Web API Design with Spring Boot Week 15 Coding Assignment

Points possible: 75

URL to GitHub Repository: https://github.com/sraznoff/JeepSalesAPI

URL to Public Link of your Video:https://youtu.be/aEo_unGqqQ8

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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

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Coding Steps:

1) In the application you've been building add a DAO layer:
    a) Add the package, com.promineotech.jeep.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:

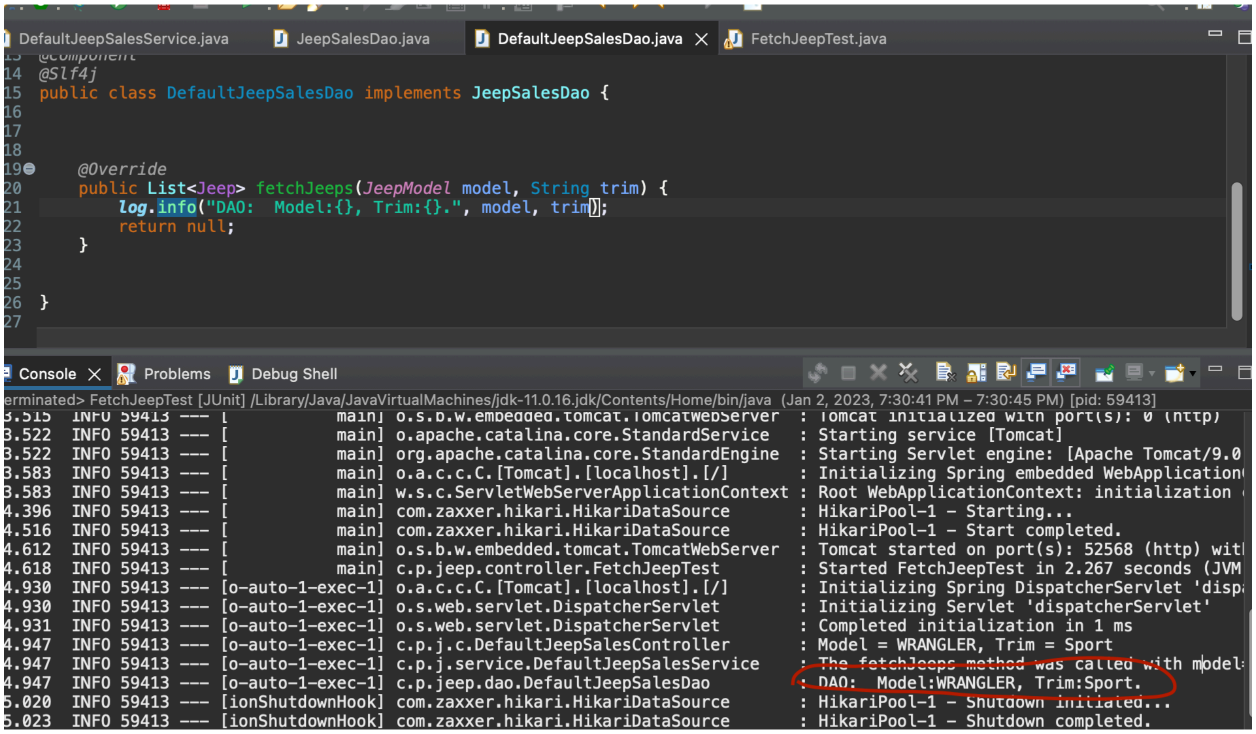
    ```
    List<Jeep> fetchJeeps(JeepModel model, String trim);
    ```

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.



```
@Component
@Slf4j
public class DefaultJeepSalesDao implements JeepSalesDao {



    @Override
    public List<Jeep> fetchJeeps(JeepModel model, String trim) {
        log.info("DAO:  Model:{}, Trim:{}.", model, trim);
        return null;
    }


}

```

```
erminated> FetchJeepTest [JUnit] /Library/Java/JavaVirtualMachines/jdk-11.0.16.jdk/Contents/Home/bin/java  (Jan 2, 2023, 7:30:41 PM – 7:30:45 PM) [pid: 59413]
3.515  INFO 59413 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port(s): 0 (http)
3.522  INFO 59413 --- [           main] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
3.522  INFO 59413 --- [           main] org.apache.catalina.core.StandardEngine  : Starting Servlet engine: [Apache Tomcat/9.0
3.583  INFO 59413 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplication
3.583  INFO 59413 --- [           main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization
4.396  INFO 59413 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Starting...
4.516  INFO 59413 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Start completed.
4.612  INFO 59413 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port(s): 52568 (http) wit
4.618  INFO 59413 --- [           main] c.p.jeep.controller.FetchJeepTest        : Started FetchJeepTest in 2.267 seconds (JVM
4.930  INFO 59413 --- [o-auto-1-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring DispatcherServlet 'disp
4.930  INFO 59413 --- [o-auto-1-exec-1] o.s.web.servlet.DispatcherServlet        : Initializing Servlet 'dispatcherServlet'
4.931  INFO 59413 --- [o-auto-1-exec-1] o.s.web.servlet.DispatcherServlet        : Completed initialization in 1 ms
4.947  INFO 59413 --- [o-auto-1-exec-1] c.p.j.c.DefaultJeepSalesController       : Model = WRANGLER, Trim = Sport
4.947  INFO 59413 --- [o-auto-1-exec-1] c.p.j.service.DefaultJeepSalesService    : The fetchJeeps method was called with model=
4.947  INFO 59413 --- [o-auto-1-exec-1] c.p.jeep.dao.DefaultJeepSalesDao         : DAO:  Model:WRANGLER, Trim:Sport.
5.020  INFO 59413 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Shutdown initiated...
5.023  INFO 59413 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Shutdown completed.
```

