = { | | 6 | init: *function*(*attributes*) { | | 7 | this.wordInput= attributes.wordInput; | | 8 | this.wordForm= attributes.wordForm; | | 9 | this.wordOutput=attributes.wordOutput; | | 10 | } | | 11 | }; | |  |

* Crear el archivo spec/game\_spec.js
* Copiar el archivo spec/feauture\_runner.html, pegarlo y renombrarlo a spec/unit\_runner.html.
  + Internamente remplazar el title por Unit Test Runner
  + Cambiar la referencia a feature\_spec.js por game\_spec.js
* Escribir el primer test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 1 | describe("game", *function*() { | | 2 | it("should show format secret word with dashes", *function*() { | | 3 | *var* game=new Game({ | | 4 | wordinput: $('<input>'), | | 5 | wordForm: $('<input>'), | | 6 | wordOutput: $('<div>') | | 7 | }); | | 8 |  | | 9 | *var* word = game.formatSecretWord('gato'); | | 10 |  | | 11 | word.should.equal('\_\_\_\_'); | | 12 | }); | | 13 | }); | |  |

* Hacer pasar el test.

|  |  |
| --- | --- |
| 5 | *Game*.prototype = { |
| 6 | init: *function*(*attributes*) { |
| 7 | this.wordInput = attributes.wordInput; |
| 8 | this.wordForm = attributes.wordForm; |
| 9 | this.wordOutput = attributes.wordOutput; |
| 10 | }, |
| 11 | formatSecretWord: *function*(*secretWord*) { |
| 12 | *var* word = ''; |
| 13 | for(*var* i = 0; i < secretWord.length; i++) |
| 14 | word += '\_'; |
| 15 |  |
| 16 | return word; |
| 17 | } |
| 18 | }; |

* Crear el segundo test. (podemos crear un test muy similar al feature test pero más simple o solo completar el código para pasar directamente el feature test.

|  |  |
| --- | --- |
| 14 | it("should show the secret word", *function*() { |
| 15 | *var* wordInput = $('<input>'); |
| 16 | *var* wordForm = $('<button>'); |
| 17 | *var* wordOutput = $('<div>'); |
| 18 | *var* game = new Game({ |
| 19 | wordInput: wordInput, |
| 20 | wordForm: wordForm, |
| 21 | wordOutput: wordOutput |
| 22 | }); |
| 23 |  |
| 24 | wordInput.val('a'); |
| 25 | wordForm.submit(); |
| 26 |  |
| 27 | wordOutput.html().should.equal('\_'); |
| 28 | }); |

* Hacemos pasar el test.
  + Primero creamos el onAccept.
  + Asignamos el evento sin proxy
  + Cambiamos por proxy.

|  |  |
| --- | --- |
| 5 | *Game*.prototype = { |
| 6 | init: *function*(*attributes*) { |
| 7 | this.wordInput = attributes.wordInput; |
| 8 | this.wordForm = attributes.wordForm; |
| 9 | this.wordOutput = attributes.wordOutput; |
| 10 | this.wordForm.click($.proxy(this.onFormSubmit, this)); |
| 11 | },  ……… |
| 19 | onFormSubmit: *function*() { |
| 20 | *var* secretWord = this.wordInput.val(); |
| 21 | *var* formatedSecretWord = this.formatSecretWord(secretWord); |
| 22 | this.wordOutput.html(formatedSecretWord); |
| 23 | } |
| 24 | }; |

* Al ejecutar los test, aparecerá un parpadeo.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 20 | onFormSubmit: *function*(*e*) { | | 21 | e.preventDefault(); | | 22 | this.secretWord = this.wordInput.val(); | | 23 | this.formatedSecretWord = this.formatSecretWord(this.secretWord); | | 24 | this.wordOutput.html(this.formatedSecretWord); | | 25 | this.createButtons(); | | 26 | }, | |

* Refactorizamos los unit tests.

