

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment


Points possible: 75

URL to GitHub Repository: <https://github.com/CMRapp/jeep-sales>


URL to Public Link of your Video: <http://videos.cmrwebstudio.com/promineo-tech-be-videos/CMR-wk16.mp4>

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.
-

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment

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:

For this week's homework you need to copy source code from the supplied resources.

For this week's homework you need to copy source code from the Source folder in the supplied resources. Wait until the instructions tell you to copy the resources or you will get errors.


- 1) Select some options for a Jeep order:
 - a) Use the `data.sql` file or the jeep database tables to select options for a Jeep order. Select any one of each of the following for the order:
 - i) color
 - ii) customer
 - iii) engine
 - iv) model
 - v) tire(s)
 - b) Select one or more options from the options table as well. Keep in mind that some options may work better than others – but if you want to put 37-inch tires on your Jeep Renegade, so be it!
- 2) Create a new integration test class to test a Jeep order named `CreateOrderTest.java`. Create this class in `src/test/java` in the `com.promineotech.jeepp.controller` package.
 - a) Add the Spring Boot Test annotations: `@SpringBootTest`, `@ActiveProfiles`, and `@Sql`. They should have the same parameters as the test created in weeks 1 and 2.
 - b) Create a test method (annotated with `@Test`) named `testCreateOrderReturnsSuccess201`.
 - c) In the test class, create a method named `createOrderBody`. This method returns a type of `String`. In this method, return a JSON object with the IDs that you picked in Step 1a and 1b. For example:

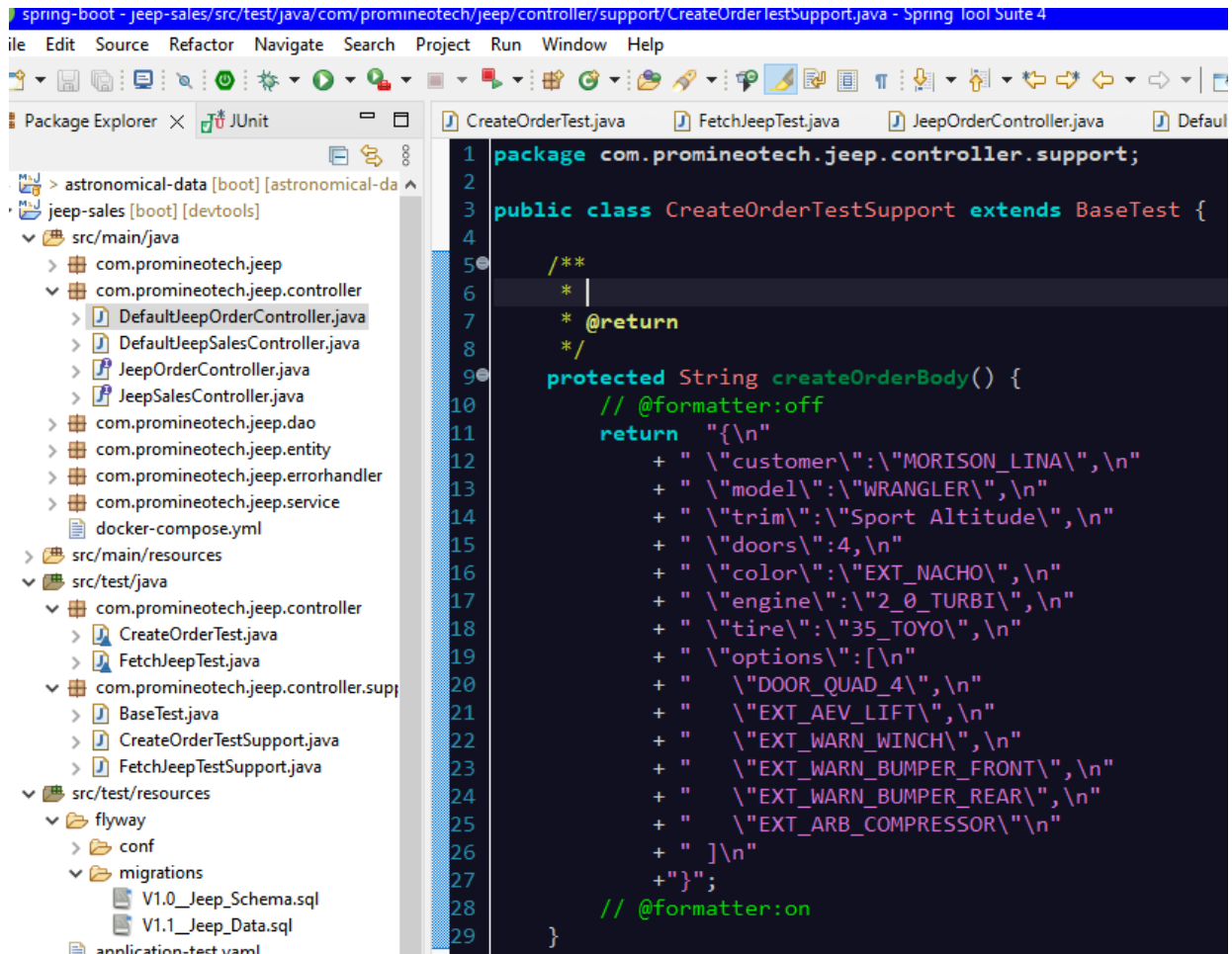
```
{
  "customer": "MORISON_LINA",
  "model": "WRANGLER",
  "trim": "Sport Altitude",
  "doors": 4,
```

