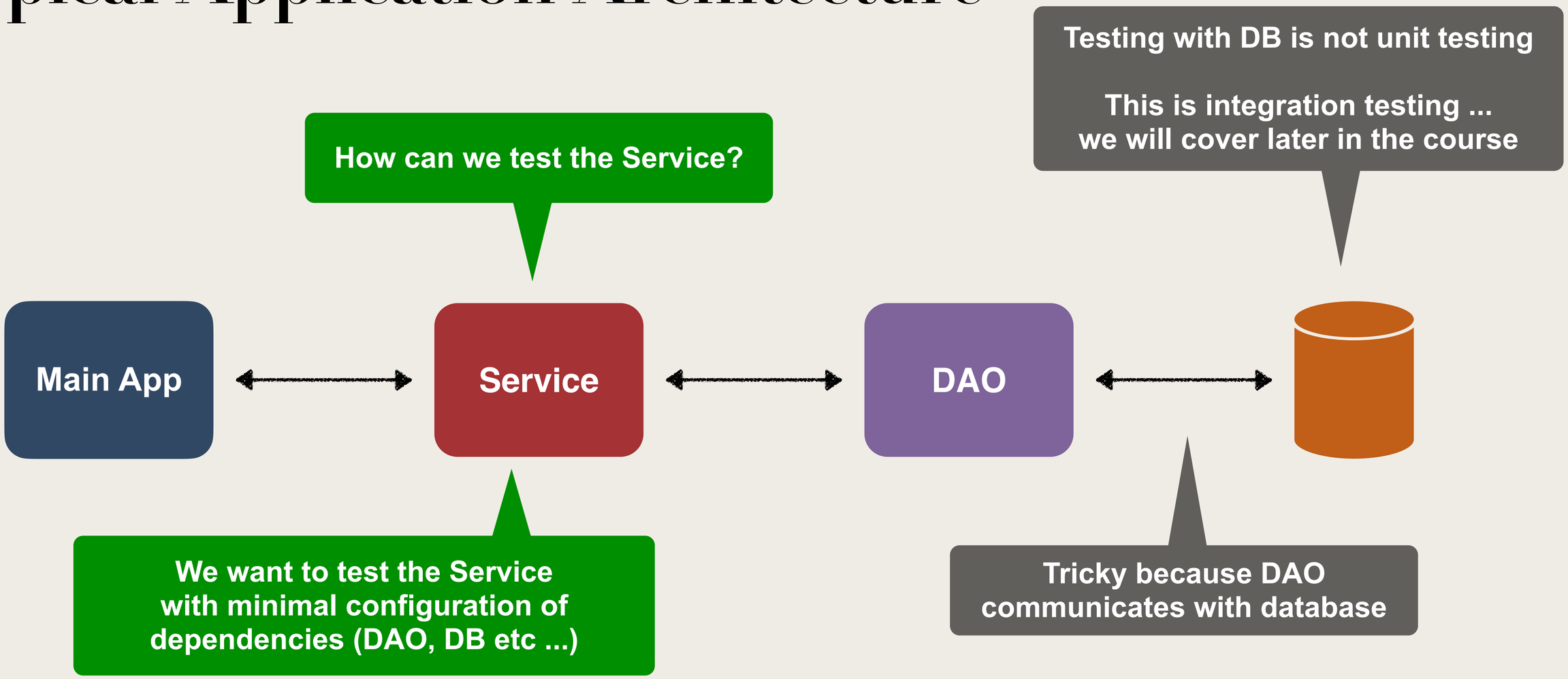
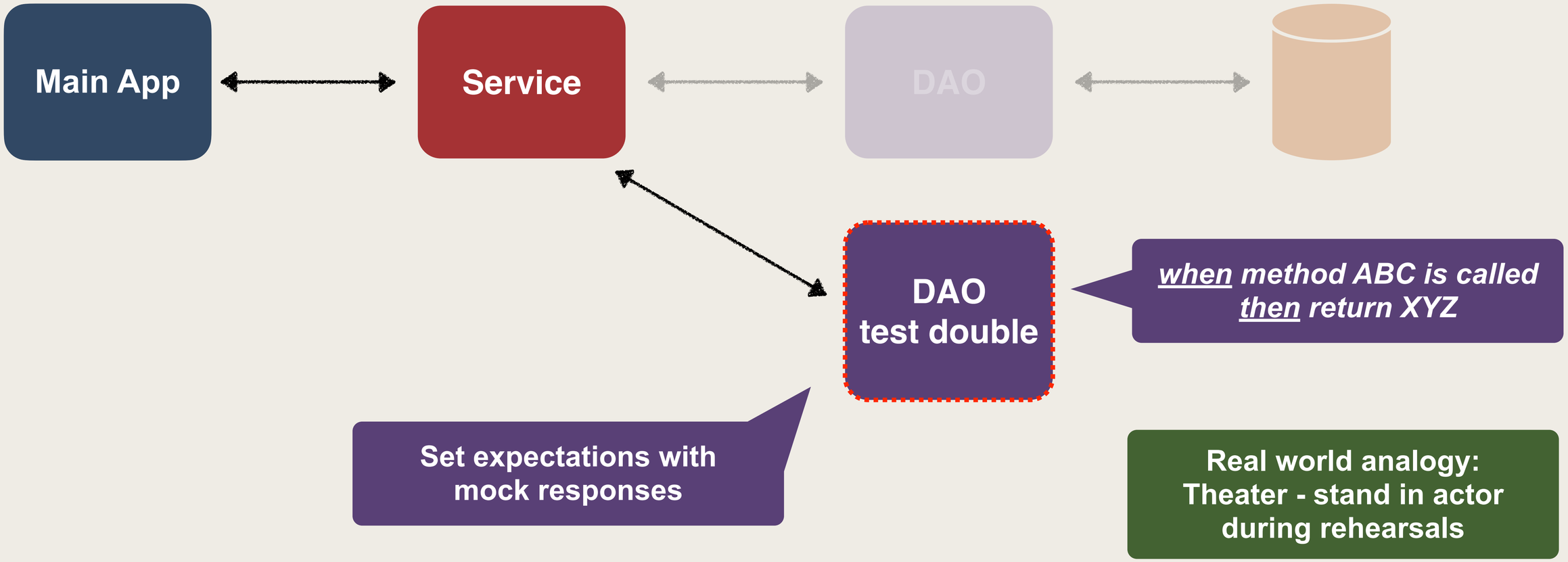
luv2code

