

Web API Design with Spring Boot Week 15 Coding Assignment


Points possible: 75

URL to GitHub Repository: <https://github.com/bman354/Jeep-Sales>


URL to Public Link of your Video: <https://youtu.be/BEBrB8Jefal>

Instructions :

1. Follow the **Coding Steps** below to complete this assignment.

- In Spring Tool Suite (STS), or an IDE of your choice, write the code that accomplishes the objectives listed below. Ensure that the code compiles and runs as directed.
- Use your existing repo or create a new repository on GitHub for this week's assignment and push your completed code to the repo, including your entire Maven Project Directory (e.g., jeep-sales) and any additional files (e.g. .sql files) that you create. In addition, screenshot your ERD and push the screenshot to your GitHub repo.
- Include the screenshots into this Assignment Document indicated by: 
- Create a video showcasing your work:
 - In this video: record and present your project verbally while showing the results of the working project.
 - Easy way to Create a video: Start a meeting in Zoom, share your screen, open Eclipse with the code and your Console window, start recording & record yourself describing and running the program showing the results.
 - Your video should be a maximum of 5 minutes.
 - Upload your video with a public link.
 - Easy way to Create a Public Video Link: Upload your video recording to YouTube with a public link.


2. In addition, please include the following in your Coding Assignment Document:

- The requested screenshots, indicated by: 
- The URL for this week's GitHub repository.
- The URL of the public link of your video.

3. Save the Coding Assignment Document as a .pdf and do the following:

- Push the .pdf to the GitHub repo for this week.
 - Upload the .pdf to the LMS in your Coding Assignment Submission.
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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>

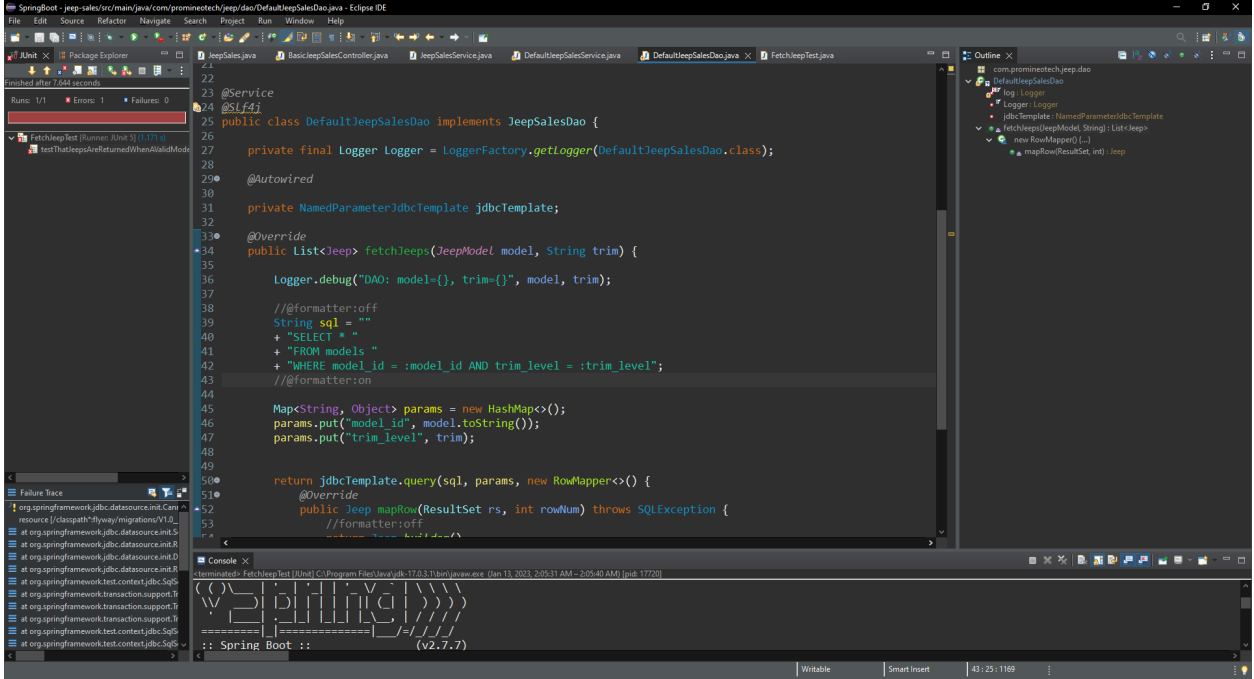
Coding Steps:

