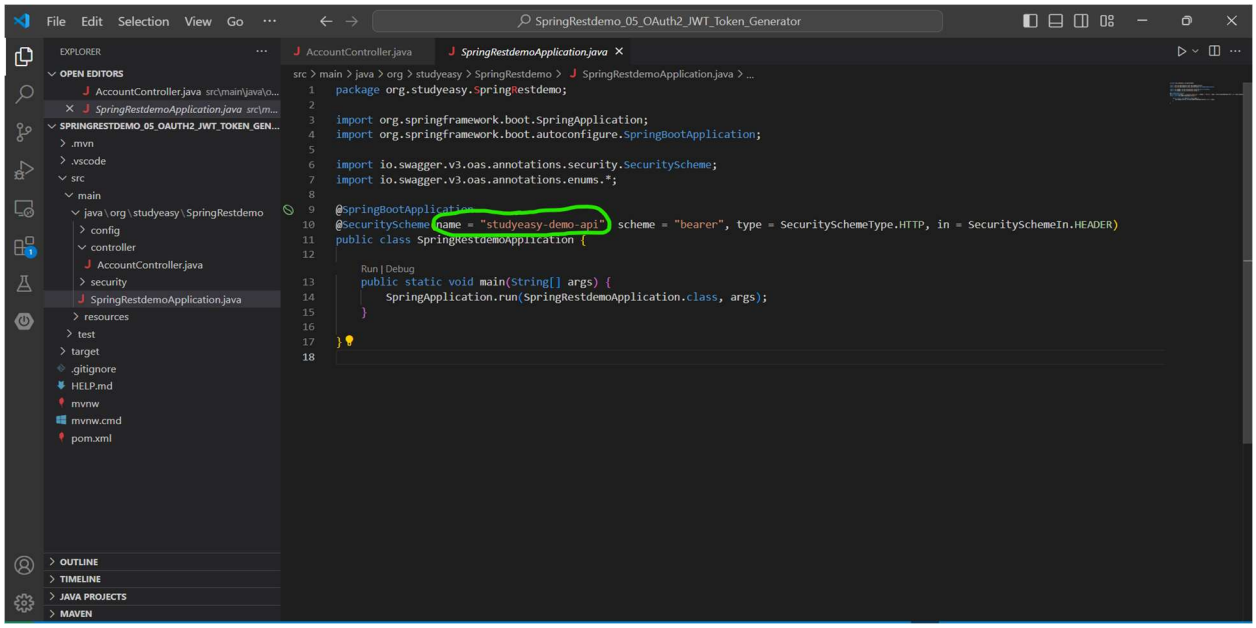
Java Spring Boot Restful – OAuth2 – JWT – Token Generator - Continues

How to secure?

```
@SecurityRequirement(name = "studyeasy-demo-api")
```



Go to AccountController -> modify code

```
@GetMapping("/test")
    @SecurityRequirement(name = "studyeasy-demo-api")
    public String test(){
        return "Test api..";
    }
```

Tag – Add some description or name to a specific tag.

```
@Tag(name = "Test", description = "The Test API.")
```

```
@GetMapping("/test")
    @Tag(name = "Test", description = "The Test API.")
    @SecurityRequirement(name = "studyeasy-demo-api")
    public String test(){
        return "Test api..";
    }
```

Authentication Manager

```
@Bean
public AuthenticationManager authManager(UserDetailsService userDetailsService) {
       var authProvider = new DaoAuthenticationProvider();
       authProvider.setUserDetailsService(userDetailsService);
       return new ProviderManager(authProvider);
}
```

Create a controller in controller folder -> AuthController.java and in order to create a token you need to generate a service as well -> new folder -> service

New file -> TokenService.java

TokenService.java

```
package org.studyeasy.SpringRestdemo.service;

import java.time.Instant;
import java.time.temporal.ChronoUnit;
import java.util.stream.Collectors;

import org.springframework.security.core.Authentication;
import org.springframework.security.core.GrantedAuthority;
import org.springframework.security.oauth2.jwt.JwtClaimsSet;
import org.springframework.security.oauth2.jwt.JwtEncoder;
import org.springframework.security.oauth2.jwt.JwtEncoderParameters;


public class TokenService {

    private final JwtEncoder encoder;

    public TokenService(JwtEncoder encoder){
        this.encoder = encoder;
    }

    public String generateToken(Authentication authentication){
        Instant now = Instant.now();
        String scope = authentication.getAuthorities().stream()
                        .map(GrantedAuthority::getAuthority)
                        .collect(Collectors.joining(" "));
        JwtClaimsSet claims = JwtClaimsSet.builder()
                                .issuer("self")
                                .issuedAt(now)
```

```
                                .expiresAt(now.plus(1, ChronoUnit.HOURS))
                                .subject(authentication.getName())
                                .claim("scope", scope)
                                .build();
        return
this.encoder.encode(JwtEncoderParameters.from(claims)).getTokenValue();
    }
}
```

