


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. 
 - 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. 
- 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:

The screenshot shows an IDE with the `DefaultJeepSalesDao.java` file open. The code defines a `DefaultJeepSalesDao` class that implements `JeepSalesDao`. It includes imports for `java.util.List`, `org.springframework.stereotype.Component`, `org.springframework.stereotype.Service`, `com.promineotech.jeepp.entity.Jeep`, `com.promineotech.jeepp.entity.JeepModel`, and `lombok.extern.slf4j.Slf4j`. The class is annotated with `@author nicoleevans`, `@Service`, `@Component`, and `@Slf4j`. The `fetchJeeps` method is annotated with `@Override` and `@Log`. The console output shows the following log line: `DAO: model={}, trim={}`.


```
10 /**
4 package com.promineotech.jeepp.dao;
5
6 import java.util.List;
7
8 import org.springframework.stereotype.Component;
9 import org.springframework.stereotype.Service;
10
11 import com.promineotech.jeepp.entity.Jeep;
12 import com.promineotech.jeepp.entity.JeepModel;
13
14 import lombok.extern.slf4j.Slf4j;
15
16 * @author nicoleevans
17
18 @Service
19 @Component
20 @Slf4j
21 public class DefaultJeepSalesDao implements JeepSalesDao {
22     @Override
23     public List<Jeep> fetchJeeps(JeepModel model, String trim){
24         log.debug("DAO: model={}, trim={}", model, trim);
25         return null;
26     }
27 }
28
29
30
```

Console Output:

```
<terminated> FetchJeepTest [JUnit] /Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java (Jan 16, 2022, 11:34:57 AM - 11:35:23 AM)
framework.boot.test.context.SpringBootTestContextBootstrapper - Using TestExecutionListeners: [org.springframework.test.context.web.ServletTestExecutionListene
gframework.test.context.support.AbstractDirTiesContextTestExecutionListener - Before test class: context [DefaultTestContext@68b6f0d6 testClass = FetchJeepTest]
gframework.test.context.support.DependencyInjectionTestExecutionListener - Performing dependency injection for test context [[DefaultTestContext@68b6f0d6 testC
gframework.boot.ApplicationServletEnvironment - Activating profiles []
gframework.test.context.support.TestPropertySourceUtils - Adding inlined properties to environment: {spring.jmx.enabled=false, org.springframework.boot.test.co

v2.6.2)

--- [main] c.p.jeepp.controller.FetchJeepTest : Starting FetchJeepTest using Java 11.0.12 on Nicoles-MacBook-Pro.local with PID 10577 (starte
--- [main] c.p.jeepp.controller.FetchJeepTest : Running with Spring Boot v2.6.2, Spring v5.3.14
--- [main] c.p.jeepp.controller.FetchJeepTest : The following profiles are active: test
--- [main] c.p.jeepp.controller.FetchJeepTest : Started FetchJeepTest in 15.315 seconds (JVM running for 18.573)
--- [o-auto-1-exec-1] c.p.j.c.BasicJeepSalesController : model=WRANGLER, trim=Sport
--- [o-auto-1-exec-1] c.p.j.service.DefaultJeepSalesService : The fetchJeeps method was called with modle=WRANGLER and trim=Sport
--- [o-auto-1-exec-1] c.p.jeepp.dao.DefaultJeepSalesDao : DAO: model=WRANGLER, trim=Sport
```

Produce a screenshot showing the DAO implementation class and the log line in the IDE's console. 

The screenshot shows the `DefaultJeepSalesDao` class implementation. The `fetchJeeps` method is annotated with `@Override` and `@Log`. It uses `log.debug` to log the method call. The SQL query is constructed using string concatenation. The `params` map is created and populated with the `model_id` and `trim_level` values.