|  |  |
| --- | --- |
| 1 | describe("game", *function*() { |
| 2 | *var* wordInput; |
| 3 | *var* wordForm; |
| 4 | *var* wordOutput; |
| 5 | *var* game; |
| 6 |  |
| 7 | beforeEach(*function*() { |
| 8 | wordInput = $('<input>'); |
| 9 | wordForm = $('<button>'); |
| 10 | wordOutput = $('<div>'); |
| 11 | game = new Game({ |
| 12 | wordInput: wordInput, |
| 13 | wordForm: wordForm, |
| 14 | wordOutput: wordOutput |
| 15 | }); |
| 16 | }); |
| 17 |  |
| 18 | it("should format the secret word with dashes", *function*() { |
| 19 | *var* word = game.formatSecretWord('gato'); |
| 20 |  |
| 21 | word.should.equal('\_\_\_\_'); |
| 22 | }); |
| 23 |  |
| 24 | it("should show the secret word", *function*() { |
| 25 | wordInput.val('a'); |
| 26 | wordForm.submit(); |
| 27 |  |
| 28 | wordOutput.html().should.equal('\_'); |
| 29 | }); |
| 30 | }); |

## Code Inspection JSHINT

* Instalación

Npm install –g grunt

* Creación de grunt.js

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 1 | /\*global module:false\*/ | | 2 | *module*.exports = *function*(*grunt*) { | | 3 |  | | 4 | // Build configuration. | | 5 | grunt.initConfig({ | | 6 | lint: { | | 7 | files: ['grunt.js', 'src/\*.js', 'spec/\*.js'] | | 8 | }, | | 9 | jshint: { | | 10 | options: { | | 11 | curly: true, | | 12 | eqeqeq: true, | | 13 | immed: true, | | 14 | latedef: true, | | 15 | newcap: true, | | 16 | noarg: true, | | 17 | sub: true, | | 18 | undef: true, | | 19 | boss: true, | | 20 | eqnull: true, | | 21 | browser: true, | | 22 | jquery: true, | | 23 | trailing:true, | | 24 | noempty:true | | 25 | // strict:true, | | 26 | }, | | 27 | globals: { | | 28 | afterEach: false, | | 29 | beforeEach: false, | | 30 | describe: false, | | 31 | expect: false, | | 32 | it: false | | 33 | } | | 34 | } | | 35 | }); | | 36 |  | | 37 | // Default task. | | 38 | grunt.registerTask('default', 'lint'); | | 39 | }; | |

* Ejecutar grunt.
* Corregir los errores
  + Al inicio de las specs agregar: */\*global Game:false\*/*
  + Método formatSecretWord (agregarle paréntesis):  
     *for(var i = 0; i < secretWord.length; i++) { word += '\_'; }*
* Pasar grunt.

## Segundo Feature Test

* Refactorizamos los feature tests

|  |  |
| --- | --- |
| 2 | *var* wordInput; |
| 3 | *var* wordForm; |
| 4 | *var* wordOutput; |
| 5 | *var* game; |
| 6 |  |
| 7 | beforeEach(*function*() { |
| 8 | wordInput = $('<input>'); |
| 9 | wordForm = $('<button>'); |
| 10 | wordOutput = $('<div>'); |
| 11 | game = new Game({ |
| 12 | wordInput: wordInput, |
| 13 | wordForm: wordForm, |
| 14 | wordOutput: wordOutput |
| 15 | }); |
| 16 | }); |

* Creamos el segundo Test

|  |  |
| --- | --- |
| 27 | it("should be able to play", *function*() { |
| 28 | wordInput.val('cocodrillo'); |
| 29 | wordForm.submit(); |
| 30 |  |
| 31 | $('#o',buttonList).click(); |
| 32 | $('#d',buttonList).click(); |
| 33 |  |
| 34 | wordOutput.html().should.equal('\_o\_od\_\_\_\_o'); |
| 35 | }); |

* Agregamos el elemento buttonList en el beforeeach.