AuthController.java

```
package org.studyeasy.SpringRestdemo.controller;

import org.springframework.web.bind.annotation.PostMapping;
import org.springframework.web.bind.annotation.RestController;

@RestController
public class AuthController {

    @PostMapping("/token")
    public String token(){

    }
}
```

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<u>Using TokenService -> Implement AuthService</u>

Payload -> Create payload folder -> Create auth folder -> create file -> UserLogin.java -> and make it as record

UserLogin.java

```
package org.studyeasy.SpringRestdemo.payload.auth;

public record UserLogin(String username, String password) {

}
```

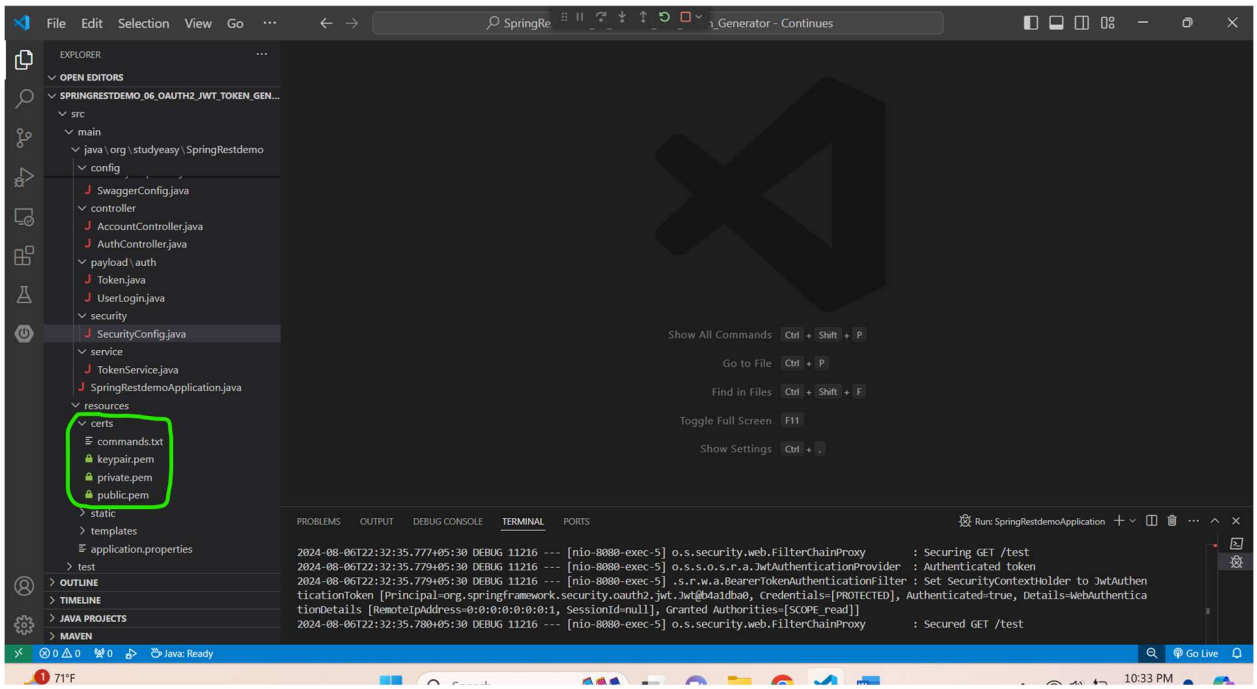
Payload -> Create payload folder -> Token.java and make it as record

```java
package org.studyeasy.SpringRestdemo.payload;

public record Token(String token) {

}
```

