TDD with Mocha

Presented

By

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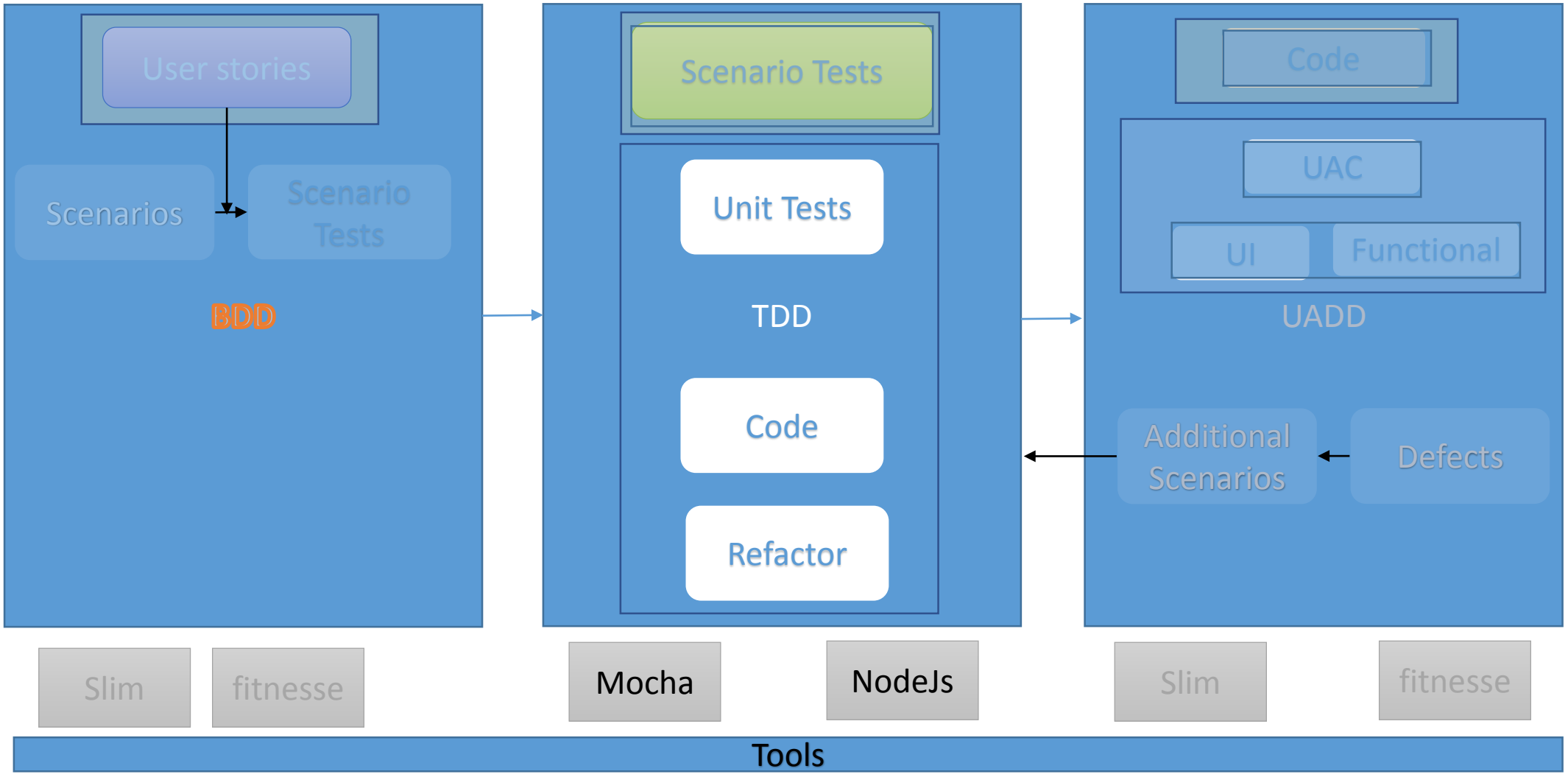
BDD + TDD + UADD


User stories
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Given, when, then … in action!

Requirement

- User types some English sentence that must comply to a supplied drill line of text.