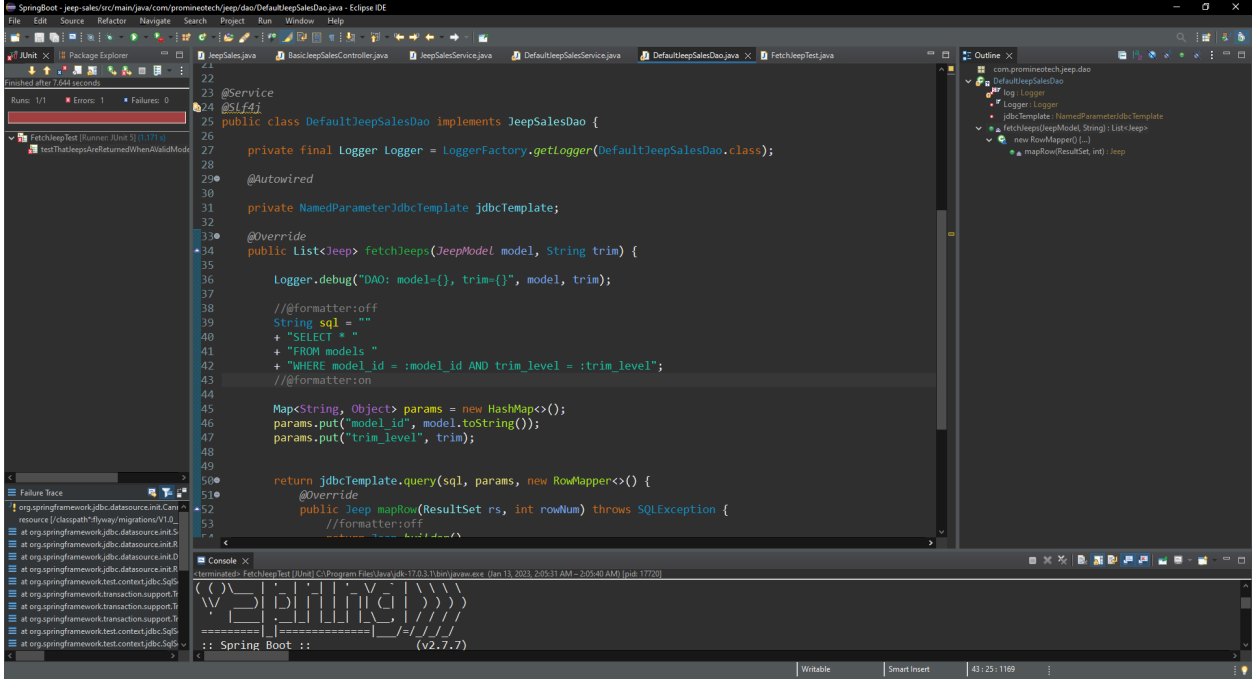
- 1) In the application you've been building add a DAO layer:
 - a) Add the package, `com.promineotech.jeepp.dao`.
 - b) In the new package, create an interface named `JeepSalesDao`.
 - c) In the same package, create a class named `DefaultJeepSalesDao` that implements `JeepSalesDao`.
 - d) Add a method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

