Full Stack Java Phase 4 Project: Travel Booking Cab Deployment

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Project Name: Java FSD Phase 4 Travel Booking Cab Deployment Project

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Problem Statement

George owns a travel company where he books cabs for customers. To streamline this process, George needs travel management software. He approaches Kia, who runs a Software Solution Company, and explains the requirements. Kia plans to develop the project using Spring and the Spring Boot Framework. She will create microservices with a REST architecture and ensure proper unit testing of various web methods.

Project Lifecycle

Methodology: Agile

Sprint 1: Analysis and Requirements (2 Weeks)

User Stories

1. User Registration

- **Title:** Register
- **As a:** New User
- **I want:** To register an account
- **So that:** I can access the Travel Application

2. User Login

- **Title:** Login

- **As a:** Existing User
- **I want:** To log into my account
- **So that:** I can book a cab

3. Booking a Cab

- **Title:** Cab Booking
- **As a:** User
- **I want:** To book a cab for a specific location
- **So that:** I can travel to my desired destination

4. Admin Login

- **Title:** Manage Portal
- **As a:** Admin
- **I want:** Access to an admin dashboard
- **So that:** I can create, update, retrieve, and delete data related to users, bookings, and cabs

Acceptance Criteria

1. User Registration

- **Given:** I am on the registration page
- **When:**
  - I enter "testuser" as the username
  - I enter "testuser@example.com" as the email
  - I enter "password123" as the password
  - I submit the registration form
- **Then:**
  - I should see a success message
  - I should be redirected to the login page

2. User Login

- **Given:** I am on the login page
- **When:**
  - I enter "testuser@example.com" as the email
  - I enter "password123" as the password
  - I submit the login form
- **Then:**

○　I should be redirected to the Cab Booking page

3. Admin Login

- **Given:** I am on the admin login page
- **When:**
    - I enter "admin" as the username
    - I enter "admin123" as the password
- **Then:**
    - I should be redirected to the admin dashboard
    - I should be able to add, delete, update, and view cabs, bookings, and user details

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Sprint 2: Development, Deployment, and Testing (2 Weeks)

Development

Tools Used:

- Spring Tool Suite
- Google Chrome
- Git & GitHub
- Tomcat Server
- AWS
- Docker
- Jenkins

Languages and Frameworks:

- HTML, CSS, JavaScript (Frontend)
- Java (Backend)
- MySQL (Database)
- Spring Boot, Spring Framework
- Angular

Tasks:

1. **Database Schema Design:**

    - Create tables for user registration, bookings, and cab details.

- ○ Hardcode admin credentials in the database.
2. **Frontend Development:**

   - ○ Develop a responsive registration form.
   - ○ Create pages for user login, cab booking, and the admin dashboard.
3. **Backend Development:**

   - ○ Implement microservices for:
     - ■ UserService
     - ■ CabService
     - ■ BookingService
     - ■ AdminService
   - ○ Establish validation rules for user input.
4. **Deployment:**

   - ○ Create an AWS instance and set up the environment.
   - ○ Install necessary tools: Maven, Git, Docker, Jenkins, and RDS.
   - ○ Create CI/CD pipelines using Jenkins to automate build and deployment.

Testing

- Conduct unit testing for all web methods.
- Validate successful user registration, login, booking, and admin functionalities.
- Perform integration testing for REST APIs to ensure smooth communication between microservices.
- Deploy and test the application on AWS.

Deliverables

1. Fully functional Travel Booking Cab Deployment application.
2. Comprehensive unit and integration test reports.
3. Properly documented CI/CD pipeline configurations.
4. Deployment of the application on AWS with a Dockerized environment.

End of Project Plan

Flow chart: