


Web API Design with Spring Boot Week 3 Coding Assignment

Points possible: 70

Category	Criteria	% of Grade
Functionality	Does the code work?	25
Organization	Is the code clean and organized? Proper use of white space, syntax, and consistency are utilized. Names and comments are concise and clear.	25
Creativity	Student solved the problems presented in the assignment using creativity and out of the box thinking.	25
Completeness	All requirements of the assignment are complete.	25

Instructions: In Eclipse, or an IDE of your choice, write the code that accomplishes the objectives listed below. Ensure that the code compiles and runs as directed. Take screenshots of the code and of the running program (make sure to get screenshots of all required functionality) and paste them in this document where instructed below. Create a new repository on GitHub for this week's assignments and push this document, with your Java project code, to the repository. Add the URL for this week's repository to this document where instructed and submit this document to your instructor when complete.

Here's a friendly tip: as you watch the videos, code along with the videos. This will help you with the homework. When a screenshot is required, look for the icon:  You will keep adding to this project throughout this part of the course. When it comes time for the final project, use this project as a starter.

Project Resources:

<https://github.com/promineotech/Spring-Boot-Course-Student-Resources>

Coding Steps:

- 1) In the application you've been building add a DAO layer:
 - a) Add the package, `com.promineotech.jeepp.dao`. (X)
 - b) In the new package, create an interface named `JeepSalesDao`. (X)
 - c) In the same package, create a class named `DefaultJeepSalesDao` that implements `JeepSalesDao`. (X)

- d) Add a method in the DAO interface and implementation that returns a list of Jeep models (class Jeep) and takes the model and trim parameters. Here is the method signature:

```
List<Jeep> fetchJeeps(JeepModel model, String trim);(X)
```

- 2) In the Jeep sales service implementation class, inject the DAO interface as an instance variable. The instance variable should be private and should be named jeepSalesDao. Call the DAO method from the service method and store the returned value in a local variable named jeeps. Return the value in the jeeps variable (we will add to this later).//I did not add this what?
- 3) In the DAO implementation class (DefaultJeepSalesDao):
- a) Add the class-level annotation: @Service. (X)

- b) Add a log statement in DefaultJeepSalesDao.fetchJeeps() that logs the model and trim level. Run the integration test. Produce a screenshot showing the DAO implementation class and the log line in the IDE's console. 🖥️


The screenshot shows the Eclipse IDE with the following components:

- Package Explorer:** Shows the project structure with a test case `FetchJeepTest`.
- JUnit Runner:** Shows the test `testThatJeepsAreReturnedWhenAValidModelAndTrimA` passed.
- Failure Trace:** Shows an `AssertionFailedError` with the message: `expected: [Jeep(modelPK=null, modelId=WRANGLER, trimLevel=Sport, numDoors=2, wheelSize=17, basePrice=28475.00), Jeep(modelPK=null, modelId=WRANGLER, trimLevel=Sport, numDoors=2, wheelSize=17, basePrice=28475.00)] but was: null`.
- DefaultJeepSalesDao.java:** Shows the implementation of the `fetchJeeps` method. It includes annotations `@Service`, `@Component`, and `@Slf4j`. The method is annotated with `@Autowired` and `@Override`. It uses `Log.debug` to log the model and trim parameters.