Mocks with Mockito and Spring Boot

Typical Application Architecture



Using a Test Double



The technique of using test doubles is known as "mocking"

Benefits of Mocking

- Allows us to test a given class in isolation
- Test interaction between given class and its dependencies
- Minimizes configuration / availability of dependencies
- For example DAO, DB, REST API etc
  - We can mock the DAO to give a response
  - We can mock a REST API to give a response

Real world analogy:
Theater - stand in actor during rehearsals

Mocking Frameworks

- The Java ecosystem includes a number of Mocking frameworks
- The Mocking frameworks provide following features:
  - Minimize hand-coding of mocks ... leverage annotations
  - Set expectations for mock responses
  - Verify the calls to methods including the number of calls
  - Programmatic support for throwing exceptions

Mocking Frameworks

Name	Website
Mockito	`site.mockito.org`
EasyMock	`www.easymock.org`
JMockit	`jmockit.github.io`
...	

We will use Mockito since
Spring Boot has built-in support for Mockito

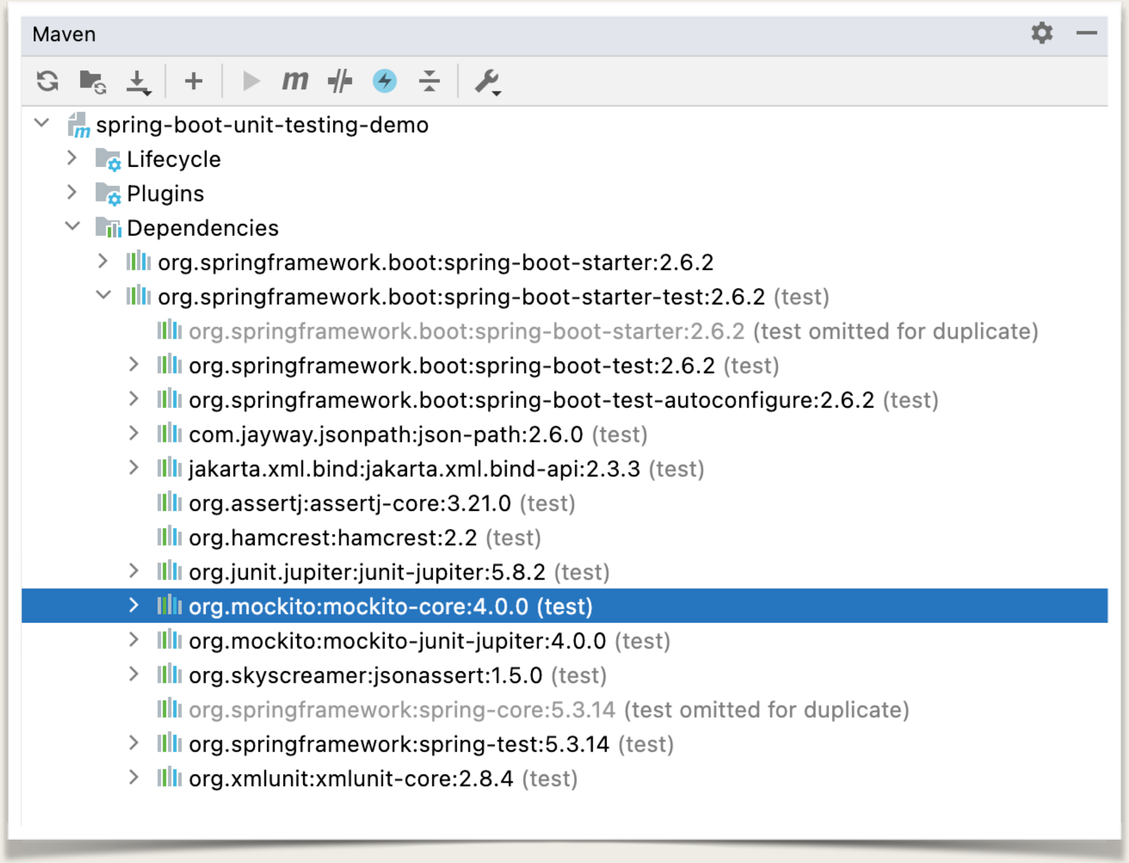
Spring Boot Starter - Transitive Dependency for Mockito