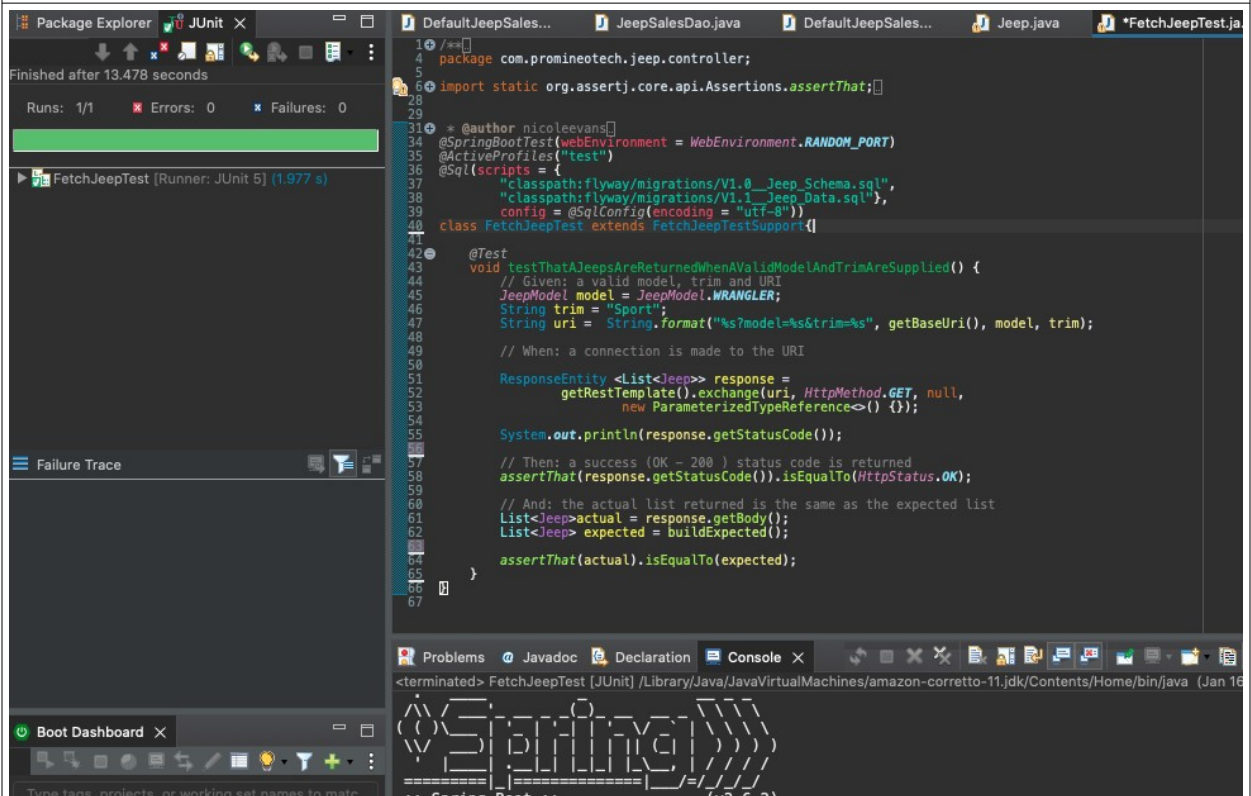
```
10 /**
4 package com.promineotech.jeepp.dao;
5
6 import java.math.BigDecimal;
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25 * @author nicoleevans
26
27 @Service
28 @Component
29 @Slf4j
30 public class DefaultJeepSalesDao implements JeepSalesDao {
31
32
33     @Autowired
34     private NamedParameterJdbcTemplate jdbcTemplate;
35
36     @Override
37     public List<Jeep> fetchJeeps(JeepModel model, String trim){
38         log.debug("DAO: model={}, trim={}", model, trim);
39
40         // @formatter:off
41         String sql = ""
42             + "Select * "
43             + "FROM models "
44             + "WHERE model_id = :model_id AND trim_level = :trim_level";
45         // @formatter:on
46
47         Map<String, Object> params = new HashMap<>();
48         params.put("model_id", model.toString());
49     }
50 }
51
```

```

48     params.put("model_id", model.toString());
49     params.put("trim_level", trim);
50
51     return jdbcTemplate.query(sql, params,
52         new RowMapper<>() {
53
54         @Override
55         public Jeep mapRow(ResultSet rs, int rowNum) throws SQLException {
56             //@formatter:off
57             return Jeep.builder()
58                 .basePrice(new BigDecimal(rs.getString("base_price")))
59                 .modelID(JeepModel.valueOf(rs.getString("model_id")))
60                 .modelPK(rs.getLong("model_pk"))
61                 .numDoors(rs.getInt("num_doors"))
62                 .trimLevel(rs.getString("trim_level"))