|  |  |
| --- | --- |
| 2 | *var* wordInput; |
| 3 | *var* wordForm; |
| 4 | *var* wordOutput; |
| 5 | *var* buttonList; |
| 6 | *var* game; |
| 7 |  |
| 8 | beforeEach(*function*() { |
| 9 | wordInput = $('<input>'); |
| 10 | wordForm = $('<button>'); |
| 11 | wordOutput = $('<div>'); |
| 12 | game = new Game({ |
| 13 | wordInput: wordInput, |
| 14 | wordForm: wordForm, |
| 15 | wordOutput: wordOutput, |
| 16 | buttonList: buttonList |
| 17 | }); |
| 18 | }); |

* Vemos el test fallar.
* **Creamos tests de CREACIÓN DE BOTONES dentro de un nuevo describe.**

|  |  |
| --- | --- |
| 34 | describe("create letter buttons", *function*() { |
| 35 | it("should show the letter a", *function*() { |
| 36 | wordInput.val('gato'); |
| 37 | wordForm.submit(); |
| 38 |  |
| 39 | $('button:contains("a")', buttonList).should.have.length(1); |
| 40 | }); |
| 41 | }); |

* Hacemos pasar el test.

|  |  |
| --- | --- |
| 5 | *Game*.prototype = { |
| 6 | init: *function*(*attributes*) { |
| 7 | this.wordInput = attributes.wordInput; |
| 8 | this.wordForm = attributes.wordForm; |
| 9 | this.wordOutput = attributes.wordOutput; |
| 10 | this.buttonList = attributes.buttonList; |
| 11 | this.wordForm.click($.proxy(this.onFormSubmit, this)); |
| 12 | },  ……… |
| 20 | onFormSubmit: *function*() { |
| 21 | *var* secretWord = this.wordInput.val(); |
| 22 | *var* formatedSecretWord = this.formatSecretWord(secretWord); |
| 23 | this.wordOutput.html(formatedSecretWord); |
| 24 | this.createButtons(); |
| 25 | }, |
| 26 | createButtons: *function*() { |
| 27 | *var* buttonA='<button>a</button>'; |
| 28 | this.buttonList.append(buttonA); |
| 29 | } |
| 30 | }; |

* Escribimos un nuevo test.

|  |  |
| --- | --- |
| 42 | it("should show the letter z", *function*() { |
| 43 | wordInput.val('gato'); |
| 44 | wordForm.submit(); |
| 45 |  |
| 46 | $('button:contains("z")', buttonList).should.have.length(1); |
| 47 | }); |

* Hacemos pasar el test.

|  |  |
| --- | --- |
| 26 | createButtons: *function*() { |
| 27 | *var* buttonA='<button>'+*String*.fromCharCode(97)+'</button>'; |
| 28 | this.buttonList.append(buttonA); |
| 29 |  |
| 30 | *var* buttonZ='<button>'+*String*.fromCharCode(122)+'</button>'; |
| 31 | this.buttonList.append(buttonZ); |
| 32 | } |

* Escribimos un nuevo test.

|  |  |
| --- | --- |
| 49 | it("should show the letter b", *function*() { |
| 50 | wordInput.val('gato'); |
| 51 | wordForm.submit(); |
| 52 |  |
| 53 | $('button:contains("b")', buttonList).should.have.length(1); |
| 54 | }); |

* Hacemos pasar el test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 26 | createButtons: *function*() { | | 27 | for(*var* i = 97; i <= 122; i++) { | | 28 | *var* button = '<button>' + *String*.fromCharCode(i) + '</button>'; | | 29 | this.buttonList.append(button); | | 30 | } | | 31 | } | |  |

* **Creamos los test de JUGAR CON LETRAS.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 57 | describe("try letters", *function*() | | 58 | it("should show the letter when the letter match", *function*() { | | 59 | wordInput.val("g"); | | 60 | wordForm.submit(); | | 61 |  | | 62 | game.tryLetter("g"); | | 63 | wordOutput.html().should.equal('g'); | | 64 | }); | | 65 | }); | |

* Hacemos pasar el test.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 32 | tryLetter: *function*(*letter*) { | | 33 | this.wordOutput.html(letter); | | 34 | } | |