pom.xml

```
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-test</artifactId>
    <scope>test</scope>
</dependency>
```

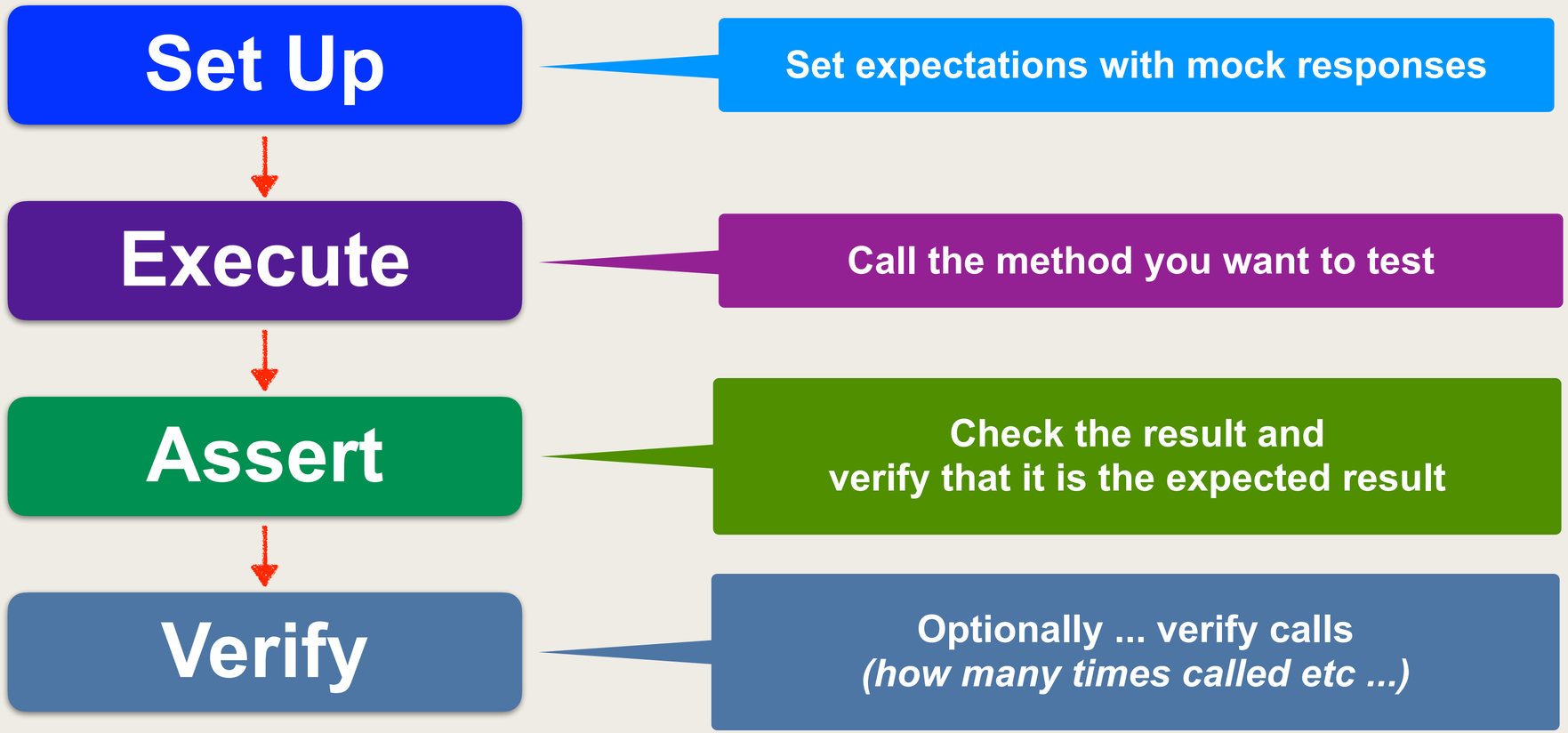
Starter includes a transitive dependency on Mockito