- If user misses or adds any additional words from the drill text, then the words must be highlighted as errors for the user to correct.

Given, when, then … in action!

Requirement

Given

- User types some English sentence that must comply to a supplied drill line of text.

when

then

- If user misses or adds any additional words from the drill text, then the words must be highlighted as errors for the user to correct.

Identify Scenarios (Behavior)

Scenario 1 – if user misses words

- If user misses or adds any additional words from the drill text,

Scenario 2 – if user adds words

Scenario testing

// Code – twoscenarios.js

```
function myApi(){};
myApi.prototype = {
twoscenarios:function(drill

this.missingwordscenariote
ction(){
        return "missing";
   };



this.addedwordscenariotes
tion(){
     return "added";
   };
}
}
module.exports=new myApi();
```

The test script

```
!define TEST_SYSTEM {slim}

!define COMMAND_PATTERN {node E:\fitnesse\node_modules\slimjs\src\SlimJS %p}

!path E:\fitnesse\slimtests\src

|import|
|twoscenarios|

!|scenario|Missed word|

!|scenario|Added word|

|script|twoscenarios            |missing word|word|
|Missed word                                    |
|check |missingwordscenariotest|missing |

|script|twoscenarios          |added word|added word added|
|Added word                                               |
|check |addedwordscenariotest|added                       |
```

The test result

FirstBDDTest

classpath: E:\fitnesse\slimtests\src

import
twoscenarios

scenario	Missed word

scenario	Added word

script	twoscenarios	missing word	word
✚ Missed word			
check	missingwordscenariotest	[missing]	expected [missing]

script	twoscenarios	added word	added word added
✚ Added word			
check	addedwordscenariotest	[added]	expected [added]

Test Driven Development

- Test Driven Development is done by testing existing code before adding more to it.
- Test Driven Development (TDD) is done using unit tests
- A Unit test isolates and verifies individual units of source code
- A Unit Test is written first and if no code exists to satisfy the test, the unit test fails, always, in TDD
- A Unit Test drives development thus enabling design to evolve through satisfying the unit tests

TDD or TFD?

- **Test First Development** (TFD) is done by designing tests before satisfying them.

- Because the Scenario tests help in identifying unit tests, the framework that evolves out of this style of development, in which BDD precedes unit testing, can be called as TFD

- But beyond the first stage of code added to satisfy the unit tests, it becomes TDD ! ☺

Mocha – Unit test

Scenario – get missing word

```
describe('#get missing word', function() {
        it('should return missing word',function(){
        assert.equal(missingwordscenario(),"missing");
        });
});
```

As the code exists to make the tests (Scenario tests) pass.

```
// Code – twoscenarios.js

function myApi(){};
myApi.prototype = {
twoscenarios:function(drill,user){
   this.missingwordscenariotest=function(){
            return "missing";
   };

   this.addedwordscenariotest=function(){
     return "added";
   };
}
}
module.exports=new myApi();
```

Mocha – Unit test

Add the implementation as the test demands ie. Given a drill text “Missing word” and the user types “word” only, the code should return the “missing “ part

// test/Missingaddedwordtests.js

```
var app=require(‘.src/twoscenarios.js');
var assert=require('assert');

describe('#get missing word', function() {
     it('should return missing word',function(){
        var ob=new app.twoScenarios("missing word","word");
        assert.equal(ob.missingwordscenario(),"missing ");
    });
});
```

// twoscenarios.js

```
var jsDiff = require("diff");
function myApi(){};
myApi.prototype = {
twoScenarios : function(drill,user){
      var str="";
      var diff = jsDiff.diffWords(drill, user);
      this.missingwordscenario=function(){
          diff.forEach(function(part){
          if(part.removed){
             str+=part.value;
          }
          });
      return str;
   };
```

Mocha – Unit test

```
// test/Missingaddedwordtests.js

describe('#get added word', function() {
  it('should return added word',function(){
      var ob=new app. twoScenarios("word","word added");
            assert.equal("added",ob.addedwordscenariotest());
});
});
```

```
 var diff1 = jsDiff.diffWords(drill, user);
   this.addedwordscenario=function(){
       str="";
          diff1.forEach(function(part){
          if(part.added){
             str+=part.value;
          }
          });
      return str;
   };


}
}
module.exports=new myApi();
```

