JUNIT

Test Suite

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Agenda

Test Suite

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Objectives

At the end of this module, you will be able to:

- Understand Test Suites

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Test Suite

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Test Suite

- Test Suite is a Convenient way to group together tests that are related
- Used to bundle a few unit test cases and run it together

- Annotations used for this
  - @RunWith
    - Used to invoke the class which is annotated to run the tests in that class
  - @Suite
    - Allows you to manually build a suite containing tests from many classes

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User Defined Class 1

```
package junit.first;

public class Stringmanip {
String datum;

        public Stringmanip(String datum) {
                this.datum = datum;
        }

        public String upperCase() {
                return datum.toUpperCase();
        }

}
```

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Test Case for User Defined Class 1

```
package junit.first;

import junit.first.Stringmanip.*;
import java.util.*;
import org.junit.Test;
import org.junit.runners.*;
import org.junit.runner.RunWith;
import static org.junit.Assert.*;

  @RunWith(Parameterized.class)
  public class StringmanipTest2
   {
       // Fields
    private String datum;
    private String expected;

      public StringmanipTest2(String datum, String expected)     {
            this.datum = datum;
            this.expected = expected;
     }
```

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Test Case for User Defined Class 1 –contd..

```
 @Parameters
  public static Collection<Object[]> generateData()
 {                Object[][] data = new  Object[][]              {
                            { “Smita", “SMITA" },
                            { “smita", “SMITA" },
                            { “SMitA", “SMITA" }
       };
   return Arrays.asList(data);
 }

  @Test
  public void testUpperCase()
  {
     Stringmanip s = new Stringmanip(this.datum);
    String actualResult = s.upperCase();
    assertEquals(actualResult, this.expected);
  }
}
```

In this example, the parameter generator returns a List of arrays.

Each row has two elements:
{ input_data, expected_output }.
These data are hardcoded into the class, but they could be generated in any way you like.

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User Defined Class 2

```
package junit.first;

public class Calc {

        public int add( int v1, int v2) {
                return v1+v2;
        }

        public int sub( int v1, int v2) {
                return v1-v2;
        }

// You can add more functions here as needed..

}
```

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Test Case for User Defined Class 2

```
package junit.first;
import static org.junit.Assert.*;
import org.junit.Test;
public class CalcTest {
        Calc c = new Calc();

        @Test
        public void testAdd() {
        assertEquals(5, c.add(10,-5));
        assertEquals(5, c.add(10,-5));
        assertEquals(5, c.add(20,-15));
        assertEquals(5, c.add(0,5));
        }

        @Test
        public void testSub() {
                assertEquals(5, c.sub(10,5));
                assertEquals(95, c.sub(100,5));
                assertEquals(5, c.sub(20,15));
                assertEquals(5, c.sub(10,5));
        }
```

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Test Suite

- In JUnit, both **@RunWith** and **@Suite** annotation are used to run the suite test.
- When a class is annotated with @RunWith,
  JUnit will invoke the class it references to run the tests in that class.
- Using Suite as a runner allows you to manually build a suite containing tests f rom many classes.

```
@RunWith(Suite.class)
@Suite.SuiteClasses({
            CalcTest.class,
            StringmanipTest2.class
    })

public class AllTests
{
}
```