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment

```
"color": "EXT_NACHO",  
"engine": "2_0_TURBO",  
"tire": "35_TOYO",  
"options": [  
    "DOOR_QUAD_4",  
    "EXT_AEV_LIFT",  
    "EXT_WARN_WINCH",  
    "EXT_WARN BUMPER_FRONT",  
    "EXT_WARN BUMPER_REAR",  
    "EXT_ARB_COMPRESSOR"  
]  
}
```

Make sure that the JSON is correct! If necessary, use a JSON formatter/validator like the one here: <https://jsonformatter.curiousconcept.com/>.

Produce a screenshot of the createOrderBody() method. 



```
spring-boot - jeep-sales/src/test/java/com/promineotech/jeep/controller/support/CreateOrderTestSupport.java - Spring Tool Suite 4  
File Edit Source Refactor Navigate Search Project Run Window Help  
Package Explorer x JUnit  
jeep-sales [boot] [devtools]  
  src/main/java  
    com.promineotech.jeep  
    com.promineotech.jeep.controller  
      DefaultJeepOrderController.java  
      DefaultJeepSalesController.java  
      JeepOrderController.java  
      JeepSalesController.java  
    com.promineotech.jeep.dao  
    com.promineotech.jeep.entity  
    com.promineotech.jeep.errorhandler  
    com.promineotech.jeep.service  
    docker-compose.yml  
  src/main/resources  
  src/test/java  
    com.promineotech.jeep.controller  
      CreateOrderTest.java  
      FetchJeepTest.java  
    com.promineotech.jeep.controller.support  
      BaseTest.java  
      CreateOrderTestSupport.java  
      FetchJeepTestSupport.java  
  src/test/resources  
    flyway  
      conf  
      migrations  
        V1.0_Jeep_Schema.sql  
        V1.1_Jeep_Data.sql  
    application-test.yml  
1 package com.promineotech.jeep.controller.support;  
2  
3 public class CreateOrderTestSupport extends BaseTest {  
4  
5     /**  
6      *  
7      * @return  
8      */  
9     protected String createOrderBody() {  
10         // @formatter:off  
11         return "{\n"  
12             + "  \"customer\": \"MORISON_LINA\", \n"  
13             + "  \"model\": \"WRANGLER\", \n"  
14             + "  \"trim\": \"Sport Altitude\", \n"  
15             + "  \"doors\": 4, \n"  
16             + "  \"color\": \"EXT_NACHO\", \n"  
17             + "  \"engine\": \"2_0_TURBO\", \n"  
18             + "  \"tire\": \"35_TOYO\", \n"  
19             + "  \"options\": [\n"  
20                 + "    \"DOOR_QUAD_4\", \n"  
21                 + "    \"EXT_AEV_LIFT\", \n"  
22                 + "    \"EXT_WARN_WINCH\", \n"  
23                 + "    \"EXT_WARN BUMPER_FRONT\", \n"  
24                 + "    \"EXT_WARN BUMPER_REAR\", \n"  
25                 + "    \"EXT_ARB_COMPRESSOR\" \n"  
26             + "  ] \n"  
27             + "}";  
28         // @formatter:on  
29     }
```

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment

In the test method, assign the return value of the `createOrderBody()` method to a variable named `body`.

- d) In the test class, add an instance variable named `serverPort` to hold the port that Tomcat is listening on in the test. Annotate the variable with `@LocalServerPort`.

- e) Add another instance variable for an injected `TestRestTemplate` named `restTemplate`.

- f) In the test method, assign a value to a local variable named `uri` as follows:

```
String uri = String.format("http://localhost:%d/orders", serverPort);
```

- g) In the test method, create an `HttpHeaders` object and set the content type to "application/json" like this:

```
HttpHeaders headers = new HttpHeaders();
```

```
headers.setContentType(MediaType.APPLICATION_JSON);
```

Make sure to import the package `org.springframework.http.HttpHeaders`.

- h) Create an `HttpEntity` object and set the request body and headers:

```
HttpEntity<String> bodyEntity = new HttpEntity<>(body, headers);
```

- i) Send the request body and headers to the server. The `Order` class should have been copied earlier from the supplied resources. Ensure that you import `com.promineotech.jeeep.entity.Order` and not some other `Order` class.

```
ResponseEntity<Order> response = restTemplate.exchange(uri,
```

```
    HttpMethod.POST, bodyEntity, Order.class);
```

- j) Add the `AssertJ` assertions to ensure that the response is correct. Replace the expected values to match the JSON in step 2c.

```
assertThat(response.getStatusCode()).isEqualTo(HttpStatus.CREATED);
```

```
assertThat(response.getBody()).isNotNull();
```

```
Order order = response.getBody();
```

```
assertThat(order.getCustomer().getCustomerId()).isEqualTo("MORISON_LINA");
```

```
assertThat(order.getModel().getModelId()).isEqualTo(JeepModel.WRANGLER);
```

```
assertThat(order.getModel().getTrimLevel()).isEqualTo("Sport Altitude");
```

```
assertThat(order.getModel().getNumDoors()).isEqualTo(4);
```

```
assertThat(order.getColor().getColorId()).isEqualTo("EXT_NACHO");
```

