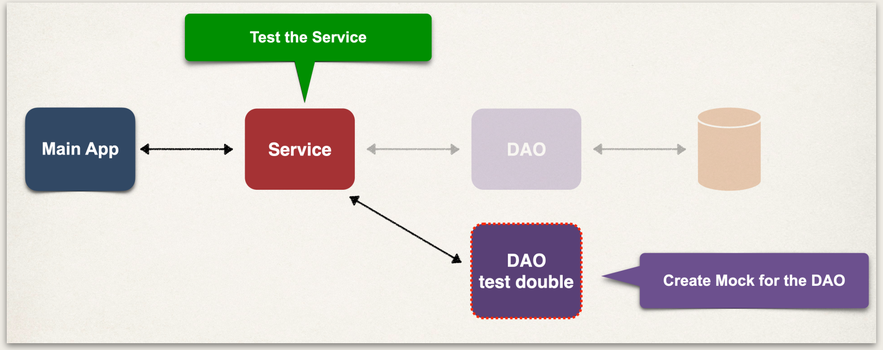
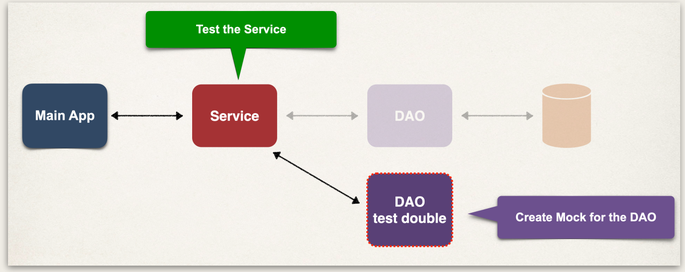
Development Process

Step-By-Step

1. Create Mock for DAO
2. Inject mock into Service
3. Set up expectations
4. Call method under test and assert results
5. Verify method calls



Step 1: Create Mock for the DAO

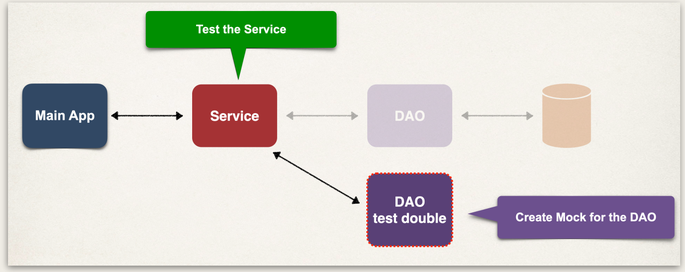


MockAnnotationTest.java

```
import org.mockito.Mock;
...

@SpringBootTest(classes=MvcTestingExampleApplication.class)
public class MockAnnotationTest {

  @Mock
  private ApplicationDao applicationDao;


  ...

}
```