Note >>
Test Classes
which are defined in previous pages are included here…

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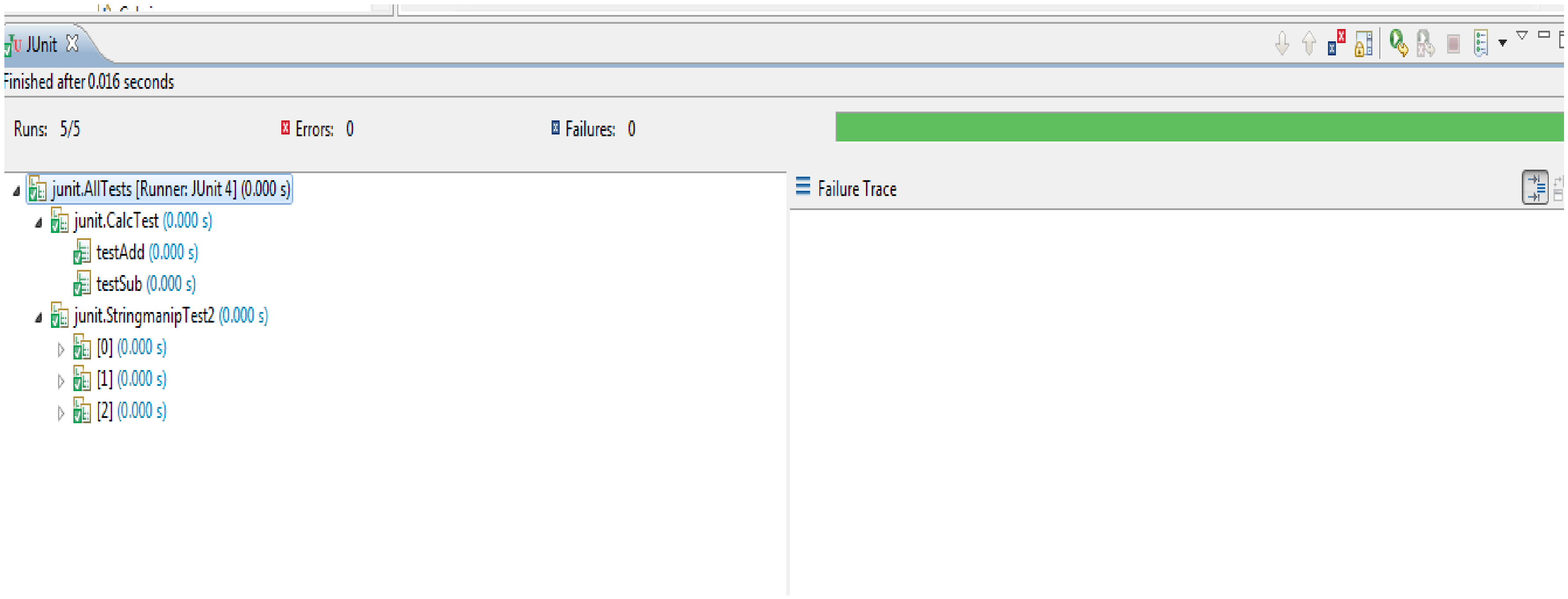
Test Suite

- When all the test cases are executed successfully, it shows **green color** signal as shown below.



JUnit

Finished after 0.016 seconds

Runs: 5/5 Errors: 0 Failures: 0

```
junit.AllTests [Runner: JUnit 4] (0.000 s)
    junit.CalcTest (0.000 s)
        testAdd (0.000 s)
        testSub (0.000 s)
    junit.StringmanipTest2 (0.000 s)
        [0] (0.000 s)
        [1] (0.000 s)
        [2] (0.000 s)
```

