An introduction to Framework for Integrated Tests (FIT) and FITpro

What Is Fit?

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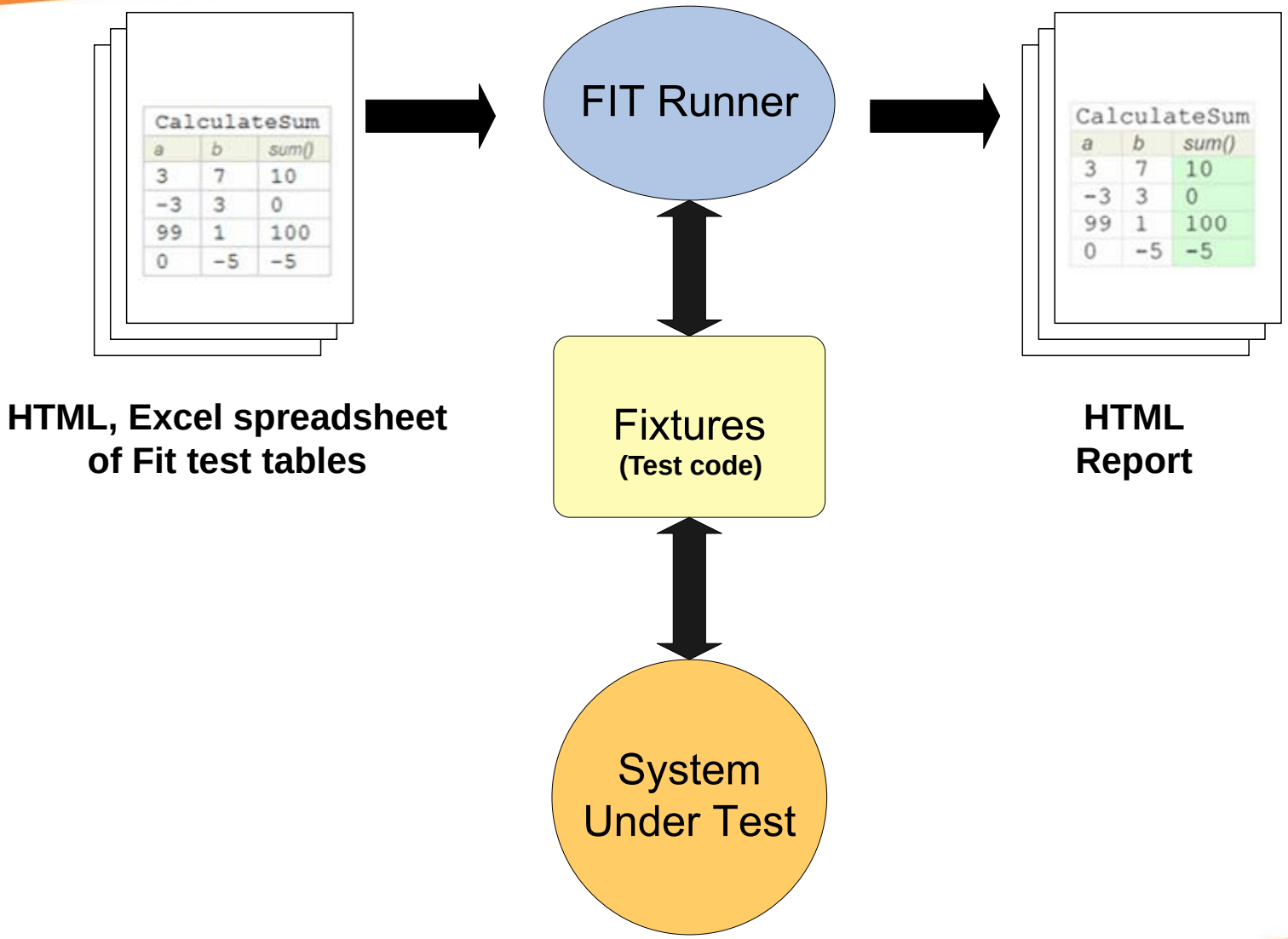
- Test harness for acceptance testing
- Defines tests/requirements in table form
- Collaboration tool
- Provides common language - tenet of domain driven design
- Available for various languages - Java, DotNet, C++, Python, Ruby, Smalltalk