* Creamos el siguiente test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 66 | it("should show underscore when the letter does not match", *function*() { | | 67 | wordInput.val("g"); | | 68 | wordForm.submit(); | | 69 |  | | 70 | game.tryLetter("e"); | | 71 | wordOutput.html().should.equal('\_'); | | 72 | }); | |

* Hacemos pasar el test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 20 | onFormSubmit: *function*() { | | 21 | this.secretWord = this.wordInput.val(); | | 22 | *var* formatedSecretWord = this.formatSecretWord(this.secretWord); | | 23 | this.wordOutput.html(formatedSecretWord); | | 24 | this.createButtons(); | | 25 | },  …… | | 32 | tryLetter: *function*(*letter*) { | | 33 | if (this.secretWord.indexOf(letter)!=-1) { | | 34 | this.wordOutput.html(letter); | | 35 | } | | 36 | } | |

* Refactorizamos los tests.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 52 | *function* playWith(*secretWord*) { | | 53 | wordInput.val(secretWord); | | 54 | wordForm.submit(); | | 55 | } | | 56 |  | | 57 | describe("try letters", *function*() { | | 58 | it("should show the letter 'g' when the letter match", *function*() { | | 59 | playWith("g"); | | 60 |  | | 61 | game.tryLetter("g"); | | 62 | wordOutput.html().should.equal('g'); | | 63 | }); | | 64 | it("should show underscore when the letter does not match", *function*() { | | 65 | playWith("g"); | | 66 |  | | 67 | game.tryLetter("e"); | | 68 | wordOutput.html().should.equal('\_'); | | 69 | }); | | 70 | }); | |

* Creamos el siguiente test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 70 | it("should show only the letters that match", *function*() { | | 71 | playWith("ga"); | | 72 |  | | 73 | game.tryLetter("g"); | | 74 | wordOutput.html().should.equal('g\_'); | | 75 | }); | |

* Hacemos pasar el test( Hacerlo por pasos: Primero this.formated(0,0))

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 20 | onFormSubmit: *function*() { | | 21 | this.secretWord = this.wordInput.val(); | | 22 | this.formatedSecretWord = this.formatSecretWord(this.secretWord); | | 23 | this.wordOutput.html(this.formatedSecretWord); | | 24 | this.createButtons(); | | 25 | },  …… | | 32 | tryLetter: *function*(*letter*) { | | 33 | if (this.secretWord.indexOf(letter)!=-1) { | | 34 | *var* word=letter + this.formatedSecretWord.substr(1); | | 35 | this.wordOutput.html(word); | | 36 | } | | 37 | } | |

* Creamos el siguiente test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 76 | it("should show the letter that match in different positions", *function*() { | | 77 | playWith("ga"); | | 78 |  | | 79 | game.tryLetter("a"); | | 80 | wordOutput.html().should.equal('\_a'); | | 81 | }); | |

* Hacemos pasar el test (Hacerlo de a poquito: primero this.formated.substr(0,0) y recién el cambio.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 32 | tryLetter: *function*(*letter*) { | | 33 | *var* index = this.secretWord.indexOf(letter); | | 34 | if(index != -1) { | | 35 | *var* word = this.formatedSecretWord.substr(0, index) + | | 36 | letter + | | 37 | this.formatedSecretWord.substr(index + 1); | | 38 | this.wordOutput.html(word); | | 39 | } | | 40 | } | |

* Creamos el siguiente test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 82 | it("should show many letters that match", *function*() { | | 83 | playWith("gato"); | | 84 |  | | 85 | game.tryLetter("g"); | | 86 | game.tryLetter("a"); | | 87 | wordOutput.html().should.equal('ga\_\_'); | | 88 | }); | |

* Hacemos pasar el test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 32 | tryLetter: *function*(*letter*) { | | 33 | *var* index = this.secretWord.indexOf(letter); | | 34 | if(index != -1) { | | 35 | this.formatedSecretWord = this.formatedSecretWord.substr(0, index) + | | 36 | letter + | | 37 | this.formatedSecretWord.substr(index + 1); | | 38 | this.wordOutput.html(this.formatedSecretWord); | | 39 | } | | 40 | } | |