Failure Trace

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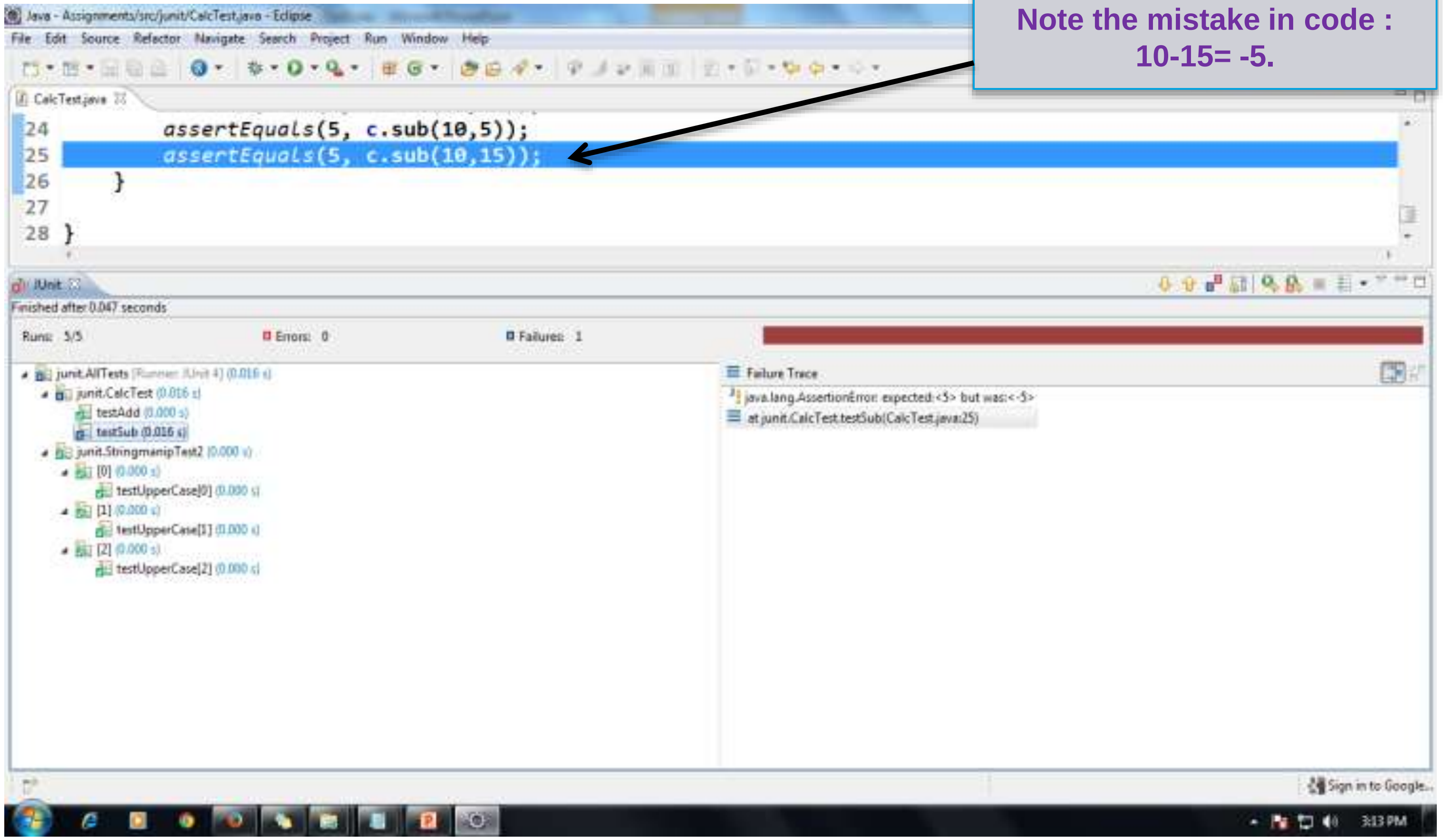
Test Suite

- When any one test cases fails, it shows signal as shown below.

Brown color



Note the mistake in code : 10-15= -5.

```
assertEquals(5, c.sub(10,5));
assertEquals(5, c.sub(10,15));
}
}
```

Finished after 0.047 seconds

Runs: 5/5 Errors: 0 Failures: 1

```
junit.AllTests [Runner: JUnit 4] (0.016 s)
  junit.CalcTest (0.016 s)
    testAdd (0.000 s)
    testSub (0.016 s)
  junit.StringmanipTest2 (0.000 s)
    [0] (0.000 s)
      testUpperCase[0] (0.000 s)
    [1] (0.000 s)
      testUpperCase[1] (0.000 s)
    [2] (0.000 s)
      testUpperCase[2] (0.000 s)
```

Failure Trace

```
java.lang.AssertionError: expected:<5> but was:<-5>
at junit.CalcTest.testSub(CalcTest.java:25)
```

Java - Assignments/src/junit/CalcTest.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
CalcTest.java
JUnit
Sign in to Google...
3:13 PM

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Quiz

1. Which of the following annotations has to be used before each of the test method?
   a. @Before
   b. @BeforeClass
   c. @After
   d. None of the above

None of the above

2. Which of the following are true?
   a. All assert methods are static methods
   b. The JUnit test methods can be private
   c. The JUnit test methods should start with the test keyword
   d. All of the above true

All assert methods are static methods

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Summary

In this module, you were able to:

- Understand Test Suites

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Thank You

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