Run the Tests

- Run the tests

```
tests>mocha missingwordtest.js


  #get missing word
    √ should return missing word

  #get added word
    √ should return added word


  2 passing (33ms)
```

Test results

- Check this

```
1) #get missing word should return missing word:

    AssertionError: 'missing ' == 'missing'
    + expected - actual

    -missing
    +missing
```

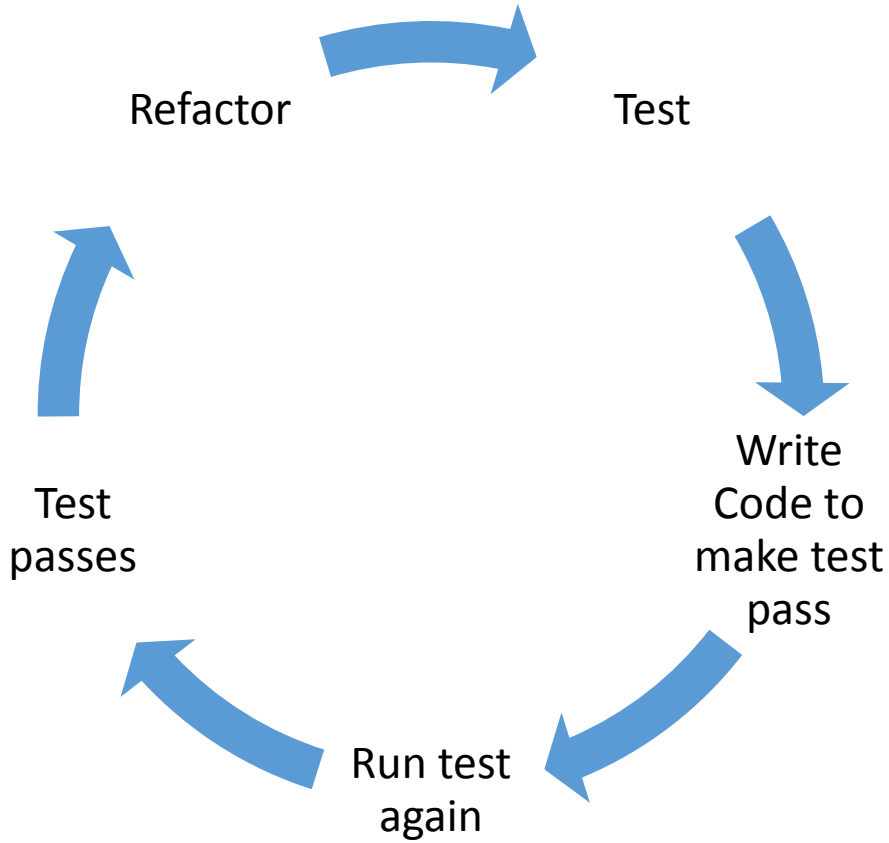
There is no space after “missing” and before “added” so the two tests fail:

```
2) #get added word should return added word:

    AssertionError: 'added' == ' added'
    + expected - actual

    -added
    + added
```

Best practices

- One assertion per test
- Refactor after test passes and run test again
- Add code only if the test result indicates the need
- Don’t add domain code in the test file. To ensure this practice, keep test files in ‘test’ folder and .js files in ‘src’ folder.
- Local variables like “str”, “diff”, “diff1” in this code need not be refactored!

TDD – Test, Code, Test Passes, Refactor Cycle



Scenarios to Unit Tests

- Scenario tests enable an additional level of granularity to the unit tests apart from increasing traceability of business requirements/rules to implementation and back.

- In the scenarios analyzed in the previous step, BDD, the space before or after the missing word and the added word would not have been apparent if we had simply done a unit test!

FirstBDDTest

classpath: E:\fitnesse\slimtests\src

import
twoscenarios

scenario	Missed word

scenario	Added word

script	twoscenarios	missing word	word
✚ Missed word			
check	missingwordscenariotest	[missing]	expected [missing]

script	twoscenarios	added word	added word added
✚ Added word			
check	addedwordscenariotest	[added]	expected [added]

Thank you!