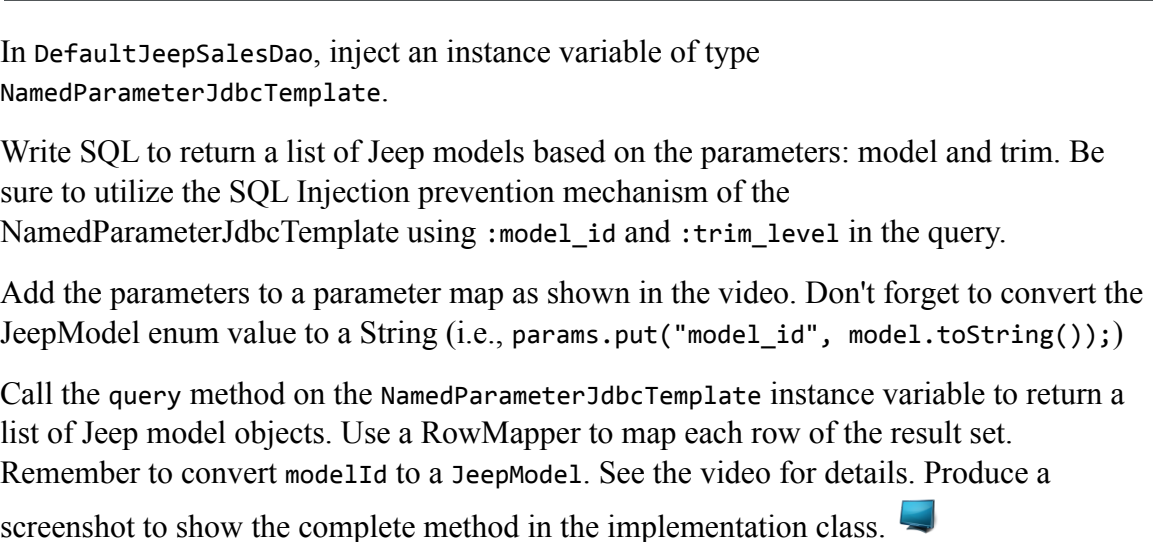
```
List<Jeep> fetchJeeps(JeepModel model, String trim);
```
- 2) In the Jeep sales service implementation class, inject the DAO interface as an instance variable. The instance variable should be `private` and should be named `jeepSalesDao`. Call the DAO method from the service method and store the returned value in a local variable named `jeeps`. Return the value in the `jeeps` variable (we will add to this later).

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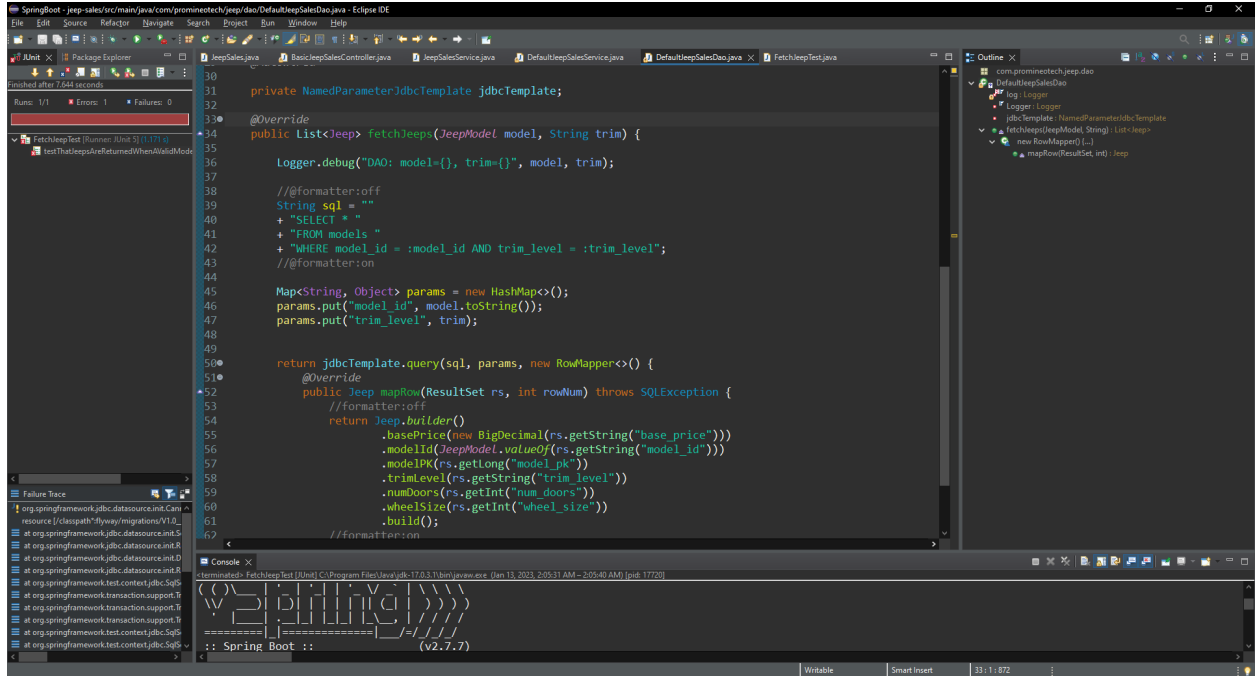
3) In the DAO implementation class (DefaultJeepSalesDao):