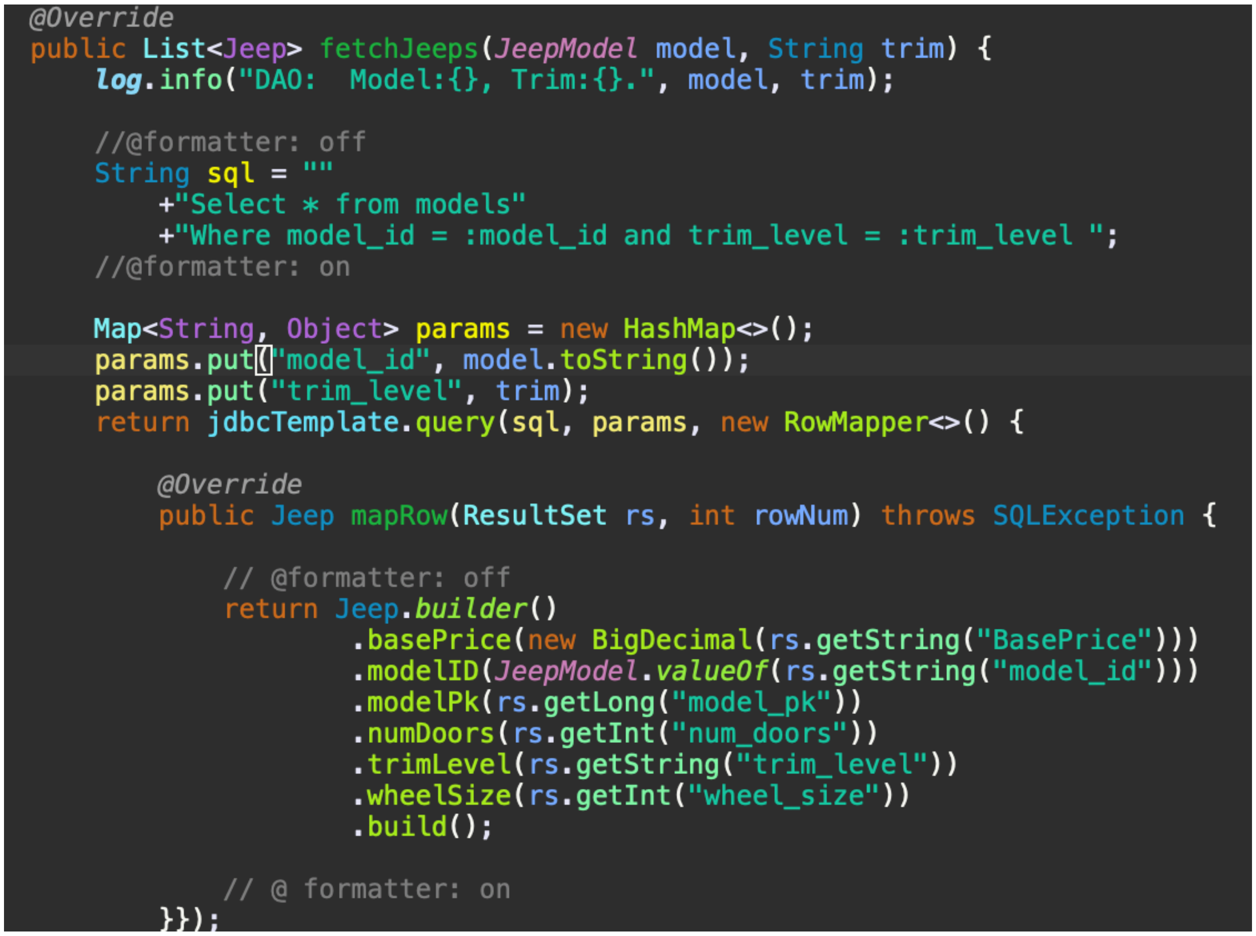
   c)

   d) In `DefaultJeepSalesDao`, inject an instance variable of type `NamedParameterJdbcTemplate`.

   e) 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.