Create Mock for the DAO

Step 2: Inject mock into Service



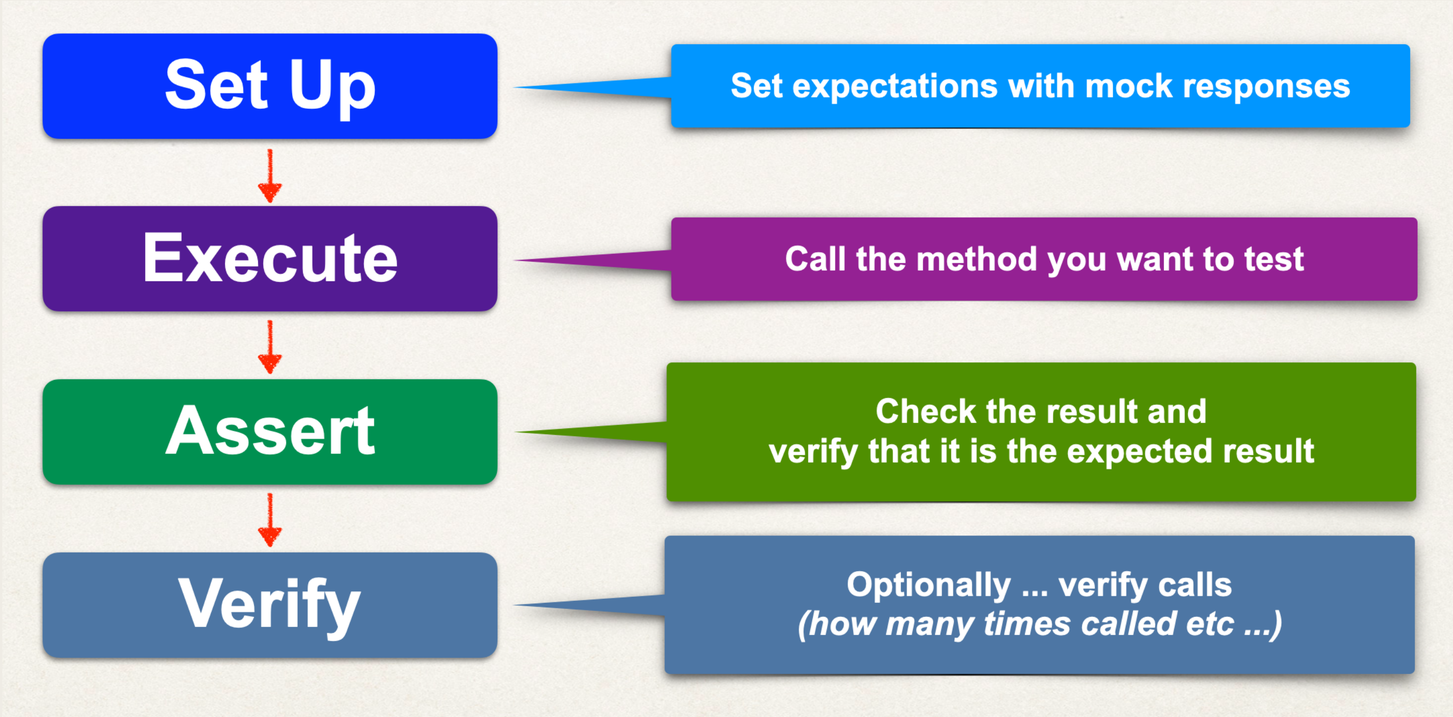
MockAnnotationTest.java

```
import org.mockito.Mock;
import org.mockito.InjectMocks;
...

@SpringBootTest(classes=MvcTestingExampleApplication.class)
public class MockAnnotationTest {

  @Mock
  private ApplicationDao applicationDao;

  @InjectMocks
  private ApplicationService applicationService;

  ...

}
```

Inject mock dependencies

Note: Will only inject dependencies annotated with @Mock or @Spy

Step 3: Set up expectations



Step 3: Set up expectations

when method
doSomeWork(...)
is called
then return "I am finished"

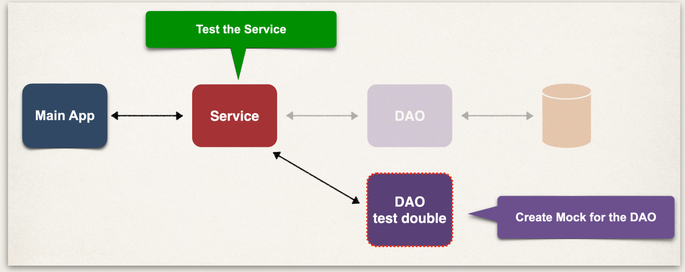
```
import static org.mockito.Mockito.when;
...

    String aResponse = "I am finished";

    when( doSomeWork() ).thenReturn( aResponse );
```

response

method

Real world analogy:
Theater - just read the script

Step 3: Set up expectations



MockAnnotationTest.java

```
import static org.mockito.Mockito.when;
import static org.junit.jupiter.api.Assertions.assertEquals;
...

@SpringBootTest(classes=MvcTestingExampleApplication.class)
public class MockAnnotationTest {

  @Mock
  private ApplicationDao applicationDao;

  @InjectMocks
  private ApplicationService applicationService;

  @Autowired
  private CollegeStudent studentOne;

  @Autowired
  private StudentGrades studentGrades;


  @DisplayName("When & Verify")
  @Test
  public void assertEqualsTestAddGrades() {
      when(applicationDao.addGradeResultsForSingleClass(
                              studentGrades.getMathGradeResults())).thenReturn(100.0);

      ...
  }
}
```