- Add the class-level annotation: `@Service`.
- 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. 




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- In `DefaultJeepSalesDao`, inject an instance variable of type `NamedParameterJdbcTemplate`.
- 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.
- 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());`)
- 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. 

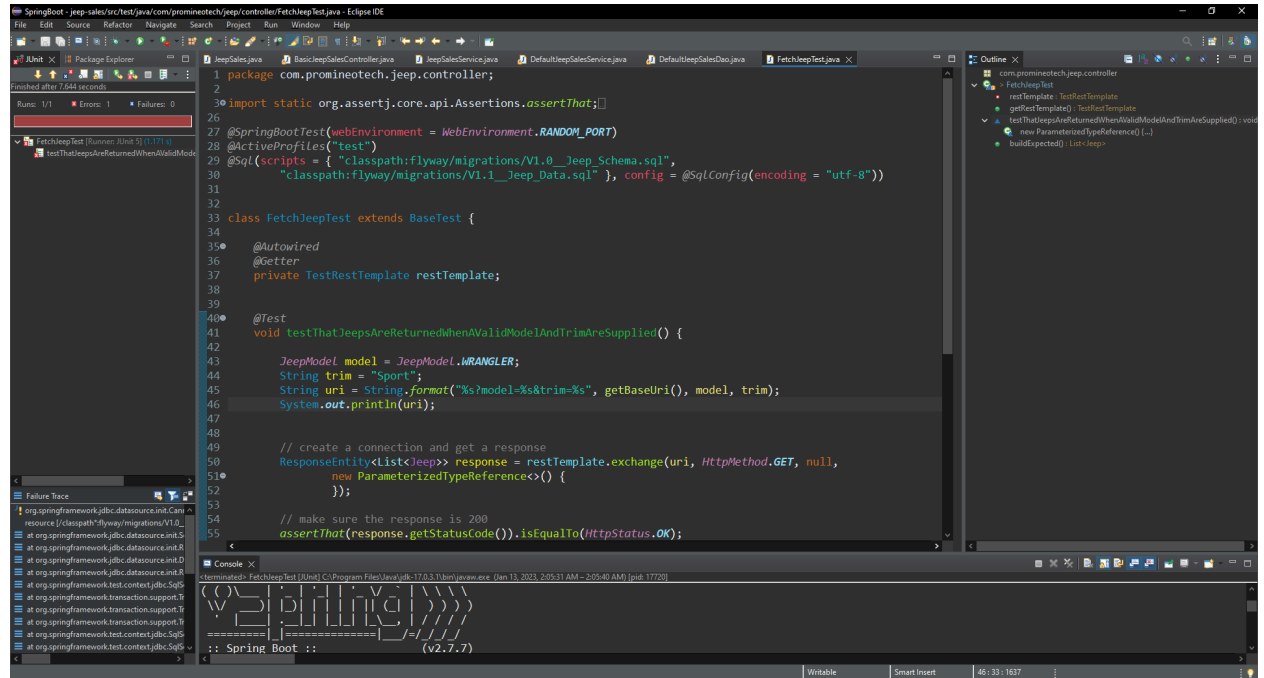
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```
30 private NamedParameterJdbcTemplate jdbcTemplate;
31
32
33 @Override
34 public List<Jeep> fetchJeeps(JeepModel model, String trim) {
35     Logger.debug("DAO: model={}, trim={}", model, trim);
36
37     //formatter:off
38     String sql = "
39     + "SELECT * "
40     + "FROM models "
41     + "WHERE model_id = :model_id AND trim_level = :trim_level";
42     //formatter:on
43
44     Map<String, Object> params = new HashMap<>();
45     params.put("model_id", model.toString());
46     params.put("trim_level", trim);
47
48
49
50     return jdbcTemplate.query(sql, params, new RowMapper<>() {
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                 .trimLevel(rs.getString("trim_level"))
59                 .numDoors(rs.getInt("num_doors"))
60                 .wheelSize(rs.getInt("wheel_size"))
61                 .build();
62             //formatter:on
63         }
64     });
65 }
```

- 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. 

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The screenshot displays the Eclipse IDE interface. The main editor shows the `FetchJeepTest.java` file, which is a JUnit 5 test class. The code includes imports for `org.assertj.core.api.Assertions` and `org.springframework.test.web.servlet.MockMvc`. It uses `@SpringBootTest` with `webEnvironment = WebEnvironment.RANDOM_PORT` and `@ActiveProfiles("test")`. The test class extends `BaseTest` and contains a test method `testThatJeepsAreReturnedWhenValidModelAndTrimAreSupplied()`. This method uses `TestRestTemplate` to perform a GET request to a specific URI, expecting a 200 status code. The console at the bottom shows the output of the test, including the URI and the response status.

