Authentication

To check identitiy of user

Validating user

- userid+pwd
- emailid+pwd
- otp
- emailid+opt
- dynamic link

Authorization

After authentication

Checks ROLE/Desig/Permission

Allows to access a particular resource

JPA Repo

Mongo Repo

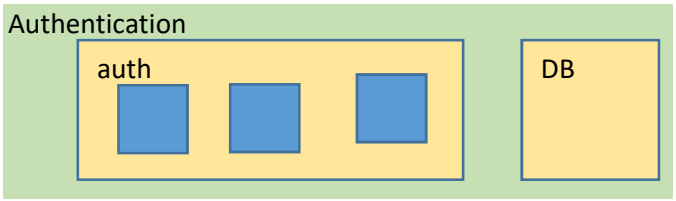
authentication

	op1	op2
	implement auth mechanisum in all applications individually	implement one centralized auth mechanism, let all apps use the same

client app

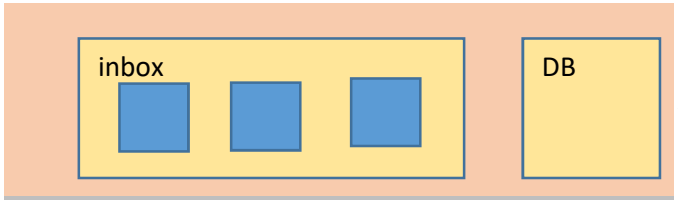
id+pwd

RESTAPI server



raj@gmail.com 12345
abc@gmail.com 12345
xyz

RESTAPI cleint

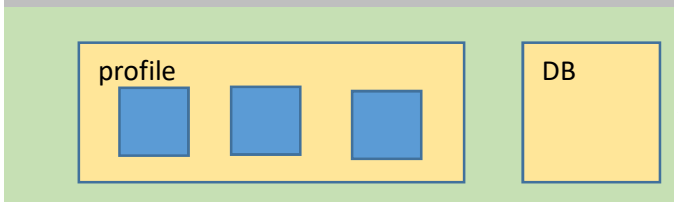


raj@gmail.com m1,m2,m3
abc@gmail.com m4,m5,m6
xyz

RESTAPI cleint

raj@gmail.com s1,s2,s3
abc@gmail.com s4,s5,s6
xyz

RESTAPI cleint

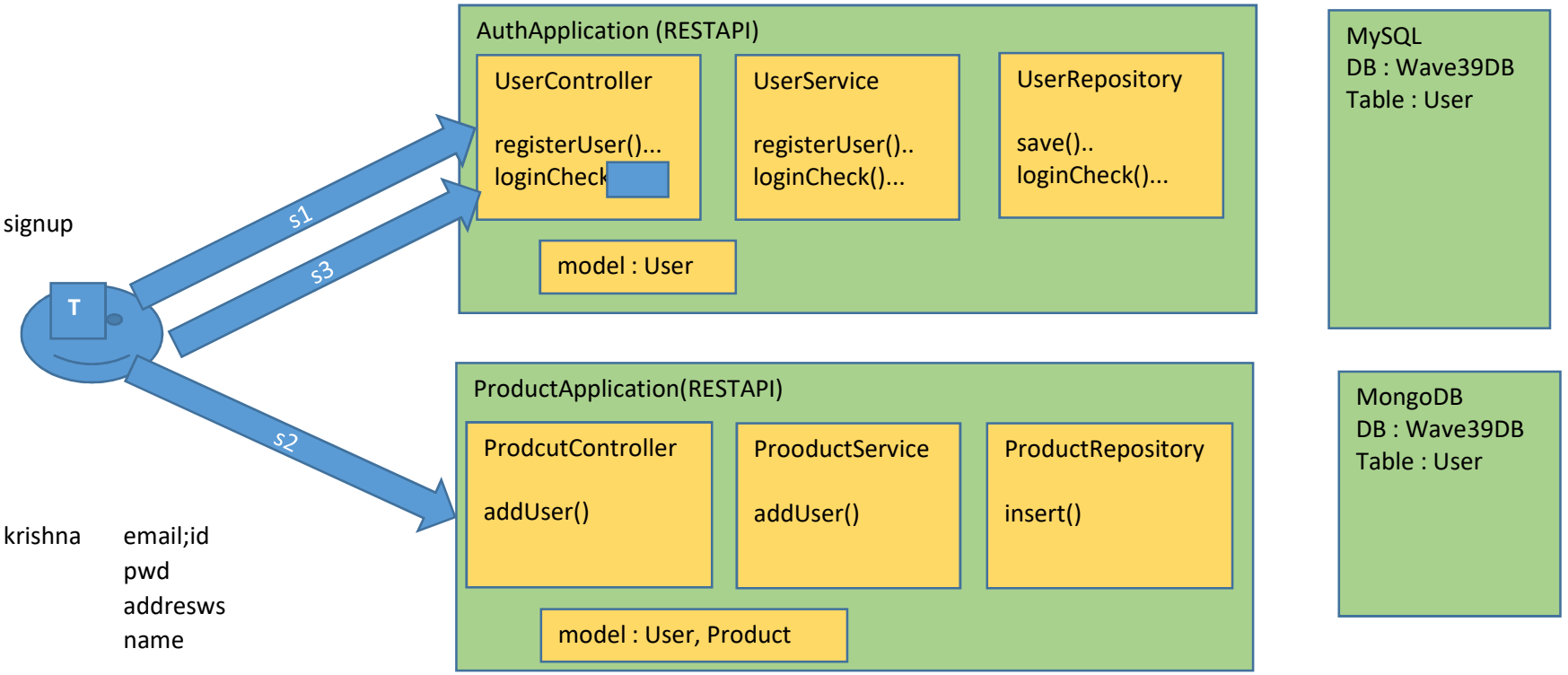


raj@gmail.com Rajeswar theam1
abc@gmail.com Anand theam2
xyz

How to implement manual logincheck mechanism

capture userid+pwd
send the same to BE
BE checks whether the data matching with DB record or not
if matching : login is success
else : login failed

emailid *	password	role
rajeswar@gmail.com	12345	ROLE_USER
anand@gmail.com	12345	ROLE_USER
krsishna@gmail.com	12345	ROLE_USER



