TECHNOLOGY

API Endpoints and Communication

Phase-End Project

Objectives

Build an application to handle bookings and passenger profile data for a travel company using microservices and API frameworks

Prerequisites

- JUnit
- Spring
- Spring Boot
- Web Services
- Microservices

Problem Statement and Motivation

Problem Statement:

This assignment is designed to help you understand how to plan and develop the back end for a given problem, gain hands-on experience in designing the microservice architecture for the project, and perform unit testing for the code.

Real-World Scenario:

George owns a travel company where he books cabs for his customers. To manage these bookings, he needs travel management software. He meets Kia, who runs a Software Solution Company and tells her the requirement.

Kia aims to develop the project using Spring and the Spring Boot Framework. She must create microservices to provide a solution using a REST architecture and perform unit testing for various web methods.

Industry Relevance

Skills used in the project and their usage in the industry are given below:

JUnit:

It is a popular functional testing tool for Java applications.

Spring and Spring Boot:

These are the most popular and commonly used Java frameworks that help in class mapping, frontend-to-backend object conversion, and data transfer.

Web Services and Microservices:

They attempt to address a single concern, such as a data search, logging function, or web service function. They help implement distributed computing in code.

Task (Activities)

1. Create a Spring Boot application in Eclipse EE
2. Configure Spring web dependency in the project
3. Develop HTML web pages for cab booking
4. Create a controller with annotations from Spring
5. Create a Microservice to book the cab
6. Create a Microservice to calculate the fare for the cab
7. Write unit test cases to test the Microservices
8. Build, run, and test the project on Postman
9. Test the project with front-end web pages
10. Create an executable jar file using the Maven wrapper

Project Reference

Tasks 1 and 2:

Spring Boot: Lesson 1

Task 3:

Course 1: HTML

Task 4:

Spring: Lesson 3

Tasks 5 and 6:

Spring Boot: Lesson 3

Task 7:

Junit: Lesson 1

Task 8:

Spring Boot: Lesson 2

Submission Process

You will have to submit the project in one week.

It is recommended to work in the integrated labs, as they have all the required tools available.

The project can be submitted from the assessment tab by clicking the **Submit** button.

Provide the documents mentioned below:

- Source Code in zip
- Database scripts to replicate your database settings
- Screenshots of the outputs

Reference Outputs

book-cab.html

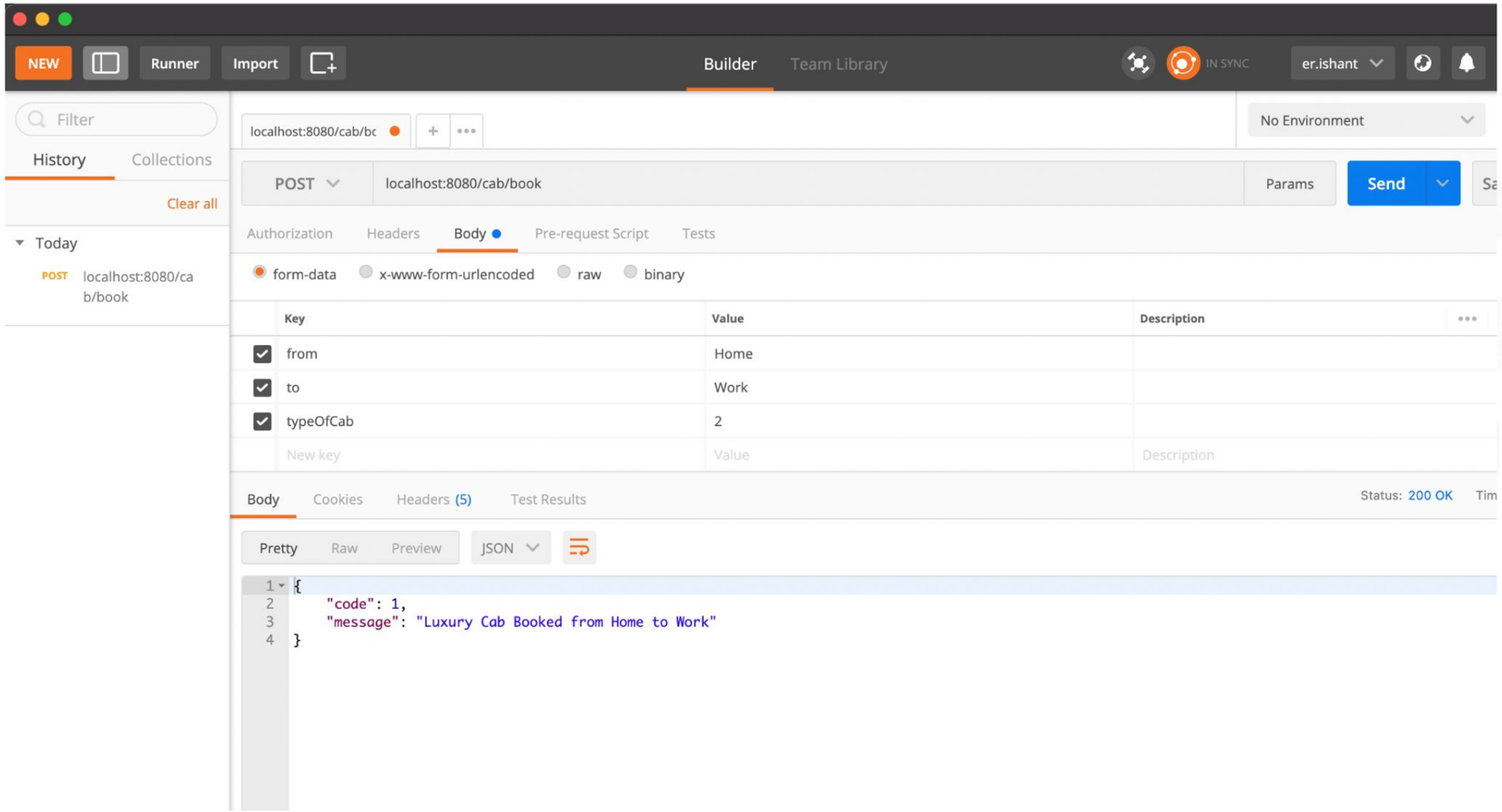
```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Book Cab</title>
<style>
.center {
  margin: auto;
  width: 60%;
  border: 3px solid #FFA500;
  padding: 10px;
}
</style>
</head>
<body>
<div class="center">
<h3>Book A Cab</h3>
<form action="/cab/book" method="post">
  <label for="from">From Location:</label><br>
  <input type="text" id="from" name="from" placeholder="Home"><br>
  <label for="to">To Location:</label><br>
  <input type="text" id="to" name="to" placeholder="Work"><br><br>
  <label for="typeOfCab">Type of Cab:</label><br>
  <input type="text" id="typeOfCab" name="typeOfCab" placeholder="2"><br><br>
  <input type="submit" value="Submit">
</form>
</div>
</body>
</html>
```