* Creamos el siguiente test.
* Hacemos pasar el test (crear el for encima de todo, reemplazar i por index)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 32 | tryLetter: *function*(*letter*) { | | 33 | for(*var* index = 0; index < this.secretWord.length; index++) { | | 34 | if(letter == this.secretWord[index]) { | | 35 | this.formatedSecretWord = this.formatedSecretWord.substr(0, index) + | | 36 | letter + | | 37 | this.formatedSecretWord.substr(index + 1); | | 38 | this.wordOutput.html(this.formatedSecretWord); | | 39 | } | | 40 | } | | 41 | } | |

* Creamos un test para integrar todo.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 97 | it("should show the result after try a letter", *function*(){ | | 98 | playWith("a"); | | 99 |  | | 100 | $('button:contains("a")', buttonList).click(); | | 101 |  | | 102 | wordOutput.html().should.equal('a'); | | 103 | }); | |

* Creamos el código que pase el test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 26 | createButtons: *function*() { | | 27 | for(*var* i = 97; i <= 122; i++) { | | 28 | *var* button = $('<button>' + *String*.fromCharCode(i) + '</button>'); | | 29 | button.click($.proxy(this.onButtonClick,this)); | | 30 | this.buttonList.append(button); | | 31 | } | | 32 | }, | | 33 | onButtonClick:*function*(*e*) { | | 34 | *var* letter=$(*e*.target).html(); | | 35 | this.tryLetter(letter); | | 36 | }, | |

* Probamos que el feature test pase.
* Ejecutar grunt nuevamente
  + Corregir el método tryletter(agregar 3 iguales): *if(letter === this.secretWord[index]) {*

# Continuous Testing

# Refactoring

* Renombrar Game a GameController en los clase y en los tests. Ayudarse de ALT+F3
* Crear la clase Game
* Mover la propiedad this.secretWord a Game
  + Ingresar como parámetro el secretWord

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 1 | *function* Game (*secretWord*) { | | 2 | this.secretWord=secretWord; | | 3 | } | |

* + Instanciar Game dentro de OnFormSubmit y pasarle como parámetro this.wordInput.val()
  + Reemplazar this.secretWord x this.game.secretWord. Ayudarse de ALT+F3
  + Eliminar la línea this.secretWord=this.wordInput.val()
* Mover el método formatSecretWord()
  + Examinar si el método se está utilizando, crear un nuevo setup() e instanciar la clase a la cuál se está moviendo.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 3 | describe("Game", *function*(){ | | 4 | *var* game; | | 5 |  | | 6 | beforeEach(*function*(){ | | 7 | game=new Game(''); | | 8 | }); | | 9 |  | | 10 | it("should format the secret word with dashes", *function*() { | | 11 | *var* word = game.formatSecretWord('gato'); | | 12 |  | | 13 | word.should.equal('\_\_\_\_'); | | 14 | }); | | 15 | }); | |

* + Copiar y pegar el método a la nueva clase para hacer pasar los tests. No cortar.
  + Arreglar las referencias
  + Eliminar el método duplicado.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 27 | onFormSubmit: *function*(*e*) { | | 28 | e.preventDefault(); | | 29 | this.game=new Game(this.wordInput.val()); | | 30 | this.formatedSecretWord = this.game.formatSecretWord(this.game.secretWord); | | 31 | this.wordOutput.html(this.formatedSecretWord); | | 32 | this.createButtons(); | | 33 | }, | |

* Mover la propiedad
  + Antes de mover debemos verificar de que otras clases depende la propiedad al momento de instanciarse y de acuerdo a eso decidir como vamos a instanciar esta propiedad en la nueva clase. Para nuestra suerte depende de métodos de la misma clase a la cuál queremos moverlo.
  + Entonces podemos mover toda la línea. Extrayendo un método y realizando la llamada o aprovechando q instanciamos la clase Game en la línea superior, utilizar ese constructor. Utilicemos el constructor.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 1 | *function* Game (*secretWord*) { | | 2 | this.secretWord=secretWord; | | 3 | this.formatedSecretWord = this.formatSecretWord(this.secretWord); | | 4 | } | |