krishna email;id
pwd
addresws
name

signup data
emailid pwd name address

product
name desc price

authapp
emailid pwd

productapp
emailid name address

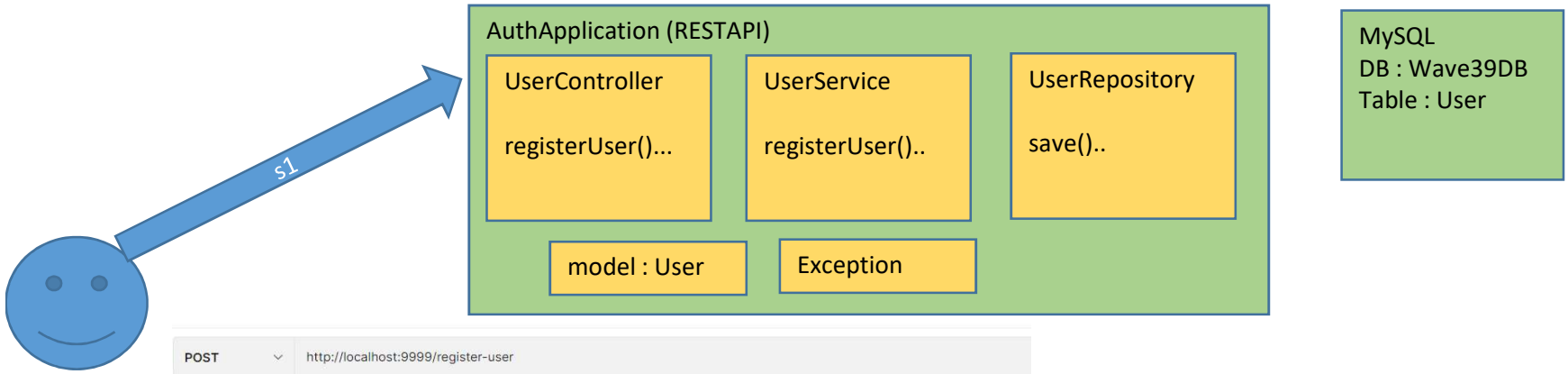
emailid	name	products			
rajeswar@gmail.com	rajeswar	[ ]	s1	creating user a/c in auth app	auth app
anand@gmail.com	anand	[ ]	s2	creating user a/c in product app	product app
krishna@gmail.com	krishna	[ ]	s3	login check	auth app
			s4	access product data with token	

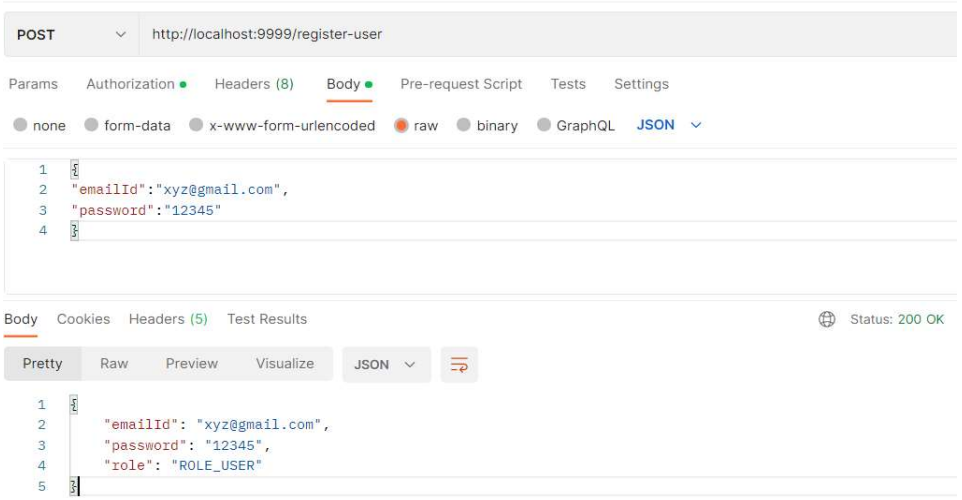
S1 creating user account in auth app

create new springboot application (web,mysql,jpa,lombok)

model : emailid, pwd, role

create flow for creating user a/c in db



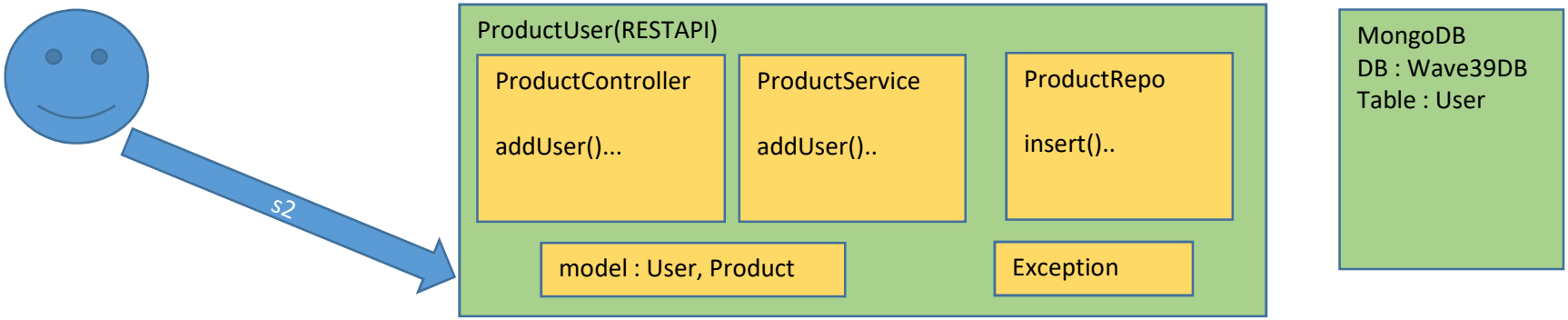


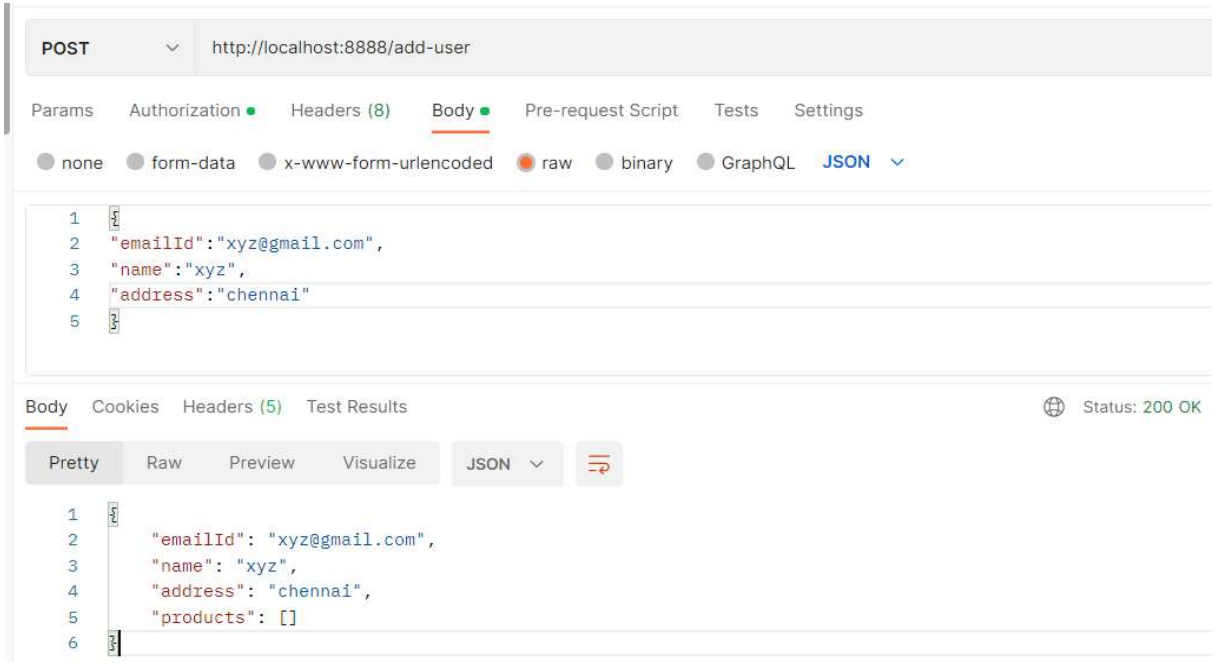
S2 creating user account in prduct app

create new springboot application (web,mongo data,lombok)