We get it for free :-)

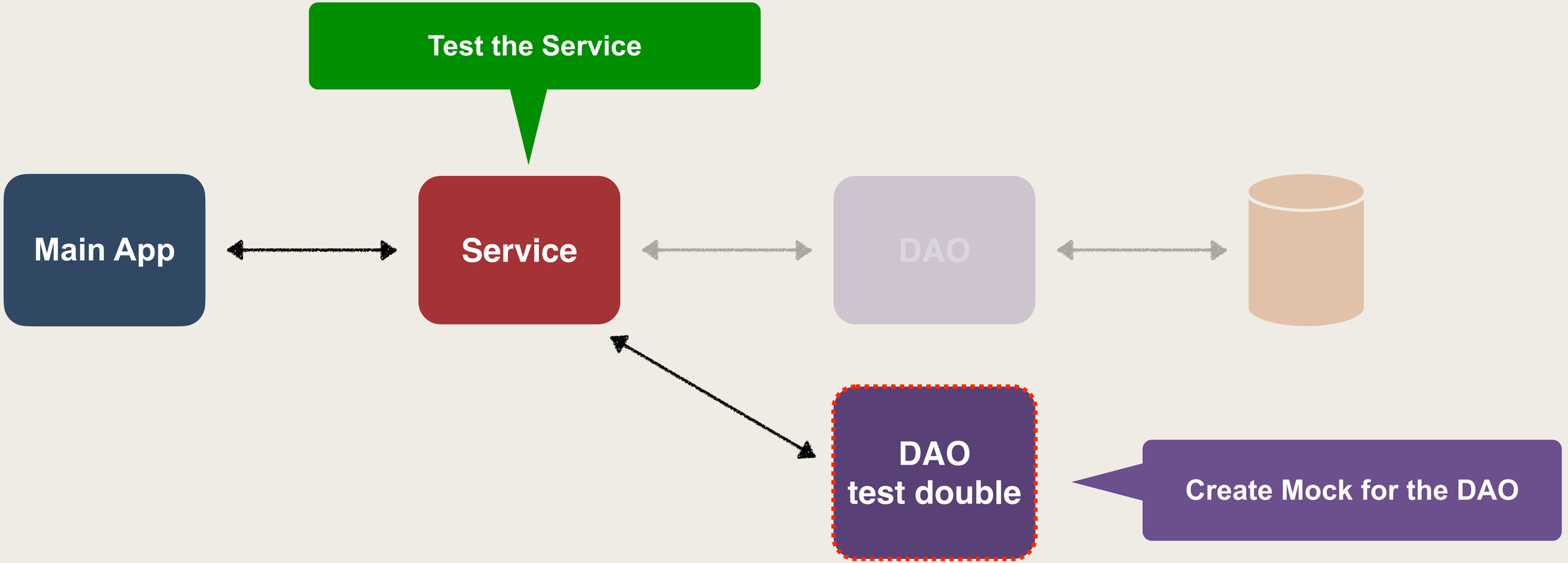


Unit testing with Mocks

- Unit tests with Mocks have the following structure



Testing Plan

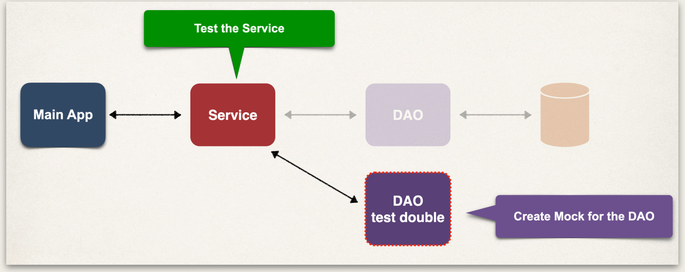


Review code for Service and DAO

ApplicationService.java

```
public class ApplicationService {

  @Autowired
  private ApplicationDao applicationDao;

  public double addGradeResultsForSingleClass(List<Double> grades) { ... }

  public double findGradePointAverage (List<Double> grades ) { ... }

  public Object checkNull(Object obj) { ... }

}
```

Dependency



ApplicationDao.java

```
public class ApplicationDao {

  public double addGradeResultsForSingleClass(List<Double> grades) { ... }

  public double findGradePointAverage (List<Double> grades ) { ... }

  public Object checkNull(Object obj) { ... }

}
```