Practice Lab on Spring boot

Instructions

5 assignments given on Spring Boot Core, Spring boot Data JPA, Spring Boot Web MVC and Spring Boot Rest API

Database Information

Recommended to use MYSQL database for this assignment. But If you feel like to use any other databases like Mongo, H2DB, still you can use.
MYSQL DB file location :
https://github.com/richardsforu/ADM-Springboot-B1/blob/master/Assignment/tables/Airline-db.sql

Spring boot 2x

> boot core

> boot data

> boot data jpa

> boot web mvc

> boot restful web services

Assignment 1: On Spring Boot **Core and DATAJPA**

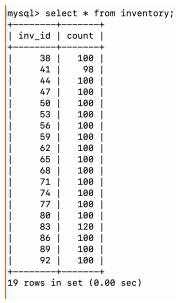
Understand the below table structure and create java class mappings with Spring boot Data JPA module

```
mysql> select * from airline_info;
+------------+--------------+------------------+
| airline_id | airline_logo | name_of_airline  |
+------------+--------------+------------------+
|          1 | airindia.png | Air India        |
|          6 | indigo.png   | Indigo           |
|         11 | air-asia.png | Air Asia         |
|         16 | spicejet.png | Spicejet         |
|         21 | vistara.png  | Vistara          |
|         26 | truejet.png  | Trujet           |
|         31 | goair.png    | GoAir            |
+------------+--------------+------------------+
7 rows in set (0.01 sec)
```

```
mysql> select * from flight_info;
+--------------+---------------+-------------+----------------+
| flight_infoid | flight_number | flight_type | numberof_seats |
+--------------+---------------+-------------+----------------+
|            2 | AI-840        | Airbus      |            150 |
|            3 | AI-850        | Airbus      |            150 |
|            4 | AI-860        | Airbus      |            150 |
|            5 | AI-870        | Airbus      |            150 |
|            7 | 6E-6684       | Airbus      |            150 |
|            8 | 6E-6685       | Airbus      |            150 |
|            9 | 6E-6686       | Airbus      |            150 |
|           10 | 6E-6687       | Airbus      |            150 |
|           12 | I5-755        | Airbus      |            150 |
|           13 | I5-756        | Airbus      |            150 |
|           14 | I5-757        | Airbus      |            150 |
|           15 | I5-758        | Airbus      |            150 |
|           17 | SG-432        | Airbus      |            150 |
|           18 | SG-433        | Airbus      |            150 |
|           19 | SG-434        | Airbus      |            150 |
|           20 | SG-435        | Airbus      |            150 |
|           22 | UK-830        | Airbus      |            150 |
|           23 | UK-831        | Airbus      |            150 |
|           24 | UK-832        | Airbus      |            150 |
|           25 | UK-833        | Airbus      |            150 |
|           27 | 2T-518        | Airbus      |            150 |
|           28 | 2T-519        | Airbus      |            150 |
|           29 | 2T-520        | Airbus      |            150 |
|           30 | 2T-521        | Airbus      |            150 |
|           32 | G8-424        | Airbus      |            150 |
|           33 | G8-425        | Airbus      |            150 |
|           34 | G8-426        | Airbus      |            150 |
|           35 | G8-427        | Airbus      |            150 |
+--------------+---------------+-------------+----------------+
28 rows in set (0.01 sec)
```

```
mysql> select * from flights_info;
+------------+---------------+
| airline_id | flight_infoid |
+------------+---------------+
|          1 |             2 |
|          1 |             3 |
|          1 |             4 |
|          1 |             5 |
|          6 |             7 |
|          6 |             8 |
|          6 |             9 |
|          6 |            10 |
|         11 |            12 |
|         11 |            13 |
|         11 |            14 |
|         11 |            15 |
|         16 |            17 |
|         16 |            18 |
|         16 |            19 |
|         16 |            20 |
|         21 |            22 |
|         21 |            23 |
|         21 |            24 |
|         21 |            25 |
|         26 |            27 |
|         26 |            28 |
|         26 |            29 |
|         26 |            30 |
|         31 |            32 |
|         31 |            33 |
|         31 |            34 |
|         31 |            35 |
+------------+---------------+
28 rows in set (0.00 sec)
```

```
mysql> select * from fare;
+---------+----------+--------+
| fare_id | currency | fare   |
+---------+----------+--------+
|      37 | INR      |   4500 |
|      40 | INR      |   3500 |
|      43 | INR      |   5000 |
|      46 | INR      |   2546 |
|      49 | INR      |   7500 |
|      52 | INR      |  10000 |
|      55 | INR      |   7438 |
|      58 | INR      |   8743 |
|      61 | INR      |   1955 |
|      64 | INR      |   2500 |
|      67 | INR      |   4943 |
|      70 | INR      |   4943 |
|      73 | INR      |   4500 |
|      76 | INR      |   6200 |
|      79 | INR      |   5000 |
|      82 | INR      |   1200 |
|      85 | INR      |   1389 |
|      88 | INR      |  11000 |
