



Sri Lanka Institute of Information Technology
Sri Lanka

BSc (Hons) in Information Technology

Modern Topics in Information Technology

IT4020

Assignment 04

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1. INTRODUCTION

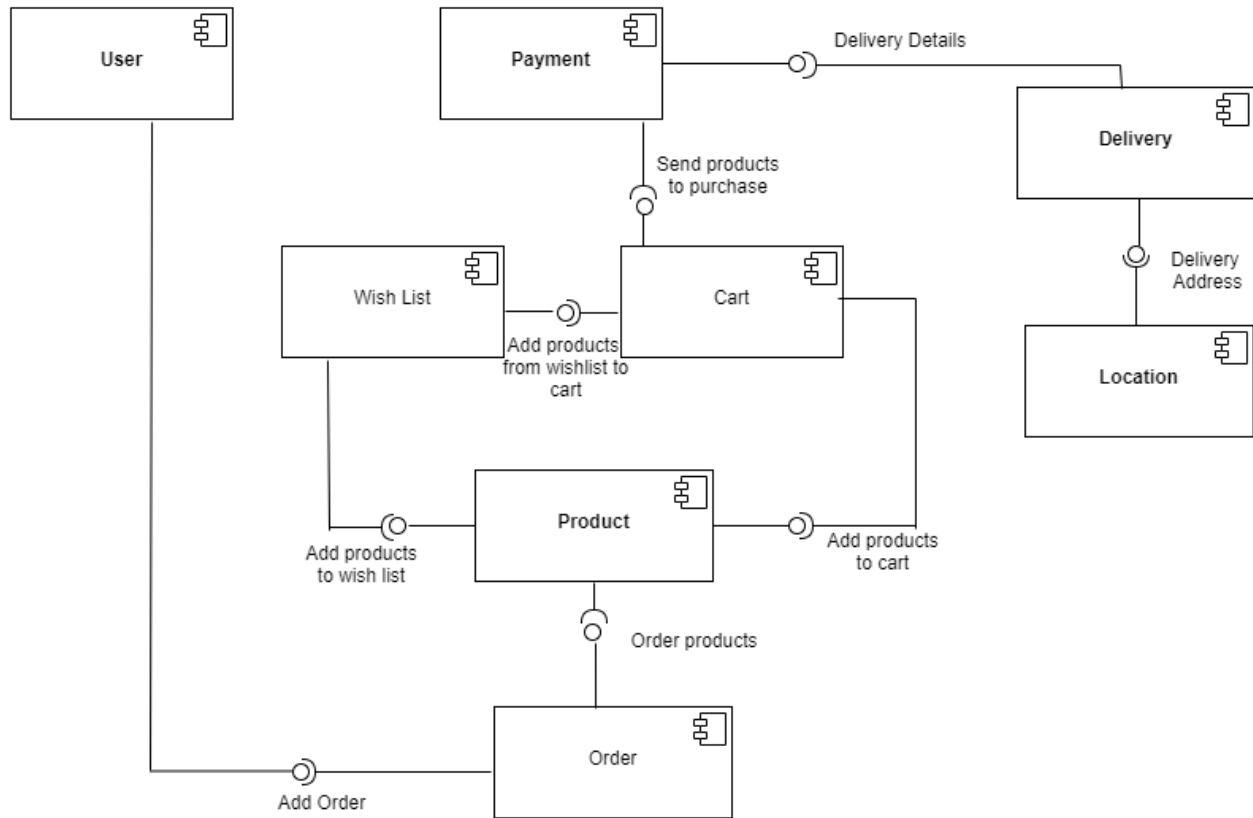
The services which are identified:

- User Service
- Product Service
- Order Service
- Payment Service
- Cart Service
- Wish List Service
- Location Service
- Delivery Service

Swagger API Documentation Link:

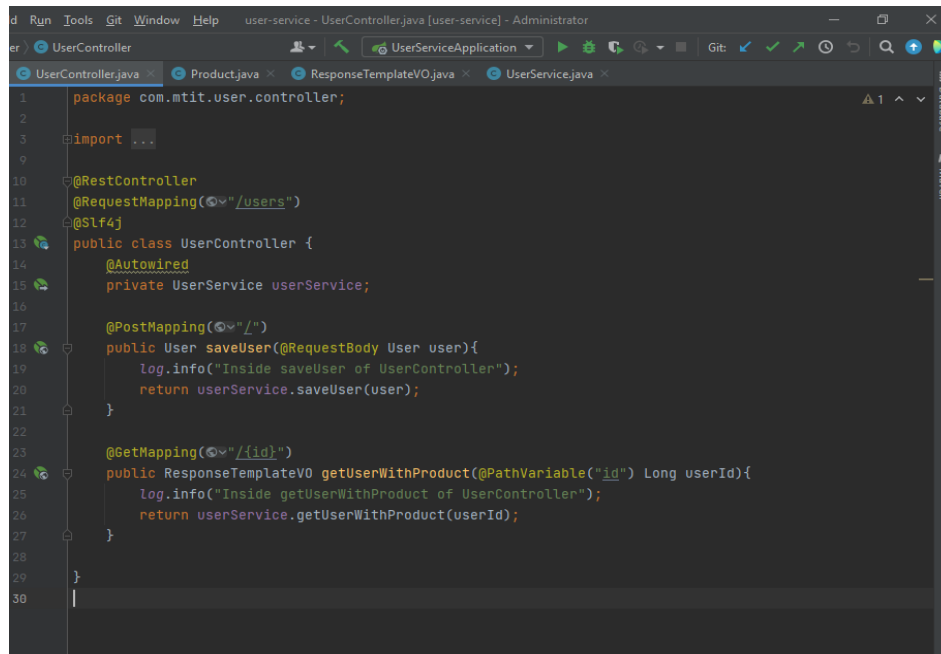
<https://drive.google.com/drive/folders/1ucw0Tm2clPk4vhXf0Gr5ISiB2vSoBd8n?usp=sharing>

2. Component Diagram



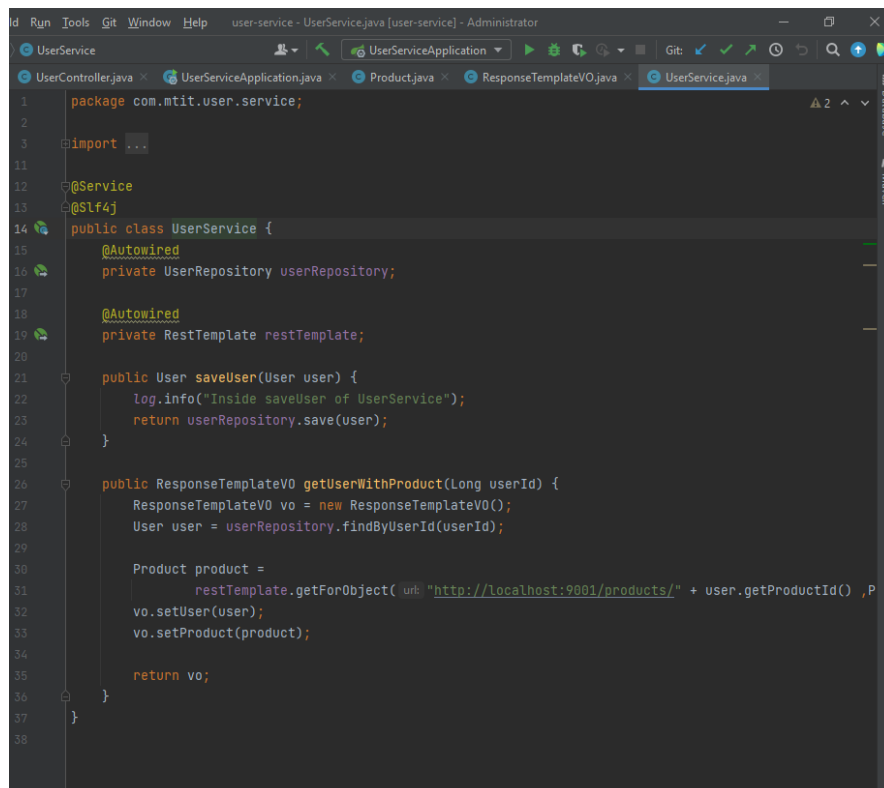
3. Microservices

3.1 User Service

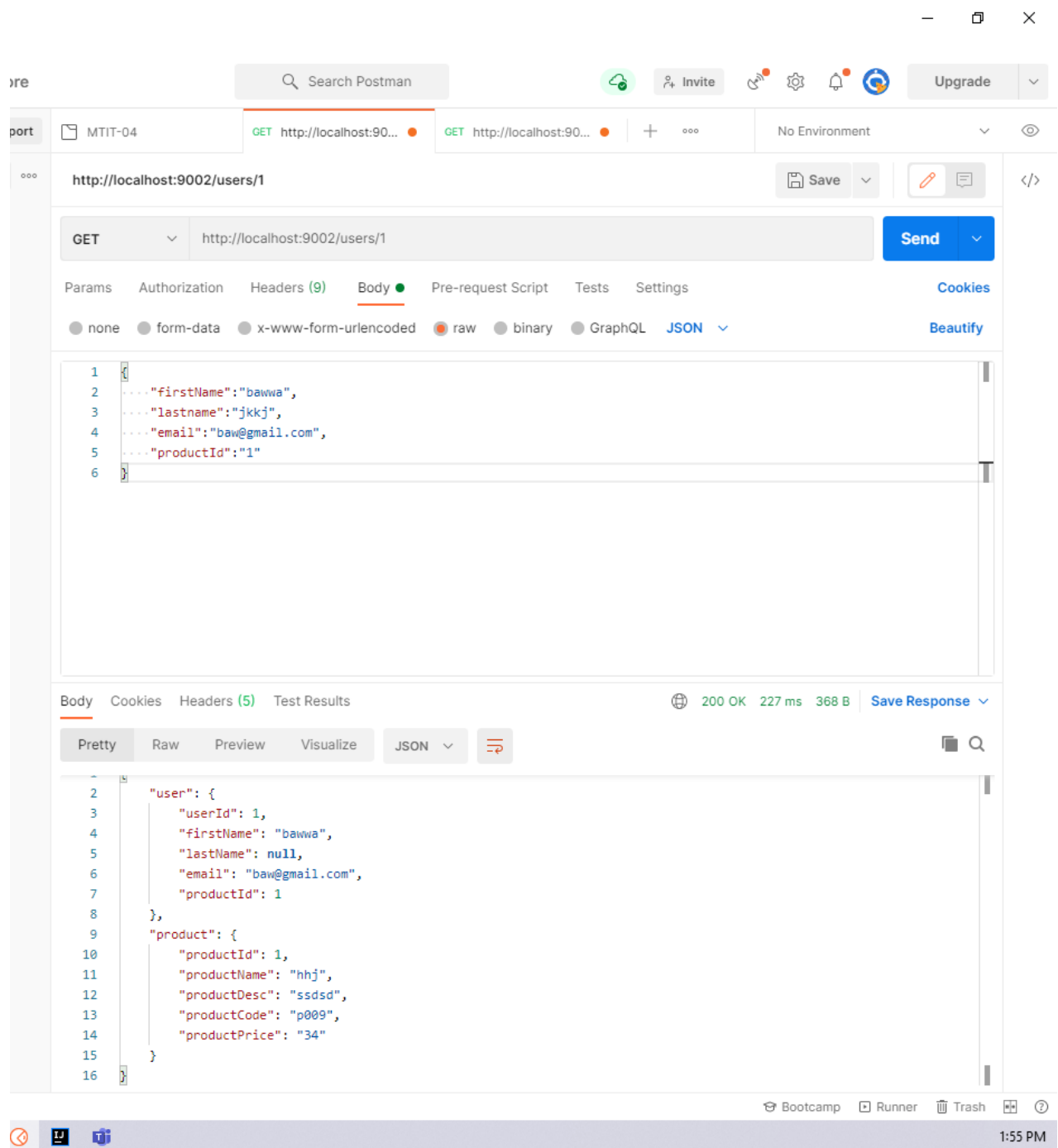


```
1 package com.mtit.user.controller;
2
3 import ...
4
5
6
7
8
9
10 @RestController
11 @RequestMapping("/users")
12 @Slf4j
13 public class UserController {
14     @Autowired
15     private UserService userService;
16
17
18     @PostMapping("/")
19     public User saveUser(@RequestBody User user){
20         log.info("Inside saveUser of UserController");
21         return userService.saveUser(user);
22     }
23
24     @GetMapping("/{id}")
25     public ResponseTemplateVO getUserWithProduct(@PathVariable("id") Long userId){
26         log.info("Inside getUserWithProduct of UserController");
27         return userService.getUserWithProduct(userId);
28     }
29 }
30
```

User Service – Controller



```
1 package com.mtit.user.service;
2
3 import ...
4
5
6
7
8
9
10
11
12 @Service
13 @Slf4j
14 public class UserService {
15     @Autowired
16     private UserRepository userRepository;
17
18     @Autowired
19     private RestTemplate restTemplate;
20
21     public User saveUser(User user) {
22         log.info("Inside saveUser of UserService");
23         return userRepository.save(user);
24     }
25
26     public ResponseTemplateVO getUserWithProduct(Long userId) {
27         ResponseTemplateVO vo = new ResponseTemplateVO();
28         User user = userRepository.findById(userId);
29
30         Product product =
31             restTemplate.getForObject("http://localhost:9001/products/" + user.getProductid(), Product.class);
32         vo.setUser(user);
33         vo.setProduct(product);
34
35         return vo;
36     }
37 }
38
```



User Service Request – Postman

Api Documentation ^{1.0}

[Base URL: localhost:9002/]

<http://localhost:9002/v2/api-docs>

Api Documentation

[Terms of service](#)

[Apache 2.0](#)

basic-error-controller Basic Error Controller



user-controller User Controller



POST	/users/	saveUser
Parameters		<button>Cancel</button>
Name	Description	

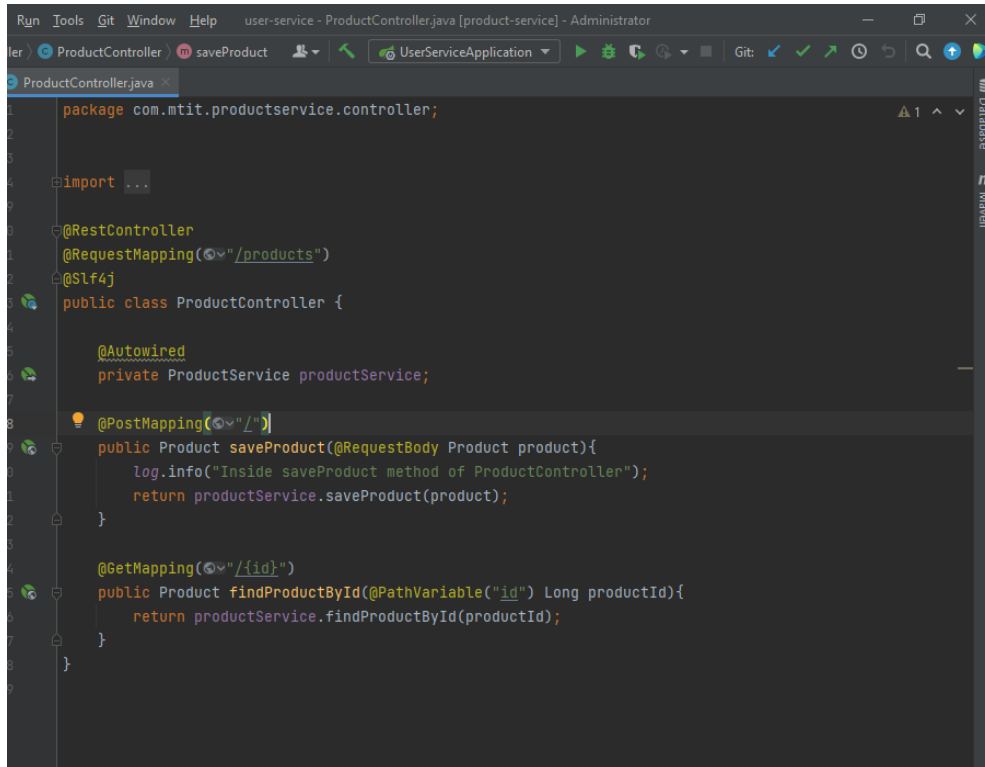
User Service – Swagger API - 1

Name	Description
user * required	USER
(body)	Example Value Model
	<pre>{ "email": "bawantha@gmail.com", "firstName": "bawantha", "lastName": "thilan", "productId": 4, "userId": 3 }</pre>
	<button>Cancel</button>
	Parameter content type
	<input type="text" value="application/json"/>
<button>Execute</button>	<button>Clear</button>

User Service – Swagger API - 1

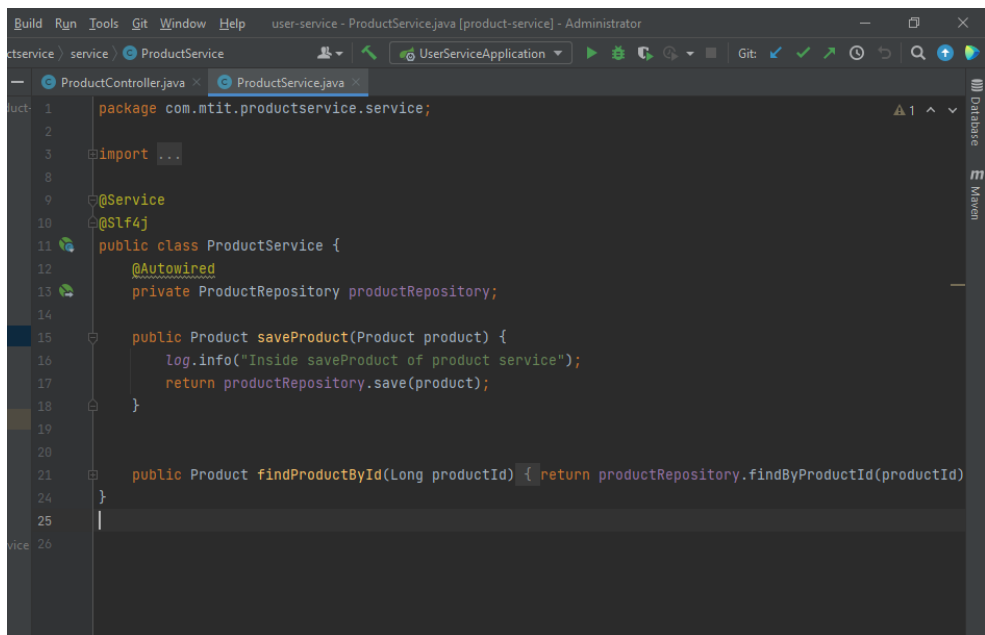
Code	Details
200	<div>Response body</div> <pre>{ "userId": 1, "firstName": "bawantha", "lastName": "thilan", "email": "bawantha@gmail.com", "productId": 4 }</pre> <div>Download</div> <div>Response headers</div> <pre>connection: keep-alive content-type: application/json date: Wed, 19 May 2021 15:54:29 GMT keep-alive: timeout=60 transfer-encoding: chunked</pre>
Responses	
Code	Description
200	<div>OK</div> <div>Example Value Model</div> <pre>{ "email": "string", "firstName": "string", "lastName": "string", "productId": 0, "userId": 0 }</pre>

3.2 Product Service



```
1 package com.mtit.productservice.controller;
2
3
4 import ...
5
6 @RestController
7 @RequestMapping("/products")
8 @Slf4j
9 public class ProductController {
10
11     @Autowired
12     private ProductService productService;
13
14     @PostMapping("/")
15     public Product saveProduct(@RequestBody Product product){
16         log.info("Inside saveProduct method of ProductController");
17         return productService.saveProduct(product);
18     }
19
20     @GetMapping("/{id}")
21     public Product findProductById(@PathVariable("id") Long productId){
22         return productService.findProductById(productId);
23     }
24 }
```

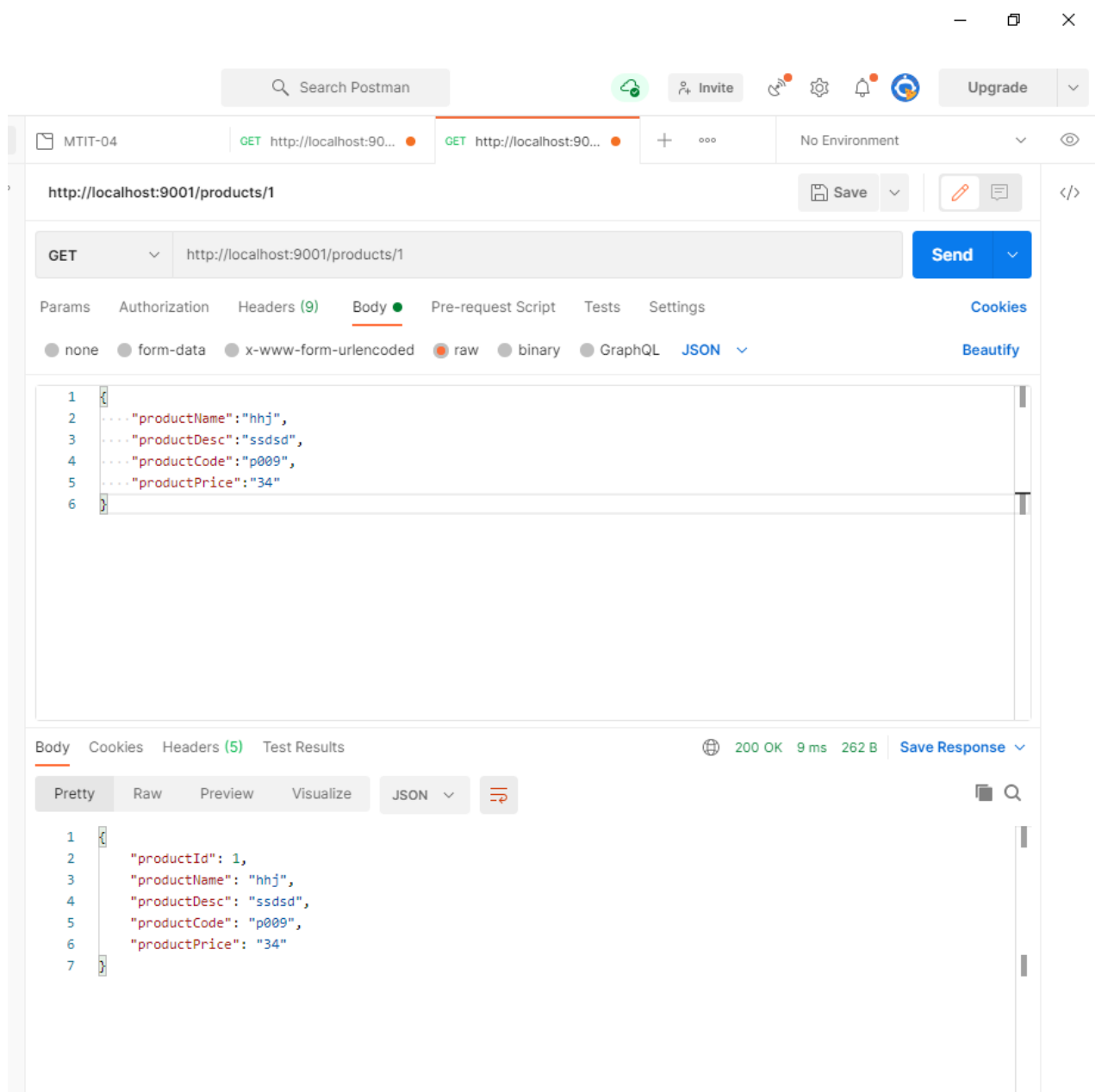
Product Service – Controller Class



```
1 package com.mtit.productservice.service;
2
3 import ...
4
5 @Service
6 @Slf4j
7 public class ProductService {
8
9     @Autowired
10     private ProductRepository productRepository;
11
12     public Product saveProduct(Product product) {
13         log.info("Inside saveProduct of product service");
14         return productRepository.save(product);
15     }
16
17     public Product findProductById(Long productId) { return productRepository.findByProductId(productId); }
18 }
19
20
21
22
23
24
25
26
```

Product Service – Service Implementation Class

Order Service – Service Implementation Class



Product Service Request – Postman

Api Documentation ^{1.0}

[Base URL: localhost:9001/]

<http://localhost:9001/v2/api-docs>

Api Documentation

[Terms of service](#)

[Apache 2.0](#)

basic-error-controller Basic Error Controller



product-controller Product Controller



POST	/products/	saveProduct
Parameters		<div>Cancel</div>
Name	Description	

Product Service – Swagger API - 1

Name	Description
product <small>required</small>	product
(body)	<div>Example Value</div> <pre>{ "productCode": "P0004", "productDesc": "Kitchen item", "productId": 3, "productName": "knife", "productPrice": "100" }</pre>

Cancel

Parameter content type

application/json

Execute

Clear

Responses

Response content type

/

Curl

```
curl -X POST
"http://localhost:9
001/products/" -H
"accept: */*" -H
"Content-Type:
application/json" -
d "{
```

Request URL

```
http://localhost:9001/products/
```

Server response

Code	Details				
200	<p>Response body</p> <pre>{ "productId": 1, "productName": "knife", "productDesc": "Kitchen item", "productCode": "P0004", "productPrice": "100" }</pre> <p>Download</p> <p>Response headers</p> <pre>connection: keep-alive content-type: application/json date: Wed, 19 May 2021 15:56:15 GMT keep-alive: timeout=60 transfer-encoding: chunked</pre> <p>Responses</p> <table> <tr> <th>Code</th><th>Description</th></tr> <tr> <td>200</td><td>OK</td></tr> </table> <p>Example Value Model</p> <pre>{ "productCode": "string", "productDesc": "string", "productId": 0, "productName": "string", "productPrice": "string" }</pre>	Code	Description	200	OK
Code	Description				
200	OK				

3.3 Order Service

```
OrderServiceImpl.java | OrderController.java | PaymentController.java | PaymentServiceApplication.java
1 package com.sliit.mtit.microservice.orderservice.controller;
2
3 import org.springframework.beans.factory.annotation.Autowired;
4 import org.springframework.web.bind.annotation.PostMapping;
5 import org.springframework.web.bind.annotation.RequestBody;
6 import org.springframework.web.bind.annotation.RequestMapping;
7 import org.springframework.web.bind.annotation.ResponseBody;
8 import org.springframework.web.bind.annotation.RestController;
9
10 import com.sliit.mtit.microservice.orderservice.dto.OrderRequest;
11 import com.sliit.mtit.microservice.orderservice.dto.OrderResponse;
12 import com.sliit.mtit.microservice.orderservice.service.OrderServiceImpl;
13
14 @RestController
15 @RequestMapping("/order")
16 public class OrderController {
17
18     @Autowired
19     private OrderServiceImpl orderServiceImpl;
20
21     @PostMapping(consumes = "application/json", produces = "application/json")
22     public @ResponseBody OrderResponse selectProduct(@RequestBody OrderRequest request) {
23
24         System.out.println("Order Details : " + request);
25
26         return orderServiceImpl.makePayment(request);
27     }
28 }
29
30 }
31
```

Order Service – Controller Class

```
OrderServiceImpl.java | OrderController.java | PaymentController.java | PaymentServiceApplication.java
1 package com.sliit.mtit.microservice.orderservice.service;
2
3 import java.util.UUID;
4
5 @Service
6 public class OrderServiceImpl {
7
8     @Autowired
9     private RestTemplate restTemplate;
10
11     public OrderResponse makePayment(OrderRequest orderRequest) {
12
13         MakePaymentRequest makePaymentRequest = new MakePaymentRequest();
14         makePaymentRequest.setCardNo(orderRequest.getCardNo());
15         makePaymentRequest.setCardType(orderRequest.getCardType());
16         makePaymentRequest.setAmount(orderRequest.getAmount());
17         makePaymentRequest.setQty(orderRequest.getQty());
18
19         ResponseEntity<MakePaymentResponse> makePaymentResponse = restTemplate.postForEntity("http://localhost:8089/payment", makePaymentRequest, MakePaymentResponse.class);
20
21         OrderResponse orderResponse = new OrderResponse();
22         orderResponse.setOrderId(UUID.randomUUID().toString());
23         orderResponse.setPaymentId(makePaymentResponse.getBody().getPaymentId());
24         orderResponse.setMessage("Create order successfully");
25
26         return orderResponse;
27     }
28
29     @Bean
30     public RestTemplate restTemplate(RestTemplateBuilder builder) {
31         return builder.build();
32     }
33 }
34
35 }
36
37 }
38
39 }
40
41 }
42
43 }
44
45 }
46
47 }
48
```

Order Service – Service Implementation Class

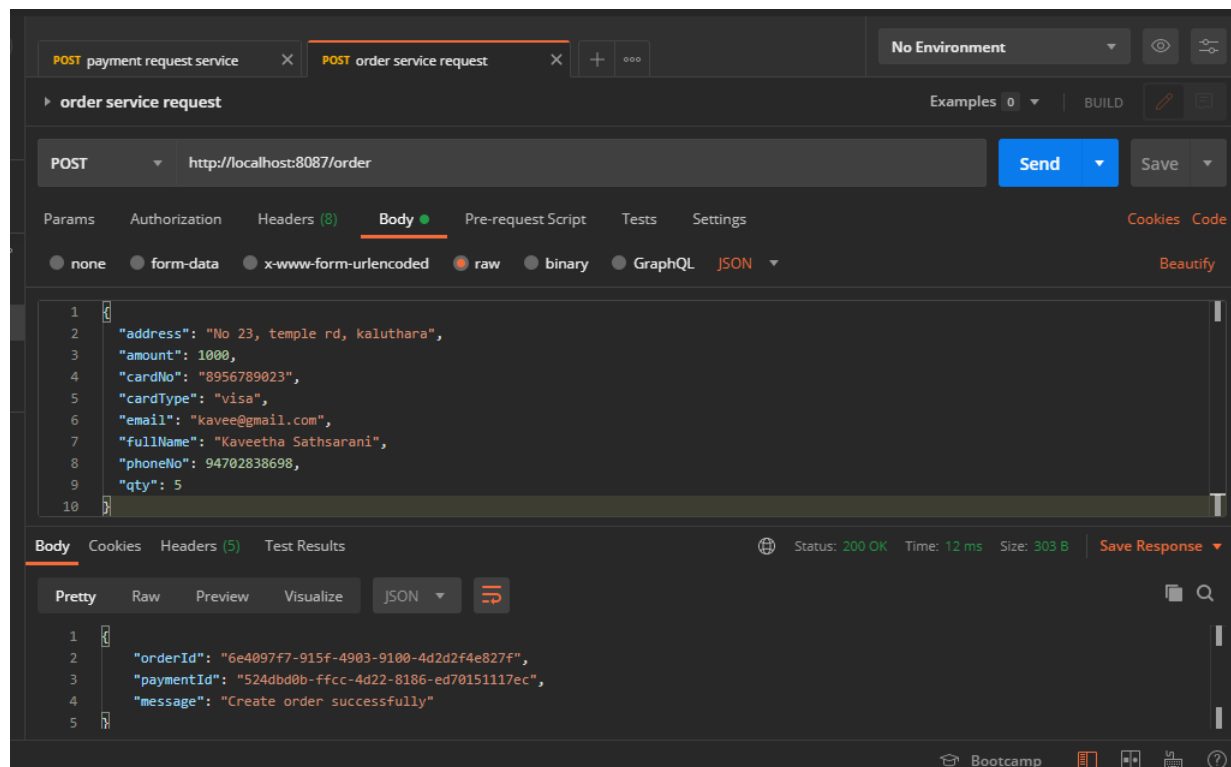
```
payment-service - PaymentServiceApplication [Spring Boot App]
OpenJDK 64-Bit Server VM warning: Options -Xverify:none and -noverify were deprecated in JDK 13 and will likely be removed in a future release.

:: Spring Boot :: (v2.4.5)

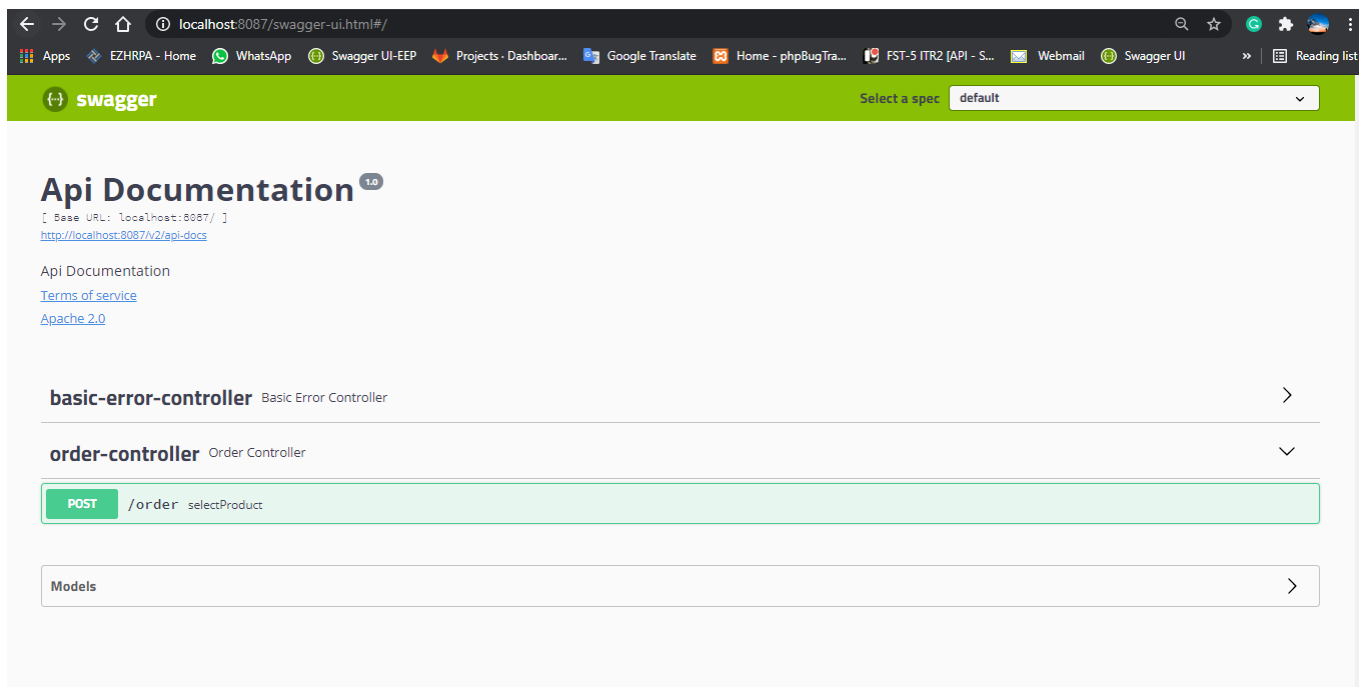
2021-05-19 02:51:01.193 INFO 15640 --- [main] c.s.m.m.p.PaymentServiceApplication : Starting PaymentServiceApplication using Java 14.0.2 on DESKTOP-D1S098C with PID 15640 (
2021-05-19 02:51:01.201 INFO 15640 --- [main] c.s.m.m.p.PaymentServiceApplication : No active profile set, falling back to default profiles: default
2021-05-19 02:51:01.929 INFO 15640 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8089 (http)
2021-05-19 02:51:01.935 INFO 15640 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2021-05-19 02:51:01.935 INFO 15640 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.45]
2021-05-19 02:51:01.987 INFO 15640 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2021-05-19 02:51:01.987 INFO 15640 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 748 ms
2021-05-19 02:51:02.232 INFO 15640 --- [main] pertySourceRequestMappingHandlerMapping : Mapped URL path [/v2/api-docs] onto method [springfox.documentation.swagger2.web.Swagger
2021-05-19 02:51:02.283 INFO 15640 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'
2021-05-19 02:51:02.402 INFO 15640 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8089 (http) with context path ''
2021-05-19 02:51:02.404 INFO 15640 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Context refreshed
2021-05-19 02:51:02.416 INFO 15640 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Found 1 custom documentation plugin(s)
2021-05-19 02:51:02.434 INFO 15640 --- [main] s.d.s.w.s.ApiListingReferenceScanner : Scanning for api listing references
2021-05-19 02:51:02.536 INFO 15640 --- [main] c.s.m.m.p.PaymentServiceApplication : Started PaymentServiceApplication in 1.591 seconds (JVM running for 2.133)
2021-05-19 02:51:39.853 INFO 15640 --- [nio-8089-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2021-05-19 02:51:39.854 INFO 15640 --- [nio-8089-exec-1] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
2021-05-19 02:51:39.854 INFO 15640 --- [nio-8089-exec-1] o.s.web.servlet.DispatcherServlet : Completed initialization in 0 ms

Payment Details : PaymentRequest(cardNo=8956789023, cardType=visa, amount=1000, qty=5)
```

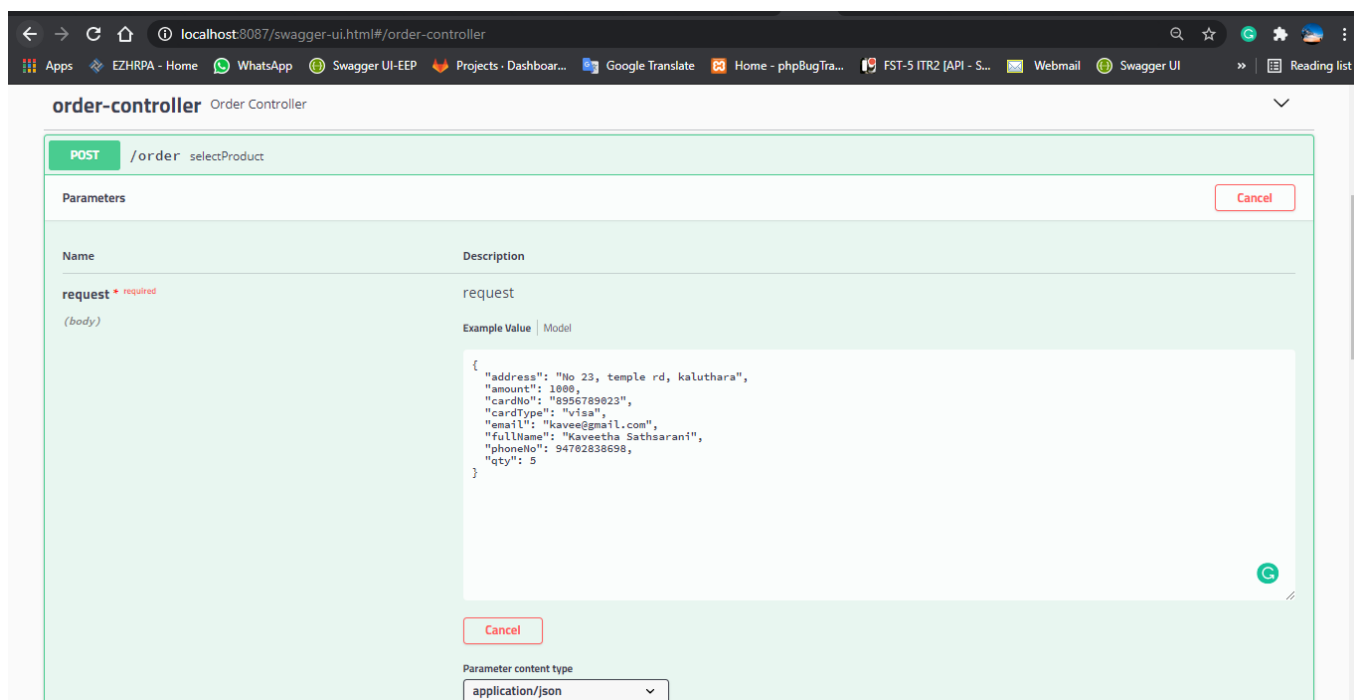
Order Service – console



Order Service Request – Postman



Order Service – Swagger API – 1



Order Service – Swagger API - 2

localhost:8087/swagger-ui.html#/order-controller

Apps EZHRPA - Home WhatsApp Swagger UI-EEP Projects - Dashboar... Google Translate Home - phpBugTra... FST-5 ITR2 [API - S... Webmail Swagger UI Reading list

Responses Response content type application/json

Curl

```
curl -X POST "http://localhost:8087/order" -H "accept: application/json" -H "Content-Type: application/json" -d '{"address": "\No 23, temple rd, kaluthara", "amount": 1000, "cardNo": "\6556789023", "cardType": "\visa", "email": "\kavee@gmail.com", "fullName": "\Kaveetha Satharani", "phoneNo": 94782838638, "qty": 5}'
```

Request URL

http://localhost:8087/order

Server response

Code	Details
200	<p>Response body</p> <pre>{ "orderId": "44211003-8661-4492-b727-35fc2aa8ffdf", "paymentId": "252ab600-9920-4e83-a4d0-ce57f7354314", "message": "Create order successfully"}</pre> <p>Download</p> <p>Response headers</p> <pre>connection: keep-alive content-type: application/json date: Tue, 18 May 2021 21:21:39 GMT keep-alive: timeout=60 transfer-encoding: chunked</pre>

Responses

Code	Description
------	-------------

Order Service – Swagger API – 3

3.4 Payment Service

```
OrderServiceImpl.java | OrderController.java | PaymentController.java | PaymentServiceApplication.java
1 package com.sliit.mtit.microservice.paymentservice.controller;
2
3 import java.math.BigDecimal;
4 import java.util.Date;
5 import java.util.UUID;
6
7 import org.springframework.web.bind.annotation.PostMapping;
8 import org.springframework.web.bind.annotation.RequestBody;
9 import org.springframework.web.bind.annotation.RequestMapping;
10 import org.springframework.web.bind.annotation.ResponseBody;
11 import org.springframework.web.bind.annotation.RestController;
12
13 import com.sliit.mtit.microservice.paymentservice.dto.PaymentRequest;
14 import com.sliit.mtit.microservice.paymentservice.dto.PaymentResponse;
15
16 @RestController
17 @RequestMapping("/payment")
18 public class PaymentController {
19
20     @PostMapping(consumes = "application/json", produces = "application/json")
21     public @ResponseBody PaymentResponse makePayment(@RequestBody PaymentRequest request) {
22
23         System.out.println("Payment Details : " + request);
24
25         BigDecimal qty = new BigDecimal(request.getQty());
26
27         BigDecimal totalAmount = (request.getAmount()).multiply(qty);
28
29         PaymentResponse paymentResponse = new PaymentResponse();
30         paymentResponse.setPaymentId(UUID.randomUUID().toString());
31         paymentResponse.setPaymentDate(new Date());
32         paymentResponse.setTotal(totalAmount);
33         paymentResponse.setStatus("Make payment successfully!!!!");
34
35         return paymentResponse;
36     }
37 }
38
39
```

Payment Service - controller class

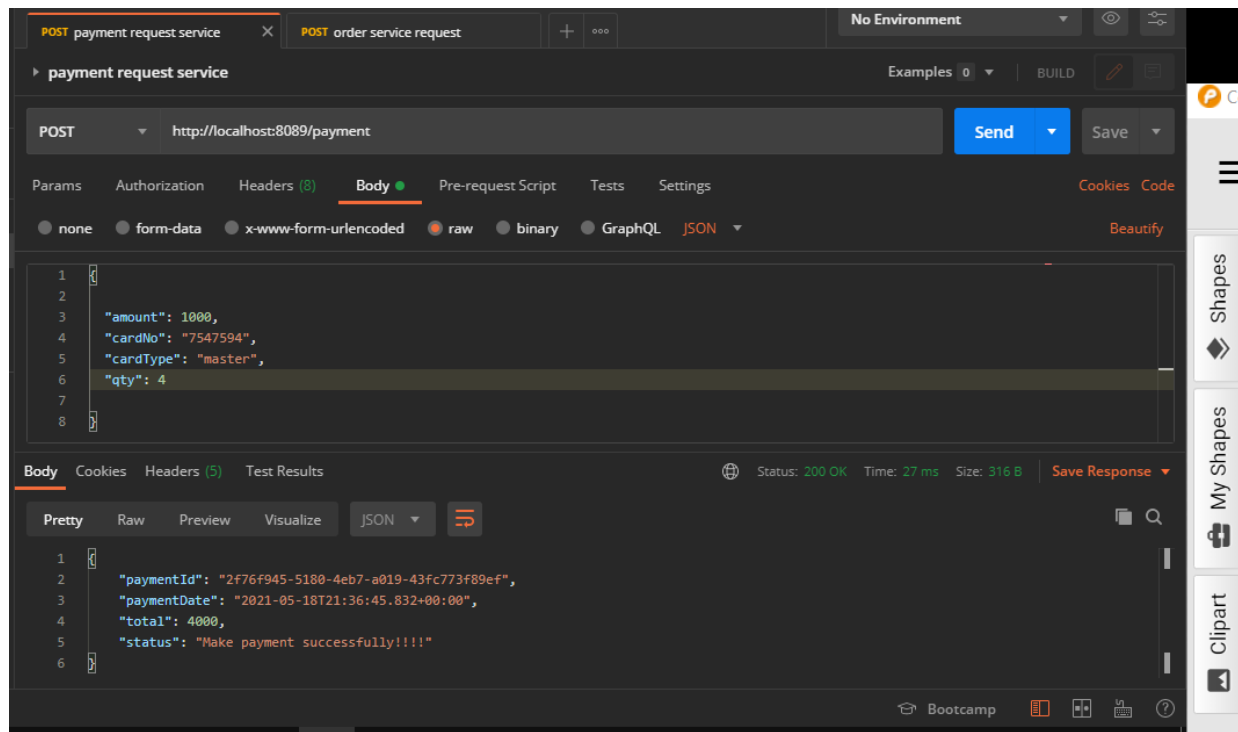
```
Problems | Javadoc | Declaration | Console
payment-service - PaymentServiceApplication [Spring Boot App]
OpenJDK 64-Bit Server VM warning: Options -Xverify:none and -noverify were deprecated in JDK 13 and will likely be removed in a future release.

Spring Boot (v2.4.5)

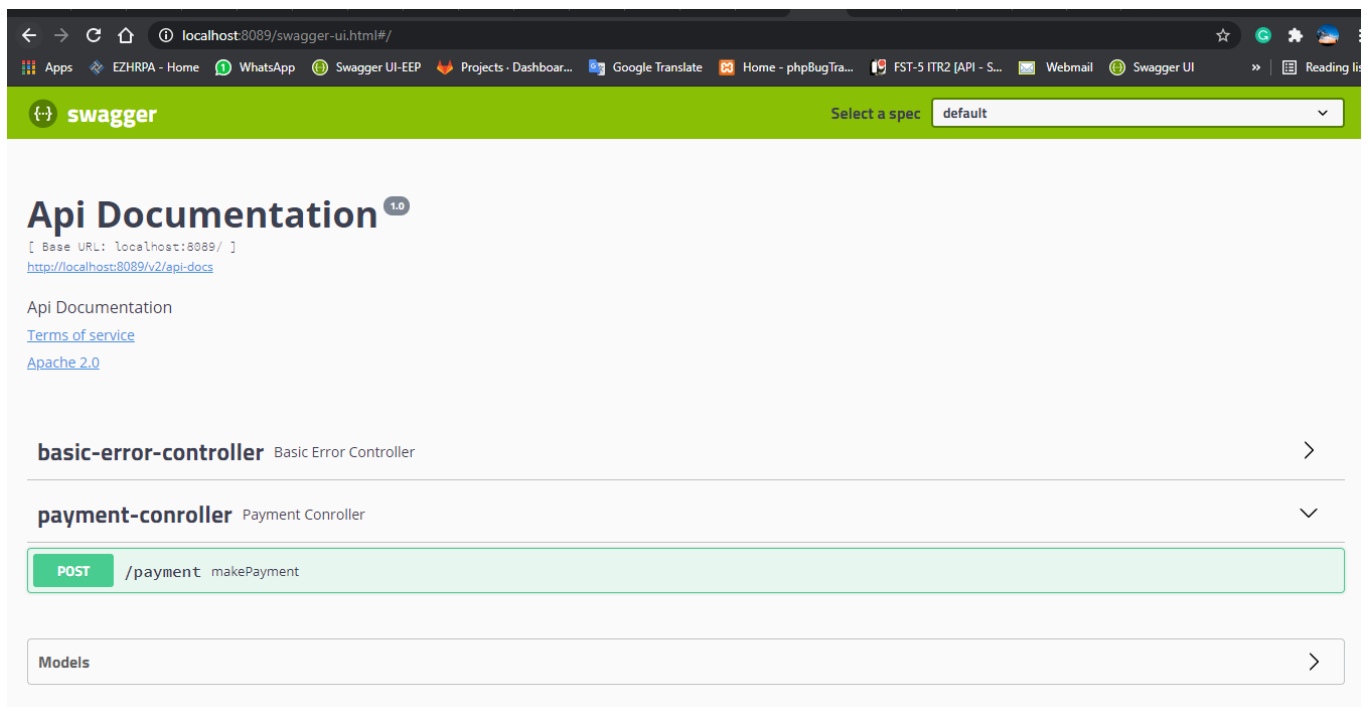
2021-05-19 02:27:01.098 INFO 13256 --- [main] c.s.m.m.p.PaymentServiceApplication : Starting PaymentServiceApplication using Java 14.0.2 on DESKTOP-D1S098C with PID 13256 (
2021-05-19 02:27:01.099 INFO 13256 --- [main] c.s.m.m.p.PaymentServiceApplication : No active profile set, falling back to default profiles: default
2021-05-19 02:27:01.816 INFO 13256 --- [main] o.s.b.w.e.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8089 (http)
2021-05-19 02:27:01.822 INFO 13256 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2021-05-19 02:27:01.822 INFO 13256 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.45]
2021-05-19 02:27:01.876 INFO 13256 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2021-05-19 02:27:01.877 INFO 13256 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 739 ms
2021-05-19 02:27:02.118 INFO 13256 --- [main] p.rtySourcedRequestMappingHandlerMapping : Mapped URL path [/v2/api-docs] onto method [springfox.documentation.swagger2.web.Swagger
2021-05-19 02:27:02.168 INFO 13256 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'
2021-05-19 02:27:02.281 INFO 13256 --- [main] o.s.b.w.e.tomcat.TomcatWebServer : Tomcat started on port(s): 8089 (http) with context path ''
2021-05-19 02:27:02.282 INFO 13256 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Context refreshed
2021-05-19 02:27:02.293 INFO 13256 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Found 1 custom documentation plugin(s)
2021-05-19 02:27:02.312 INFO 13256 --- [main] s.d.s.w.s.ApiListingReferenceScanner : Scanning for api listing references
2021-05-19 02:27:02.417 INFO 13256 --- [main] c.s.m.m.p.PaymentServiceApplication : Started PaymentServiceApplication in 1.556 seconds (JVM running for 2.084)
2021-05-19 02:27:53.382 INFO 13256 --- [nio-8089-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2021-05-19 02:27:53.382 INFO 13256 --- [nio-8089-exec-1] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
2021-05-19 02:27:53.383 INFO 13256 --- [nio-8089-exec-1] o.s.web.servlet.DispatcherServlet : Completed initialization in 1 ms

Payment Details : PaymentRequest(cardNo=759535359, cardType=visa, amount=1000, qty=5)
```

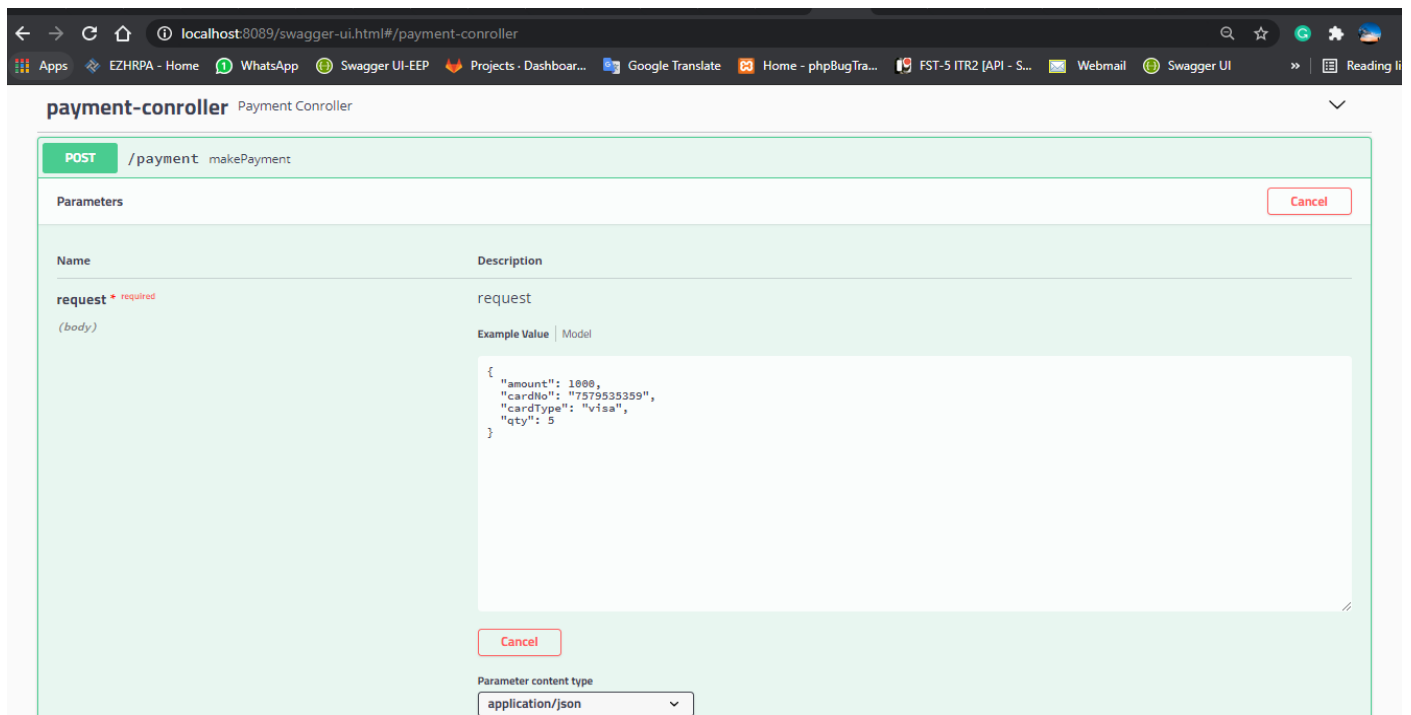
Payment Service - console



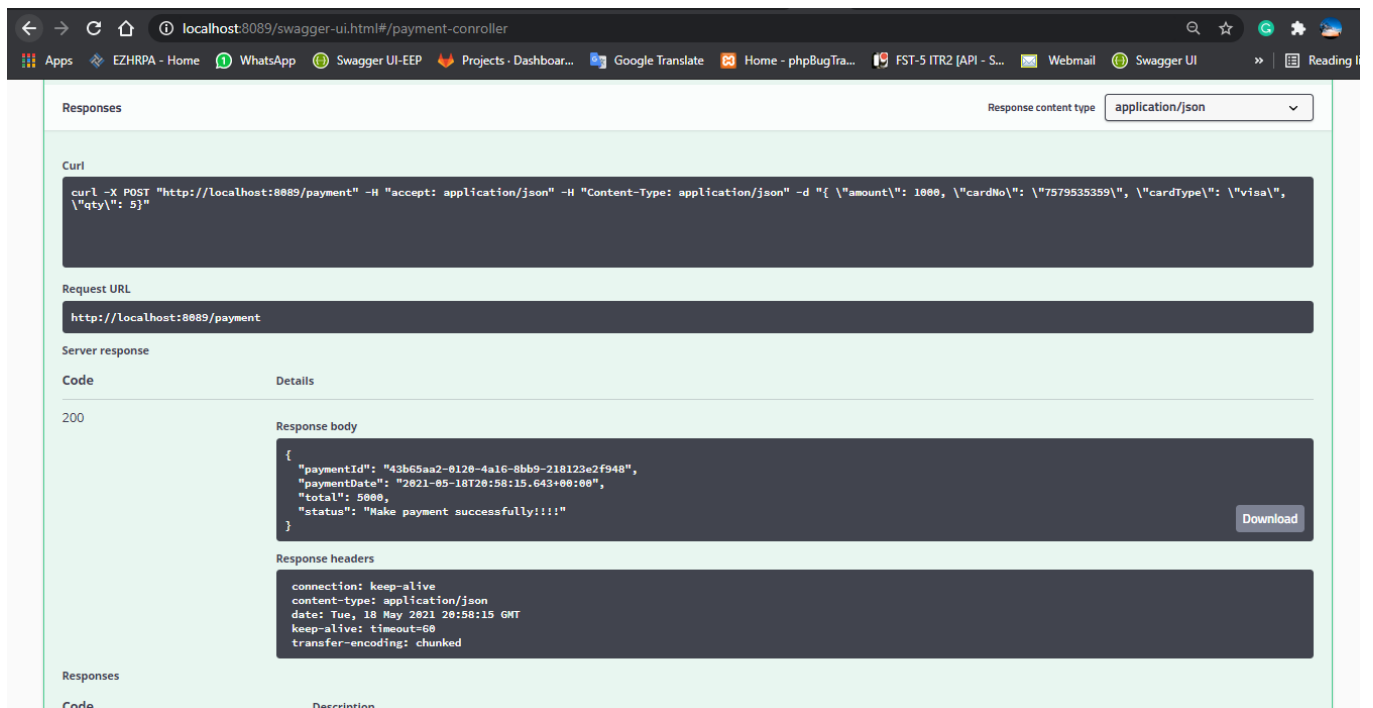
Payment Service Request - Postman



Payment Service - Swagger API - 1

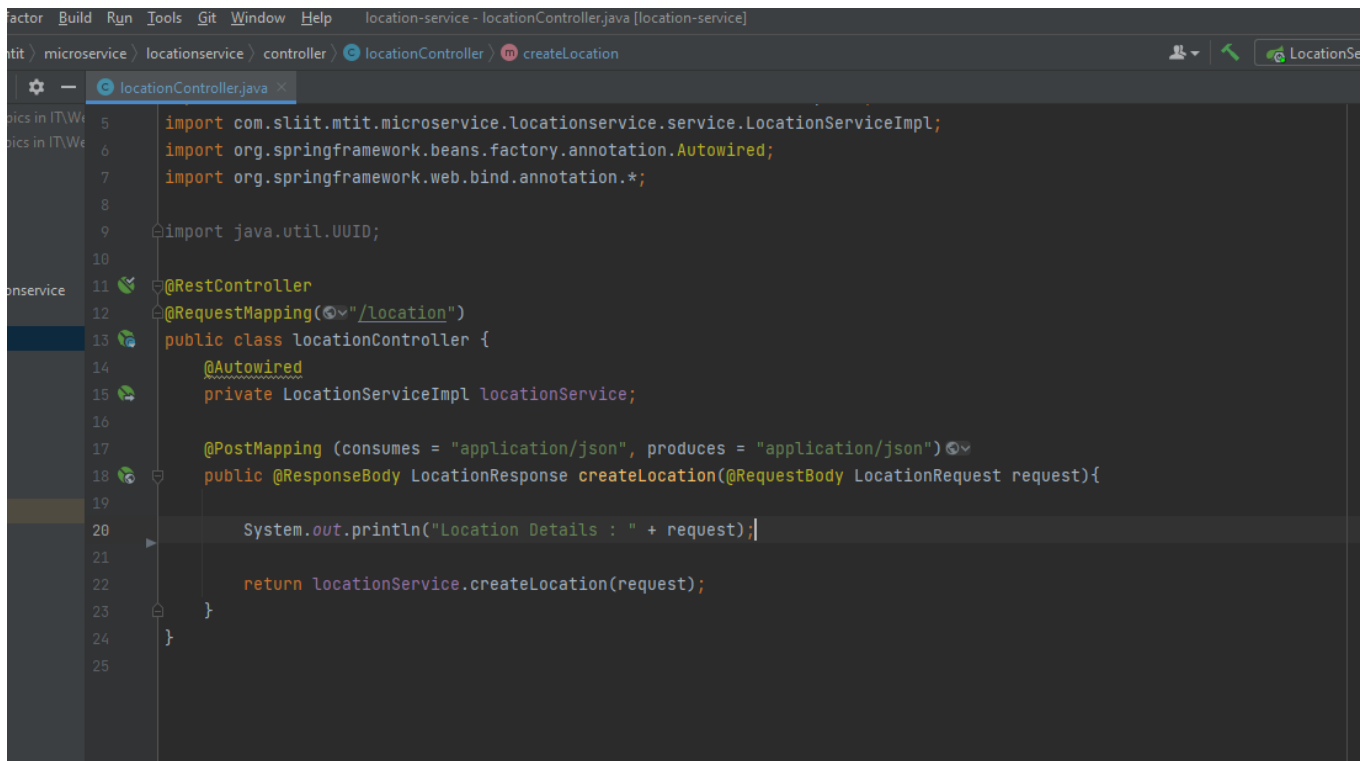


Payment Service - Swagger API -2



Payment Service - Swagger API - 3

3.5 Location Service



```
import com.sliit.mtit.microservice.locationservice.service.LocationServiceImpl;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.*;

import java.util.UUID;

@RestController
@RequestMapping("/location")
public class LocationController {

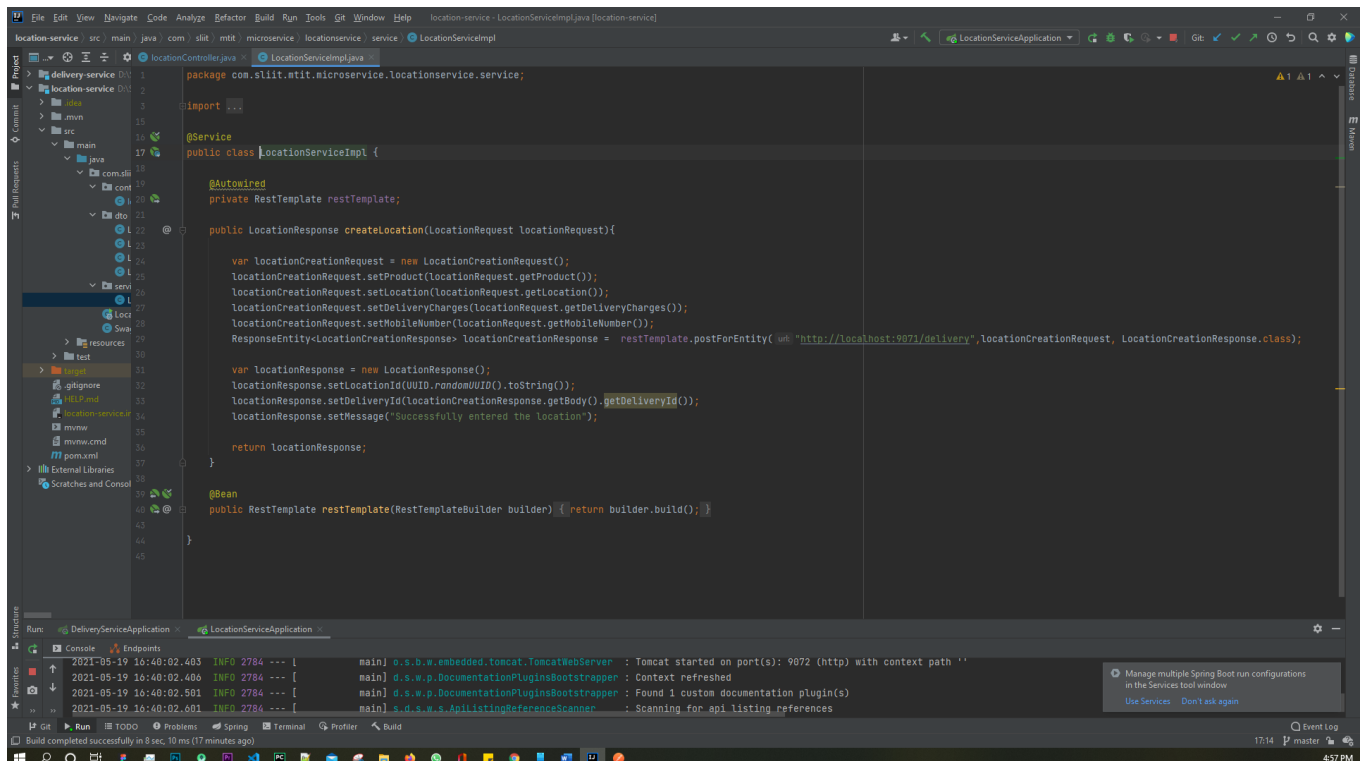
    @Autowired
    private LocationServiceImpl locationService;

    @PostMapping (consumes = "application/json", produces = "application/json")
    public @ResponseBody LocationResponse createLocation(@RequestBody LocationRequest request){

        System.out.println("Location Details : " + request);

        return locationService.createLocation(request);
    }
}
```

Location Service - Controller Class



```
package com.sliit.mtit.microservice.locationservice.service;

import ...

@Service
public class LocationServiceImpl {

    @Autowired
    private RestTemplate restTemplate;

    public LocationResponse createLocation(LocationRequest locationRequest){

        var locationCreationRequest = new LocationCreationRequest();
        locationCreationRequest.setProduct(locationRequest.getProduct());
        locationCreationRequest.setLocation(locationRequest.getLocation());
        locationCreationRequest.setDeliveryCharges(locationRequest.getDeliveryCharges());
        locationCreationRequest.setMobileNumber(locationRequest.getMobileNumber());
        ResponseEntity<LocationCreationResponse> locationCreationResponse = restTemplate.postForEntity("http://localhost:9071/delivery", locationCreationRequest, LocationCreationResponse.class);

        var locationResponse = new LocationResponse();
        locationResponse.setLocationId(UUID.randomUUID().toString());
        locationResponse.setDeliveryId(locationCreationResponse.getBody().getDeliveryId());
        locationResponse.setMessage("Successfully entered the location");

        return locationResponse;
    }

    @Bean
    public RestTemplate restTemplate(RestTemplateBuilder builder) {return builder.build();}
}
```

Run: DeliveryServiceApplication - LocationServiceApplication

Console:

```
2021-05-19 16:40:02.403 INFO 2784 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 9072 (http) with context path ''
2021-05-19 16:40:02.406 INFO 2784 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Context refreshed
2021-05-19 16:40:02.501 INFO 2784 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Found 1 custom documentation plugin(s)
2021-05-19 16:40:02.601 INFO 2784 --- [main] s.d.s.w.s.ApiListingReferenceScanner : Scanning for api listing references
```

Build completed successfully in 8 sec, 10 ms (17 minutes ago)

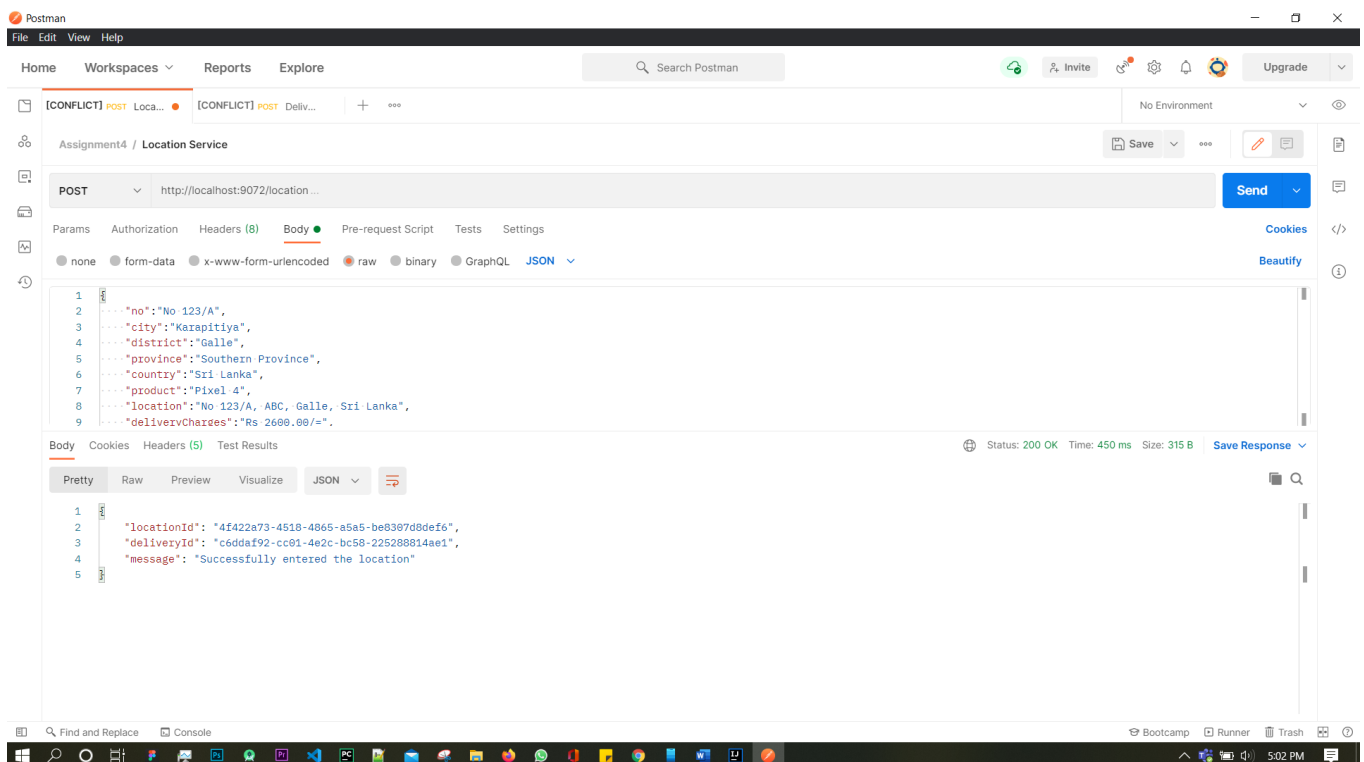
Location Service - Service Implementation Class

```

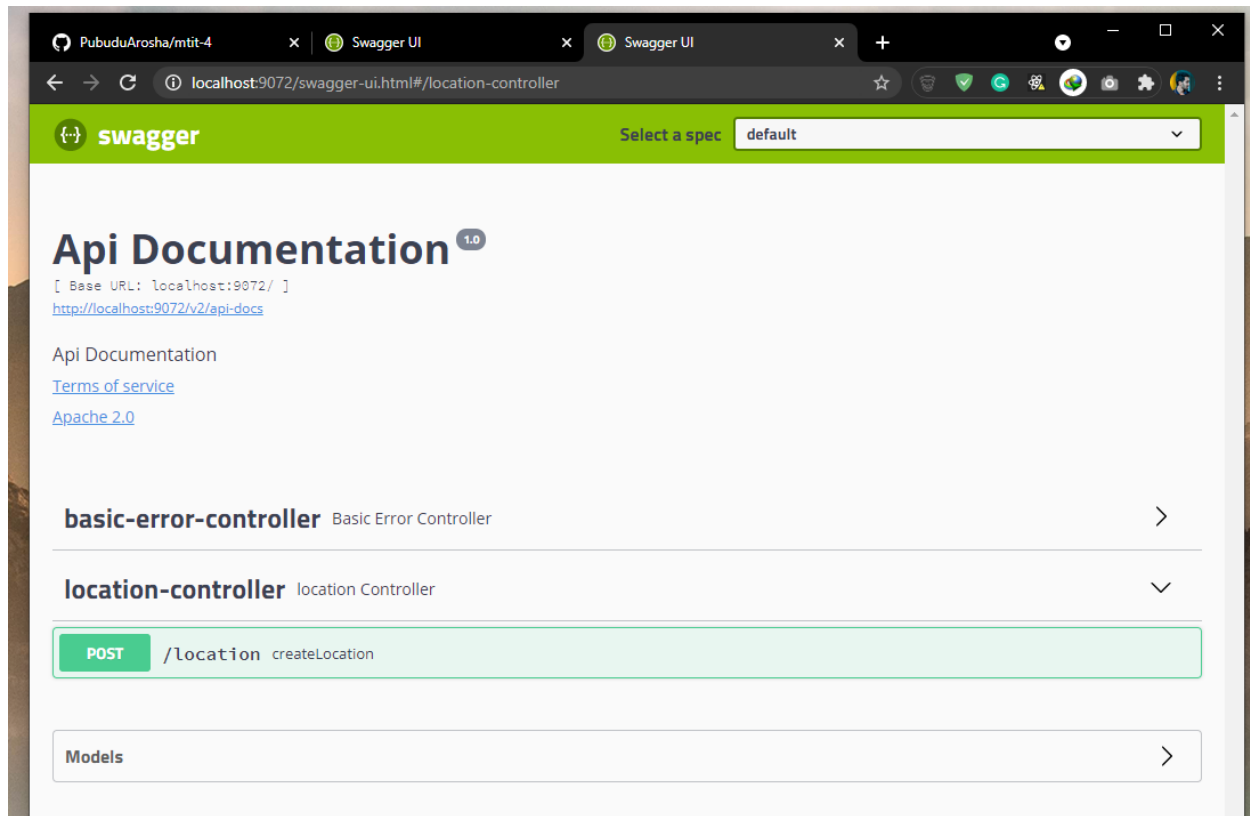
2021-05-19 16:39:59.377 INFO 2784 --- [main] c.s.m.m.l.LocationServiceApplication : Starting LocationServiceApplication using Java 11.0.11 on DESKTOP-HEIVA55 with PID 2784 (C:\Program Files\AdoptOpenJDK\jdk-11.0.11.9-hotspot\bin\java.exe ...)
2021-05-19 16:39:59.382 INFO 2784 --- [main] c.s.m.m.l.LocationServiceApplication : No active profile set, falling back to default profiles: default
2021-05-19 16:40:01.466 INFO 2784 --- [main] o.s.b.w.e.tomcat.TomcatWebServer : Tomcat initialized with port(s): 9072 (http)
2021-05-19 16:40:01.490 INFO 2784 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2021-05-19 16:40:01.490 INFO 2784 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.45]
2021-05-19 16:40:01.614 INFO 2784 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2021-05-19 16:40:01.614 INFO 2784 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 2170 ms
2021-05-19 16:40:02.061 INFO 2784 --- [main] p.rtySourcedRequestMappingHandlerMapping : Mapped URL path [/v2/api-docs] onto method [springfox.documentation.swagger2.web.Swagger2Controller#getDocumentation(String, HttpMethod)]
2021-05-19 16:40:02.097 INFO 2784 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'
2021-05-19 16:40:02.403 INFO 2784 --- [main] o.s.b.w.e.tomcat.TomcatWebServer : Tomcat started on port(s): 9072 (http) with context path ''
2021-05-19 16:40:02.406 INFO 2784 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Context refreshed
2021-05-19 16:40:02.501 INFO 2784 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Found 1 custom documentation plugin(s)
2021-05-19 16:40:02.501 INFO 2784 --- [main] s.d.s.w.s.ApiListingReferenceScanner : Scanning for api listing references
2021-05-19 16:40:02.866 INFO 2784 --- [main] c.s.m.m.l.LocationServiceApplication : Started LocationServiceApplication in 4.392 seconds (JVM running for 6.829)
2021-05-19 17:00:01.520 INFO 2784 --- [nio-9072-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2021-05-19 17:00:01.520 INFO 2784 --- [nio-9072-exec-2] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
2021-05-19 17:00:01.522 INFO 2784 --- [nio-9072-exec-2] o.s.web.servlet.DispatcherServlet : Completed initialization in 2 ms
Location Details : LocationRequest(no=No 123/A, city=Karapitiya, district=Galle, province=Southern Province, country=Sri Lanka, product=Pixel 4, location=No 123/A, ABC, Galle, Sri Lanka, deliveryCharges=Rs 2600.00/€, mobileNum

```

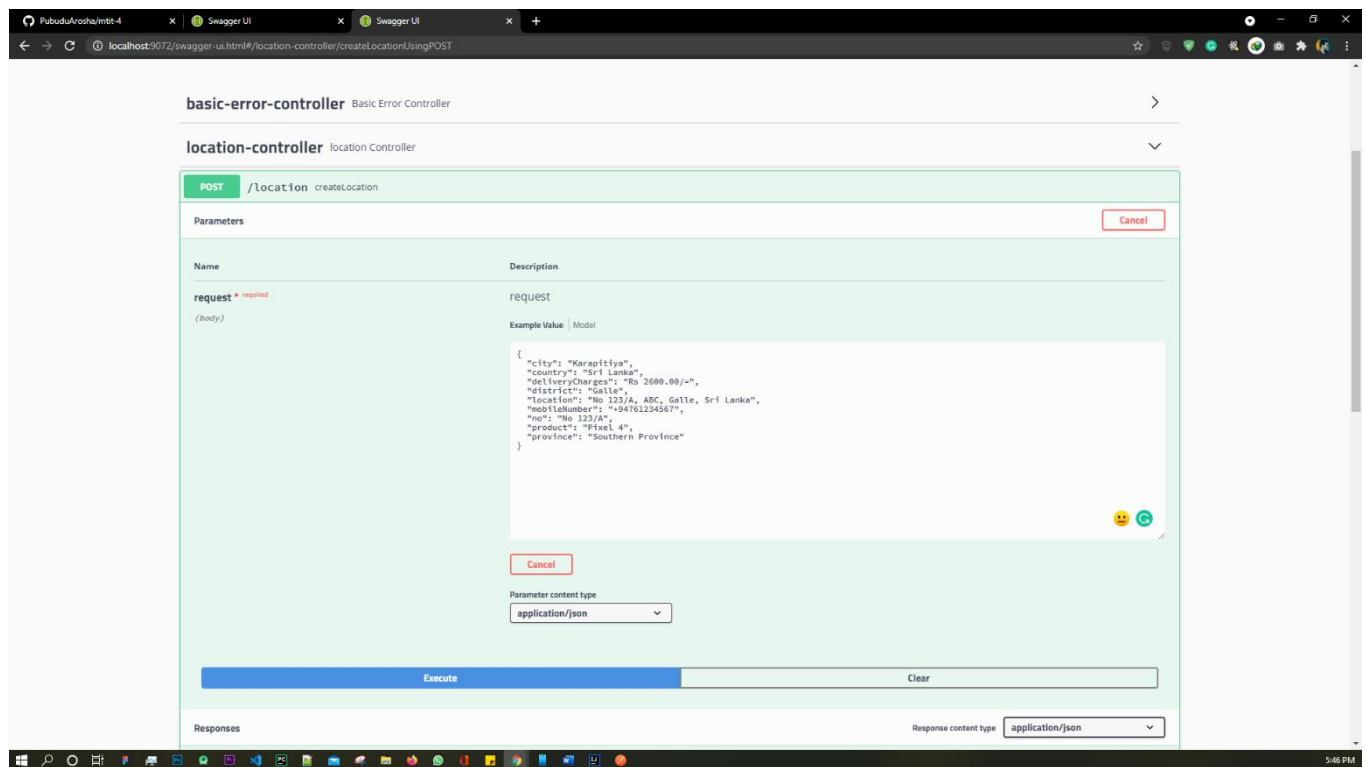
Location Service – Console



Location Service Request - Postman



Location Service - Swagger API 01



Location Service - Swagger API 02

Swagger UI interface showing the execution of a POST request to the `createLocationUsingPOST` endpoint.

Execute button is visible at the top.

Responses section shows the response content type set to `application/json`.

Curl command:

```
curl -X POST "http://localhost:9872/location" -H "accept: application/json" -H "Content-Type: application/json" -d '{"city": "Karapitiya", "country": "Sri Lanka", "deliveryCharges": "Rs. 2000.00/-", "district": "Galle", "location": "No 123/A, ABC, Galle, Sri Lanka", "mobileNumber": "+94761234567", "no": "No 123/A", "product": "Pixel 4", "province": "Southern Province"}'
```

Request URL: `http://localhost:9872/location`

Server response details:

Code	Details
200	<p>Response body</p> <pre>{ "locationId": "1c5c59d4-c99b-4b1b-81b5-7483ed8dcf", "deliveryId": "3c83c34a-cfaa-4899-bba8-156d6e8b26dd", "message": "Successfully entered the location"}</pre> <p>Response headers</p> <pre>connection: keep-alive content-type: application/json date: Wed, 19 May 2021 11:39:55 GMT keep-alive: timeout=60 transfer-encoding: chunked</pre>

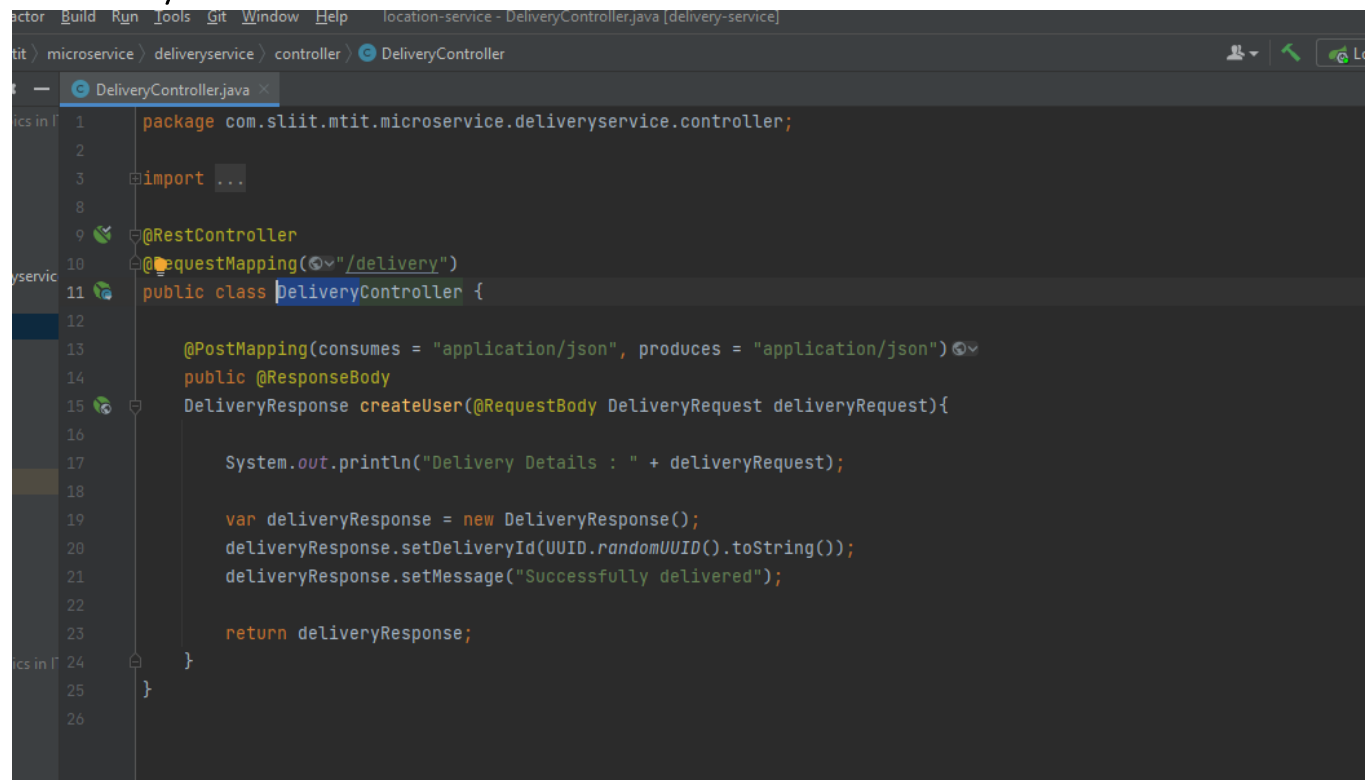
Responses section shows the response code `200` and description `OK`.

Example Value | **Model**

```
{  "deliveryId": "string",  "locationId": "string",  "message": "string"}
```

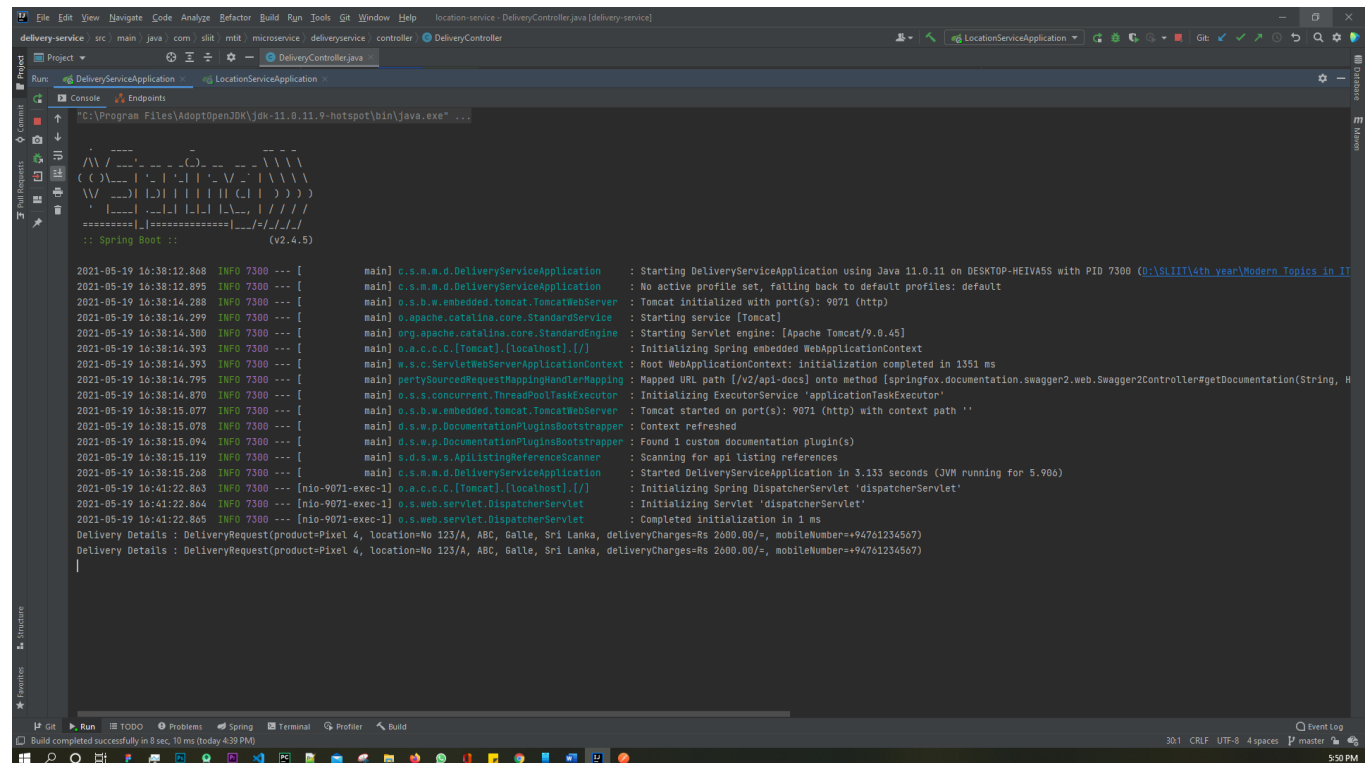
Location Service - Swagger API 03

3.6 Delivery Service



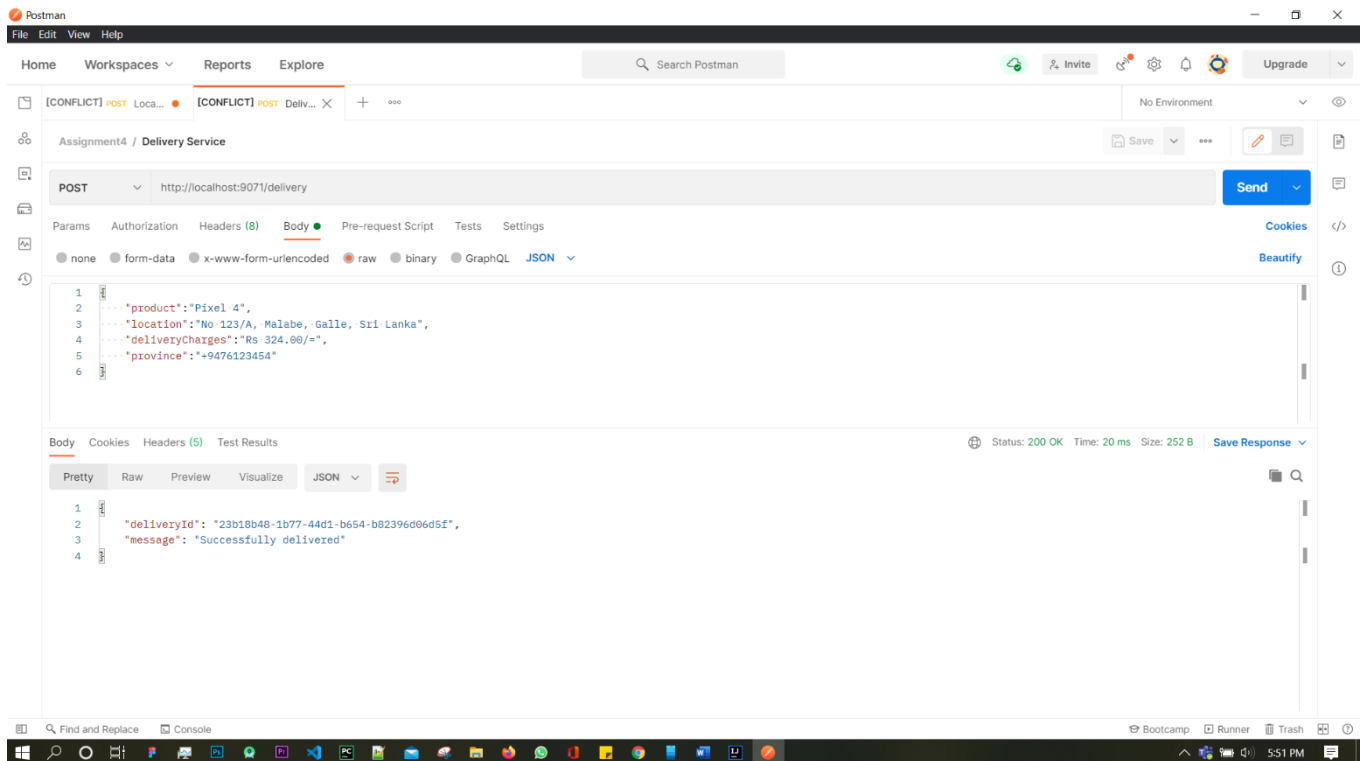
```
1 package com.sliit.mtit.microservice.deliveryservice.controller;
2
3 import ...
4
5 @RestController
6 @RequestMapping("/delivery")
7 public class DeliveryController {
8
9     @PostMapping(consumes = "application/json", produces = "application/json")
10    public @ResponseBody
11    DeliveryResponse createUser(@RequestBody DeliveryRequest deliveryRequest){
12
13        System.out.println("Delivery Details : " + deliveryRequest);
14
15        var deliveryResponse = new DeliveryResponse();
16        deliveryResponse.setDeliveryId(UUID.randomUUID().toString());
17        deliveryResponse.setMessage("Successfully delivered");
18
19        return deliveryResponse;
20    }
21 }
```

Delivery Service - Controller Class

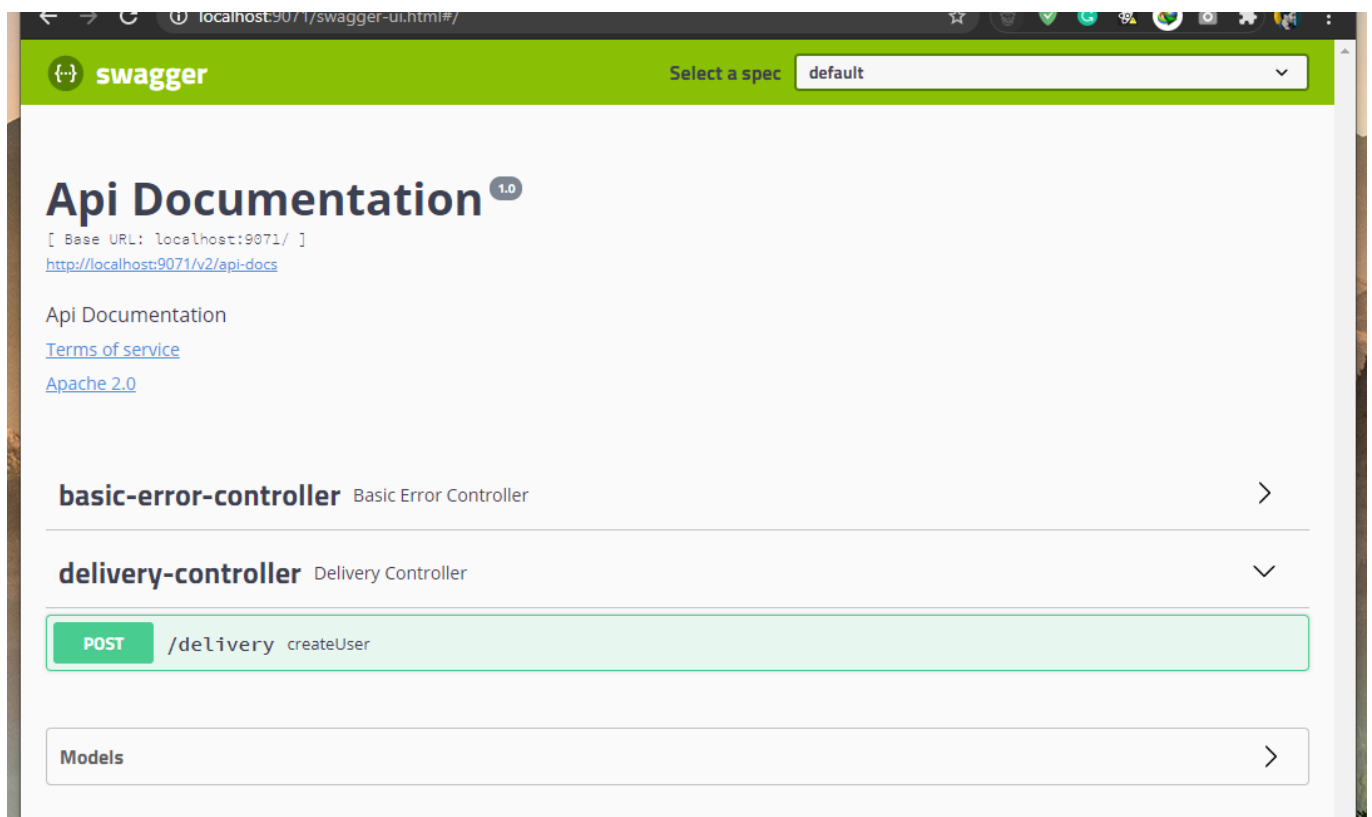


```
2021-05-19 16:38:12.868 INFO 7300 --- [main] c.s.m.m.d.DeliveryServiceApplication : Starting DeliveryServiceApplication using Java 11.0.11 on DESKTOP-HEIVA55 with PID 7300 (C:\SLIIT\4th_year\Modern_Topics_in_IT
2021-05-19 16:38:12.895 INFO 7300 --- [main] c.s.m.m.d.DeliveryServiceApplication : No active profile set, falling back to default profiles: default
2021-05-19 16:38:14.288 INFO 7300 --- [main] o.s.b.w.e.t.tomcat.TomcatWebServer : Tomcat initialized with port(s): 9071 (http)
2021-05-19 16:38:14.299 INFO 7300 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2021-05-19 16:38:14.300 INFO 7300 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.45]
2021-05-19 16:38:14.393 INFO 7300 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2021-05-19 16:38:14.393 INFO 7300 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 1351 ms
2021-05-19 16:38:14.795 INFO 7300 --- [main] p.rtySourcedRequestMappingHandlerMapping : Mapped URL path [/v2/api-docs] onto method [springfox.documentation.swagger2.web.Swagger2Controller#getDocumentation(String, H
2021-05-19 16:38:14.870 INFO 7300 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'
2021-05-19 16:38:15.077 INFO 7300 --- [main] o.s.b.w.e.t.tomcat.TomcatWebServer : Tomcat started on port(s): 9071 (http) with context path ''
2021-05-19 16:38:15.078 INFO 7300 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Context refreshed
2021-05-19 16:38:15.094 INFO 7300 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Found 1 custom documentation plugin(s)
2021-05-19 16:38:15.119 INFO 7300 --- [main] s.d.s.w.s.ApiListingReferenceScanner : Scanning for api listing references
2021-05-19 16:38:15.268 INFO 7300 --- [main] c.s.m.m.d.DeliveryServiceApplication : Started DeliveryServiceApplication in 3.133 seconds (JVM running for 5.906)
2021-05-19 16:41:22.863 INFO 7300 --- [nio-9071-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2021-05-19 16:41:22.864 INFO 7300 --- [nio-9071-exec-1] o.s.web.servlet.DispatcherServlet : Initializing Spring DispatcherServlet 'dispatcherServlet'
2021-05-19 16:41:22.865 INFO 7300 --- [nio-9071-exec-1] o.s.web.servlet.DispatcherServlet : Completed initialization in 1 ms
Delivery Details : DeliveryRequest(product=Pixel 4, location=No 123/A, ABC, Galle, Sri Lanka, deliveryCharges=Rs 2600.00/=-, mobileNumber=+94761234567)
Delivery Details : DeliveryRequest(product=Pixel 4, location=No 123/A, ABC, Galle, Sri Lanka, deliveryCharges=Rs 2600.00/=-, mobileNumber=+94761234567)
```

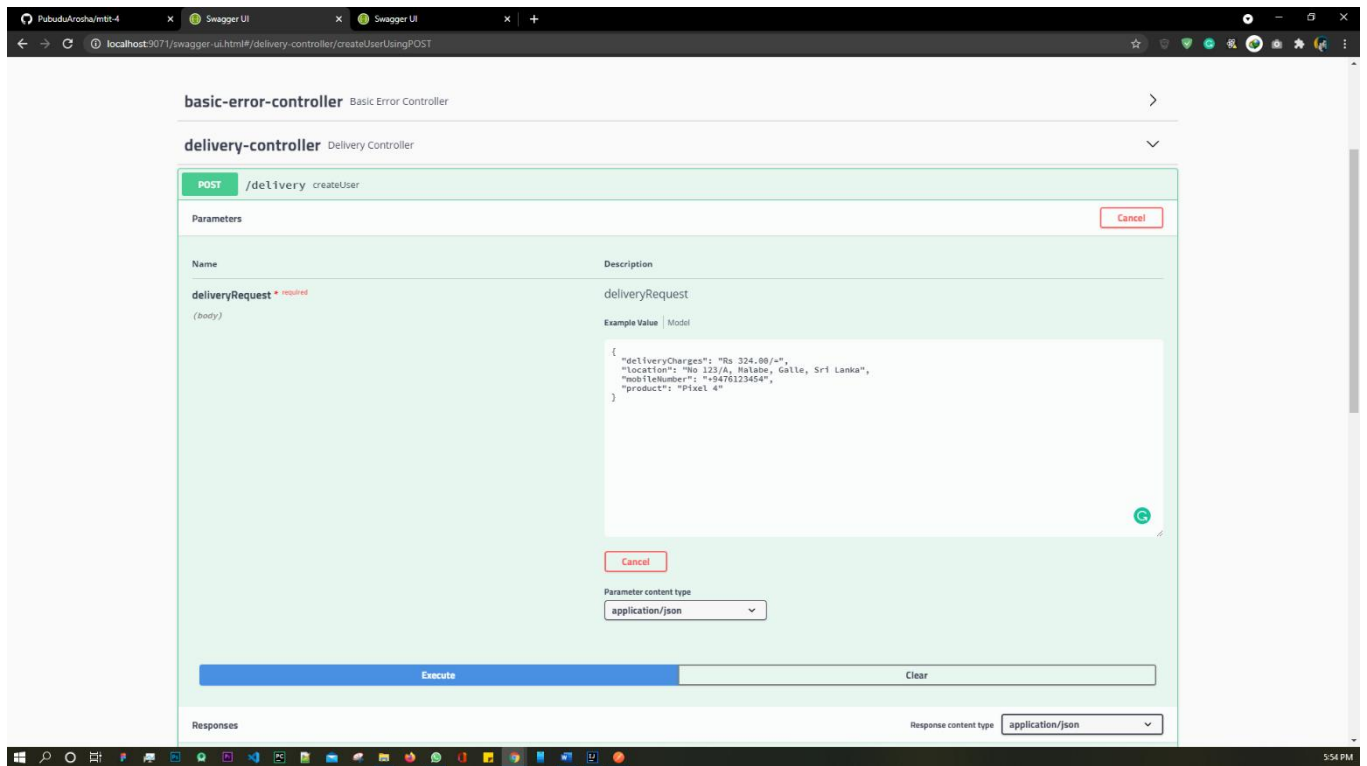
Delivery Service - Console



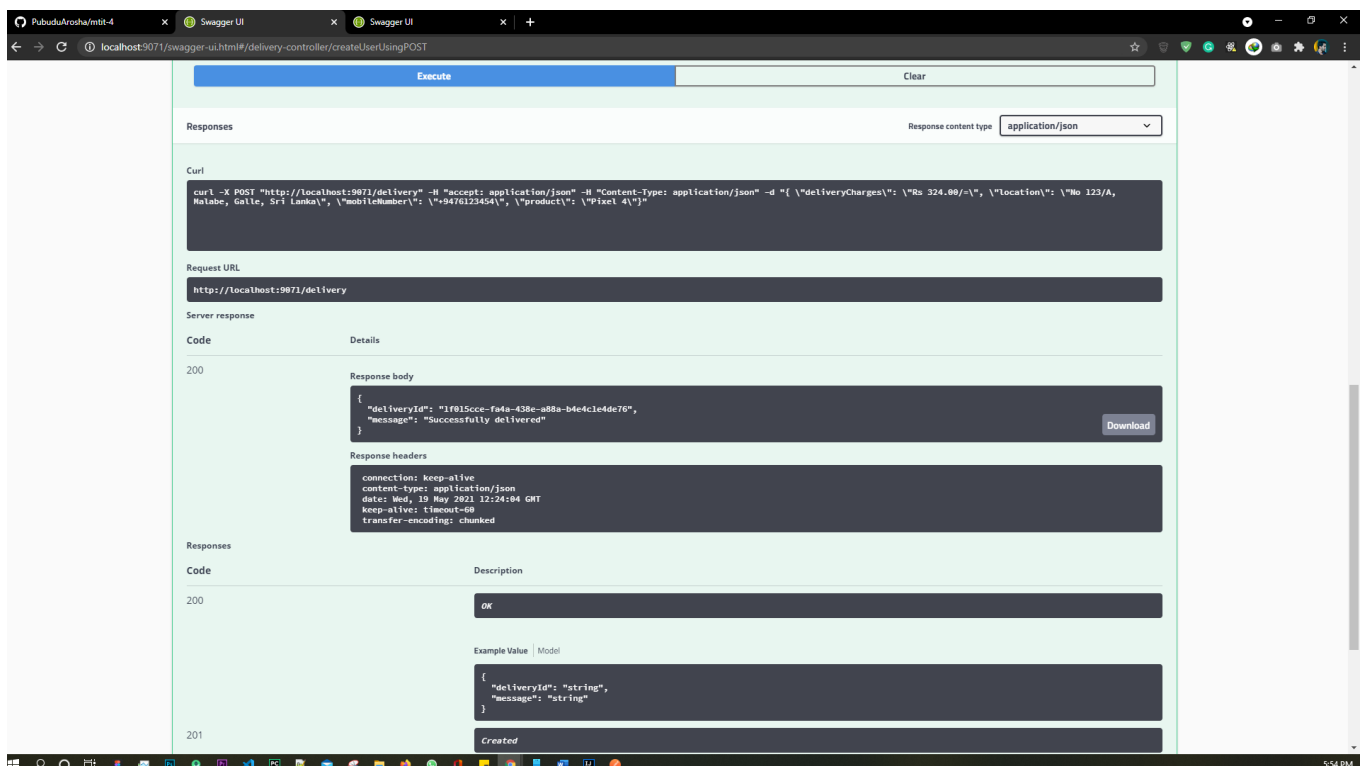
Delivery Service Request – Postman



Delivery Service - Swagger API 01

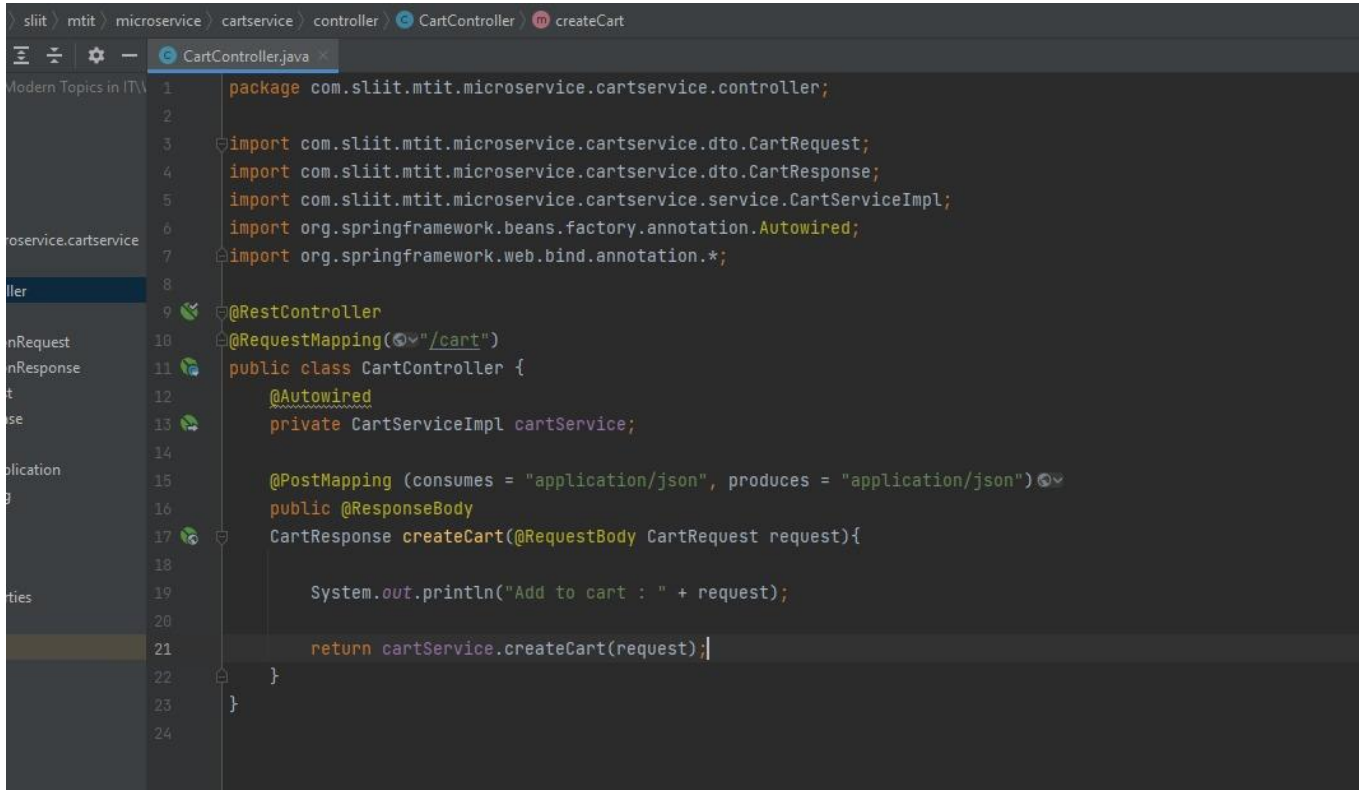


Delivery Service - Swagger API 02



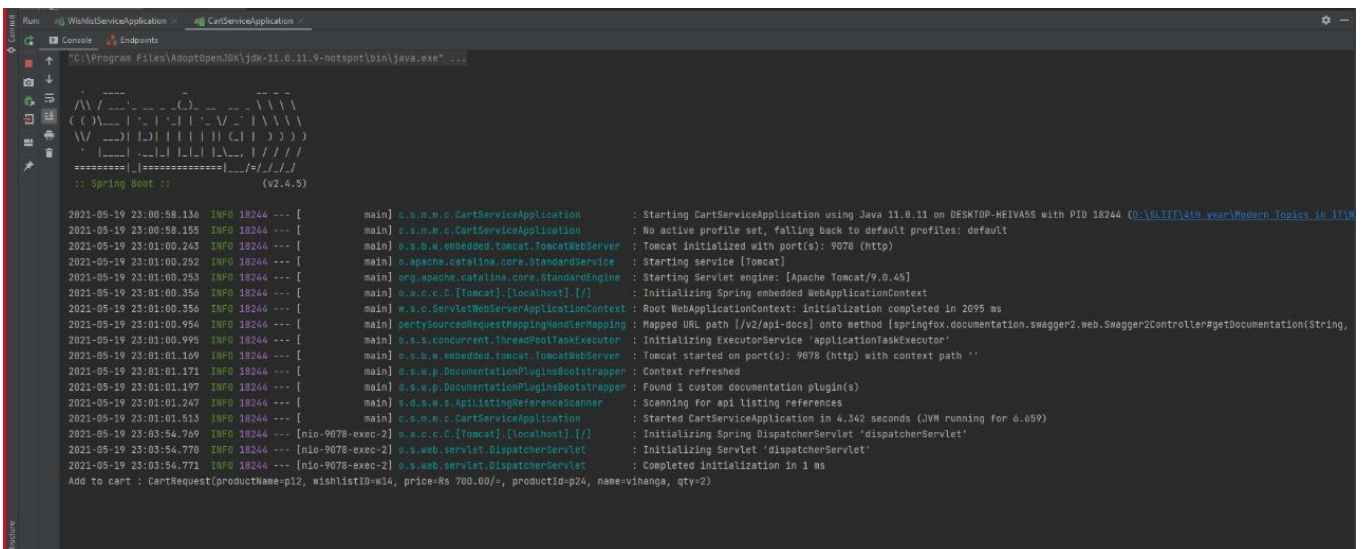
Delivery Service - Swagger API 03

3.7 Cart Service



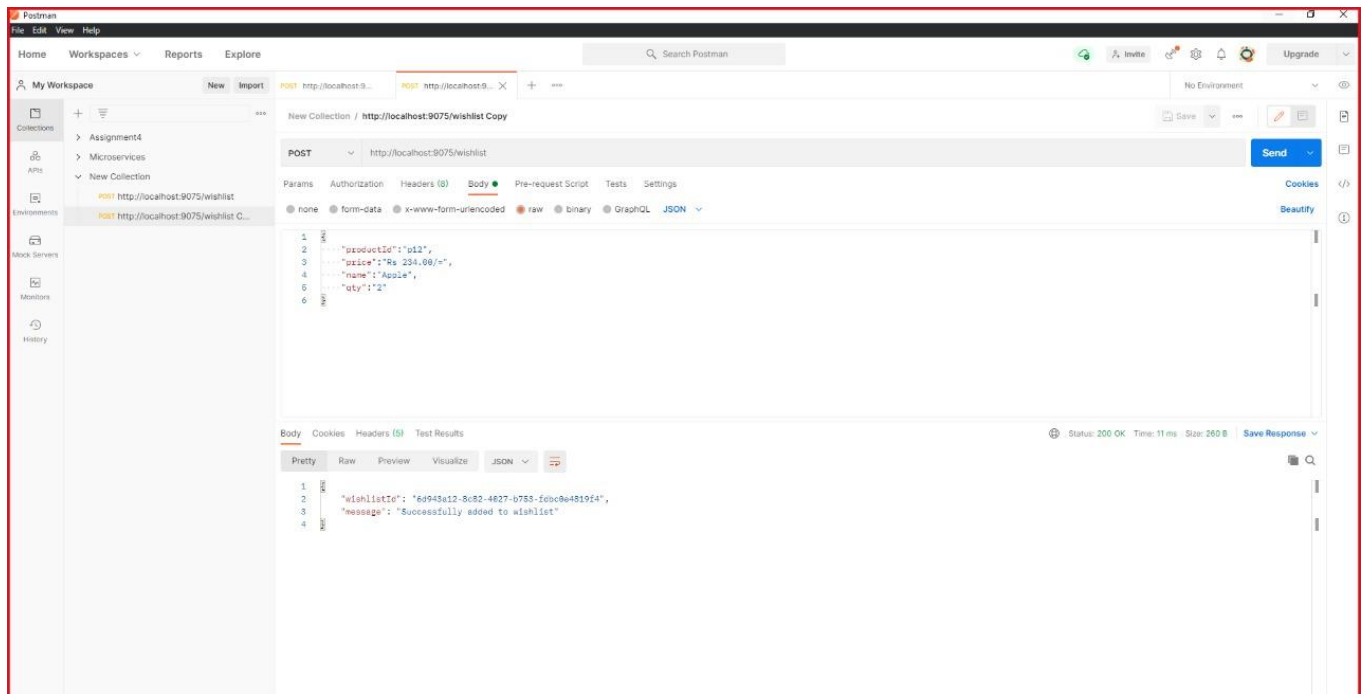
```
1 package com.sliit.mtit.microservice.cartservice.controller;
2
3 import com.sliit.mtit.microservice.cartservice.dto.CartRequest;
4 import com.sliit.mtit.microservice.cartservice.dto.CartResponse;
5 import com.sliit.mtit.microservice.cartservice.service.CartServiceImpl;
6 import org.springframework.beans.factory.annotation.Autowired;
7 import org.springframework.web.bind.annotation.*;
8
9 @RestController
10 @RequestMapping("/cart")
11 public class CartController {
12     @Autowired
13     private CartServiceImpl cartService;
14
15     @PostMapping (consumes = "application/json", produces = "application/json")
16     public @ResponseBody
17     CartResponse createCart(@RequestBody CartRequest request){
18
19         System.out.println("Add to cart : " + request);
20
21         return cartService.createCart(request);
22     }
23 }
24
```

Cart Service – Controller Class

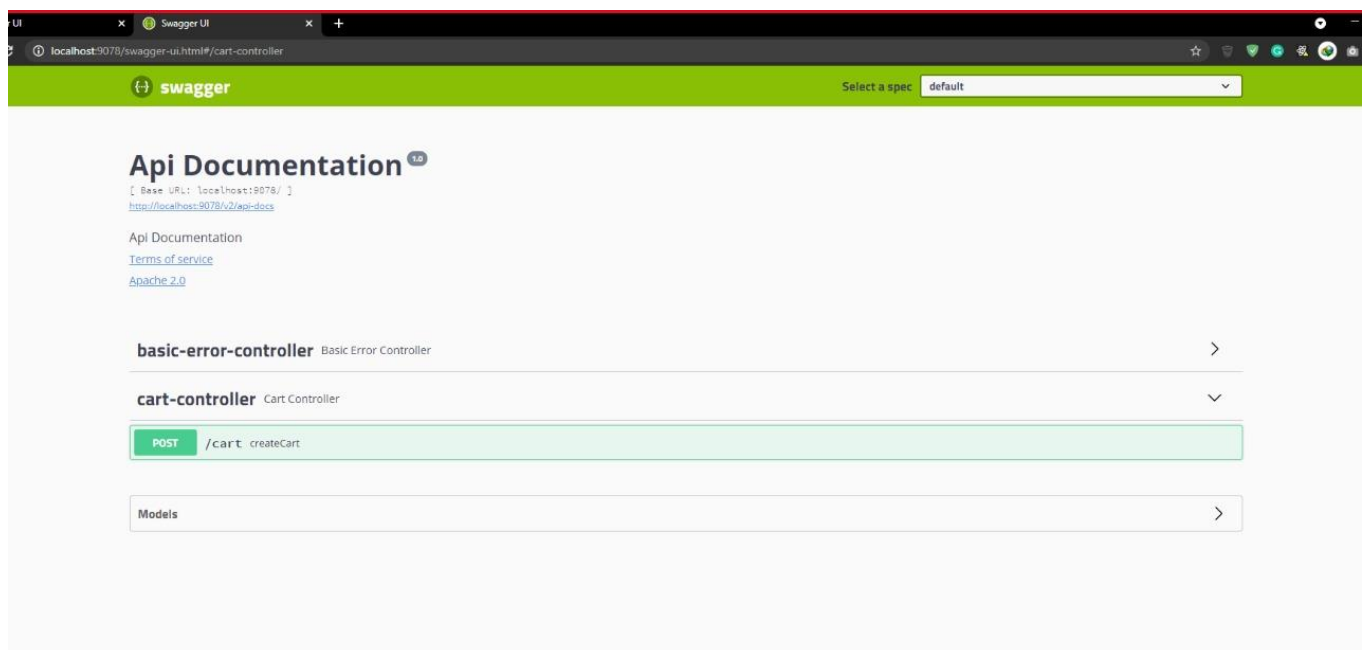


```
Run: [C:\Program Files\AdoptOpenJDK\jdk-11.0.11-hotspot\bin\java.exe] ...
2021-05-19 23:00:58.136 INFO 18244 --- [main] c.s.m.s.c.CartServiceApplication : Starting CartServiceApplication using Java 11.0.11 on DESKTOP-HEIVASS with PID 18244 (C:\Users\ITV\4th year\Modern_Topics_in_ITV\3.7 Cart Service\CartServiceApplication\src\main\java\com\sliit\mtit\microservice\cartservice\application\CartServiceApplication.class)
2021-05-19 23:00:58.155 INFO 18244 --- [main] c.s.m.s.c.CartServiceApplication : No active profile set, falling back to default profiles: default
2021-05-19 23:01:00.243 INFO 18244 --- [main] o.s.b.w.e.tomcat.TomcatWebServer : Tomcat initialized with port(s): 9078 (http)
2021-05-19 23:01:00.252 INFO 18244 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2021-05-19 23:01:00.253 INFO 18244 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.45]
2021-05-19 23:01:00.356 INFO 18244 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 2095 ms
2021-05-19 23:01:00.954 INFO 18244 --- [main] p.rtySourceRequestMappingHandlerMapping : Mapped URL path [/v2/api-docs] onto method [springfox.documentation.swagger2.web.Swagger2Controller#getDocumentation(String, HttpServletRequest)]
2021-05-19 23:01:00.995 INFO 18244 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'
2021-05-19 23:01:01.169 INFO 18244 --- [main] o.s.b.w.e.tomcat.TomcatWebServer : Tomcat started on port(s): 9078 (http) with context path ''
2021-05-19 23:01:01.171 INFO 18244 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Context refreshed
2021-05-19 23:01:01.197 INFO 18244 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Found 1 custom documentation plugin(s)
2021-05-19 23:01:01.247 INFO 18244 --- [main] s.d.s.w.s.ApiListingReferenceScanner : Scanning for api listing references
2021-05-19 23:01:01.513 INFO 18244 --- [main] c.s.m.s.c.CartServiceApplication : Started CartServiceApplication in 4.342 seconds (JVM running for 6.659)
2021-05-19 23:03:54.769 INFO 18244 --- [nio-9078-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2021-05-19 23:03:54.770 INFO 18244 --- [nio-9078-exec-2] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
2021-05-19 23:03:54.771 INFO 18244 --- [nio-9078-exec-2] o.s.web.servlet.DispatcherServlet : Completed initialization in 1 ms
Add to cart : CartRequest(productName=p12, wishlistID=w14, price=Rs 700.00/-, productId=p24, name=vihanga, qty=2)
```

Cart Service – console



Cart Service – Postman



Cart Service – API Swagger – 1

3.8 Wish List Service

```

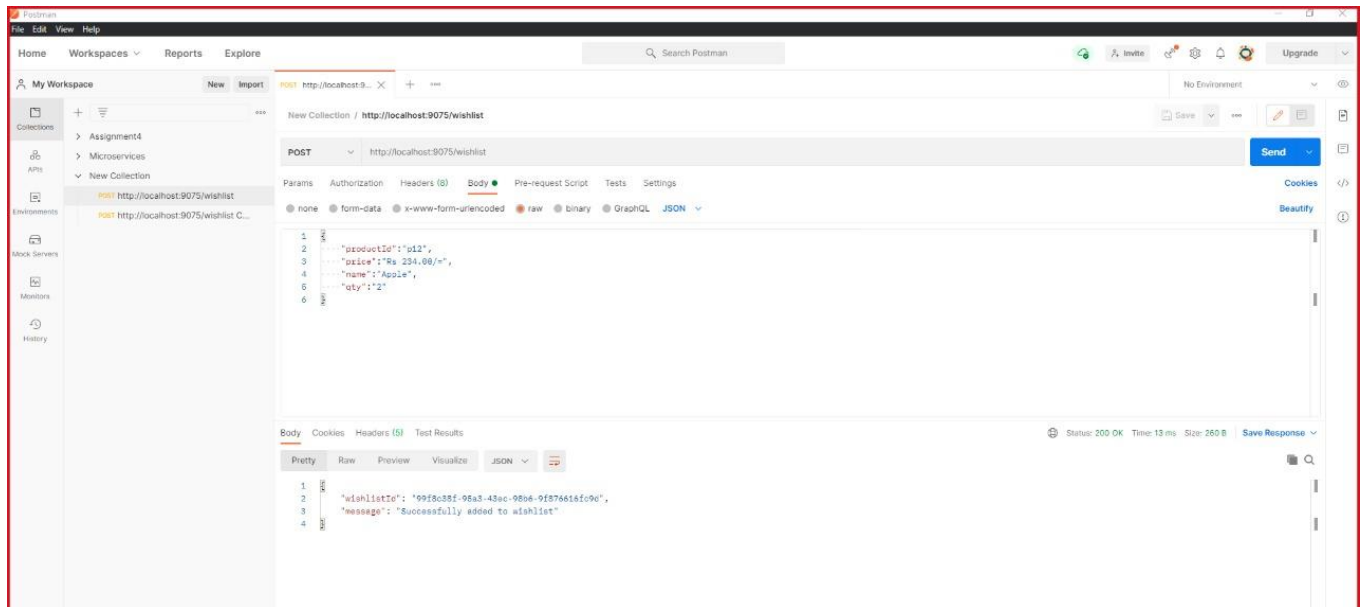
1 package com.sliit.mtit.microservice.wishlistservice.controller;
2
3 import com.sliit.mtit.microservice.wishlistservice.dto.WishlistRequest;
4 import com.sliit.mtit.microservice.wishlistservice.dto.WishlistResponse;
5 import org.springframework.web.bind.annotation.*;
6
7 import java.util.UUID;
8
9 @RestController
10 @RequestMapping("/wishlist")
11 public class WishlistController {
12
13     @PostMapping(consumes = "application/json", produces = "application/json")
14     public @ResponseBody
15     WishlistResponse createUser(@RequestBody WishlistRequest wishlistRequest){
16
17         System.out.println("Wishlist Details : " + wishlistRequest);
18
19         var wishlistResponse = new WishlistResponse();
20         wishlistResponse.setWishlistId(UUID.randomUUID().toString());
21         wishlistResponse.setMessage("Successfully added to wishlist");
22
23         return wishlistResponse;
24     }
25 }

```

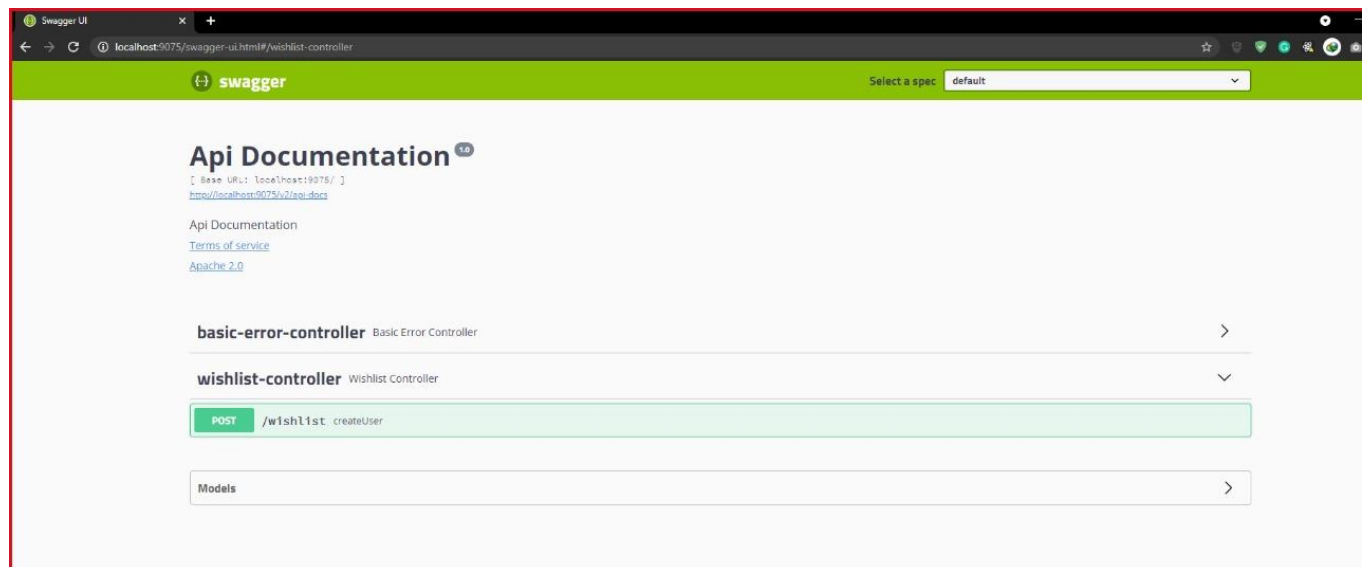
Wish List Service – Controller Class

```
Run: C:\Program Files\Java\jdk-11.0.11-hotspot\bin\java.exe ...  
-- Spring Boot :: (v2.4.5)  
  
2021-05-19 23:00:58.136 INFO 18244 --- [main] o.s.m.w.c.CartServiceApplication : Starting CartServiceApplication using Java 11.0.11 on DESKTOP-HEIVASS with PID 18244 (@WSJIT/4th year Modern Topics in IT)  
2021-05-19 23:00:58.195 INFO 18244 --- [main] o.s.m.w.c.CartServiceApplication : No active profile set, falling back to default profiles: default  
2021-05-19 23:01:00.243 INFO 18244 --- [main] o.s.b.w.e.embedded.TomcatWebServer : Tomcat initialized with port(s): 9078 (http)  
2021-05-19 23:01:00.292 INFO 18244 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]  
2021-05-19 23:01:00.283 INFO 18244 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.45]  
2021-05-19 23:01:00.356 INFO 18244 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext  
2021-05-19 23:01:00.356 INFO 18244 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 2695 ms  
2021-05-19 23:01:00.954 INFO 18244 --- [main] pertySourceRequestMappingHandlerMapping : Mapped URL path [/v2/api-docs] onto method [springfox.documentation.swagger2.web.Swagger2Controller#getDocumentation(String,  
2021-05-19 23:01:00.995 INFO 18244 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'  
2021-05-19 23:01:01.169 INFO 18244 --- [main] o.s.b.w.e.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 9078 (http) with context path ''  
2021-05-19 23:01:01.171 INFO 18244 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Context refreshed  
2021-05-19 23:01:01.197 INFO 18244 --- [main] d.s.w.p.DocumentationPluginsBootstrapper : Found 1 custom documentation plugin(s)  
2021-05-19 23:01:01.247 INFO 18244 --- [main] s.d.s.w.s.ApiListingReferencesScanner : Scanning for api listing references  
2021-05-19 23:01:01.513 INFO 18244 --- [nio-9078-exec-2] o.s.m.w.c.CartServiceApplication : Started CartServiceApplication in 4.342 seconds (JVM running for 0.659)  
2021-05-19 23:03:54.769 INFO 18244 --- [nio-9078-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'  
2021-05-19 23:03:54.770 INFO 18244 --- [nio-9078-exec-2] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'  
2021-05-19 23:03:54.771 INFO 18244 --- [nio-9078-exec-2] o.s.web.servlet.DispatcherServlet : Completed initialization in 1 ms  
Add to cart : CartRequest(productName=p12, wishListID=w14, price=Rs 700.00/=-, productId=p24, name=vihange, qty=2)
```

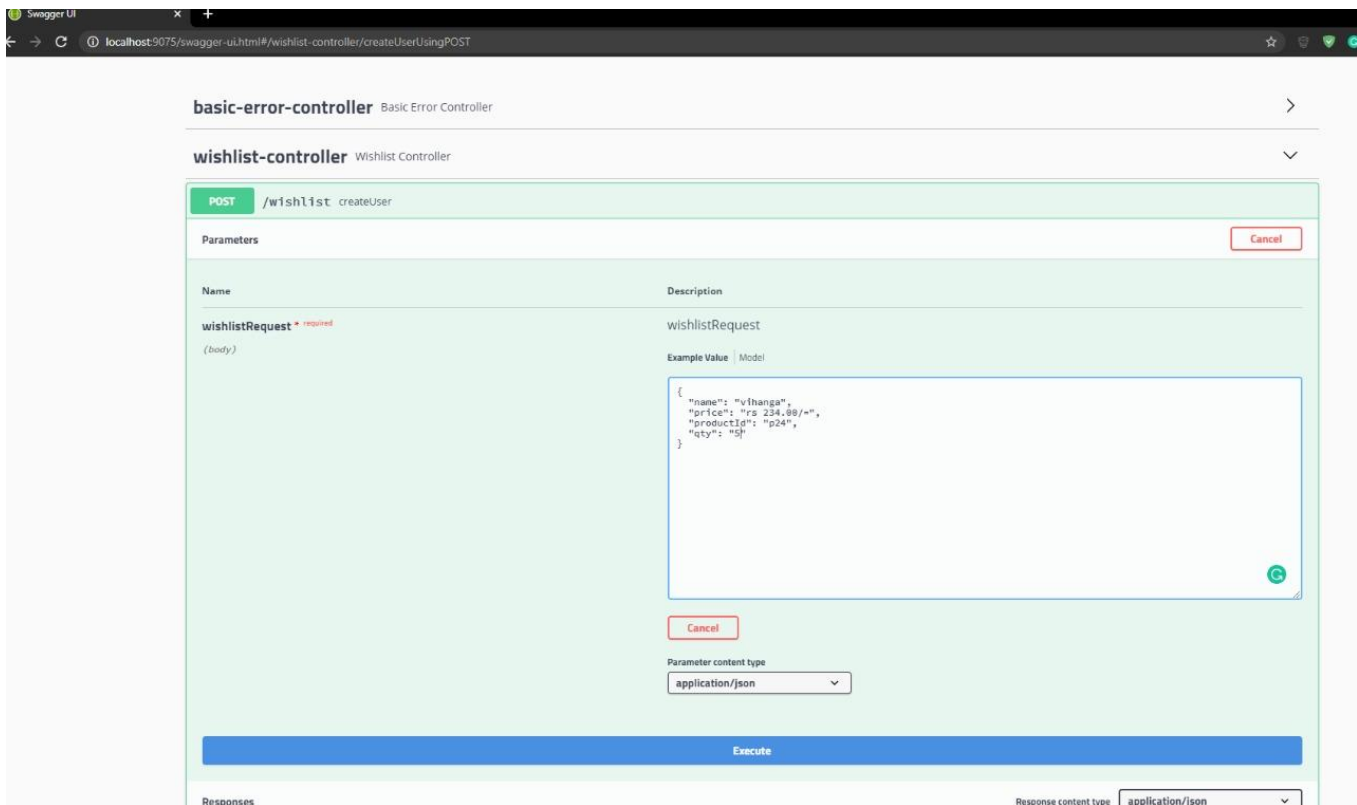
Wish List Service – Console



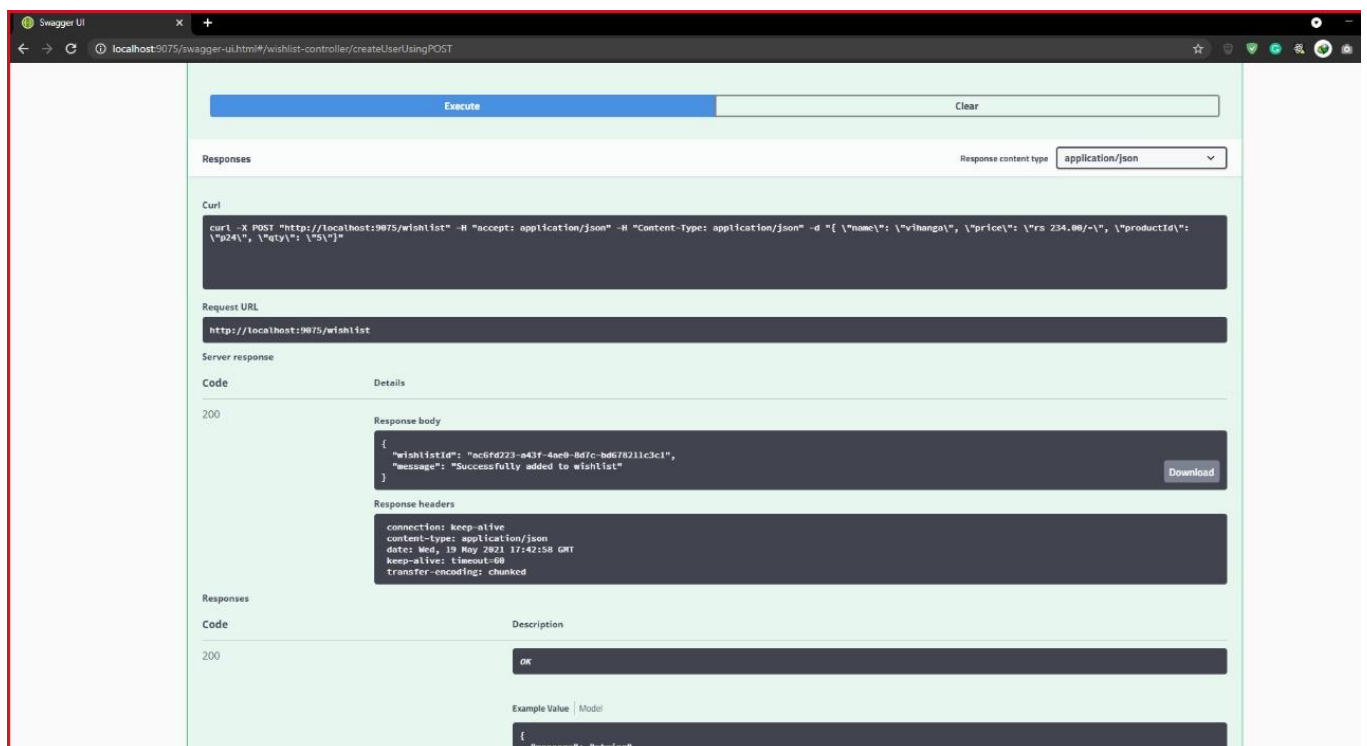
Wish List Service – Postman



Wish List Service – Swagger API - 1



Wish List Service – Swagger API - 2



Wish List Service – Swagger API - 3

Student ID	Name	Microservices
IT18108514	Wanigasekara.M.P.W.P.A	Location Service , Delivery Service
IT18091380	A. Vihanga Nivarthana	Cart Service, Wish List Service
IT18175080	R.M Bawantha Thilan	User Service, Product Service
IT18136234	Sathsarani B.G.K	Order Service, Payment Service