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Part 2: Mockito to fully mock the DAO layer

Posted on [September 9, 2015](#) by [Arulkumaran Kumaraswamipillai](#)

This extends [Part 1: Unit testing with JUnit, Mockito & Spring](#) by mocking the DAO layer with the Mockito framework.

Step 1: Service and DAO layer interfaces and implementations

Service Layer

```
1 package com.mytutorial;
2
3 public interface SimpleService {
4     abstract String processUser(int id);
5 }
```

```
1 package com.mytutorial;
2
3 import javax.inject.Inject;
4 import javax.inject.Named;
5
6 @Named
7 public class SimpleServiceImpl implements Simple
8
9     @Inject
```

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```

10     SimpleDao dao;
11
12     public String processUser(int id) {
13         String name = dao.getNameById(id);
14         return "Hello " + name;
15     }
16 }

```

DAO Layer

This layer will be mocked by Mockito in the next step. This means it simply creates a skeletal instance of the Class “SimpleDao”, which gets entirely instrumented to track interactions with it.

```

1 package com.mytutorial;
2
3 public interface SimpleDao {
4     abstract String getNameById(int id);
5 }

```

```

1 package com.mytutorial;
2
3 import javax.inject.Named;
4
5 @Named
6 public class SimpleDaoImpl implements SimpleDao
7
8     public String getNameById(int id) {
9         if(id == 1) {
10             return "John";
11         }
12         else if (id == 2) {
13             return "Peter";
14         }
15         else {
16             throw new IllegalArgumentException();
17         }
18     }
19 }

```

Step 2: Now the JUnit class that mocks the Dao layer by returning “Sam” as the value. This test only tests the service layer method “processUser”, which is a **unit**. It checks if “Hello ” gets prefixed to the given user. This can be done two ways.

With MockitoJUnitRunner

```

1 package com.mytutorial;

```

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```

2
3 import org.junit.Assert;
4 import org.junit.Test;
5 import org.junit.runner.RunWith;
6 import org.mockito.InjectMocks;
7 import org.mockito.Mock;
8 import org.mockito.Mockito;
9 import org.mockito.runners.MockitoJUnitRunner;
10
11 @RunWith(MockitoJUnitRunner.class)
12 public class SimpleTest {
13
14     @InjectMocks
15     SimpleService service = new SimpleServiceImp
16
17     @Mock
18     SimpleDao daoMock;
19
20     @Test
21     public void testProcessUser() {
22         //invoke this mocked Dao that always ret
23         Mockito.when(daoMock.getNameById(Mockito
24
25         String processUser = service.processUser
26
27         Assert.assertEquals("Hello Sam", process
28         //verifies if getNameById is called
29         Mockito.verify(daoMock).getNameById(Mock
30         //verifies if getNameById is called once
31         Mockito.verify(daoMock, Mockito.times(1)
32     }
33 }
34
35

```

With SpringJUnit4ClassRunner.class

```

1 package com.mytutorial;
2
3 import javax.inject.Inject;
4
5 import org.junit.Assert;
6 import org.junit.Before;
7 import org.junit.Test;
8 import org.junit.runner.RunWith;
9 import org.mockito.InjectMocks;
10 import org.mockito.Mock;
11 import org.mockito.Mockito;
12 import org.mockito.MockitoAnnotations;
13 import org.springframework.test.context.ContextC
14 import org.springframework.test.context.junit4.S
15
16 @ContextConfiguration(classes = { AppConfig.class
17 @RunWith(SpringJUnit4ClassRunner.class)
18 public class SimpleTest {
19
20     @Inject
21     @InjectMocks
22     SimpleService service;
23
24     @Mock

```

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```
25     SimpleDao daoMock;  
26  
27     @Before  
28     public void setUp() {  
29         MockitoAnnotations.initMocks(this);  
30     }  
31  
32     @Test  
33     public void testProcessUser(){  
34         //invoke this mocked Dao that always ret  
35         Mockito.when(daoMock.getNameById(Mockito.  
36  
37         String processUser = service.processUser  
38  
39         Assert.assertEquals("Hello Sam", process  
40         //verifies if getNameById is called  
41         Mockito.verify(daoMock).getNameById(Mock  
42         //verifies if getNameById is called once  
43         Mockito.verify(daoMock, Mockito.times(1)  
44     }  
45 }
```

Note:

With Mockito you can verify if the method “getNameById” has been invoked on the “daoMock” and also how many times been invoked. This is what separates a mock object from a stub. You can also have other verify options like

```
1 Mockito.verifyNoMoreInteractions(daoMock);
```

In this example, “daoMock” was fully mocked. You can also partially mock and object with “Mockito.spy”, which will be covered in the next part.

Mock Vs Spy difference?

When Mockito creates a mock, it does it from the class type (i.e. SimpleDao), and NOT from an actual instance. The mock simply creates a skeletal instance of the Class, which gets entirely instrumented to track interactions with it. On the other hand, the **spy** wraps an existing instance.

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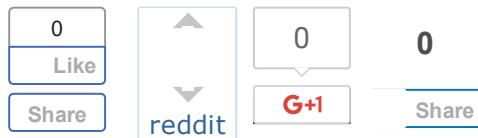
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