Reference Outputs

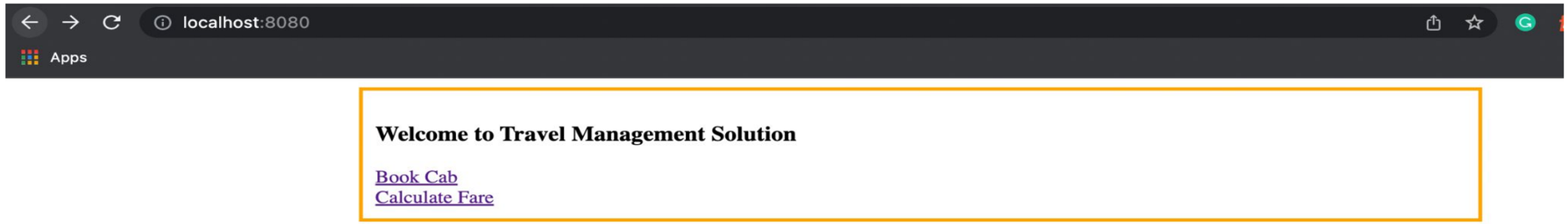
SpringBootAssignmentSolutionApplicationTests.java

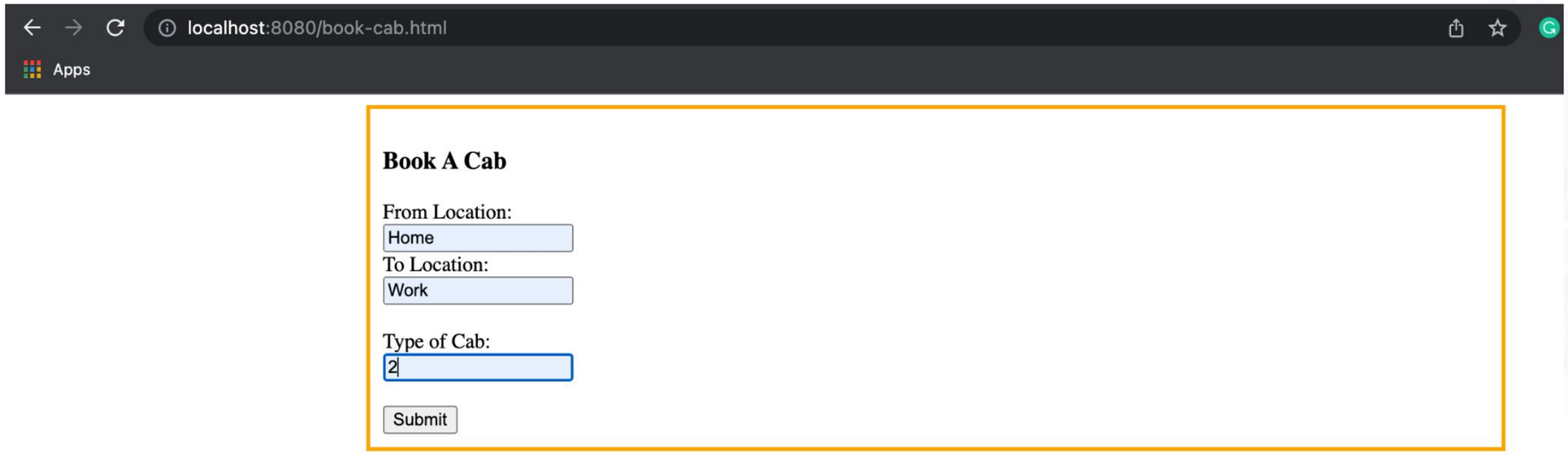
```java
package com.travel.george;

import static org.assertj.core.api.Assertions.assertThat;

import org.junit.jupiter.api.Test;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.boot.test.context.SpringBootTest;

import com.travel.george.controller.CabBookingController;

@SpringBootTest
class SpringBootAssignmentSolutionApplicationTests {

    @Autowired
    private CabBookingController controller;

    @Test
    public void contextLoads() throws Exception {
        assertThat(controller).isNotNull();
    }

}

```

Reference Outputs



Reference Outputs





TECHNOLOGY

Thank You

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