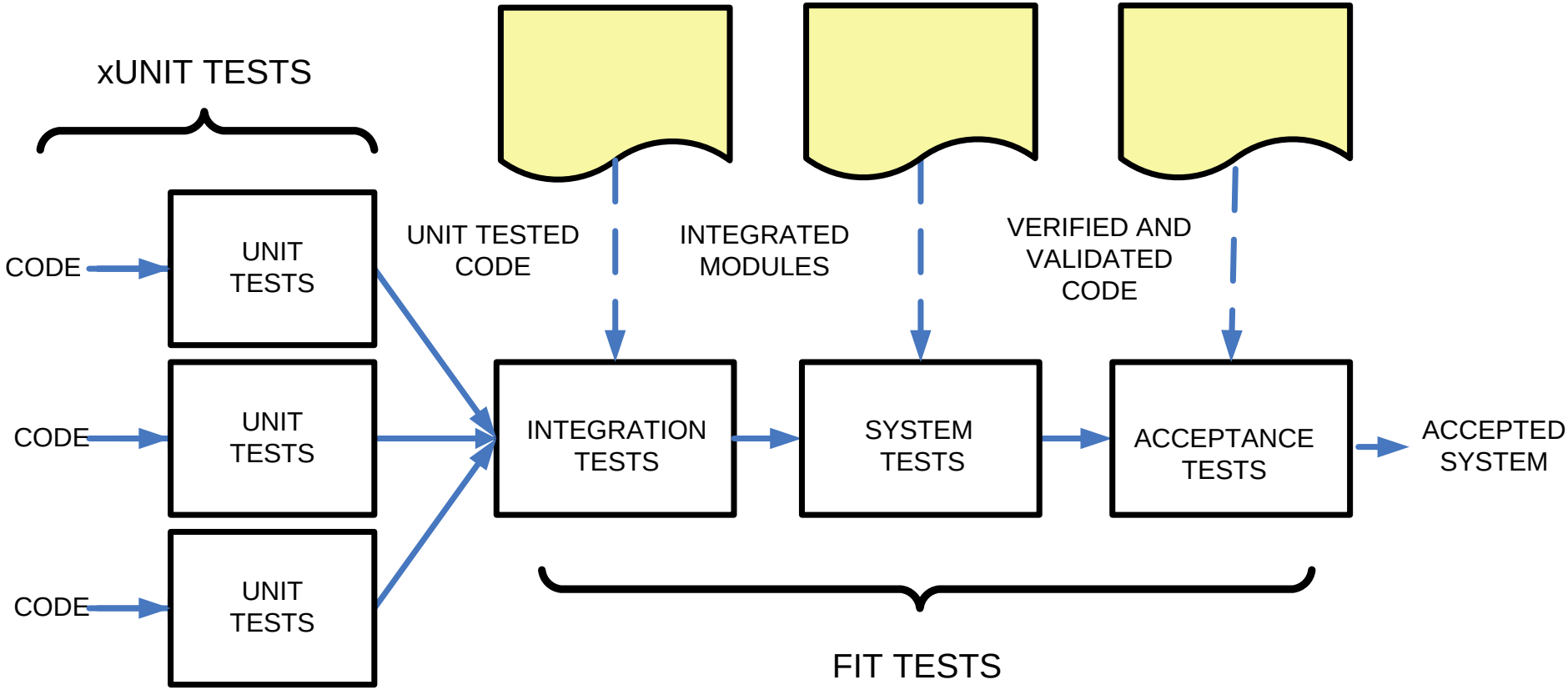
How does Fit work?