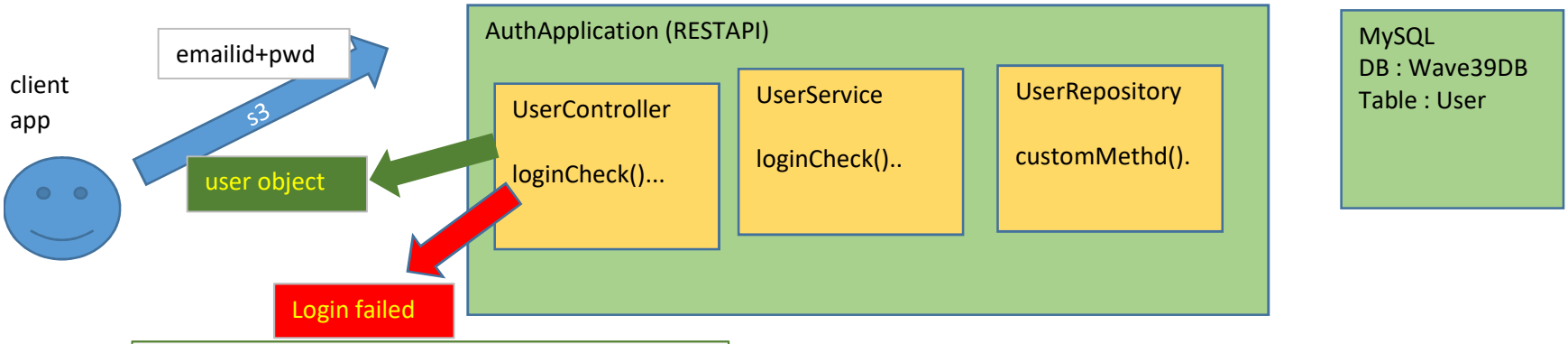
model : emailid, name, address,product[ ]