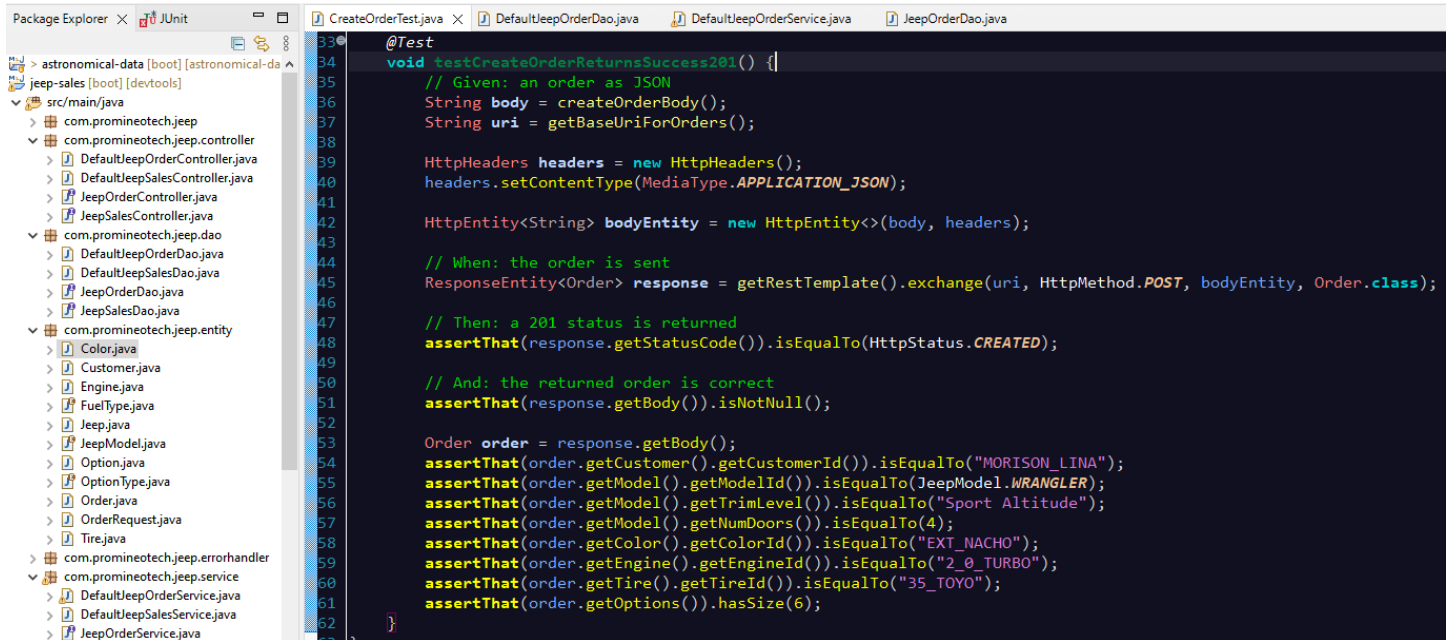
```
assertThat(order.getEngine().getEngineId()).isEqualTo("2_0_TURBO");
```

```
assertThat(order.getTire().getTireId()).isEqualTo("35_TOYO");
```

```
assertThat(order.getOptions()).hasSize(6);
```

- k) Produce a screenshot of the test method. 