The screenshot shows the Eclipse IDE console with the following output:

```
<terminated> FetchJeepTest [JUnit] C:\Users\Admin\workspace\sts-4.11.0.RELEASE\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64.16.0.1.v20210528-1205\jre\bin\javaw.exe (Sep 1, 2021, 12:20:17 PM)
:: Spring Boot ::
(v2.5.4)

2021-09-01 12:20:21.955 INFO 21480 --- [main] c.p.jee.controller.FetchJeepTest : Starting FetchJeepTest using Java 16.0.1 on DESKTOP-IL9T190 w
2021-09-01 12:20:21.956 DEBUG 21480 --- [main] c.p.jee.controller.FetchJeepTest : Running with Spring Boot v2.5.4, Spring v5.3.9
2021-09-01 12:20:21.956 INFO 21480 --- [main] c.p.jee.controller.FetchJeepTest : The following profiles are active: test
2021-09-01 12:20:25.905 INFO 21480 --- [main] c.p.jee.controller.FetchJeepTest : Started FetchJeepTest in 4.457 seconds (JVM running for 5.891
http://localhost:53587/jeeps?model=WRANGLER&trim=Sport
2021-09-01 12:20:27.133 DEBUG 21480 --- [o-auto-1-exec-1] c.p.j.c.DefaultJeepSalesController : model=WRANGLER, trim=Sport
2021-09-01 12:20:27.135 INFO 21480 --- [o-auto-1-exec-1] c.p.j.service.DefaultJeepSalesService : The fetchJeeps method was called with model=WRANGLER and trim
2021-09-01 12:20:27.135 DEBUG 21480 --- [o-auto-1-exec-1] c.p.jee.dao.DefaultJeepSalesDao : DAO: model=WRANGLER, trim=Sport
[Jeep(modelPK=null, modelId=WRANGLER, trimLevel=Sport, numDoors=2, wheelSize=17, basePrice=28475.00), Jeep(modelPK=null, modelId=WRANGLER, trimLevel=Sport, numDoors=2, wheelSize=17, basePrice=28475.00)]
```