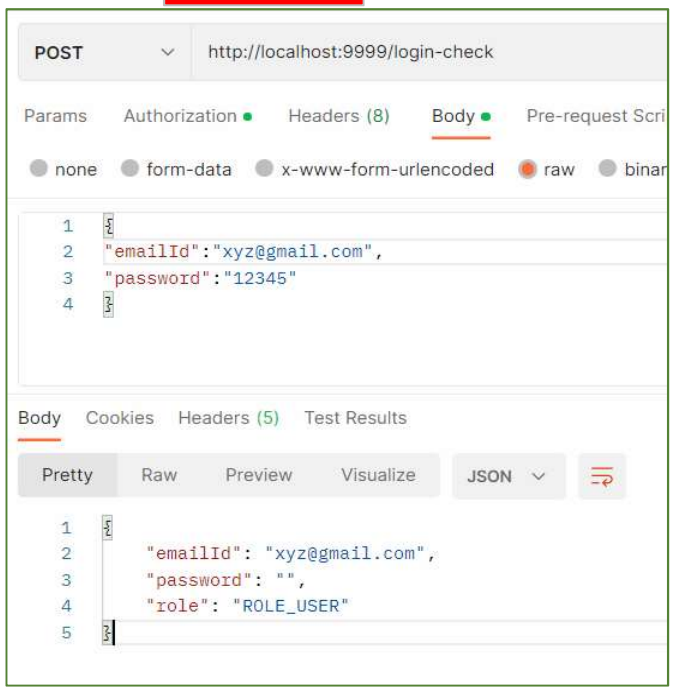
create flow for creating user a/c in db

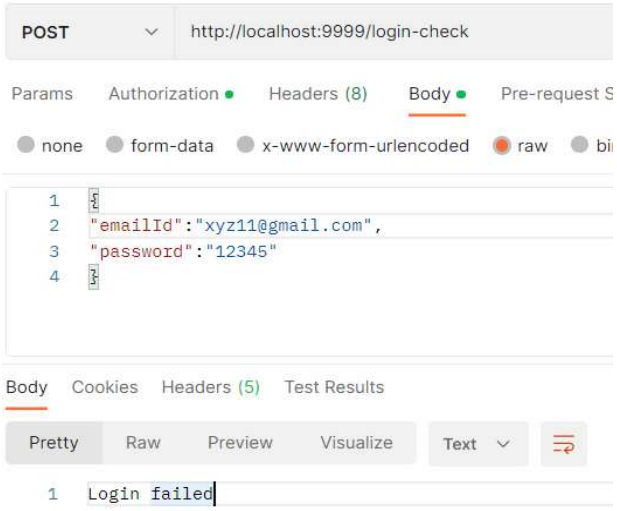




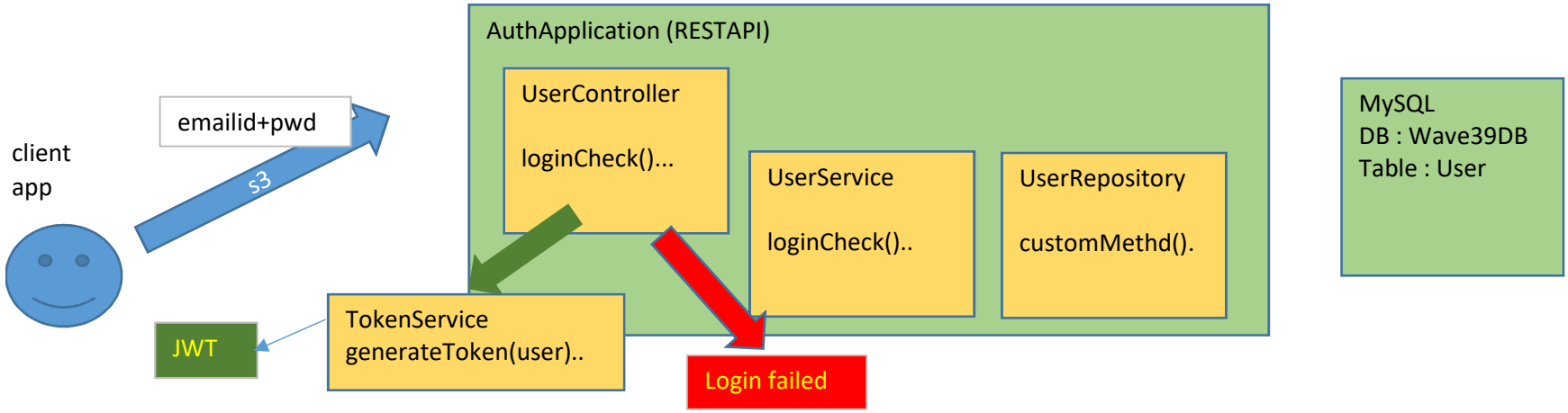
S3 logincheck in auth app





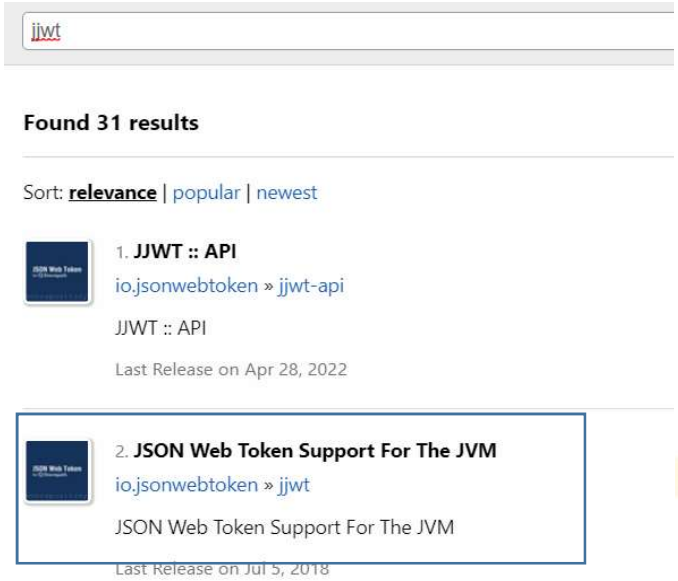


User object is returned as response if login is success



JWT to be given as response if login is success

step 1 add required dependency




```
<!-- https://mvnrepository.com/artifact/io.jsonwebtoken/jjwt -->
<dependency>
   <groupId>io.jsonwebtoken</groupId>
   <artifactId>jjwt</artifactId>
   <version>0.9.1</version>
</dependency>
```

```
<!-- https://mvnrepository.com/artifact/io.jsonwebtoken/jjwt -->
<dependency>
    <groupId>io.jsonwebtoken</groupId>
    <artifactId>jjwt</artifactId>
    <version>0.9.1</version>
</dependency>
```

Step 2 Define service layer

```java
public interface JwtTokenGenerator {
    public abstract Map<String,String> generateJwt(User user);
}
```

```java
@Service
public class JwtTokenGeneratorImpl implements JwtTokenGenerator {

    @Override
    public Map<String, String> generateJwt(User user) {
        Map<String, String> result = new HashMap<String, String>();
        // build token ( header,payload, by compacting)
        // user has emailid, password, role
        Map<String,Object> userdata = new HashMap<>();
        userdata.put("emailid",user.getEmailId());
        userdata.put("role",user.getRole());

        String jwt = Jwts.builder()
                .setClaims(userdata) // user data to be filled as claims
                .setIssuedAt(new Date())
                .setIssuer("MyCompany")
                .signWith(SignatureAlgorithm.HS512, s: "idontsay")
                .compact();
        result.put("token",jwt);
        result.put("message","Login success, Token generated");
        return result;
        // return map :  token(key,val), message(key,val)
    }
}
```

Step 3 in controller

add tokengenerator service dependency

```java
    @Autowired
    private JwtTokenGenerator jwtTokenGenerator;
```

logincheck()

call token service

get token

give response as token

```java
/* POST
http://localhost:9999/login-check
*/
@PostMapping("/login-check")
public ResponseEntity<?> loginCheck(@RequestBody User user){
    User result = userService.loginCheck(user.getEmailId(), user.getPassword());
    System.out.println(result);
    if(result!=null){
        result.setPassword("");
        //return new ResponseEntity<>(result,HttpStatus.OK); // old one
        return new ResponseEntity<>(jwtTokenGenerator.generateJwt(result),HttpStatus.OK);
    }
    else{
        return new ResponseEntity<>( body: "Login failed",HttpStatus.OK);
    }
}
```

POST http://localhost:9999/login-check

Params Authorization Headers (8) Body Pre-request Script Tests Settings

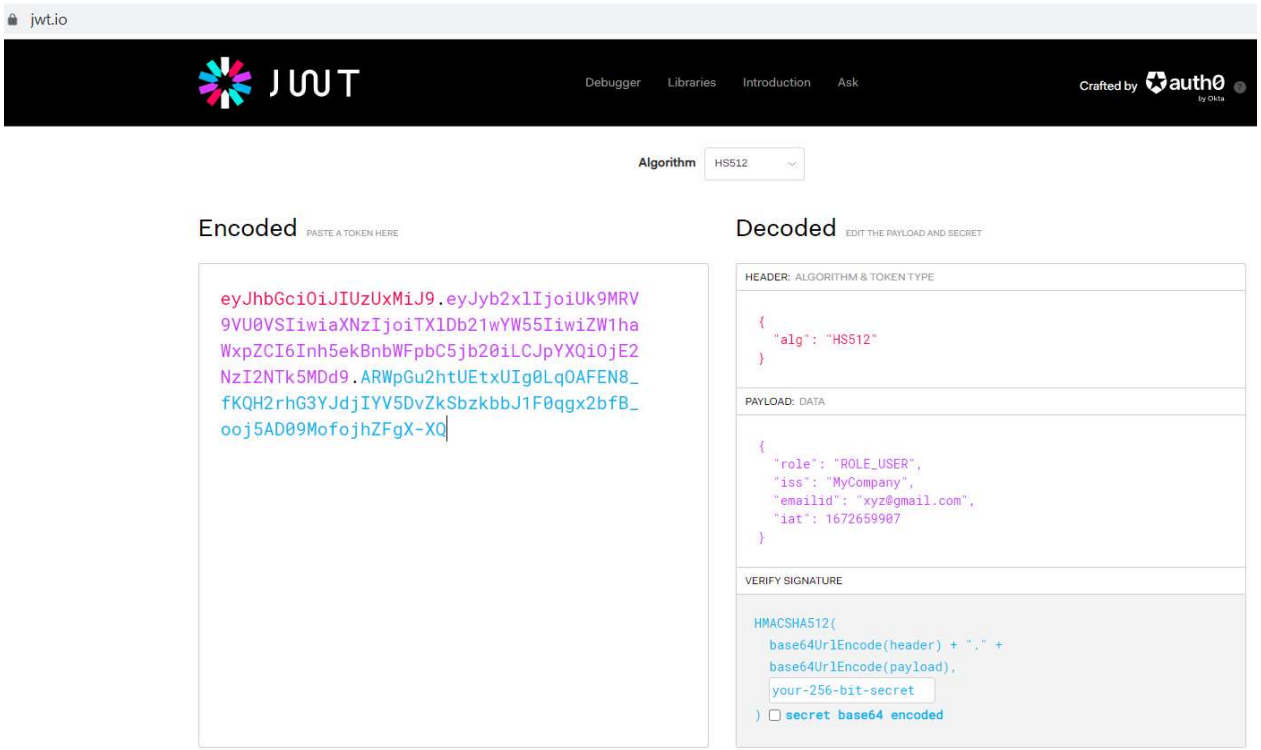
none form-data x-www-form-urlencoded raw binary GraphQL JSON

```
{
"emailId":"xyz@gmail.com",
"password":"12345"
}
```