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment



The screenshot shows an IDE with a Package Explorer on the left and a code editor on the right. The Package Explorer shows a project named 'jeep-sales' with a sub-package 'src/main/java' containing several packages. The code editor shows a test method in 'CreateOrderTest.java'.

```
@Test
void testCreateOrderReturnsSuccess201() {
    // Given: an order as JSON
    String body = createOrderBody();
    String uri = getBaseUrlForOrders();

    HttpHeaders headers = new HttpHeaders();
    headers.setContentType(MediaType.APPLICATION_JSON);



    HttpEntity<String> bodyEntity = new HttpEntity<>(body, headers);

    // When: the order is sent
    ResponseEntity<Order> response = getRestTemplate().exchange(uri, HttpMethod.POST, bodyEntity, Order.class);

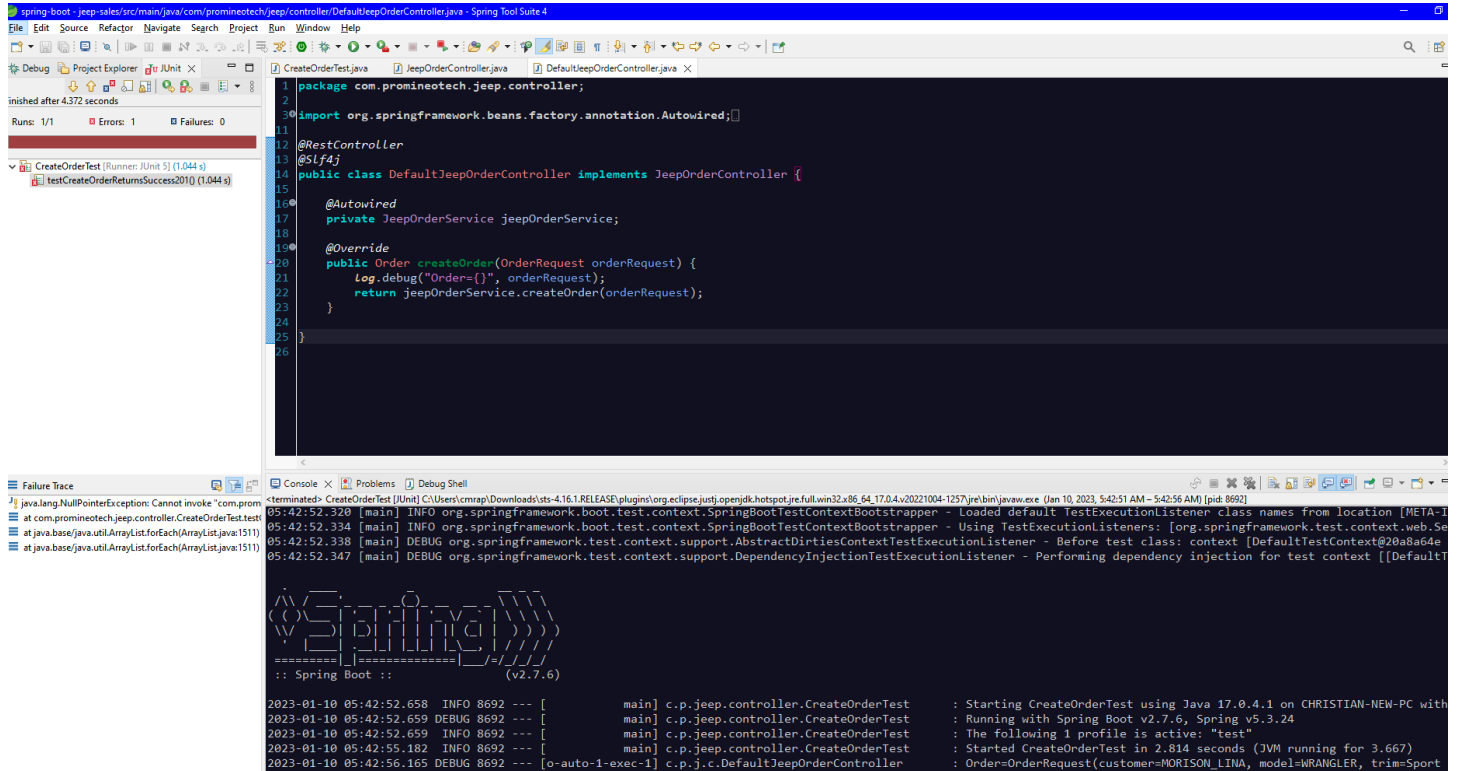
    // Then: a 201 status is returned
    assertThat(response.getStatusCode()).isEqualTo(HttpStatus.CREATED);

    // And: the returned order is correct
    assertThat(response.getBody()).isNotNull();

    Order order = response.getBody();
    assertThat(order.getCustomerId().getCustomerId()).isEqualTo("MORISON_LINA");
    assertThat(order.getModel().getModelId()).isEqualTo(JeepModel.WRANGLER);
    assertThat(order.getModel().getTrimLevel()).isEqualTo("Sport Altitude");
    assertThat(order.getModel().getNumDoors()).isEqualTo(4);
    assertThat(order.getColor().getColorId()).isEqualTo("EXT_NACHO");
    assertThat(order.getEngine().getEngineId()).isEqualTo("2_0_TURBO");
    assertThat(order.getTire().getTireId()).isEqualTo("35_TOYO");
    assertThat(order.getOptions()).hasSize(6);
}
```

- 3) In the controller sub-package in `src/main/java`, create an interface named `JeepOrderController`. Add `@RequestMapping("/orders")` as a class-level annotation.
 - a) Create a method in the interface to create an order (`createOrder`). It should return an object of type `Order` (see below). It should accept a single parameter of type `OrderRequest` as described in the video. Make sure it accepts an HTTP POST request and returns a status code of 201 (created).
 - b) Add the `@RequestBody` annotation to the `orderRequest` parameter. Make sure to add the `RequestBody` annotation from the `org.springframework.web.bind.annotation` package.
 - c) Produce a screenshot of the finished `JeepOrderController` interface showing no compile errors. 
- 4) Create a class that implements `JeepOrderController` named `DefaultJeepOrderController`.
 - a) Add `@RestController` as a class-level annotation.
 - b) Add a log line to the implementing controller method showing the input request body (`orderRequest`)
 - c) Run the test to show a red status bar. Produce a screenshot that shows the test method, the log line, and the red JUnit status bar. 