|      91 | INR      |  15000 |
+---------+----------+--------+
19 rows in set (0.00 sec)
```



```
mysql> select * from inventory;
+--------+-------+
| inv_id | count |
+--------+-------+
|     38 |   100 |
|     41 |    98 |
|     44 |   100 |
|     47 |   100 |
|     50 |   100 |
|     53 |   100 |
|     56 |   100 |
|     59 |   100 |
|     62 |   100 |
|     65 |   100 |
|     68 |   100 |
|     71 |   100 |
|     74 |   100 |
|     77 |   100 |
|     80 |   100 |
|     83 |   120 |
|     86 |   100 |
|     89 |   100 |
|     92 |   100 |
+--------+-------+
19 rows in set (0.00 sec)
```

```
mysql> select * from flight;
+----+-------------+---------------+-------------+---------------+-------------+-----------+---------+---------------+--------+
| id | destination | duration      | flight_date | flight_number | flight_time | origin    | fare_id | flight_infoid | inv_id |
+----+-------------+---------------+-------------+---------------+-------------+-----------+---------+---------------+--------+
| 36 | CHENNAI     | 2 hrs 15 mins | 2020-08-21  | AI-840        | 02:12:00    | DELHI     |      37 |             2 |     38 |
| 39 | HYDERABAD   | 2 hrs 45 mins | 2020-08-21  | AI-850        | 01:15:00    | DELHI     |      40 |             3 |     41 |
| 42 | MUMBAI      | 2 hrs 50 mins | 2020-08-21  | AI-860        | 02:30:00    | CHENNAI   |      43 |             4 |     44 |
| 45 | HYDERABAD   | 1 hrs 45 mins | 2020-08-21  | AI-870        | 02:45:00    | PUNE      |      46 |             5 |     47 |
| 48 | PORTBLAIR   | 3 hrs 00 mins | 2020-08-21  | 6E-6684       | 03:00:00    | CHENNAI   |      49 |             7 |     50 |
| 51 | DELHI       | 3 hrs 15 mins | 2020-08-21  | 6E-6685       | 03:15:00    | BENGULURU |      52 |             8 |     53 |
| 54 | PUNE        | 4 hrs 07 mins | 2020-08-21  | 6E-6686       | 03:15:00    | DELHI     |      55 |             9 |     56 |
| 57 | MANGALORE   | 3 hrs 30 mins | 2020-08-21  | 6E-6687       | 03:15:00    | HYDERABAD |      58 |            10 |     59 |
| 60 | AHMADABAD   | 6 hrs 00 mins | 2020-08-21  | I5-755        | 04:30:00    | MUMBAI    |      61 |            12 |     62 |
| 63 | KOLKATA     | 3 hrs 15 mins | 2020-08-21  | I5-756        | 04:45:00    | HYDERABAD |      64 |            13 |     65 |
| 66 | DELHI       | 1 hrs 00 mins | 2020-08-21  | I5-757        | 07:45:00    | KOLKATA   |      67 |            14 |     68 |
| 69 | MUMBAI      | 1 hrs 00 mins | 2020-08-21  | SG-434        | 11:45:00    | DELHI     |      70 |            19 |     71 |
| 72 | CHENNAI     | 2 hrs 15 mins | 2020-08-21  | SG-435        | 02:45:00    | DELHI     |      73 |            20 |     74 |
| 75 | CHENNAI     | 2 hrs 15 mins | 2020-08-21  | UK-830        | 10:15:00    | DELHI     |      76 |            22 |     77 |
| 78 | CHENNAI     | 2 hrs 15 mins | 2020-08-21  | UK-831        | 11:30:00    | DELHI     |      79 |            23 |     80 |
| 81 | CHENNAI     | 2 hrs 15 mins | 2020-08-21  | UK-832        | 11:55:00    | DELHI     |      82 |            24 |     83 |
| 84 | CHENNAI     | 2 hrs 15 mins | 2020-08-21  | UK-833        | 11:55:00    | DELHI     |      85 |            25 |     86 |
| 87 | CHENNAI     | 2 hrs 15 mins | 2020-08-21  | 2T-518        | 10:15:00    | DELHI     |      88 |            27 |     89 |
| 90 | CHENNAI     | 2 hrs 15 mins | 2020-08-21  | 2T-519        | 19:35:00    | DELHI     |      91 |            28 |     92 |
+----+-------------+---------------+-------------+---------------+-------------+-----------+---------+---------------+--------+
19 rows in set (0.00 sec)
```

```
mysql> select * from booking_record;
+------------+---------------------+-------------+------+-------------+---------------+-------------+--------+-----------+
| booking_id | booking_date        | destination | fare | flight_date | flight_number | flight_time | origin | status    |
+------------+---------------------+-------------+------+-------------+---------------+-------------+--------+-----------+
|         93 | 2020-07-14 10:44:19 | HYDERABAD   | 3500 | 2020-08-21  | AI-850        | 01:15:00    | DELHI  | Confirmed |
+------------+---------------------+-------------+------+-------------+---------------+-------------+--------+-----------+
1 row in set (0.01 sec)
```

```
mysql> select * from passenger;
+--------------+-----------------+------------+--------+-----------+---------------+------------+
| passenger_id | email_address   | first_name | gender | last_name | mobile_number | booking_id |
+--------------+-----------------+------------+--------+-----------+---------------+------------+
|           94 | praveen@abc.com | Praveen    | Male   | Reddy     |    1212121212 |         93 |
|           95 | james@abc.com   | James      | Male   | Goedic    |    3243654321 |         93 |
+--------------+-----------------+------------+--------+-----------+---------------+------------+
2 rows in set (0.00 sec)
```

```
mysql> select * from booking_details;
+------------+--------------+
| booking_id | passenger_id |
+------------+--------------+
|         93 |           94 |
|         93 |           95 |
+------------+--------------+
2 rows in set (0.01 sec)
```