Body Cookies Headers (5) Test Results Status: 200 OK Time: 165 ms

Pretty Raw Preview Visualize JSON

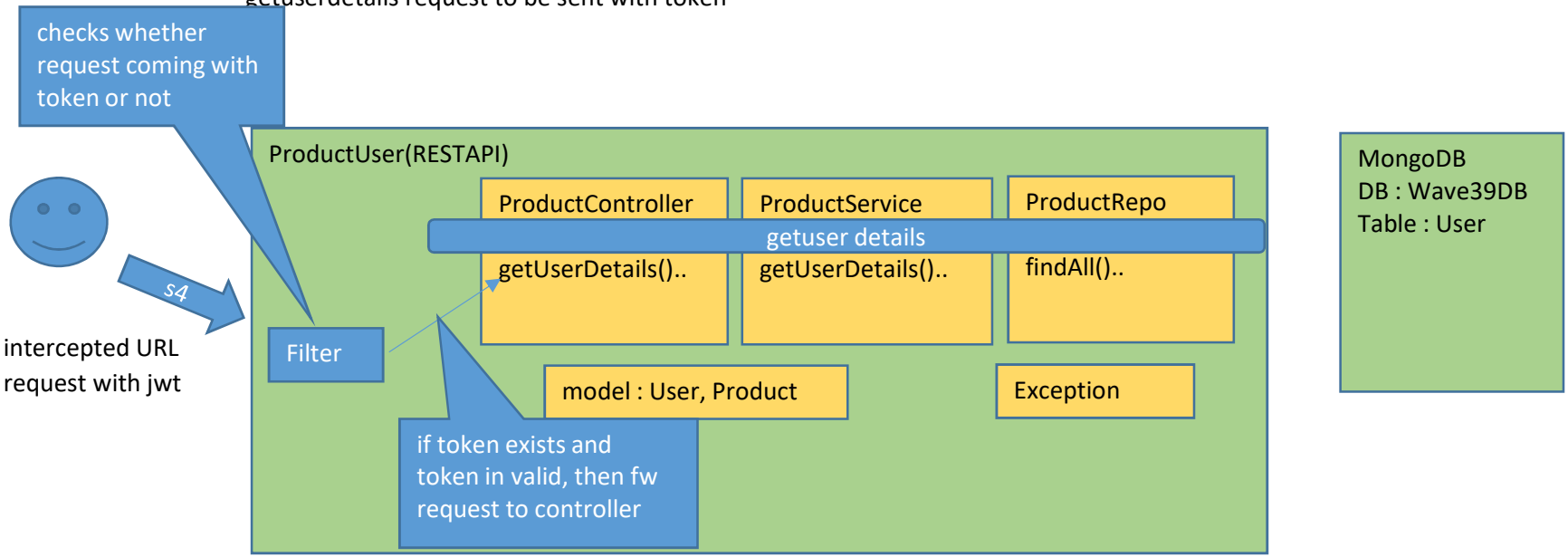
```
{
    "message": "Login success, Token generated",
    "token": "eyJhbGciOiJIUzUxMiJ9.
        eyJyb2xlIjoiUk9MRV9VU0VSIiwiaXNzIjoiTXlDb21wYW55IiwiZW1haWxpZCI6Inh5ekBnbWFpbC5jb20iLCJpYXQiOjE2NzI2NTk5MDd9.
        ARWpGu2htUEtxUIg0LqOAFEN8_fKQH2rhG3YJdjIYV5DvZkSbzkbbJ1F0qgx2bfB_ooj5AD09MofojhZFgX-XQ"
}
```


jwt.io
JWT
Debugger
Libraries
Introduction
Ask
Crafted by auth0 by Okta
Algorithm HS512
Encoded PASTE A TOKEN HERE
eyJhbGciOiJIUzUxMiJ9.eyJyb2xlIjoiUk9MRV9VU0VSIiwiaXNzIjoiTXlDb21wYW55IiwiZW1haWxpZCI6Inh5ekBnbWFpbC5jb20iLCJpYXQiOjE2NzI2NTk5MDd9.ARWpGu2htUEtxUIg0LqOAFEN8_fKQH2rhG3YJdjIYV5DvZkSbzkbbJ1F0qgx2bfB_ooj5AD09MofojhZFgX-XQ
Decoded EDIT THE PAYLOAD AND SECRET
HEADER: ALGORITHM & TOKEN TYPE
{
"alg": "HS512"
}
PAYLOAD: DATA
{
"role": "ROLE_USER",
"iss": "MyCompany",
"emailid": "xyz@gmail.com",
"iat": 1672659907
}
VERIFY SIGNATURE
HMACSHA512(
base64UrlEncode(header) + "." +
base64UrlEncode(payload),
your-256-bit-secret
) secret base64 encoded

S4 **accessing intercepted URL resource with header included request**

productuser app

getuserdetails request to be sent with token



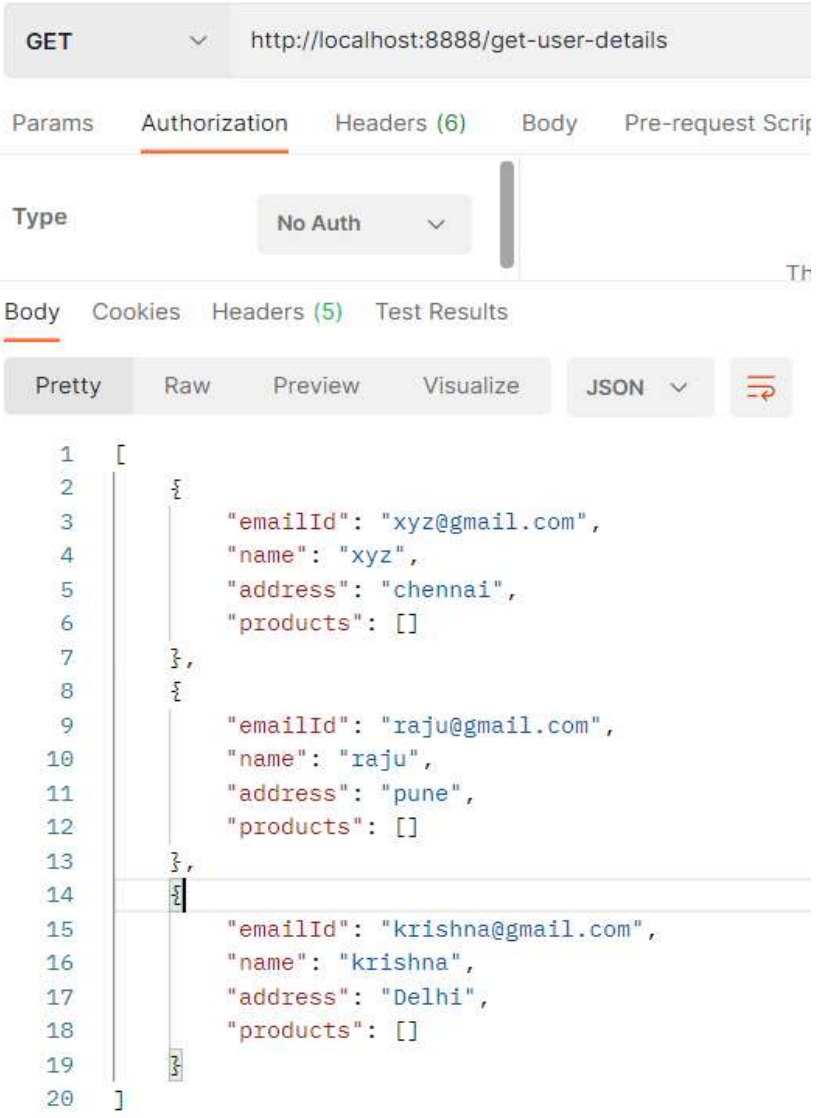
Stage 1

check for token, forward request to controller if token exists and token in valid