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment



```
1 package com.promineotech.jeepp.controller;
2
3 import org.springframework.beans.factory.annotation.Autowired;
4
5 @RestController
6 @Slf4j
7 public class DefaultJeepOrderController implements JeepOrderController {
8
9     @Autowired
10     private JeepOrderService jeepOrderService;
11
12     @Override
13     public Order createOrder(OrderRequest orderRequest) {
14         log.debug("Order={}", orderRequest);
15         return jeepOrderService.createOrder(orderRequest);
16     }
17 }
18
19
20
21
22
23
24
25
26
```


```
<terminated> CreateOrderTest [JUnit] C:\Users\cmrapp\Downloads\sts-4.16.1.RELEASE\plugins\org.eclipse.jst.j2ee.runtime.hotspot.jre.full.win32.x86_64.17.0.4.v20211004-1257\jre\bin\java.exe (Jan 10, 2023, 5:42:51 AM - 5:42:56 AM) [pid: 8692]
05:42:52.3520 [main] INFO org.springframework.boot.test.context.SpringBootTestContextBootstrapper - Loaded default TestExecutionListener class names from location [META-INF:
05:42:52.334 [main] INFO org.springframework.boot.test.context.SpringBootTestContextBootstrapper - Using TestExecutionListeners: [org.springframework.test.context.web.S
05:42:52.338 [main] DEBUG org.springframework.test.context.support.AbstractDirtiesContextTestExecutionListener - Before test class: context [DefaultTestContext@20a8a64e
05:42:52.347 [main] DEBUG org.springframework.test.context.support.DependencyInjectionTestExecutionListener - Performing dependency injection for test context [[DefaultT
:: Spring Boot :: (v2.7.6)
2023-01-10 05:42:52.658 INFO 8692 --- [main] c.p.jeepp.controller.CreateOrderTest : Starting CreateOrderTest using Java 17.0.4.1 on CHRISTIAN-NEW-PC with
2023-01-10 05:42:52.659 DEBUG 8692 --- [main] c.p.jeepp.controller.CreateOrderTest : Running with Spring Boot v2.7.6, Spring v5.3.24
2023-01-10 05:42:52.659 INFO 8692 --- [main] c.p.jeepp.controller.CreateOrderTest : The following 1 profile is active: "test"
2023-01-10 05:42:55.182 INFO 8692 --- [main] c.p.jeepp.controller.CreateOrderTest : Started CreateOrderTest in 2.814 seconds (JVM running for 3.667)
2023-01-10 05:42:56.165 DEBUG 8692 --- [o-auto-1-exec-1] c.p.j.c.DefaultJeepOrderController : Order=OrderRequest(customer=MORISON_LINA, model=WRANGLER, trim=Sport
```

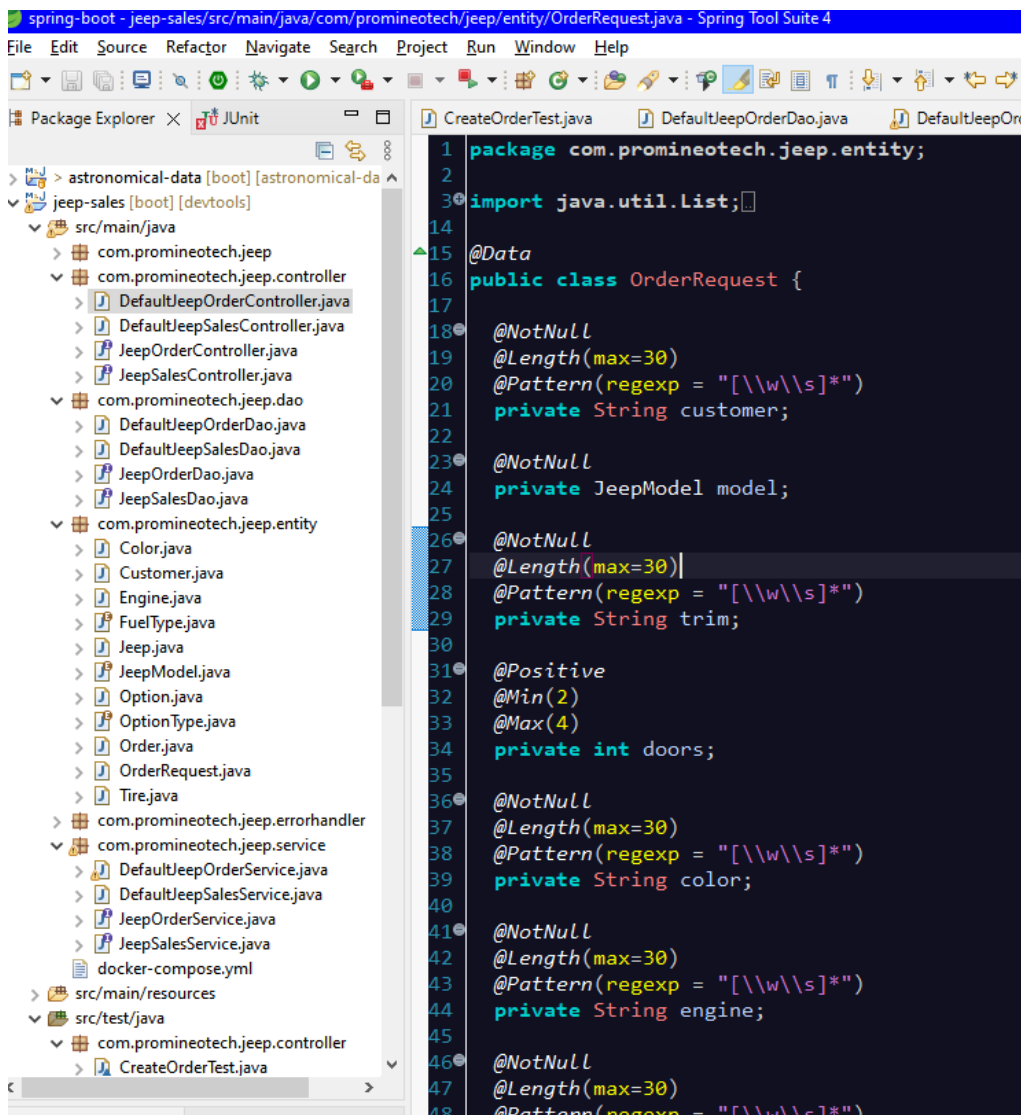
- 5) Find the Maven dependency `spring-boot-starter-validation` by looking it up at <https://mvnrepository.com/>. Add this repository to the project POM file (pom.xml).
- 6) Add the class-level annotation `@Validated` to the `JeepOrderController` interface.
- 7) Add Bean Validation annotations to the `OrderRequest` class as shown in the video.
 - a) Use these annotations for String types:
 - i) `@NotNull`
 - ii) `@Length(max = 30)`
 - iii) `@Pattern(regexp = "[\\w\\s]*")`
 - b) Use these annotations for integer types:
 - i) `@Positive`
 - ii) `@Min(2)`
 - iii) `@Max(4)`
 - c) Add `@NotNull` to the enum type.
 - d) Add validation to the list element (type String) by adding the validation annotations *inside* the generic definition. So, to add the String validation to the options, you would do this:

```
private List<@NotNull @Length(max = 30) @Pattern(regexp = "[\\w\\s]*") String> options;
```