   f) 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());`)

g) 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.



```java
@Override
public List<Jeep> fetchJeeps(JeepModel model, String trim) {
    log.info("DAO:  Model:{}, Trim:{}.", model, trim);

    //@formatter: off
    String sql = ""
        +"Select * from models"
        +"Where model_id = :model_id and trim_level = :trim_level ";
    //@formatter: on

    Map<String, Object> params = new HashMap<>();
    params.put("model_id", model.toString());
    params.put("trim_level", trim);
    return jdbcTemplate.query(sql, params, new RowMapper<>() {

        @Override
        public Jeep mapRow(ResultSet rs, int rowNum) throws SQLException {

            // @formatter: off
            return Jeep.builder()
                    .basePrice(new BigDecimal(rs.getString("BasePrice")))
                    .modelID(JeepModel.valueOf(rs.getString("model_id")))
                    .modelPk(rs.getLong("model_pk"))
                    .numDoors(rs.getInt("num_doors"))
                    .trimLevel(rs.getString("trim_level"))
                    .wheelSize(rs.getInt("wheel_size"))
                    .build();

            // @ formatter: on
        }});
```

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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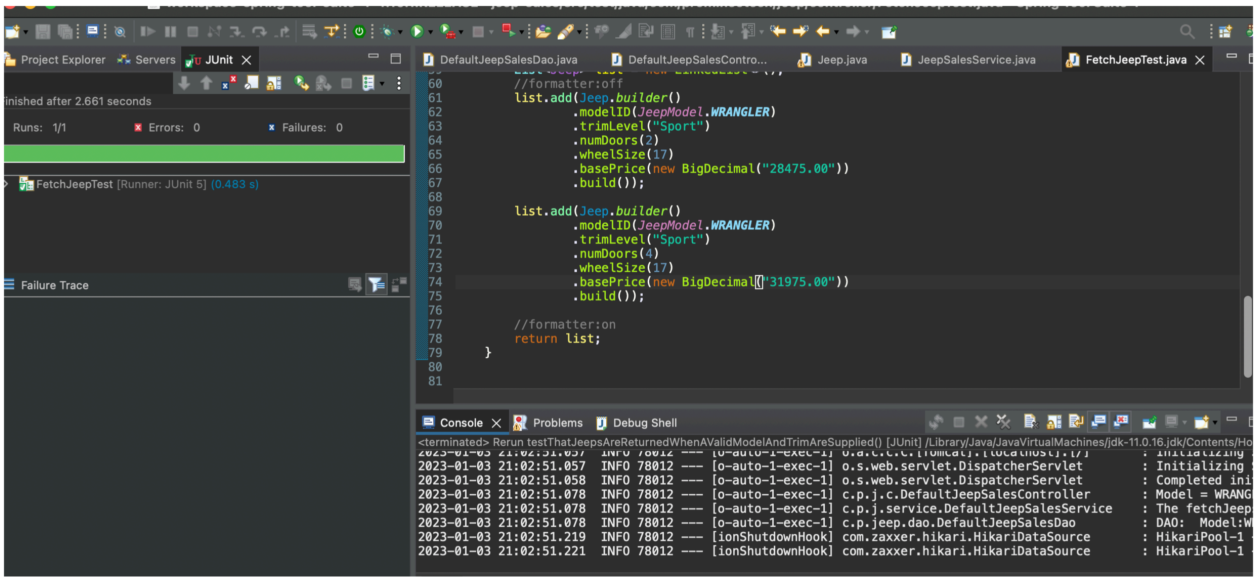

Finished after 2.661 seconds

Runs: 1/1   Errors: 0   Failures: 0

FetchJeepTest [Runner: JUnit 5] (0.483 s)

```java
        //formatter:off
        list.add(Jeep.builder()
                .modelID(JeepModel.WRANGLER)
                .trimLevel("Sport")
                .numDoors(2)
                .wheelSize(17)
                .basePrice(new BigDecimal("28475.00"))
                .build());

        list.add(Jeep.builder()
                .modelID(JeepModel.WRANGLER)
                .trimLevel("Sport")
                .numDoors(4)
                .wheelSize(17)
                .basePrice(new BigDecimal("31975.00"))
                .build());

        //formatter:on
        return list;
    }
```

```
<terminated> Rerun testThatJeepsAreReturnedWhenAValidModelAndTrimAreSupplied() [JUnit] /Library/Java/JavaVirtualMachines/jdk-11.0.16.jdk/Contents/Ho
2023-01-03 21:02:51.057  INFO 78012 --- [o-auto-1-exec-1] o.s.web.servlet.DispatcherServlet        : Initializing
2023-01-03 21:02:51.058  INFO 78012 --- [o-auto-1-exec-1] o.s.web.servlet.DispatcherServlet        : Completed ini
2023-01-03 21:02:51.078  INFO 78012 --- [o-auto-1-exec-1] c.p.j.c.DefaultJeepSalesController       : Model = WRANG
2023-01-03 21:02:51.078  INFO 78012 --- [o-auto-1-exec-1] c.p.j.service.DefaultJeepSalesService    : The fetchJeep
2023-01-03 21:02:51.078  INFO 78012 --- [o-auto-1-exec-1] c.p.jeep.dao.DefaultJeepSalesDao         : DAO:  Model:W
2023-01-03 21:02:51.219  INFO 78012 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource       : HikariPool-1
2023-01-03 21:02:51.221  INFO 78012 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource       : HikariPool-1
```