HTML, Excel spreadsheet of Fit test tables

HTML Report

Acceptance Testing



Test-Driven Development & Fit

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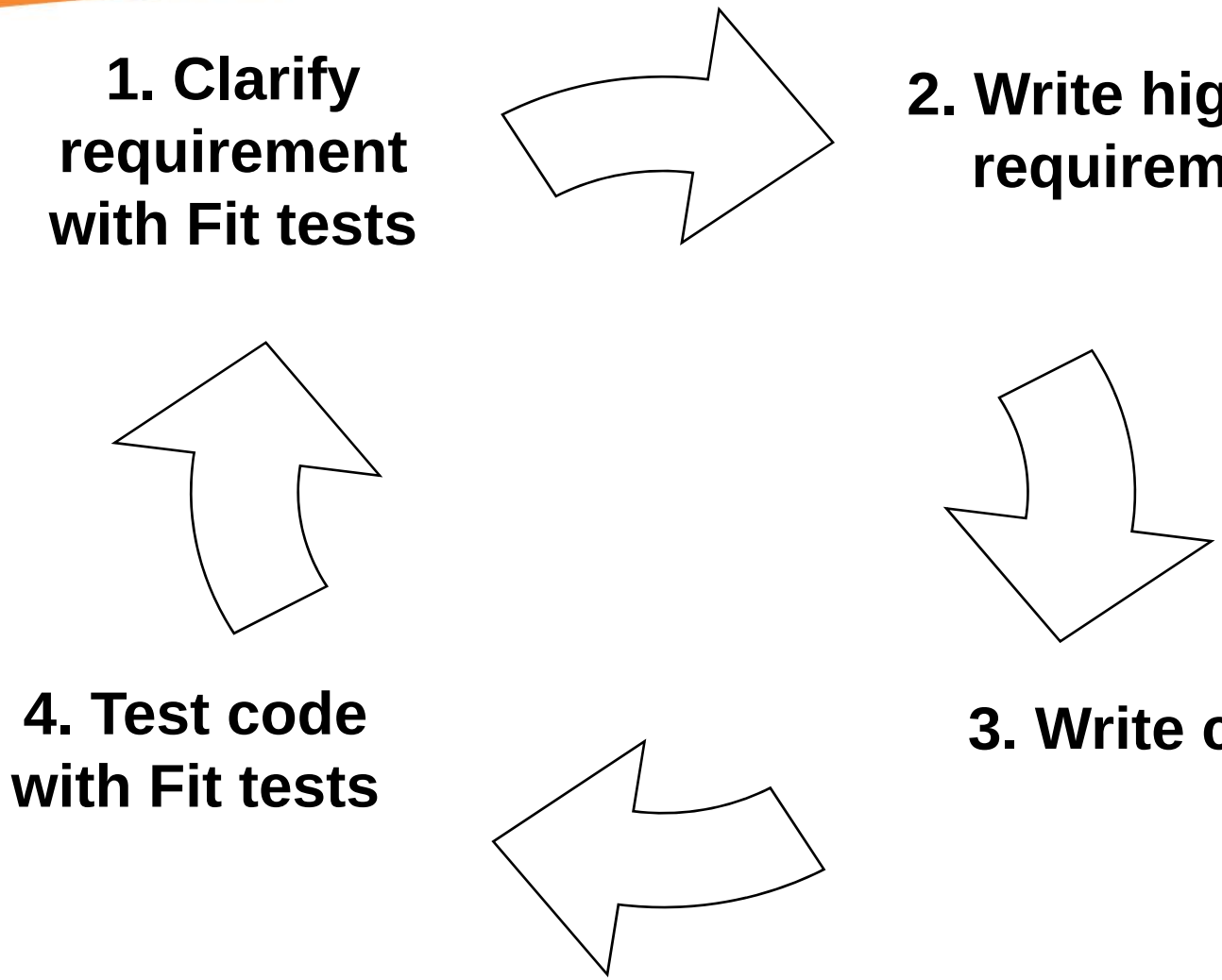

Writing Requirements with Fit

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- Business Analyst will write high level requirements, and then supplement them with Fit tests that provide concrete examples.

High Level Requirements for an Online Bookstore

Business Rule 1. A customer gets free shipping if they spend $50 or more, else shipping adds a 10% fee.

Business Rule 2:· An employee may ask for a list of all books currently in the system. The list includes the book name, author and price

Business Rule 3. A customer selects several books. The running total is accumulated and shown to customers.

Fit Test File

Business Rule 1. A customer gets free shipping if they spend $50 or more, else shipping adds a 10% fee.

CalculateShippingFees	
amount	shippingFees()
0	0
10	1
25	2.50
49	4.90
50	0
100	0

Business Rule 2: An employee may ask for a list of all books currently in the system. The list includes the book name, author and price.

BookList		
bookname	author	price
Rapid Development	Steve McConnell	100.00
UNIX in a Nutshell	Tim Robbins	22.00

Business Rule 3. A customer selects several books. The running total is accumulated and shown to customers.

Fit.ActionFixture		
start	BuyActions	
check	total	0.00
enter	bookname	Rapid Development
enter	price	100.00
Press	buy	
Check	total	100.00

Fit Test – Column Fixture

- Here's a Fit test table example using a column fixture
- Business Rule 1. A customer gets free shipping if they spend $50 or more, else shipping adds a 10% fee.

CalculateShippingFees	
amount	**shippingFees()**
0	0
10	1
25	2.50
49	4.90
50	0
100	0

Fixture Code for Fit Test

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- A developer will write test code called a “fixture” to hook the Fit tests into the system under test.
- Here’s example fixture code for our Column Fixture example:

```
public class CalculateShippingFees extends fit.ColumnFixture {
    public double amount;
    private ShippingFees application = new ShippingFee();

    public double shippingFees(){
        return application.getShippingFees(amount);
    }
}
```

Fit Report Results

CalculateShippingFees	
Amount	shippingFees()
0	0
10	1
25	2.50
49	4.90
50	0
100	0

CalculateShippingFees	
Amount	shippingFees()
0	0
10	1
25	2.50
49	4.90
50	0 *expected* 5 *actual*
100	0

Fit Test - Row Fixture

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- Business Rule 2: An employee may ask for a list of all books currently in the system. The list includes the book name, author and price.