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment

Do not apply a `@NotNull` annotation to the `List` because if you have no options the `List` may be null.

e) Produce a screenshot of this class with the annotations. 



The screenshot shows the Spring Tool Suite 4 IDE. On the left, the Package Explorer displays the project structure: `astronomical-data` (boot), `jeep-sales` (boot) (devtools), and `src/main/java`. Under `src/main/java`, the `com.promineotech.jeeep` package is expanded, showing sub-packages like `controller`, `dao`, and `entity`. The `entity` package is selected, and the `OrderRequest.java` file is highlighted. On the right, the source code of `OrderRequest.java` is displayed. The code defines a `public class OrderRequest` with several private fields: `customer`, `model`, `trim`, `doors`, `color`, `engine`, and `options`. Each field is annotated with `@Data`, `@NotNull`, `@Length(max=30)`, and `@Pattern(regexp = "[\\w\\s]*")`. The `doors` field is also annotated with `@Positive`, `@Min(2)`, and `@Max(4)`.

```
1 package com.promineotech.jeeep.entity;
2
3 import java.util.List;
4
5
6
7
8
9
10
11
12
13
14 @Data
15 public class OrderRequest {
16
17     @NotNull
18     @Length(max=30)
19     @Pattern(regexp = "[\\w\\s]*")
20     private String customer;
21
22
23     @NotNull
24     private JeepModel model;
25
26     @NotNull
27     @Length(max=30)
28     @Pattern(regexp = "[\\w\\s]*")
29     private String trim;
30
31     @Positive
32     @Min(2)
33     @Max(4)
34     private int doors;
35
36     @NotNull
37     @Length(max=30)
38     @Pattern(regexp = "[\\w\\s]*")
39     private String color;
40
41     @NotNull
42     @Length(max=30)
43     @Pattern(regexp = "[\\w\\s]*")
44     private String engine;
45
46     @NotNull
47     @Length(max=30)
48     @Pattern(regexp = "[\\w\\s]*")
```

8) In the `jeep.service` sub-package, create the empty (no methods yet) order service interface (named `JeepOrderService`) and implementation (named `DefaultJeepOrderService`).

- Inject the interface into the order controller implementation class.
- Add the `@Service` annotation to the service implementation class.
- Create the `createOrder` method in the interface and implementing service. The method signature should look like this:

```
Order createOrder(OrderRequest orderRequest);
```

- Call the `createOrder` method from the controller and return the value returned by the service.
- Add a log line in the `createOrder` method and log the `orderRequest` parameter.

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment

- f) Run the test `CreateOrderTest` again. Produce a screenshot showing that the service layer `createOrder` method correctly prints the log line in the console. (e.g. prints out the `OrderRequest` in the console from within the Service Layer).

