


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`.
 - b) In the new package, create an interface named `JeepSalesDao`.
 - c) In the same package, create a class named `DefaultJeepSalesDao` that implements `JeepSalesDao`.
 - 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);
```

- 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).
- 3) In the DAO implementation class (`DefaultJeepSalesDao`):
 - a) Add the class-level annotation: `@Service`.
 - 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. 

```
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
10 import org.springframework.beans.factory.annotation.Autowired;
11 import org.springframework.jdbc.core.RowMapper;
12 import org.springframework.jdbc.core.namedparam.NamedParameterJdbcTemplate;
13 import org.springframework.stereotype.Component;
14 import org.springframework.stereotype.Service;
15
16 import com.promineotech.jeep.entity.Jeep;
17 import com.promineotech.jeep.entity.JeepModel;
18
19 import lombok.extern.slf4j.Slf4j;
20
21 @Component
22 @Slf4j
23 @Service
24 public class DefaultJeepSalesDao implements JeepSalesDao {
25
26     @Autowired
27     private NamedParameterJdbcTemplate jdbcTemplate;
28
29     @Override
30     public List<Jeep> fetchJeeps(JeepModel model, String trim) {
31         log.debug("DAO: model={}, trim={}", model, trim);
32
33         // @formatter:off
34
35         String sql = ""
36             + "SELECT * "
37             + "FROM models "
```

```

31     log.debug("DAO: model={}, trim={}", model, trim);
32
33
34     // @formatter:off
35
36     String sql = ""
37         + "SELECT * "
38         + "FROM models "
39         + "WHERE model_id = :model_id AND trim_level = :trim_level";
40     // @formatter:on
41
42     Map<String, Object> params = new HashMap<>();
43     params.put("model_id", model.toString());
44     params.put("trim_level", trim);
45
46
47
48     return jdbcTemplate.query(sql, params,
49         new RowMapper<>() {
50
51         @Override
52         public Jeep mapRow(ResultSet rs, int rowNum) throws SQLException {
53             // @formatter:off
54             return Jeep.builder()
55                 .basePrice(new BigDecimal(rs.getString("base_price")))
56                 .modelId(JeepModel.valueOf(rs.getString("model_id")))
57                 .modelPK(rs.getLong("model_pk"))
58                 .numDoors(rs.getInt("num_doors"))
59                 .trimLevel(rs.getString("trim_level"))
60                 .wheelSize(rs.getInt("wheel_size"))
61                 .build();
62             // @formatter:on
63         }
64     });
65 }
66
67 }
68

```

Package Explorer

JUnit

Finished after 4.465 seconds



Runs: 1/1Errors: 0Failures: 0

FetchJeepTest [Runner: JUnit 5] (0.948 s)

Failure Trace

Boot Dashboard

```
<terminated> FetchJeepTest [JUnit] /Library/Java/JavaVirtualMachines/jdk-17.0.3.1.jdk/Contents/Home/bin/java (Oct 7, 2022, 1:28:52 PM - 1:28:59 PM) [pid: 41123]
v2.7.4
:: Spring Boot ::
2022-10-07 13:28:56.227 INFO 41123 --- [main] c.p.jee.controller.FetchJeepTest : Starting FetchJeepTest using Java 17.0.3.1 on Sh
2022-10-07 13:28:56.228 DEBUG 41123 --- [main] c.p.jee.controller.FetchJeepTest : Running with Spring Boot v2.7.4, Spring v5.3.23
2022-10-07 13:28:56.228 INFO 41123 --- [main] c.p.jee.controller.FetchJeepTest : The following 1 profile is active: "test"
2022-10-07 13:28:58.617 INFO 41123 --- [main] c.p.jee.controller.FetchJeepTest : Started FetchJeepTest in 2.896 seconds (JVM runn
2022-10-07 13:28:59.430 DEBUG 41123 --- [o-auto-1-exec-1] c.p.j.c.BasicJeepSalesController : model=WRANGLER, trim=Sport,
2022-10-07 13:28:59.431 INFO 41123 --- [o-auto-1-exec-1] c.p.j.service.DefaultJeepSalesService : The fetchJeeps method was called with model=WRAN
2022-10-07 13:28:59.431 DEBUG 41123 --- [o-auto-1-exec-1] c.p.jee.dao.DefaultJeepSalesDao : DAO: model=WRANGLER, trim=Sport
```

- c) In DefaultJeepSalesDao, inject an instance variable of type NamedParameterJdbcTemplate.
 - 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.
 - 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());)
 - 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.  **THIS IS SHOWN IN THE ABOVE IMAGES.**
- 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. 

```
1 package com.promineotech.jeep.entity;
2
3 import java.math.BigDecimal;
4
5 import com.fasterxml.jackson.annotation.JsonIgnore;
6
7 import lombok.AllArgsConstructor;
8 import lombok.Builder;
9 import lombok.Data;
10 import lombok.NoArgsConstructor;
11
12
13 @Data
14 @Builder
15 @NoArgsConstructor
16 @AllArgsConstructor
17 public class Jeep {
18
19     private Long modelPK;
20     private JeepModel modelId;
21     private String trimLevel;
22     private int numDoors;
23     private int wheelSize;
24     private BigDecimal basePrice;
25
26
27     @JsonIgnore
28     public Long getModelPK() {
29         return modelPK;
30     }
31
32 }
33
34
35
36
37
38
```


Screenshots of Running Application:

URL to GitHub Repository:

<https://github.com/ssbudz123/Week15>