step a define flow for get user details

service layer

controller layer



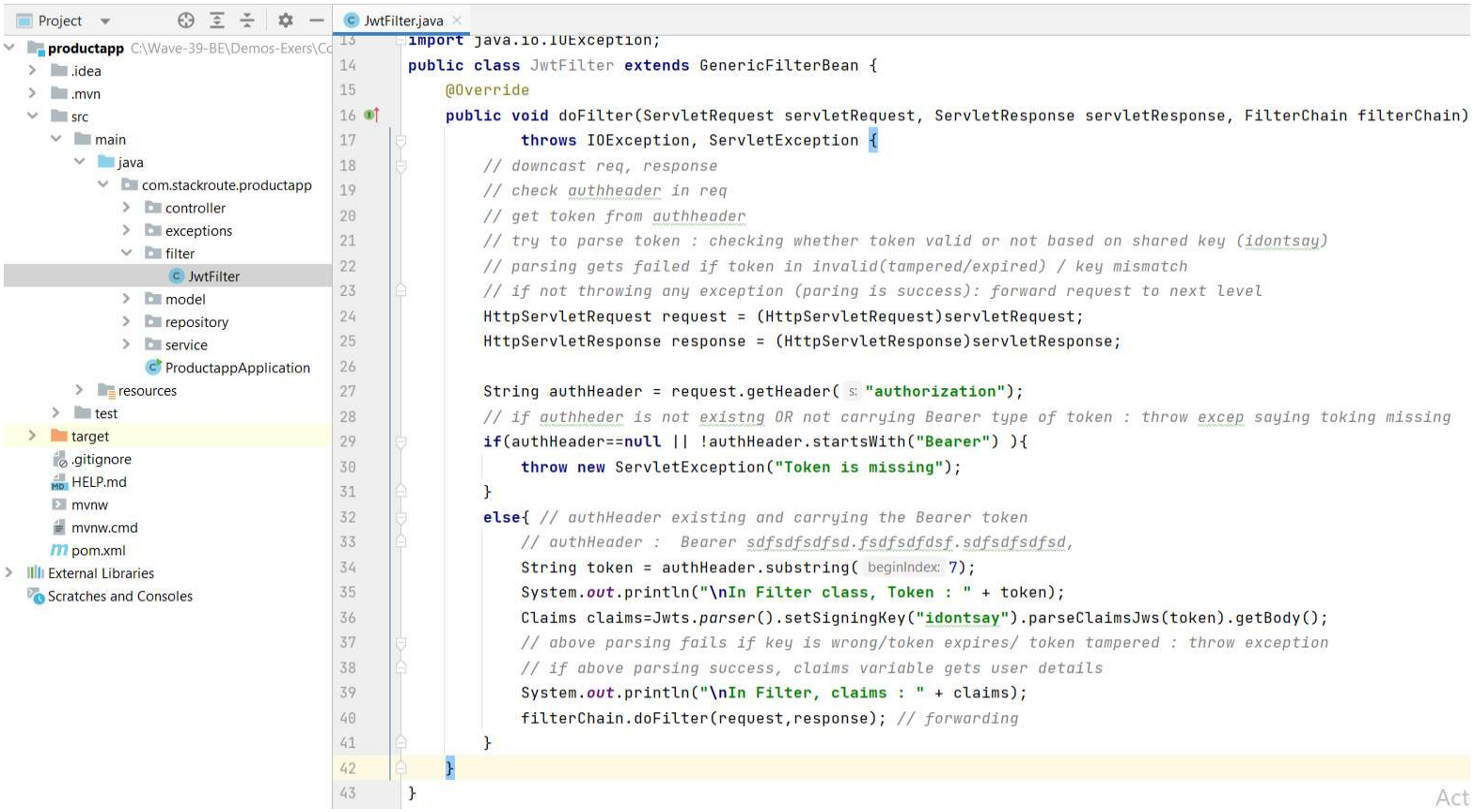
http://localhost:8888/get-user-details
the above request should be forwarded to controller only after checking for JWT in request
abvoe URL to be made as intercepted URL

step b define filter class
check whether request carrying authheader or not
if carrying, check whether token is valid or not
if valid:forward to controller
else: throw exception

add required dependecies

```
<!-- https://mvnrepository.com/artifact/io.jsonwebtoken/jjwt -->
<dependency>
   <groupId>io.jsonwebtoken</groupId>
   <artifactId>jjwt</artifactId>
   <version>0.9.1</version>
</dependency>

<!-- https://mvnrepository.com/artifact/javax.xml.bind/jaxb-api -->
<dependency>
<groupId>javax.xml.bind</groupId>
<artifactId>jaxb-api</artifactId>
<version>2.4.0-b180830.0359</version>
</dependency>
```



step c Enable filtering on URLs (then URLs become intercepted URLs)

in main class

```
@Bean
public FilterRegistrationBean filterBean(){
    // which URLs to be Intercepted, by using which Filter definition
    FilterRegistrationBean frb = new FilterRegistrationBean();
    frb.setFilter(new JwtFilter());
    frb.addUrlPatterns("/get-user-details");
    return frb;
}
```