The screenshot shows an IDE with the following components:

- Package Explorer:** Shows the project structure with a test run for `CreateOrderTest` (JUnit 5) at 1.178s. The test `testCreateOrderReturnsSuccess201()` failed.
- Failure Trace:** Shows an `org.opentest4j.AssertionFailedError` with the message: "expected: 201 CREATED but was: 500 INTERNAL_SERVER_ERROR". The stack trace points to `at java.base/java.lang.reflect.Constructor.newInstance` and `at com.promineotech.jeepp.controller.CreateOrderTest`.
- Source Code:** The `DefaultJeepOrderService` class is shown, implementing `JeepOrderService`. It has a `@Service` annotation and a `@Transactional` annotation. The `createOrder` method is overridden and calls `jeepOrderDao.fetchCustomer` and `jeepOrderDao.fetchModel`.
- Console:** Shows the output of the test run. It starts with "Starting CreateOrderTest using Java 17.0.4.1 on CHRISTIAN-NEW-PC with PID 20548". It then shows "Running with Spring Boot v2.7.6, Spring v5.3.24". The following profile is active: "test". It then shows "Started CreateOrderTest in 3.113 seconds (JVM running for 4.157)". Finally, it shows an exception: "Orders=OrderRequest(customer=MORISON_LINA, model=WRANGLER, trim=Sport Altitude, do".

- 9) In the `jeep.dao` sub-package, create the empty (no methods yet) DAO interface (named `JeepOrderDao`) and implementation (named `DefaultJeepOrderDao`).
- Inject the DAO interface into the order service implementation class.
 - Add the `@Component` annotation to the DAO implementation class.
- 10) Replace the entire content of `JeepOrderDao.java` with the source found in `JeepOrderDao.source`. The source file is found in the Source folder of the supplied project resources.
- 11) *** The next steps require you to copy source code from the Source directory in the supplied resources. Please follow the instructions EXACTLY. Some steps require you to replace ALL the source in a file. Some steps require you to ADD source to a file.
- 12) Copy the contents of the file `DefaultJeepOrderDao.source` into `DefaultJeepOrderDao.java`. The source file is found in the Source folder of the supplied project resources.

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment

In Eclipse, click the "Source" menu and select "Organize Imports". Pick packages from your project where applicable. Make sure you pick the import `java.util.Optional`, `java.util.List`, and `org.springframework.jdbc.core.RowMapper`.

- 13) Copy the *contents* of the file `DefaultJeepOrderService.source` into `DefaultJeepOrderService.java`. Add the source after the `createOrder()` method, but *inside* the class body. The source file is found in the Source folder of the supplied project resources.

In Eclipse, click the "Source" menu and select "Organize Imports". Pick packages from your project where applicable.

- 14) In `DefaultJeepOrderService.java`, work with the method `createOrder`.

- Add the `@Transactional` annotation to the `createOrder` method.
- In the `createOrder` method call the copied methods: `getCustomer`, `getModel`, `getColor`, `getEngine`, `getTire` and `getOption`, assigning the return values of these methods to variables of the appropriate types.
- Calculate the price, including all options.

- 15) In `JeepOrderDao.java` and `DefaultJeepOrderDao.java`, add the method:

Order `saveOrder(Customer customer, Jeep jeep, Color color, Engine engine, Tire tire, BigDecimal price, List<Option> options);`

- Call the `jeepOrder.Dao.saveOrder` method from the `jeepOrderSalesService.createOrder` service. Produce a screenshot of the `jeepOrderSalesService.createOrder` method. 🖼️



The screenshot shows the Eclipse IDE with the project structure on the left and the code editor on the right. The project structure includes the following packages and files:

- `astronomical-data` [boot] [astronomical-da]
- `jeep-sales` [boot] [devtools]
 - `src/main/java`
 - `com.promineotech.jeep`
 - `com.promineotech.jeep.controller`
 - `DefaultJeepOrderController.java`
 - `DefaultJeepSalesController.java`
 - `JeepOrderController.java`
 - `JeepSalesController.java`
 - `com.promineotech.jeep.dao`
 - `DefaultJeepOrderDao.java`
 - `DefaultJeepSalesDao.java`
 - `JeepOrderDao.java`
 - `JeepSalesDao.java`
 - `com.promineotech.jeep.entity`
 - `Color.java`
 - `Customer.java`
 - `Engine.java`
 - `FuelType.java`
 - `Jeep.java`
 - `JeepModel.java`
 - `Option.java`
 - `OptionType.java`
 - `Order.java`
 - `OrderRequest.java`
 - `Tire.java`

The code editor shows the implementation of the `createOrder` method in `DefaultJeepOrderService.java`:

```
23
24 @Autowired
25 private JeepOrderDao jeepOrderDao;
26
27 @Transactional
28 @Override
29 public Order createOrder(OrderRequest orderRequest) {
30     Customer customer = getCustomer(orderRequest);
31     Jeep jeep = getModel(orderRequest);
32     Color color = getColor(orderRequest);
33     Engine engine = getEngine(orderRequest);
34     Tire tire = getTire(orderRequest);
35
36     List<Option> options = getOption(orderRequest);
37
38     BigDecimal price =
39         jeep.getBasePrice().add(color.getPrice())
40         .add(engine.getPrice()).add(tire.getPrice());
41
42     for(Option option : options) {
43         price = price.add(option.getPrice());
44     }
45
46     return jeepOrderDao.saveOrder(customer, jeep, color, engine, tire, price, options);
47 }
48
```

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment

b) Write the implementation of the saveOrder method in the DAO.