63                 .wheelSize(rs.getInt("wheel_size"))
64                 .build();
65             //@formatter:on
66         }
67     });
68
69 }
70
71

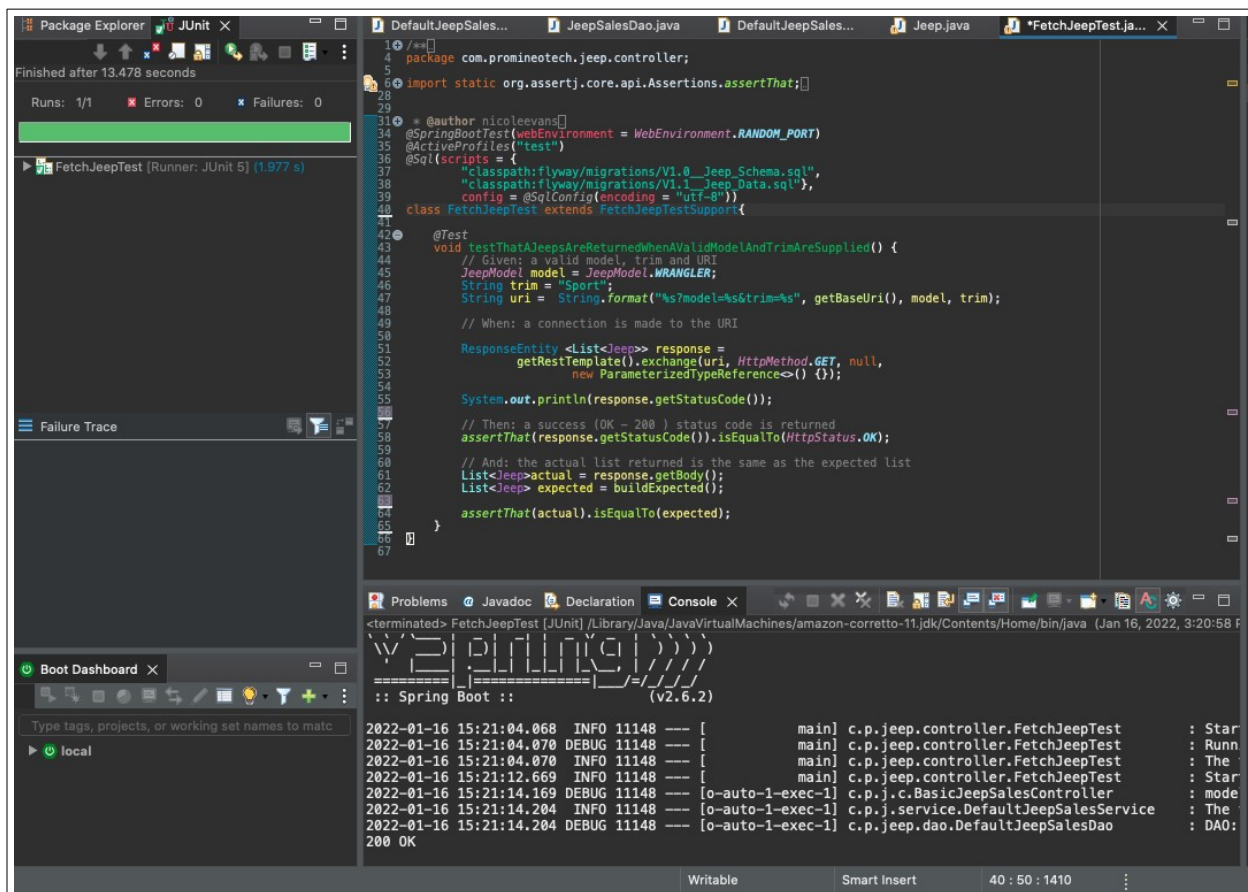
```

Produce a screenshot to show the complete method in the implementation class. 



The screenshot displays an IDE interface with the following components:

- Package Explorer:** Shows the project structure with a folder named "JUnit" and a file "FetchJeepTest".
- JUnit Runner:** Indicates the test "FetchJeepTest" was executed successfully, finishing after 13.478 seconds. The status shows "Runs: 1/1", "Errors: 0", and "Failures: 0".
- Source Editor:** Displays the code for "FetchJeepTest.java". The code includes package declarations, imports, and a test method annotated with `@SpringBootTest` and `@ActiveProfiles("test")`. The test method `testThatAJeepsAreReturnedWhenAValidModelAndTrimAreSupplied` uses `RestTemplate` to perform a GET request and asserts the response status and body.
- Problems/Console:** Shows a message indicating the test was terminated successfully: "<terminated> FetchJeepTest [JUnit] /Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java (Jan 16)".
- Boot Dashboard:** A small panel at the bottom left showing project status.



Run the test to produce a green status bar. Produce a screenshot showing the test and the green status bar.

Screenshots of Running Application:

URL to GitHub Repository:

<https://github.com/nicolekevans/SpringBootWeek3>