Database Configuration

I have used the in-memory database h2.

By default, Spring Boot configures the application to connect to an in-memory store with the username sa and an empty password. The in-memory database is volatile, and data will be lost when we restart the application.

Configuration in Application.properties file

```
spring.datasource.url=jdbc:h2:mem:bookingdb
spring.datasource.userName=sa
spring.datasource.password=
spring.datasource.driver-class-name=org.h2.Driver
spring.jpa.database-platform=org.hibernate.dialect.H2Dialect
spring.jpa.show-sql=true
spring.jpa.hibernate.ddl-auto=create
```

Eureka Configuration

For Eureka Clients (BookingService, PaymentService, API Gateway in application.yml file)

```
eureka:
  client:
    register-with-eureka: true
    fetch-registry: true
    service-url:
      defaultZone: http://localhost:8761/eureka/

  instance:
    hostname: localhost
```

Eureka Server (in application.yml file)

```
server:
  port: 8761

eureka:
  client:
    register-with-eureka: false
    fetch-registry: false
```

API Gateway Configuration

```
server:
  port: 9191

spring:
  application:
    name: API-GATEWAY
  cloud:
    gateway:
      routes:
        - id: BOOKING-SERVICE
          uri: lb://BOOKING-SERVICE
          predicates:
            - Path=/hotel/**

        - id: PAYMENT-SERVICE
          uri: lb://PAYMENT-SERVICE
          predicates:
            - Path=/payment/**

    discovery:
      enabled: true
```

Structure of Booking Service

Controller `@RequestMapping(value = "/hotel")`

```
Has the following dependencies
@Autowired
private BookingService bookingService;
```

This class has two methods for the two endpoints of Booking Service.

1. **bookingDetails** with `@PostMapping(value = "/booking")`
   invokes `bookingService.acceptBookingDetails(DTO)`
2. **bookingConfirmation** with `@PostMapping(value = "/booking/{id}/transaction")`
   invokes `bookingService.acceptPaymentDetails(DTO)`

The second Controller method handles the following two exceptions -

1. “Invalid mode of payment” : checks if payment mode = “UPI” || “CARD”, if true, only then invokes the bookingService. Otherwise sends back appropriate `ResponseEntity`
2. "Invalid Booking Id" : catches **`BookingIdNotPresentException`** thrown by `bookingService` and sends back appropriate `ResponseEntity`

BookingServiceImpl

```
Has the following dependencies
@Autowired
private BookingInfoDao bookingInfoDao;
```

```
@Autowired
private RestTemplate restTemplate;

@Value("${paymentService.url}") //in applications.properties
private String paymentServiceUrl;
```

This class contains the following two utility methods

1. **stringToLocalDate** : for converting `String` to `LocalDate`
2. **getRandomNumbers** : to generate room numbers based on count

This class contains the following two service methods

1. **acceptBookingDetails** takes fromDate, toDate, aadharNumber, numOfRooms from DTO. Calculates Room Price, Gets random room numbers from getRandomNumbers, sets bookedOn to now(), transactionId is set to 0 by default.

2. **acceptPaymentDetails** uses bookingInfoDao to find the `bookingInfoEntity` stored in the database. Throws `BookingIdNotPresentException` if not found. Uses `restTemplate` to call Payment Service through API Gateway. Sets the transactionId. Prints booking confirmation message on console.

DTO Classes

- Booking DTO : To map request body of endpoint 1

```
{
    "fromDate": "2021-06-20",
    "toDate": "2021-06-25",
    "aadharNumber": "Sample-Aadhar-Number",
    "numOfRooms": 3
}
```

- Payment DTO : To map request body of endpoint 2

```
{
    "paymentMode": "CARD",
    "bookingId": 1,
    "upiId": "",
    "cardNumber": "Card details"
}
```

- Exception DTO : To send back appropriate ResponseEntity in case of Exceptions

```
{
    "message": "Invalid Booking Id",
    "statusCode": 400
}
```

Structure of Payment Service

Controller `@RequestMapping(value = "/payment")`

```
Has the following dependencies
@Autowired
private PaymentService paymentService;
```

This class has two methods for the two endpoints of Payment Service.

1. **bookingDetails** with `@PostMapping(value = "/transaction")`
   invokes `paymentService.acceptPaymentDetails(DTO)`
2. **bookingConfirmation** with `@GetMapping(value = "/transaction/{id})`
   invokes `paymentService.getTransactionDetails(id)`

PaymentServiceImpl

```
Has the following dependencies -
@Autowired
private TransactionDetailsDao transactionDetailsDao;

@Autowired
ModelMapper modelMapper;
```

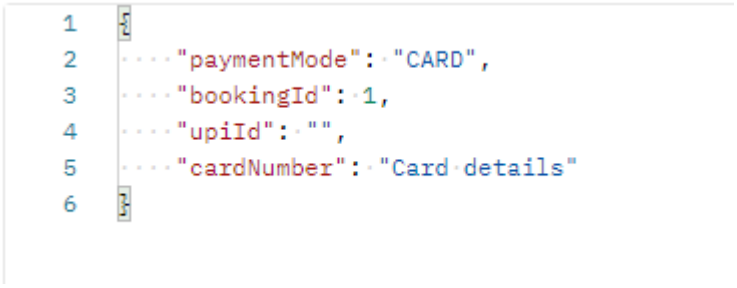
This class contains the following two service methods

1. **acceptPaymentDetails** uses DTO to create a new `transactionDetailsEntity` and saves it in the database using `transactionDetailsDao.`

2. **getTransactionDetails** uses `transactionDetailsDao` to find the `transactionDetailsEntity` and then converts it to `TransactionDTO` using `ModelMapper`

DTO Classes

- Payment DTO : To map request body of endpoint 1



(Does not contain Transaction Id)

- Transaction DTO : To send back appropriate ResponseEntity (endpoint 2)

```
{
    "id": 1,
    "paymentMode": "CARD",
    "bookingId": 1,
    "upiId": "",
    "cardNumber": "Card details"
}
```

(Contains Transaction Id)