* + Arreglamos las referencias y luego eliminamos la línea.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 28 | onFormSubmit: *function*(*e*) { | | 29 | e.preventDefault(); | | 30 | this.game=new Game(this.wordInput.val()); | | 31 | this.wordOutput.html(this.game.formatedSecretWord); | | 32 | this.createButtons(); | | 33 | }, | |

* Mover el for del método tryletter
  + Crear un método tryLtr
  + Examinar de que variables locales depende y que valores de retorno.
  + Extraer el contenido del tryLetter en el tryLtr y arreglar la referencia.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 45 | tryLetter: *function*(*letter*) { | | 46 | this.tryLtr(letter); | | 47 | this.wordOutput.html(this.game.formatedSecretWord); | | 48 | }, | | 49 | tryLtr:*function*(*letter*) { | | 50 | for(*var* index = 0; index < this.game.secretWord.length; index++) { | | 51 | if(letter === this.game.secretWord[index]) { | | 52 | this.game.formatedSecretWord = this.game.formatedSecretWord.substr(0, index) + | | 53 | letter + | | 54 | this.game.formatedSecretWord.substr(index + 1); | | 55 | } | | 56 | } | | 57 | } | |

* + Antes de moverlo a la otra clase, examinamos dependencias a propiedades de la clase actual. Utilizar el primer This y ALT+f3. Podemos observar que este método principalmente depende de propiedades de otra clase this.game. Por lo tanto es buena idea moverlo a otro lugar. Feature Envy.
  + Mover el método , remplazar los this.game x this.
  + Actualizar la referencia.
  + Renombramos el método a tryLetter.
* Mover a nuevas clases.
  + Crear el archivo gamecontroller.js y mover el contenido, guardarlo.
  + Agregar la referencia en el unit\_runner.html
  + Crear el archivo gamecontroller\_spec.js y mover el contenido, guardarlo.
  + Arreglar el global del header de los specs.
  + Ejecutar Feature Runner
    - Renombrar en el spec de Game a GameController
    - Agregar la referencia en el feature\_runner.html a las nuevas clases
  + Ejecutar Grunt

# 3er Feature Test

* Refactorizamos los Feature Tests para agregar el tryLetter().

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 30 | *function* tryLetter (*letter*) { | | 31 | $('button:contains("'+letter+'")', buttonList).click(); | | 32 | } | | 33 | …… | | 40 | it("should be able to play", *function*() { | | 41 | playWith('cocodrillo'); | | 42 |  | | 43 | tryLetter('o'); | | 44 | tryLetter('d'); | | 45 |  | | 46 | wordOutput.html().should.equal('\_o\_od\_\_\_\_o'); | | 47 | }); | |

* Escribimos el Feature Tests.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 49 | it("should show the number of failed attempts",*function*() { | | 50 | playWith('cocodrillo'); | | 51 |  | | 52 | tryLetter('a'); | | 53 | tryLetter('b'); | | 54 |  | | 55 | failedAttemptsOutput.html().should.equal('2'); | | 56 | }); | |

* Completamos el BeforeEach hasta ver el aserto correcto.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 10 | beforeEach(*function*() { | | 11 | wordInput = $('<input>'); | | 12 | wordForm = $('<form>'); | | 13 | wordOutput = $('<div>'); | | 14 | buttonList=$('<div>'); | | 15 | failedAttemptsOutput=$('<span>'); | | 16 | gameController = new GameController({ | | 17 | wordInput: wordInput, | | 18 | wordForm: wordForm, | | 19 | wordOutput: wordOutput, | | 20 | buttonList: buttonList, | | 21 | failedAttemptsOutput:failedAttemptsOutput | | 22 | }); | | 23 | }); | |

* Vamos a hacer pasar el Feature Tests, pero ahora las clases que manejan el flujo de la aplicación y la lógica de la misma están separadas, entonces comenzamos con la clase Gamecontroller.
* La clase GameController se encargará de mostrar el valor de intentos fallidos.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | 103 | it("should show the failed attemps", *function*(){ | | 104 | gameController.tryLetter("any\_lettetr"); | | 105 |  | | 106 | failedAttemptsOutput.html().should.equal('3'); | | 107 | }); | | |

* Agregamos el failedAttemptsOutput como parámetro.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 10 | beforeEach(*function*() { | | 11 | wordInput = $('<input>'); | | 12 | wordForm = $('<form>'); | | 13 | wordOutput = $('<div>'); | | 14 | buttonList = $('<ditv>'); | | 15 | failedAttemptsOutput = $('<span>'); | | 16 | gameController = new GameController({ | | 17 | wordInput: wordInput, | | 18 | wordForm: wordForm, | | 19 | wordOutput: wordOutput, | | 20 | buttonList: buttonList, | | 21 | failedAttemptsOutput:failedAttemptsOutput | | 22 | }); | | 23 | }); | |

* Si observamos el error nos dice que no hemos inicializado ciertas propiedades de la clase Game. Si revisamos el método TryLetter, veremos que esté hace una llamada a un método de la clase Game y probablemente este método esté necesitando estas propiedades.
* Para implementar el test, necesitamos considerar lo siguiente. A través de este test necesitamos probar la clase GameControlle de manera independiente pero esta necesita a la clase Game para que le proporcione el valor. Para lograr esto necesitamos hacer Mocking o stubbing de las métodos a través de las cuales se comunica con la clase Game.
* Debido a las características propias de JS podemos crear un fake object de manera muy fácil sobreescribiendo la propiedad game.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 103 | it("should show the failed attemps", *function*(){ | | 104 | gameController.game={ | | 105 | tryLetter:*function*() { | | 106 | //do nothing | | 107 | } | | 108 | }; | | 109 |  | | 110 | gameController.tryLetter("any\_letter"); | | 111 |  | | 112 | failedAttemptsOutput.html().should.equal('2'); | | 113 | }); | |

* Pero aún tenemos un problema para terminar de implementar este test, si observamos el aserto este indica que debemostrar 3 errores, pero de donde provienen estos errores o xq 2. En esta oportunidad este valor proviene de la clase Game, entonces en el test necesitamos indicar que el valor de intentos fallidos que retorne la clase Game sea el mismo valor que se está mostrando en la pantalla.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 103 | it("should show the failed attemps", *function*(){ | | 104 | gameController.game={ | | 105 | tryLetter:*function*() { | | 106 | //do nothing | | 107 | }, | | 108 | getFailedAttempts:*function*() { | | 109 | return 2; | | 110 | } | | 111 | }; | | 112 |  | | 113 | gameController.tryLetter("any\_letter"); | | 114 |  | | 115 | failedAttemptsOutput.html().should.equal('2'); | | 116 | }); | |

* Problemas:
  + Variables temporales y más código del que debería ser necesario en el test.
  + Estamos afectando directamente las clases sobre las cuales se están ejecutando los tests, entonces muchas veces necesitamos revertir estos cambios para evitar problemas.
* Agregamos Sinon.Js en las referencias del Unit\_Runner.html
* De esta manera estamos creando un fakeobject de la clase Game y creará un stub para todos los métodos de esta clase que simplemente no hagan nada. Pero si queremos decirle que alguno de estos métodos devuelva algún valor particular también lo podemos hacer.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 103 | it("should show the failed attemps", *function*(){ | | 104 | *var* game=sinon.stub(gameController.game); | | 105 | game.getFailedAttempts.returns(2); | | 106 |  | | 107 | gameController.tryLetter("any\_letter"); | | 108 |  | | 109 | failedAttemptsOutput.html().should.equal('2'); | | 110 | }); | |

* Hacemos pasar el test.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 33 | tryLetter: *function*(*letter*) { | | 34 | this.game.tryLetter(letter); | | 35 | this.wordOutput.html(this.game.formatedSecretWord); | | 36 | this.failedAttemptsOutput.html(this.game.getFailedAttempts()); | | 37 | } | |