BookList		
bookname	author	price
Rapid Development	Steve McConnell	100.00
UNIX in a Nutshell	Tim Robbins	22.00

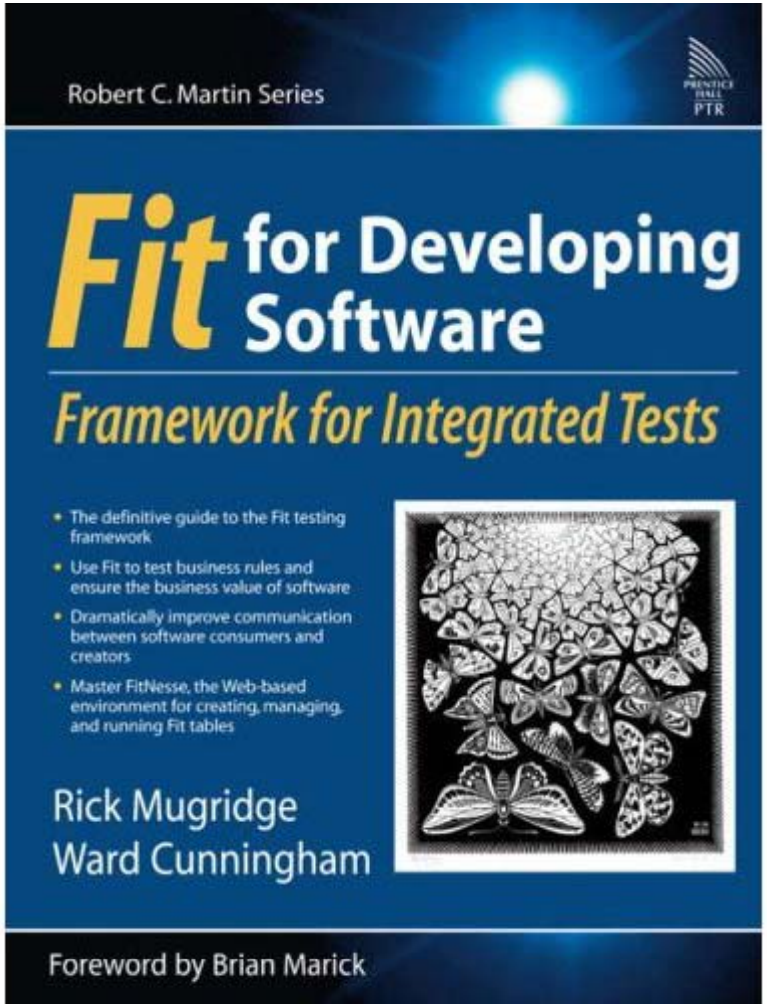
Fit Test - Action Fixture

- Business Rule 3. A customer selects several books. The running total is accumulated and shown to customers.

Fit.ActionFixture		
start	BuyActions	
check	total	0.00
enter	bookname	Rapid Development
Press	buy	
Check	total	100.00

Further Examples

- More examples of use of Fit in testing complex systems in “Fit for Developing Software” by Mugridge and Cunningham



Fit Benefits for Business People

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- Clearer communication
- Transparency – business people can clearly see what is tested
- Ensures compliance with your business rules
- Allows for traceability between requirements, tests and code

Fit Benefits for Developers

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- Takes guess-work out of interpreting requirements
- Gives confidence that code changes have not broken business logic
- Indicates features meet expectations

Fit Benefits for Testers

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- Fit tests are quicker to develop than other automated tests
- Easy to develop tests before code is complete
- Can bypass changing GUI to test business logic
- Finds recurring bugs

Tools that supplement Fit

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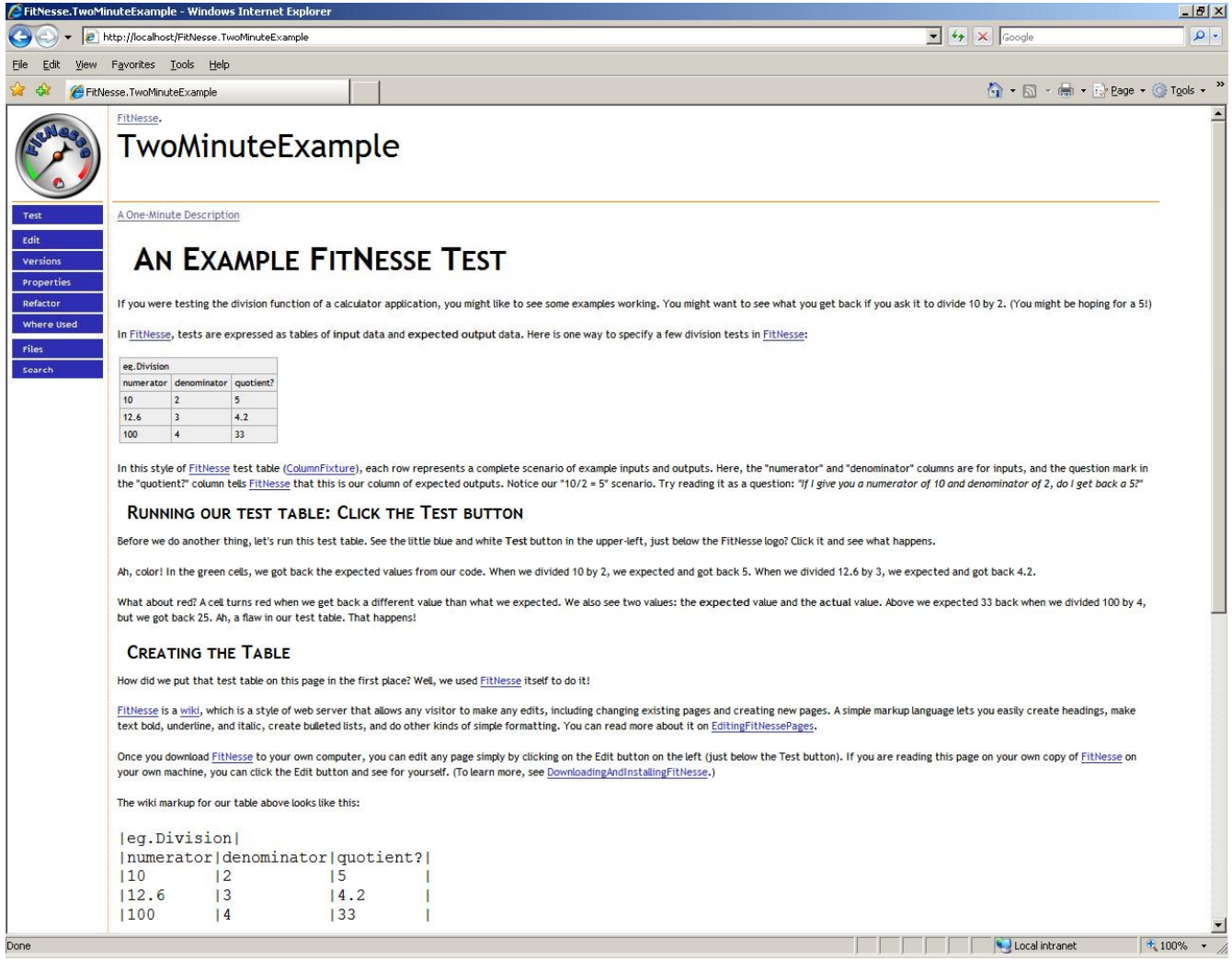
- FitLibrary provides new fixture, Do Fixture
- Allows to execute folders of tests
- Various GUI-based Fit Runners that execute Fit tests
- Selenium + Fit can do UI testing within a browser

FitNesse Wiki Server



Vision for FITPro Solution

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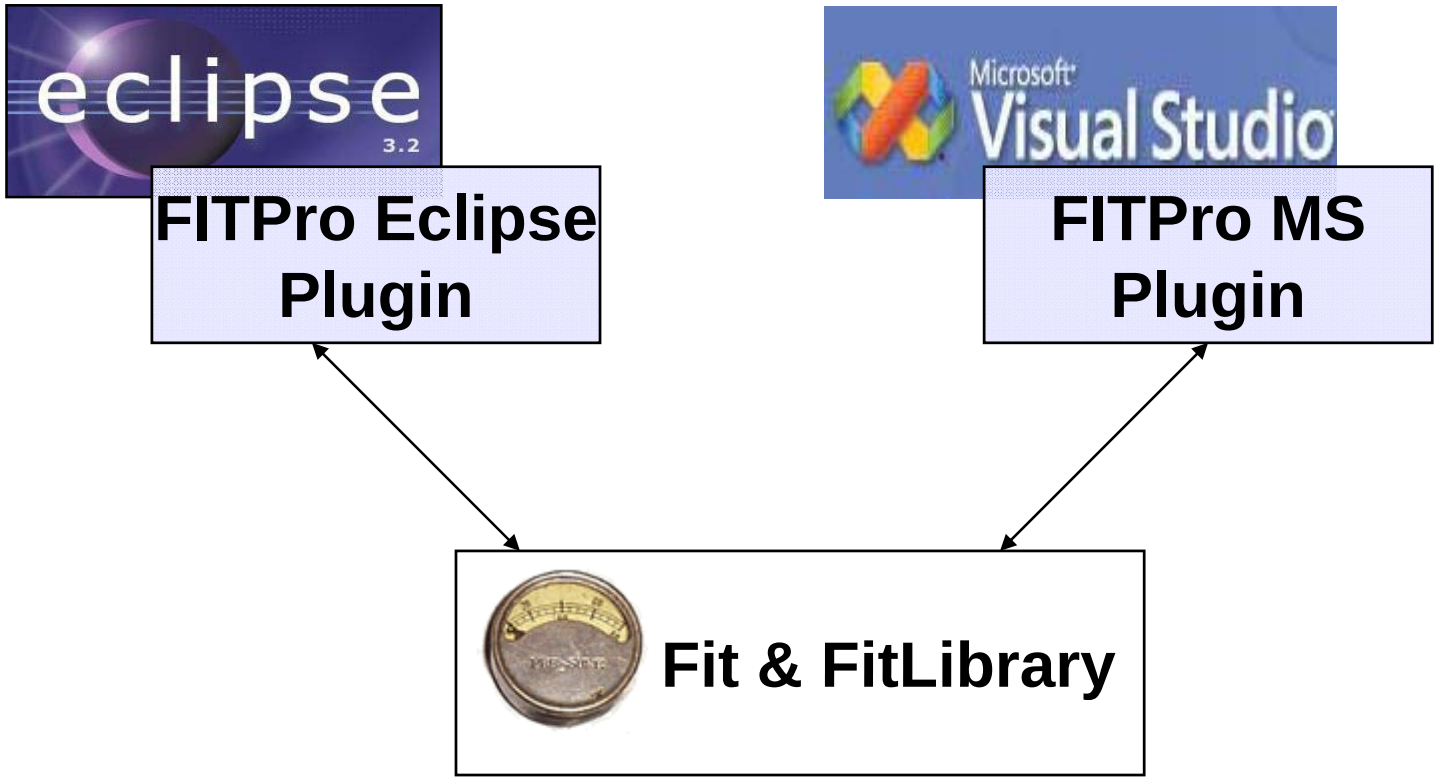
Fit Solution that provides:

- Improved productivity & usability of Fit



FITPro Plug-in For Eclipse

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FITPro Eclipse Plug-in:

- Simplifies requirement/test creation
- Eases burden in managing tests
- Provides flexible test execution
- Allows for transparency in reporting
- Provides linking between requirements/tests and code

Capture requirements / tests in WYSWIG HTML

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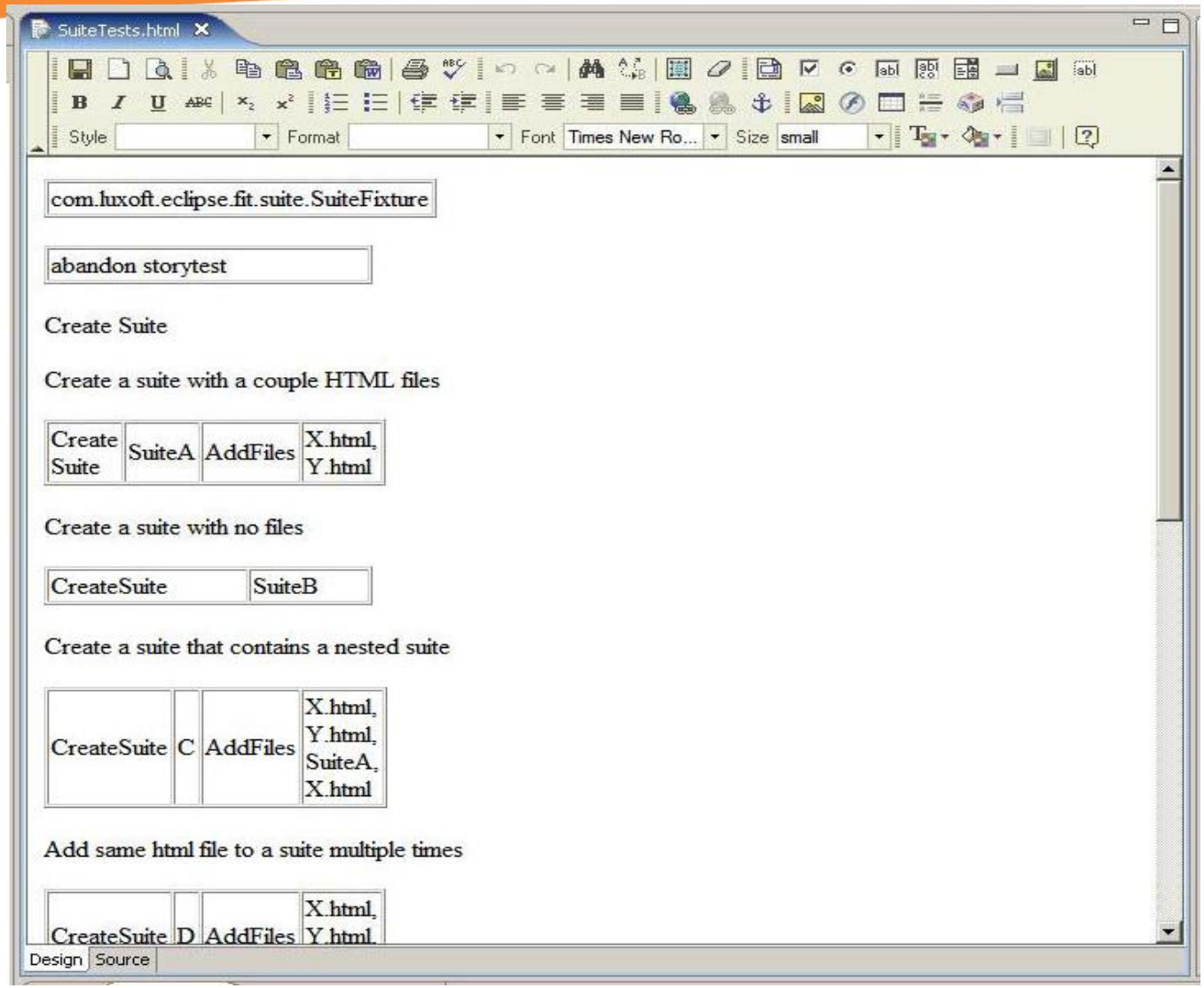