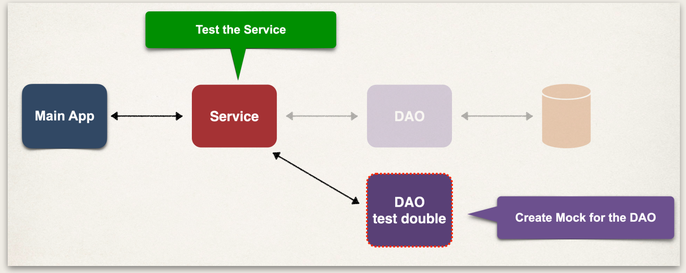
Set up expectations for mock response

***when* method addGradeResultsForSingleClass(...) *is called* *then return* 100.0**

Step 4: Call method under test and assert results

MockAnnotationTest.java

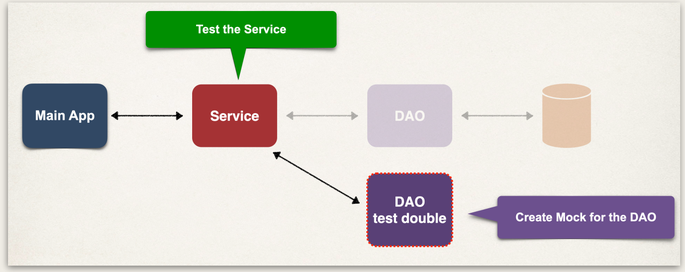
```
import static org.mockito.Mockito.when;
import static org.junit.jupiter.api.Assertions.assertEquals;
...

@SpringBootTest(classes= MvcTestingExampleApplication.class)
public class MockAnnotationTest {

  @Mock
  private ApplicationDao applicationDao;

  @InjectMocks
  private ApplicationService applicationService;

  @Autowired
  private CollegeStudent studentOne;

  @Autowired
  private StudentGrades studentGrades;


  @DisplayName("When & Verify")
  @Test
  public void assertEqualsTestAddGrades() {
      when(applicationDao.addGradeResultsForSingleClass(
                              studentGrades.getMathGradeResults())).thenReturn(100.0);

      assertEquals(100.0, applicationService.addGradeResultsForSingleClass(
                              studentOne.getStudentGrades().getMathGradeResults()));

  }
}
```