```
1 package com.promineotech.jeeptest.controller;
2
3 import static org.assertj.core.api.Assertions.assertThat;
4
5 @SpringBootTest(webEnvironment = WebEnvironment.RANDOM_PORT)
6 @ActiveProfiles("test")
7 @Sql(scripts = { "classpath:flyway/migrations/V1.0__Jeep.Schema.sql",
8                 "classpath:flyway/migrations/V1.1__Jeep.Data.sql" }, config = @SqlConfig(encoding = "utf-8"))
9
10 class FetchJeepTest extends BaseTest {
11
12     @Autowired
13     @Getter
14     private TestRestTemplate restTemplate;
15
16     @Test
17     void testThatJeepsAreReturnedWhenValidModelAndTrimAreSupplied() {
18
19         JeepModel model = JeepModel.WRANGLER;
20         String trim = "Sport";
21         String uri = String.format("%s?model=%s&trim=%s", getBaseUrl(), model, trim);
22         System.out.println(uri);
23
24         // create a connection and get a response
25         ResponseEntity<List<Jeep>> response = restTemplate.exchange(uri, HttpMethod.GET, null,
26                             new ParameterizedTypeReference<>() {
27
28         });
29
30         // make sure the response is 200
31         assertThat(response.getStatusCode()).isEqualTo(HttpStatus.OK);
32     }
33 }
```

Console Output:

```
FetchJeepTest [main] C:\Program Files\Java\jdk-17.0.3\bin\java.exe (Jan 13, 2023, 2:05:31 AM - 2:05:40 AM) [pid: 17720]
(v2.7.7)
:: Spring Boot ::
(v2.7.7)
```

6)