Now with Spring boot data JPA with MySQL or any database create mapping classes as per given from above tables.

MySQL database file location https://github.com/richardsforu/ADM-Springboot-B1/blob/master/Assignment/tables/Airline-db.sql

Assignment 2: On Spring Boot **DATA JPA**

1. Write a class to retrieve all Indigo flight trips of August 21st 2020
2. Write a class to find all the flights leaving from Delhi on 21st of August 2020.
3. Write a class to search for flights flying between Delhi to Chennai on 21st August 2020 by flight fare low to high
    a. ***Note: find all flights with combination of origin, destination, flightDate. Provide number of passengers. Do not display flights if Flight inventory is less than number of passengers provided or Flight inventory is 0 (means flight full)***
4. Write a class to search for flights with combination of flight number and origin and destination
5. Write a class to search for a single flight with combination of flight number and flight date and flight time. (***make sure only single flight is displaying for this criteria***)
6. Schedule ***6 additional flights*** from Pune to Chennai on August 22nd with different times on the same day. (schedule any flight as per your desire). Make sure flight number must not repeat on the same day for same origin and destination. Also make sure that same flight number must not be scheduled on the same day from any origin and destination.
7. Write a class to book a flight for 2 passengers from Delhi to Hyderabad on 21st August for 01:15 AM, and update inventory accordingly. Please refer table data of Passenger and booking_record,booking_details for your reference
8. Write a class to add 4 more flights from Delhi to Pune on 21st August for your desired timings. Make sure you are adding 1 Indigo, 1 Air Asia, 1 Vistara and 1 Air India flight.
9. Write a class to Update Indigo flight which is schedule on 21st August 2020 3:15 AM from Delhi to Pune, and re-reschedule it to 22nd August 2020 6:30 PM for the flight number ***6E-6686***

Assignment 3: On Spring Boot **Web-MVC with DATA JPA**

1. Create a login form to allow passenger to login to portal. Allow passenger to register himself in case if passenger is not registered already. Create login form with username and password fields and Registration form with passenger first name, last name, mobile number, gender, user name and password.
    a. ***Please note any passenger can search for flights. But only registered passenger can make bookings.***
    b. ***Make sure Single passenger cannot book more than 4 tickets at a time.***
2. Create a Flight search form with following mandatory text fields
    a. Origin
    b. Destination
    c. Date of flying (do not include time. Make sure passenger should able to select date only)
    d. Submit button with **SEARCH** label

3. Once passenger clicks on **SEARCH** button from above search form, then display all scheduled flights in a table format and make sure generate **BOOK** button for each flight listed in the table.

Assignment 4: On Spring Boot **Web-MVC with DATA JPA**

1. Once passenger clicks on **BOOK** button from above table, then display Passenger Information form to accept booking with following fields.
    a. First name
    b. Last name
    c. Gender
    d. Mobile number

2. Once Passenger provides above mentioned info and allow passenger to complete booking. Once the booking is completed, then add booking information in the booking_record table.
3. For the successful booking of a passenger, can able to check in using link provided in the home page. once passenger clicks on check in link, ask booking id , then assign a seat in the flight and display the information of check in in a table format.

Assignment 5: On Spring Boot **REST API with DATA JPA**

1. Create a Restful controller to add following mapping operations. So that Passenger can consume desired service.
    a. Login / validate User
    b. Search (able to find by airport city, date, flight number, origin, destination or any combination of specified depends on usage)
    c. Booking
    d. Checkin
2. Provide all possible GET, POST, PUT, DELETE mappings in the controller to control entire application.
3. You should generate JSON and XML response data. So that client may accept any one response type from the Service.
4. Test POST, PUT and DELETE request mappings from post man or any REST mock testing app.
5. Test GET request mapping from chrome browser.
6. Make sure you are generating JSON response to display Dashboard information which contains all flight information, airline information, airport information etc.
7. Generate JSON response of flights for the criteria given by the client.
8. Generate JSON response to allow any client to Book filtered flight