run applicatoin

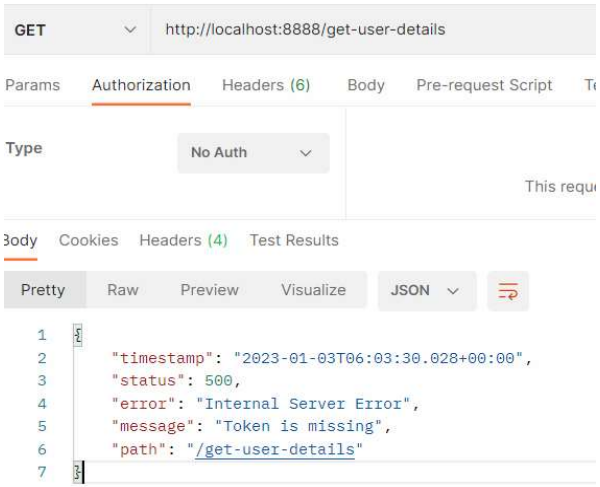
how to test

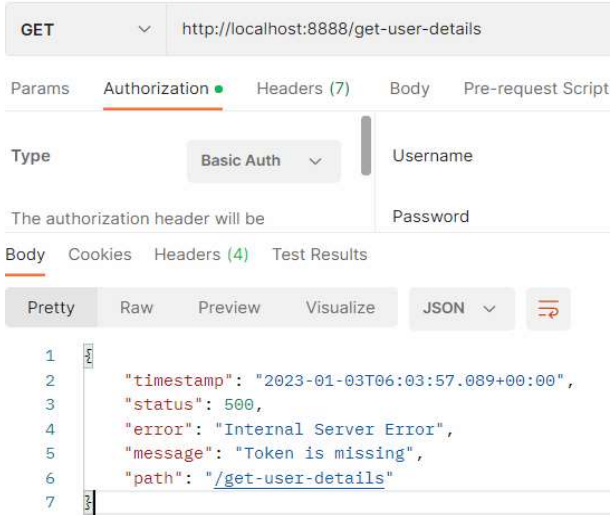
try to access intercepted url

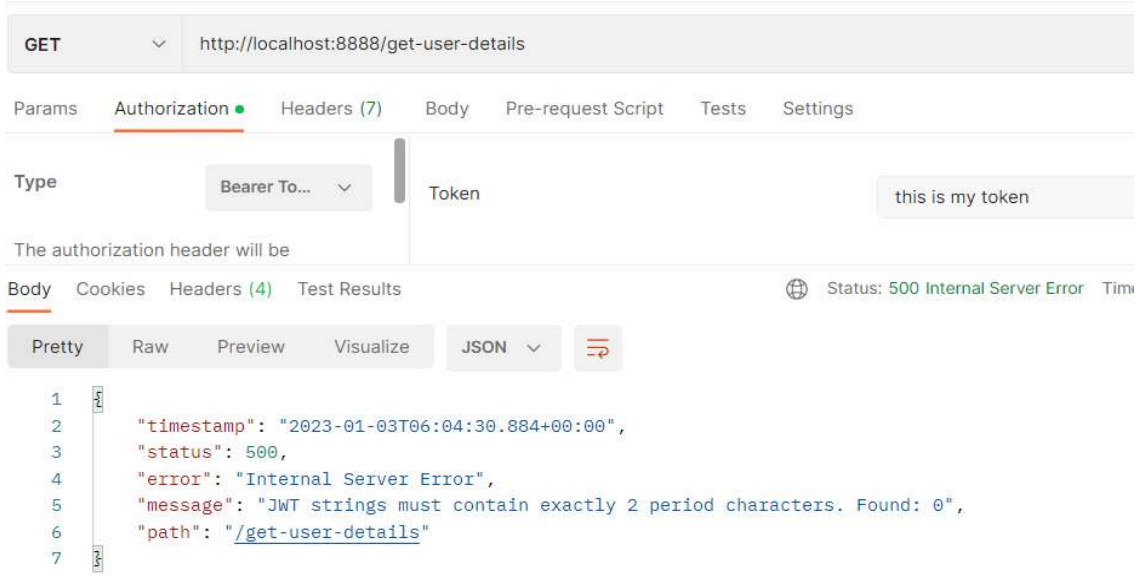
without authorization header

header with other than bearer data

bearer with worng token







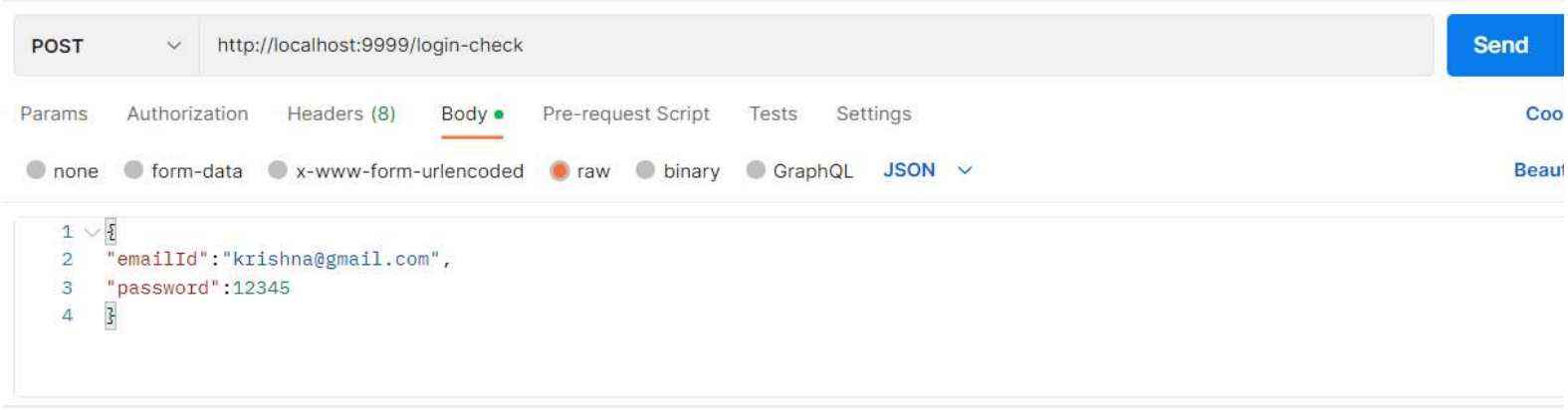
above screens showing exception as this URL request needs valid token

