Assignment Wk07 Web Services

Problem statement:-

Use micro-service architecture to write rest services for Order management and Shipment.

Requirement:

- 1) Write CRUD operations for Order Management
- 2) Write an end point in Order management service to place the order to shipment service.
- 3) Write rest assured test cases for Order Management service

Project Structure

Order Management



```
♣ ProductService

✓ ■ util

        exceptionUtil
            ApiException
            GlobalExceptionHandler
        responseUtil
            ApiResponse

▼ lip resources

      static
     e templates
       OrderManagementApplicationTests
.gitignore
M# HE
```

Shipment

```
✓ 

✓ src

    ✓ □ main

→ □ com.ayushsingh.shipment

▼ Im constants

              AppConstants

▼ Controller

              ShipmentController

✓ □ dto

    ShipmentCreateDto

                ShipmentDetailsDto

▼ □ entity

                Shipment

▼ repository

             ♣ ShipmentRepository

	✓ □ service

✓ □ serviceimpl

    ShipmentServiceImpl
    ■

             ♣ ShipmentService
         ∨ 🖾 util
                ApiException
                v 🛅 responseUtil
                ApiResponse
            ShipmentApplication

▼ Tesources

         static
         templates
```

Order Management Project Details

Entity classes

```
package com.ayushsingh.ordermanagement.model.entity;
```

```
@OneToMany(mappedBy = "product", cascade =
{CascadeType.MERGE,CascadeType.PERSIST,CascadeType.DETACH,CascadeType.REFRESH},
   @PrePersist
       productToken = UUID.randomUUID().toString();
   @Override
```

```
package com.ayushsingh.ordermanagement.model.entity;
//-imports

@Getter
@Setter
@NoArgsConstructor
@AllArgsConstructor
@Entity
@Table(name="ecom_order")
public class Order {

    @Id
        @GeneratedValue(strategy = GenerationType.IDENTITY)
        private Long orderId;

        @Column(name = "order token", unique = true, nullable = false)
        private String orderToken;

        @Column(name="order_status",nullable = false)
        @Enimmerated(value = EnumType.STRING)
        private OrderStatus orderStatus;

        @Column(name="address",nullable = false)
        private String address;

        @Column(name="customer_name",nullable = false)
        private String customer_name",nullable = false)
        private String customer_name;
        @Column(name="shipment_code",unique = true)
        private String shipmentCode;
```

```
@OneToMany(mappedBy = "order", cascade =
CascadeType.MERGE, CascadeType.PERSIST, CascadeType.DETACH, CascadeType.REFRESH},
  private Set<OrderItem> orderItems = new HashSet<>();
   @PreRemove
   @CreatedDate
   @UpdateTimestamp
       Order order = (Order) o;
   @Override
```

```
GGetter
@Setter
@NoArgsConstructor
@AllArgsConstructor
@Entity
@Table(name="ecom_order_items")
public class OrderItem {
    @Id
        @GeneratedValue(strategy = GenerationType.IDENTITY)
        private Long orderItemId;

        @ManyToOne(fetch = FetchType.LAZY, cascade =
{CascadeType.MERGE, CascadeType.PERSIST, CascadeType.REFRESH})
        @JoinColumn(name = "order_id")
        private Order order;

        @ManyToOne(fetch = FetchType.LAZY, cascade =
{CascadeType.MERGE, CascadeType.PERSIST, CascadeType.REFRESH})
        @JoinColumn(name = "product_id")
        private Product product;

        @Column(name = "quantity", nullable = false)
        private Long quantity;
```

```
@Override
  public boolean equals(Object o) {
      if (this == o) return true;
      if (o == null || getClass() != o.getClass()) return false;
      OrderItem orderItem = (OrderItem) o;
      return Objects.equals(orderItemId, orderItem.orderItemId) && Objects.equals(order, orderItem.order) && Objects.equals(product, orderItem.product);
    }
    @Override
    public int hashCode() {
      return Objects.hash(orderItemId, order, product);
    }
}
```

Repositories

```
public interface ProductRepository extends JpaRepository<Product, Long> {
    @Query("SELECT p FROM Product p WHERE p.productToken = ?1")
    Optional<Product> findByProductToken(String productToken);

    @Query("""
        select
        p.productToken as productToken,
        p.productName as productName
```

```
from Product p
    """)
List<ListProductProjection> getAllProducts();
}
```

Projections

```
public interface ListOrderProjection {
   String getAddress();
   String getCustomerName();
   OrderStatus getOrderStatus();
   Date getOrderDate();
   String getOrderToken();
}
```

```
String getProductName();
String getProductToken();
}

public interface OrderItemDetailsProjection {
    String getProductName();
}
```

```
String getProductName();
String getProductToken();
String getQuantity();
}
```

Service

```
public interface ProductService {
    List<ListProductProjection> getAllProducts();
}
```

```
public interface OrderService {
    String placeNewOrder(OrderCreateDto orderCreateDto);
    OrderDetailsDto orderDetails(String orderToken);
    String cancelOrder(String orderToken);
    String updateOrder(String orderToken, OrderUpdateDto orderUpdateDto);
    List<ListOrderProjection> getAllOrders();
}
```

Implementations

```
@Service
@S1f4j
public class OrderServiceImpl implements OrderService {
    private final OrderRepository orderRepository;
    private final OrderItemRepository orderItemRepository;
    private final ProductRepository productRepository;
    private final RestClient restClient;

    public OrderServiceImpl(OrderRepository orderRepository, OrderItemRepository orderItemRepository, ProductRepository productRepository) {
```

```
@Override
    Order order = new Order();
   order.setOrderStatus(OrderStatus.PLACED);
    if (itemList.isEmpty()) {
        throw new ApiException("Order cannot be empty!");
        orderItem.setProduct(product);
    order.setOrderItems(orderItems);
    ShipmentCreateDto shipmentCreateDto = new ShipmentCreateDto();
        throw new ApiException("Shipment could not be created!");
        throw new ApiException("Order with id: " + orderToken + " not found!");
@Override
```

```
public String cancelOrder(String orderToken) {
    orderItemRepository.deleteByOrderToken(orderToken);
    orderRepository.deleteByOrderToken(orderToken);
    orderRepository.deleteByOrderToken(orderToken);
    MaptString, Object> response =
    restClient.delete().uri("/api/vl/shipment/cancel/{orderToken}",
    orderToken).retrieve().body(Map.class);
    Integer responseCode = (Integer) response.get("code");
    if (responseCode != 2000) {
        throw new ApiException("Shipment could not be deleted!");
    }
    return "Order with id: " + orderToken + " deleted successfully!";
}

@Override
public String updateOrder(String orderToken, OrderUpdateDto orderUpdateDto) {
    Optional<Order> orderOptional = orderRepository.findByOrderToken(orderToken);
    if (orderOptional.isEmpty()) {
        throw new ApiException("Order with id: " + orderToken + " not found!");
    }
    Order order = orderOptional.get();
    order.setAddress(orderUpdateDto.getAddress());
    order.setCustomerName(orderUpdateDto.getCustomerName());
    orderRepository.save(order);
    return orderToken;
}

@Override
public List<ListOrderProjection> getAllOrders() {
    return orderRepository.findAllOrders();
}
```

```
@Service
@RequiredArgsConstructor
public class ProductServiceImpl implements ProductService {
    private final ProductRepository productRepository;
    @Override
    public List<ListProductProjection> getAllProducts() {
        return productRepository.getAllProducts();
    }
}
```

Utility classes

```
@Getter
@Setter
public class ApiResponse<T> {
    private String message;
    private T data;
    private Integer code;

public ApiResponse(T data) {
        this.data = data;
        this.message= AppConstants.SUCCESS MESSAGE;
        this.code=AppConstants.SUCCESS_CODE;
}

public ApiResponse(String message, T data, Integer code) {
        this.message = message;
        this.data = data;
        this.data = data;
        this.code = code;
    }
}
```

```
public class ApiException extends RuntimeException {
   public ApiException(String message) {
      super(message);
   }
}
```

```
@RestControllerAdvice
public class GlobalExceptionHandler {

    @ExceptionHandler(ApiException.class)
    public ResponseEntity<ApiResponse<String>> handleApiException(ApiException e) {
        e.printStackTrace();
        return new ResponseEntity<>(new ApiResponse<> (AppConstants.ERROR_RESPONSE,
e.getMessage(), AppConstants.ERROR_CODE), HttpStatus.OK);
    }
}
```

Controller

```
@RestController
@RequiredArgsConstructor
@RequestMapping("/api/v1/product")
public class ProductController {

    private final ProductService productService;

    @RequestMapping("/all")
    public ResponseEntity<ApiResponse<List<ListProductProjection>>> getAllProducts() {
        return new ResponseEntity<> (new ApiResponse<> (productService.getAllProducts()),
HttpStatus.OK);
    }
}
```

```
@RestController
@RequiredArgsConstructor
@RequestMapping("/api/v1/order")
   @PostMapping("/new")
   public ResponseEntity<ApiResponse<String>> createOrder(@RequestBody OrderCreateDto
       String token = orderService.placeNewOrder(orderCreateDto);
       return new ResponseEntity<>(new ApiResponse<>(token), HttpStatus.CREATED);
   @GetMapping("/{orderToken}")
   public ResponseEntity<ApiResponse<OrderDetailsDto>> getOrderDetails(@PathVariable
String orderToken)
       OrderDetailsDto orderDetailsDto = orderService.orderDetails(orderToken);
       return ResponseEntity.ok(new ApiResponse<>(orderDetailsDto));
   @DeleteMapping("/{orderToken}")
   public ResponseEntity<ApiResponse<String>> cancelOrder(@PathVariable String
       return ResponseEntity.ok(new ApiResponse<> (message));
   @PatchMapping("/{orderToken}")
   public ResponseEntity<ApiResponse<String>> updateOrder(@PathVariable String
orderToken, @RequestBody OrderUpdateDto orderUpdateDto)
```

```
String message = orderService.updateOrder(orderToken, orderUpdateDto);
    return ResponseEntity.ok(new ApiResponse<>(message));
}

@GetMapping("/all")
    public ResponseEntity<ApiResponse<List<ListOrderProjection>>> getAllOrders() {
        List<ListOrderProjection> orders = this.orderService.getAllOrders();
        return ResponseEntity.ok(new ApiResponse<>(orders));
}
```

Shipment Project Details

Entity Class

```
@Getter
@NoArgsConstructor
@AllArgsConstructor
@Table(name = "ecom shipment")
public class Shipment {
    @CreatedDate
    @CreationTimestamp
    @LastModifiedDate
    @UpdateTimestamp
    @PrePersist
```

Repository

Service

```
public interface ShipmentService {
    ShipmentDetailsDto createShipment(ShipmentCreateDto shipmentCreateDto);
    Boolean cancelShipment(String shipmentCode);
}
```

Implementation

```
@Service
@RequiredArgsConstructor
public class ShipmentServiceImpl implements ShipmentService {

    private final ShipmentRepository shipmentRepository;
    private final ModelMapper modelMapper;
    @Override
    public ShipmentDetailsDto createShipment(ShipmentCreateDto shipmentCreateDto) {
        Shipment shipment=new Shipment();
        shipment.setOrderToken(shipmentCreateDto.getOrderToken());
        shipment.setCurrentShipmentLocation("WAREHOUSE");
        shipment=shipmentRepository.save(shipment);
        return modelMapper.map(shipment,ShipmentDetailsDto.class);
    }

    @Transactional
    @Override
    public Boolean cancelShipment(String orderToken) {
        shipmentRepository.deleteByOrderToken(orderToken);
        return true;
    }
}
```

Controller

```
@RestController
@RequiredArgsConstructor
@RequestMapping("/api/v1/shipment")
public class ShipmentController {
    private final ShipmentService shipmentService;
    @PostMapping("/create")
    public ResponseEntity<ApiResponse<ShipmentDetailsDto>> createShipment(@RequestBody
ShipmentCreateDto shipmentCreateDto) {
        return new ResponseEntity<>(new
ApiResponse<> (shipmentService.createShipment(shipmentCreateDto)), HttpStatus.CREATED);
    }
    @DeleteMapping("/cancel/{orderToken}")
    public ResponseEntity<ApiResponse<Boolean>> cancelShipment(@PathVariable String
orderToken) {
        return ResponseEntity.ok(new ApiResponse<> (AppConstants.SUCCESS_MESSAGE,
shipmentService.cancelShipment(orderToken), AppConstants.SUCCESS_CODE));
}
```

Note

For both the projects we provide the configurations in application-dev.properties file and activate the profile in application.properties.

application-dev.properties

```
server.port=8086 //different for different applications
spring.datasource.url=jdbc:mysql://localhost:3306/ecom
spring.datasource.username=hbstudent
spring.datasource.password=hbstudent
```

```
spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
spring.jpa.properties.hibernate.generate_statistics=true

spring.output.ansi.enabled=always

spring.jpa.generate-ddl=true
spring.jpa.hibernate.ddl-auto = update
spring.jpa.show-sql=true
spring.jpa.properties.hibernate.format_sql=true
spring.jpa.properties.hibernate.jdbc.time_zone=UTC

spring.config.import=optional:secrets.properties
logging.level.org.springframework.security=DEBUG
```

application.properties

```
spring.threads.virtual.enabled=true
spring.profiles.active=dev
```

Tests for Order Management

```
package com.ayushsingh.ordermanagement;
import com.ayushsingh.ordermanagement.model.dto.Order.OrderCreateDto;
import com.ayushsingh.ordermanagement.model.dto.Order.OrderItemDto;
import com.ayushsingh.ordermanagement.model.dto.Order.OrderUpdateDto;
import io.restassured.http.ContentType;
@SpringBootTest(webEnvironment = SpringBootTest.WebEnvironment.DEFINED PORT)
    @BeforeAll
        RestAssured.baseURI = BASE URL;
    @Test
        orderCreateDto.setCustomerName("Ayush Singh");
                "6a7a3f9c-1f12-4c63-8bcb-75c12d8f8a17"
```

```
.contentType (ContentType.JSON)
@Test
@Test
            .contentType (ContentType.JSON)
            .body(orderUpdateDto)
aTest
```

```
.body("data", equalTo("Order with id: " + orderToken + " deleted
successfully!"));
     }
}
```

Results

```
      ✓ ⊘ OrderManagementApplicationTests (com.ayushsingh.ordermanagement)
      3 sec 344 ms

      ⊘ testUpdateOrder()
      2 sec 790 ms

      ⊘ testCreateOrder()
      357 ms

      ⊘ testGetOrderDetails()
      70 ms

      ⊘ testGetAllOrders()
      39 ms

      ⊘ testCancelOrder()
      88 ms
```

API

Create Order

POST: http://localhost:8085/api/v1/order/new

Request Body:

Response Body:

```
"message": "Success",
   "data": "Order with id: baa17db6-ee47-4fc3-ac83-055be028307a created successfully!",
   "code": 2000
}
```

List all products

GET: http://localhost:8085/api/v1/product/all

Response Body:

Get order details

GET: http://localhost:8085/api/v1/order/baa17db6-ee47-4fc3-ac83-055be028307a

Response Body:

Update Order

PATCH: http://localhost:8085/api/v1/order/baa17db6-ee47-4fc3-ac83-055be028307a

Request Body:

```
{
   "address": "New address 1",
   "customerName": "Customer name 2"
}
```

Response Body:

```
{
   "message": "Success",
```

Delete Order

DELETE: http://localhost:8085/api/v1/order/00b3ffb4-f7d6-4e8f-b54d-a85c43267783

Response Body:

```
"message": "Success",
    "data": "Order with id: 00b3ffb4-f7d6-4e8f-b54d-a85c43267783 deleted successfully!",
    "code": 2000
}
```

Source Code links

The complete source code can be found here:

https://github.com/singhayush20/Assignments/tree/main/Spring%20Boot/Wk07