Fit Test Execution within Eclipse

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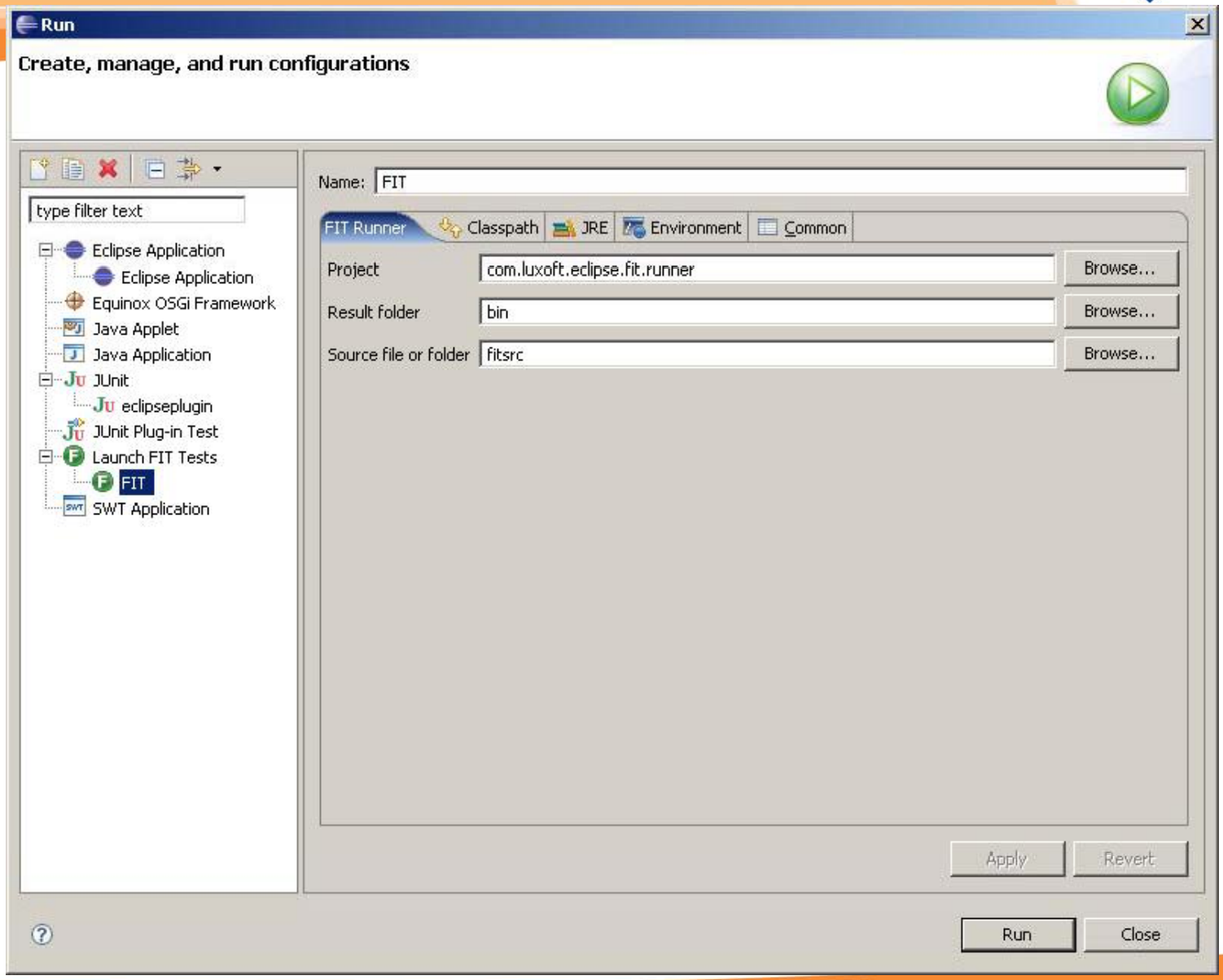
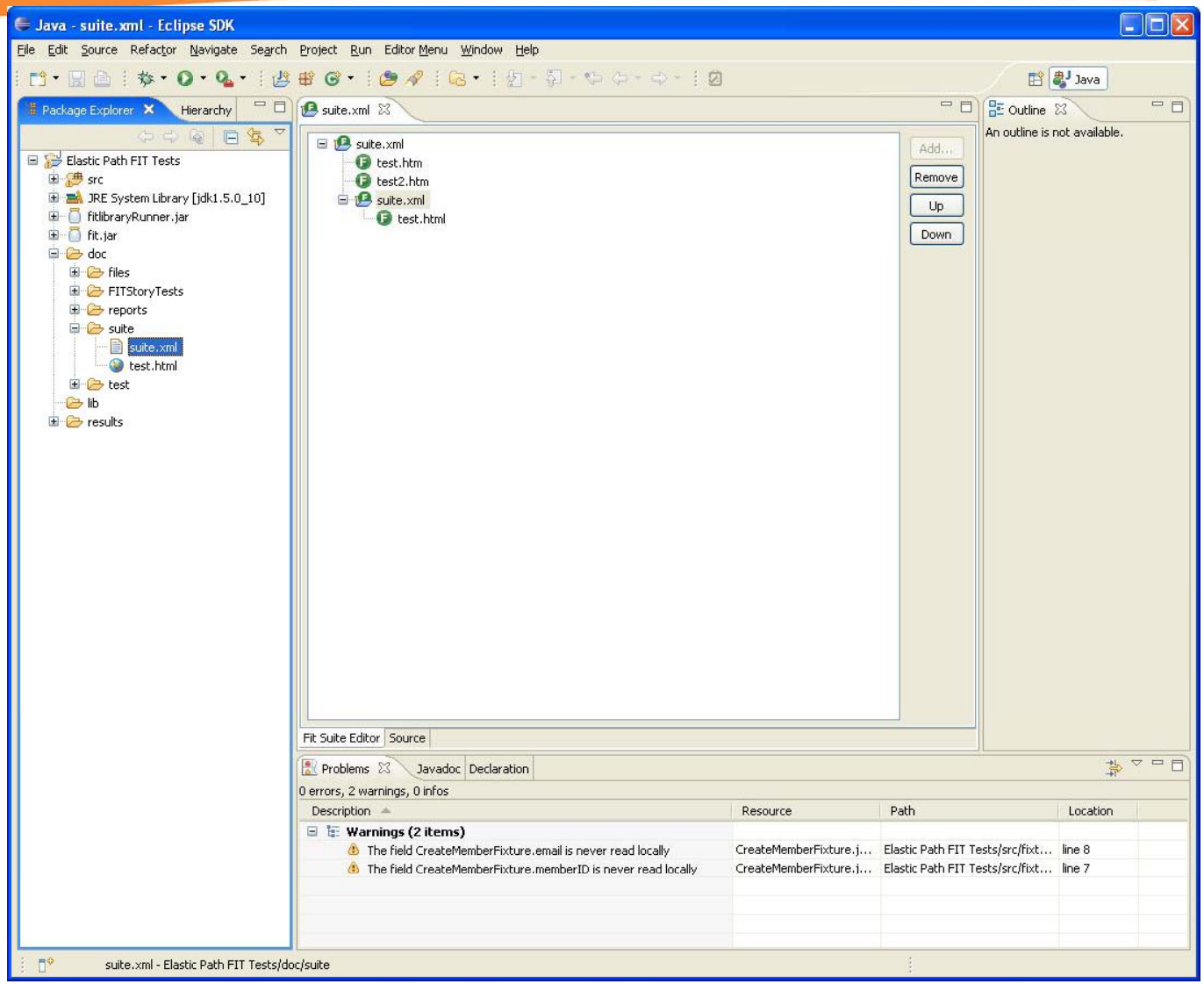


Fit Test Suite Management



Link from Tests to Code

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SuiteTests.fit | SuiteFixture.java

```
1  package com.luxoft.fit.suite;
2
3  import java.util.ArrayList;
11
12 /**
13  * This method hooks into the FIT tests for Suites.
14  */
15 public class SuiteFixture
16         extends DoFixture {
17
18     private Map<String, Suite> suites = new Hashtable<String, Suite>();
19
20     /**
21      * This method creates a FIT suite.
22      *
23      * @param suiteName name of suite you want created
24      * @return boolean indicating if successful in creating suite
25      */
26     public void createSuiteWithFilenameWithSuiteNameWithDescription(final String fileNam
27             final String description) {
28         Suite suite = new Suite(fileName);
29         suite.setLogicalName(logicalName);
30         suite.setDescription(description);
31         suites.put(fileName, suite);
32     }
33
34     public void suiteNameFilename(String fileName) {
35
36     }
37
38     public CalculateFixture checkSuiteProperties() {
39         return new SuitePropertiesFixture(suites);
40     }
41
42     /**
43      * This method creates a FIT suite and add files to it.
44      *
```