perform S3, login check

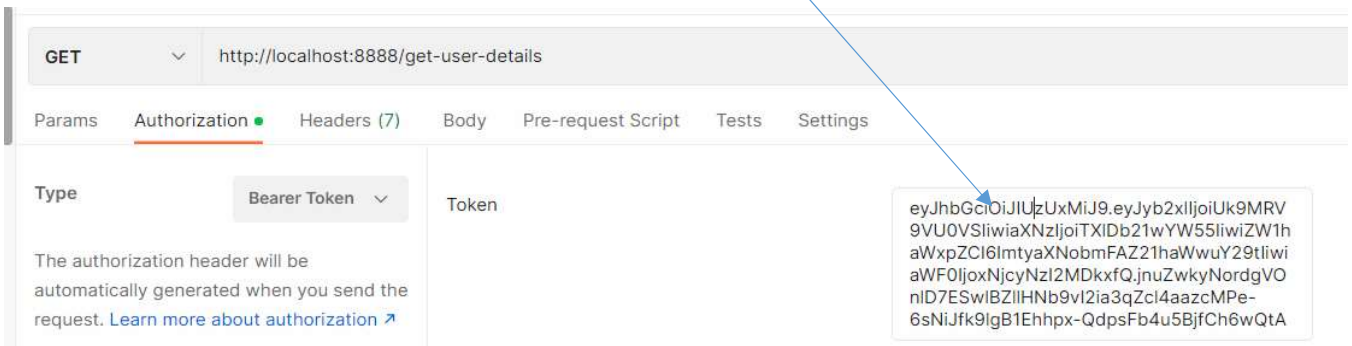
get token

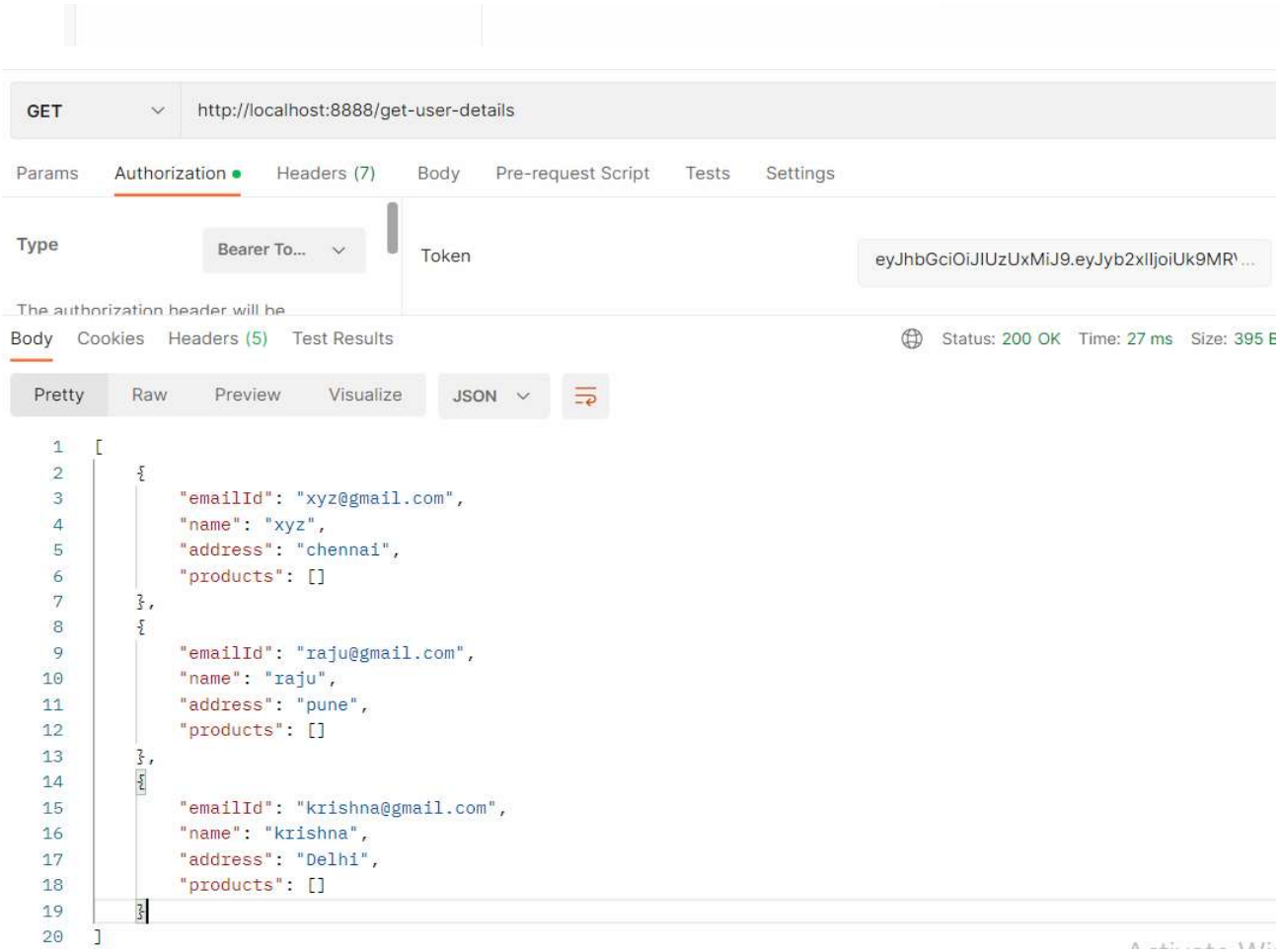
perform S4 with token

S3



copy token and paste in S4, authorization header, bearer



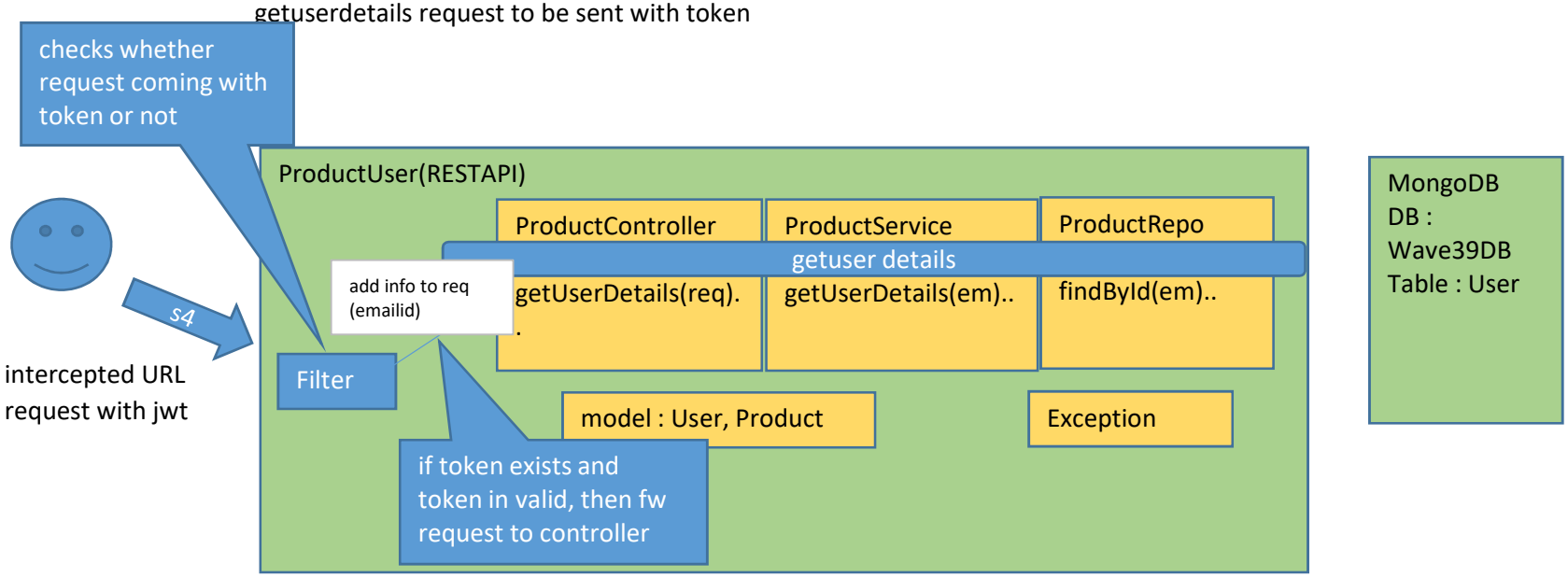

GET
http://localhost:8888/get-user-details
Params
Authorization
Headers (7)
Body
Pre-request Script
Tests
Settings
Type
Bearer To...
Token
eyJhbGciOiJIUzUxMiJ9.eyJyb2xlIjoiUk9MR\...
The authorization header will be
Body
Cookies
Headers (5)
Test Results
Status: 200 OK
Time: 27 ms
Size: 395 E
Pretty
Raw
Preview
Visualize
JSON
[
{
"emailId": "xyz@gmail.com",
"name": "xyz",
"address": "chennai",
"products": []
},
{
"emailId": "raju@gmail.com",
"name": "raju",
"address": "pune",
"products": []
},
{
"emailId": "krishna@gmail.com",
"name": "krishna",
"address": "Delhi",
"products": []
}
]

Stage 2

Get only currently logged in user associated data

productuser app

getuserdetails request to be sent with token



intercepted URL request with jwt

Modify JWT filter

get emailid from claims, add as attribute to request before forwarding to controller

```
39          System.out.println("\nIn Filter, claims : " + claims);
40          request.setAttribute( s: "curr_user_emailid",claims.get("emailid"));
41          filterChain.doFilter(request,response); // forwarding
```

edit service layer

```
//public abstract List<User> getUserDetails();
1 usage   1 implementation   1 related problem
public abstract User getUserDetails(String eid);
```

```
26      //    @Override
27      //    public List<User> getUserDetails() {
28      //        return productRepository.findAll();
29      //    }
30
            1 usage  1 related problem
31          @Override
32          public User getUserDetails(String eid) {
33              return productRepository.findById(eid).get();
34          }
```

edit controller

```
42      @GetMapping("/get-user-details")
43  @   public ResponseEntity<?> getUserDetails(HttpServletRequest request){
44          //return new ResponseEntity<>(userProductService.getUserDetails(),HttpStatus.OK);
45          String current_user_emailId=(String)request.getAttribute( s: "curr_user_emailid");
46          return new ResponseEntity<>(userProductService.getUserDetails(current_user_emailId),HttpStatus.OK);
47      }
```