* Creamos el primer test en la clase Game.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 16 | describe("Failed Attemps", *function*() { | | 17 | it("should return 1 failed attempt when try 1 incorrect letter", *function*() { | | 18 | game.start('gato'); | | 19 |  | | 20 | game.tryLetter('e'); | | 21 |  | | 22 | game.getFailedAttempts().should.be.equal(1); | | 23 | }); | | 24 | }); | |

* Pasamos el test.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 30 | getFailedAttempts:*function*() { | | 31 | return 1; | | 32 | } | |

* Failed Test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 25 | it("should return 2 failed attempt when try 2 incorrect letters", *function*() { | | 26 | game.start('gato'); | | 27 |  | | 28 | game.tryLetter('e'); | | 29 | game.tryLetter('i'); | | 30 |  | | 31 | game.getFailedAttempts().should.be.equal(2); | | 32 | }); | |

* Pasamos el test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 6 | start:*function*(*secretWord*) { | | 7 | this.secretWord=secretWord; | | 8 | this.formatedSecretWord = this.formatSecretWord(this.secretWord); | | 9 | this.failedAttempts=0; | | 10 | },  …… | | 18 | tryLetter: *function*(*letter*) { | | 19 | for(*var* index = 0; index < this.secretWord.length; index++) { | | 20 | if(letter === this.secretWord[index]) { | | 21 | this.formatedSecretWord = this.formatedSecretWord.substr(0, index) + | | 22 | letter + | | 23 | this.formatedSecretWord.substr(index + 1); | | 24 | } | | 25 | } | | 26 | this.failedAttempts=this.failedAttempts+1; | | 27 | }, | | 28 | getFailedAttempts:*function*() { | | 29 | return this.failedAttempts; | | 30 | } | |

* Failed Test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 34 | it("should return 2 failed attempt when try 2 incorrect and 1 correct letter", *function*() { | | 35 | game.start('gato'); | | 36 |  | | 37 | game.tryLetter('a'); | | 38 | game.tryLetter('e'); | | 39 | game.tryLetter('i'); | | 40 |  | | 41 | game.getFailedAttempts().should.be.equal(2); | | 42 | }); | |

* Pasamos el test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 18 | tryLetter: *function*(*letter*) { | | 19 | for(*var* index = 0; index < this.secretWord.length; index++) { | | 20 | if(letter === this.secretWord[index]) { | | 21 | this.formatedSecretWord = this.formatedSecretWord.substr(0, index) + | | 22 | letter + | | 23 | this.formatedSecretWord.substr(index + 1); | | 24 | } | | 25 | } | | 26 | if (this.secretWord.indexOf(letter)==-1) { | | 27 | this.failedAttempts=this.failedAttempts+1; | | 28 | } | | 29 | }, | | 30 | getFailedAttempts:*function*() { | | 31 | return this.failedAttempts; | | 32 | } | |

* Refactoring
  + Extraemos el método *updateFormatedSecretWord*
  + Extraemos condicional a método *letterMatch*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | 18 | updateFormatedSecretWord:*function*(*letter*) { | | 19 | for(*var* index = 0; index < this.secretWord.length; index++) { | | 20 | if(letter === this.secretWord[index]) { | | 21 | this.formatedSecretWord = this.formatedSecretWord.substr(0, index) + | | 22 | letter + | | 23 | this.formatedSecretWord.substr(index + 1); | | 24 | } | | 25 | } | | 26 | }, | | 27 | letterMatches:*function*(*letter*) { | | 28 | return this.secretWord.indexOf(letter)!=-1; | | 29 | }, | | 30 | tryLetter: *function*(*letter*) { | | 31 | this.updateFormatedSecretWord(letter); | | 32 | if (!this.letterMatches(letter)) { | | 33 | this.failedAttempts=this.failedAttempts+1; | | 34 | } | | 35 | }, | | |

# Referencias

* Stubbing SinonJS:

<http://msdn.microsoft.com/en-us/magazine/gg649850.aspx>

<http://joseoncode.com/2012/01/18/sinonjs-mocks-for-javascript/>