Assert results

The service uses the DAO ...
that has been set up to return 100.0

Step 5: Verify method calls



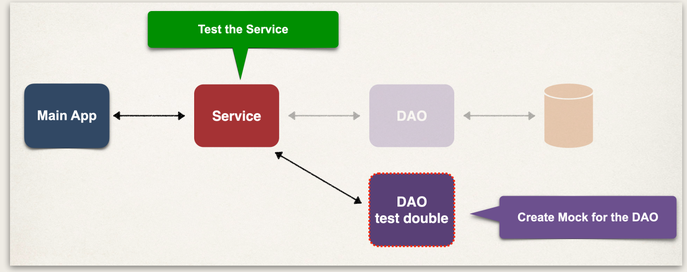
MockAnnotationTest.java

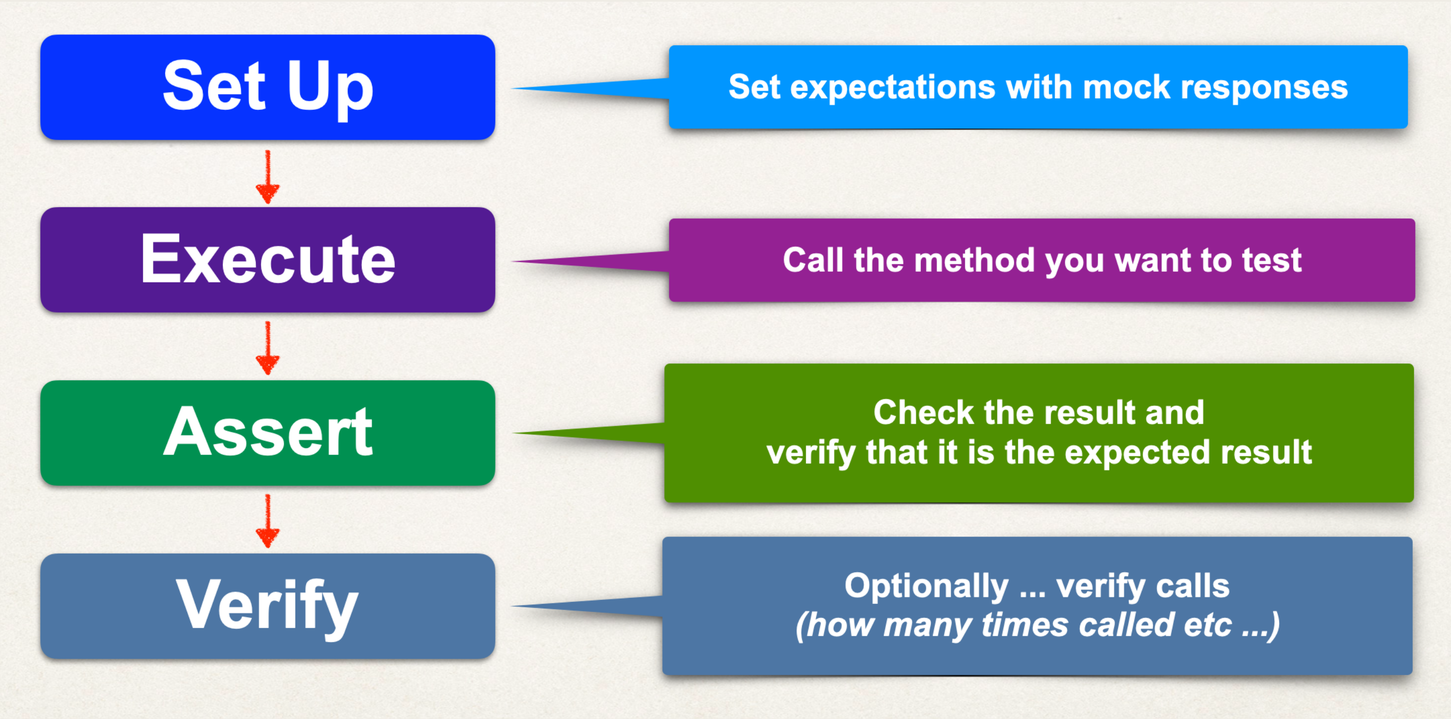
```
import static org.mockito.Mockito.when;
import static org.mockito.Mockito.verify;
import static org.mockito.Mockito.times;
...

@SpringBootTest(classes= MvcTestingExampleApplication.class)
public class MockAnnotationTest {

  @Mock
  private ApplicationDao applicationDao;

  @InjectMocks
  private ApplicationService applicationService;

  ...

  @DisplayName("When & Verify")
  @Test
  public void assertEqualsTestAddGrades() {
      when(applicationDao.addGradeResultsForSingleClass(
                              studentGrades.getMathGradeResults())).thenReturn(100.0);

      assertEquals(100.0, applicationService.addGradeResultsForSingleClass(
                              studentOne.getStudentGrades().getMathGradeResults()));

     verify(applicationDao,
               times(1)).addGradeResultsForSingleClass(studentGrades.getMathGradeResults());

  }
}
```

Verify the DAO method was called 1 time

To verify information

Recap





Mockito Resources

- Additional features
  - Stubs, spies
  - Argument matchers, Answers
  - ...

site.mockito.org