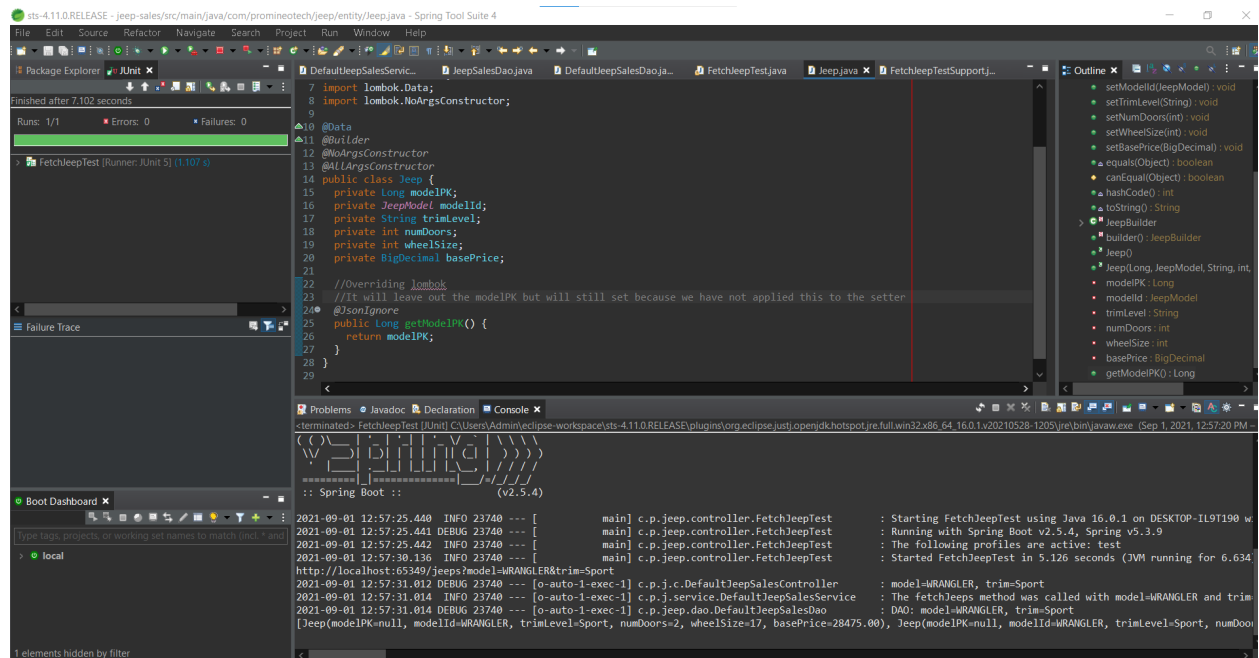
- c) In `DefaultJeepSalesDao`, inject an instance variable of type `NamedParameterJdbcTemplate`. (X)
- d) Write SQL to return a list of Jeep models based on the parameters: model and trim. Be sure to utilize the SQL Injection prevention mechanism of the `NamedParameterJdbcTemplate` using `:model_id` and `:trim_level` in the query. (X)
- e) Add the parameters to a parameter map as shown in the video. Don't forget to convert the `JeepModel` enum value to a String (i.e., `params.put("model_id", model.toString());`) (X) -Did it before Grandpa SpringBoot
- f) Call the `query` method on the `NamedParameterJdbcTemplate` instance variable to return a list of Jeep model objects. Use a `RowMapper` to map each row of the result set. Remember to convert `modelId` to a `JeepModel`. See the video for details. Produce a screenshot to show the complete method in the implementation class. 

```
DefaultJeepSalesServ... JeepSalesDao.java DefaultJeepSalesDao.java x FetchJeepTest.java Jeep.java FetchJeepTestSupportJ...
1 package com.promineotech.jeep.dao;
2
3 import java.math.BigDecimal;
4 import java.sql.ResultSet;
5 import java.sql.SQLException;
6 import java.util.HashMap;
7 import java.util.List;
8 import java.util.Map;
9 import org.springframework.beans.factory.annotation.Autowired;
10 import org.springframework.jdbc.core.RowMapper;
11 import org.springframework.jdbc.core.namedparam.NamedParameterJdbcTemplate;
12 import org.springframework.stereotype.Component;
13 import org.springframework.stereotype.Service;
14 import com.promineotech.jeep.entity.Jeep;
15 import com.promineotech.jeep.entity.JeepModel;
16 import lombok.extern.slf4j.Slf4j;
17
18 @Service
19 @Component
20 @Slf4j
21 public class DefaultJeepSalesDao implements JeepSalesDao {
22
23
24 @Autowired
25 private NamedParameterJdbcTemplate jdbcTemplate;
26 @Override
27 public List<Jeep> fetchJeeps(JeepModel model, String trim) {
28     Log.debug("DAO: model={}, trim={}", model, trim);
29
30     // @formatter:off
31     String sql = ""
32         + "SELECT * "
33         + "FROM models "
34         + "WHERE model_id = :model_id AND trim_level = :trim_level";
35     // @formatter:on
36
37     Map<String, Object> params = new HashMap<>();
38     params.put("model_id", model.toString());
39     params.put("trim_level", trim);
40 }
```

```
DefaultJeepSalesServic... JeepSalesDao.java DefaultJeepSalesDao.java x FetchJeepTest.java Jeep.java FetchJeepTestSupportj...
19 @Component
20 @Slf4j
21 public class DefaultJeepSalesDao implements JeepSalesDao {
22
23
24 @Autowired
25 private NamedParameterJdbcTemplate jdbcTemplate;
26 @Override
27 public List<Jeep> fetchJeeps(JeepModel model, String trim) {
28     Log.debug("DAO: model={}, trim={}", model, trim);
29
30     // @formatter:off
31     String sql = ""
32         + "SELECT * "
33         + "FROM models "
34         + "WHERE model_id = :model_id AND trim_level = :trim_level";
35     // @formatter:on
36
37     Map<String, Object> params = new HashMap<>();
38     params.put("model_id", model.toString());
39     params.put("trim_level", trim);
40
41     return jdbcTemplate.query(sql, params,
42         new RowMapper<>() {
43             @Override
44             public Jeep mapRow(ResultSet rs, int rowNum) throws SQLException {
45                 // @formatter:off
46                 return Jeep.builder()
47                     .basePrice(new BigDecimal(rs.getString("base_price")))
48                     .modelId(JeepModel.valueOf(rs.getString("model_id")))
49                     .modelPK(rs.getLong("model_PK"))
50                     .numDoors(rs.getInt("num_doors"))
51                     .trimLevel(rs.getString("trim_level"))
52                     .wheelSize(rs.getInt("wheel_size"))
53                     .build();
54                 // @formatter:on
55             }
56         }
57     );
58 }
```

- 4) Add a getter in the Jeep class for modelPK. Add the @JsonIgnore annotation to the getter to exclude the modelPK value from the returned object.

- 5) Run the test to produce a green status bar. Produce a screenshot showing the test and the green status bar. 🟢



Screenshots of Code:

Screenshots of Running Application:

URL to GitHub Repository:

<https://github.com/JoleneMel/Jeep-SalesW3>