- i) Call the supplied generateInsertSql method, passing in the customer, jeep, color, engine, tire and price. Assign the return value of the method to a SqlParameter object.
- ii) Call the update method on the NamedParameterJdbcTemplate object, passing in a KeyHolder object as shown in the video. Create the KeyHolder like this:

```
KeyHolder keyHolder = new GeneratedKeyHolder();
```


Be sure to extract the order primary key from the KeyHolder object into a variable of type Long named orderPK.

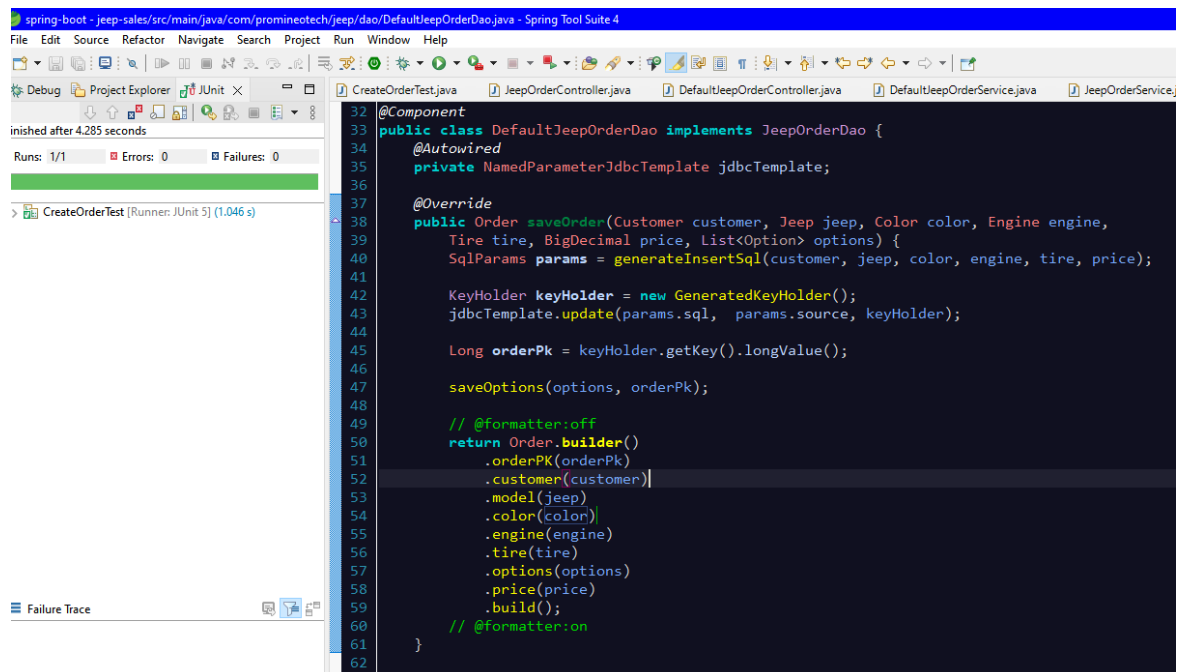
- iii) Write a method named saveOptions as shown in the video. This method should have the following method signature:

```
private void saveOptions(List<Option> options, Long orderPK)
```

For each option in the Options list, call the supplied generateInsertSql method passing the parameters option and order primary key (orderPK). Call the update method on the NamedParameterJdbcTemplate object.

- iv) In the saveOrder method in the DAO implementation, return an Order object using the Order.builder. The Order should include orderPK, customer, jeep (model), color, engine, tire, options and price.

Produce a screenshot of the saveOrder method. 



```
spring-boot - jeep-sales/src/main/java/com/promineotech/jeep/dao/DefaultJeepOrderDao.java - Spring Tool Suite 4
File Edit Source Refactor Navigate Search Project Run Window Help
Debug Project Explorer JUnit X
finished after 4.285 seconds
Runs: 1/1 Errors: 0 Failures: 0
CreateOrderTest [Runner: JUnit 5] (1.046 s)

32 @Component
33 public class DefaultJeepOrderDao implements JeepOrderDao {
34     @Autowired
35     private NamedParameterJdbcTemplate jdbcTemplate;
36
37     @Override
38     public Order saveOrder(Customer customer, Jeep jeep, Color color, Engine engine,
39         Tire tire, BigDecimal price, List<Option> options) {
40         SqlParameter params = generateInsertSql(customer, jeep, color, engine, tire, price);
41
42         KeyHolder keyHolder = new GeneratedKeyHolder();
43         jdbcTemplate.update(params.sql, params.source, keyHolder);
44
45         Long orderPk = keyHolder.getKey().longValue();
46
47         saveOptions(options, orderPk);
48
49         // @formatter:off
50         return Order.builder()
51             .orderPk(orderPk)
52             .customer(customer)
53             .model(jeep)
54             .color(color)
55             .engine(engine)
56             .tire(tire)
57             .options(options)
58             .price(price)
59             .build();
60         // @formatter:on
61     }
62
63     /**
```

CMRapp - Web API Design with Spring Boot Week 16 Coding Assignment

- c) Run the integration test in CreateOrderTest. Produce a screenshot of the test method that shows the green JUnit status bar, the console output, and the test class. 