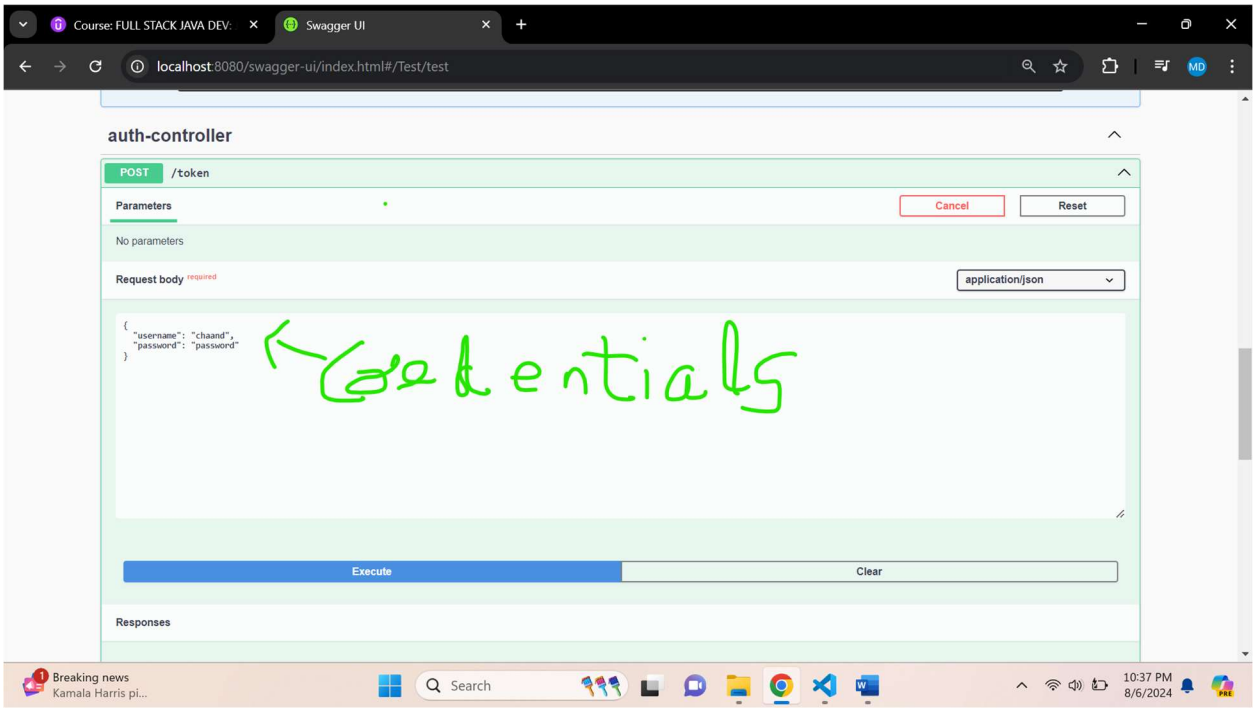
Change the type to token and return statement

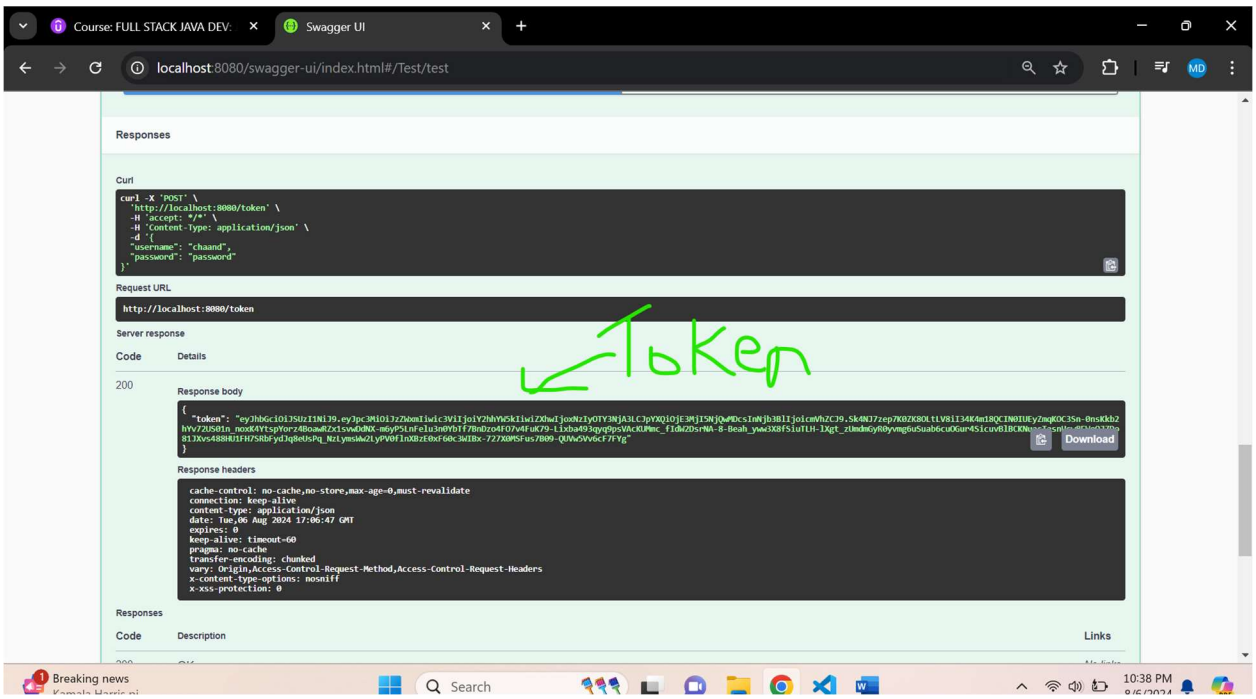
```java
@PostMapping("/token")
@ResponseBody
public String token(@RequestBody UserLogin userLogin) throws
AuthenticationException{
    Authentication authentication = authenticationManager
   .authenticate(new UsernamePasswordAuthenticationToken(userLogin.username(),
userLogin.password()));
    }
```

Output

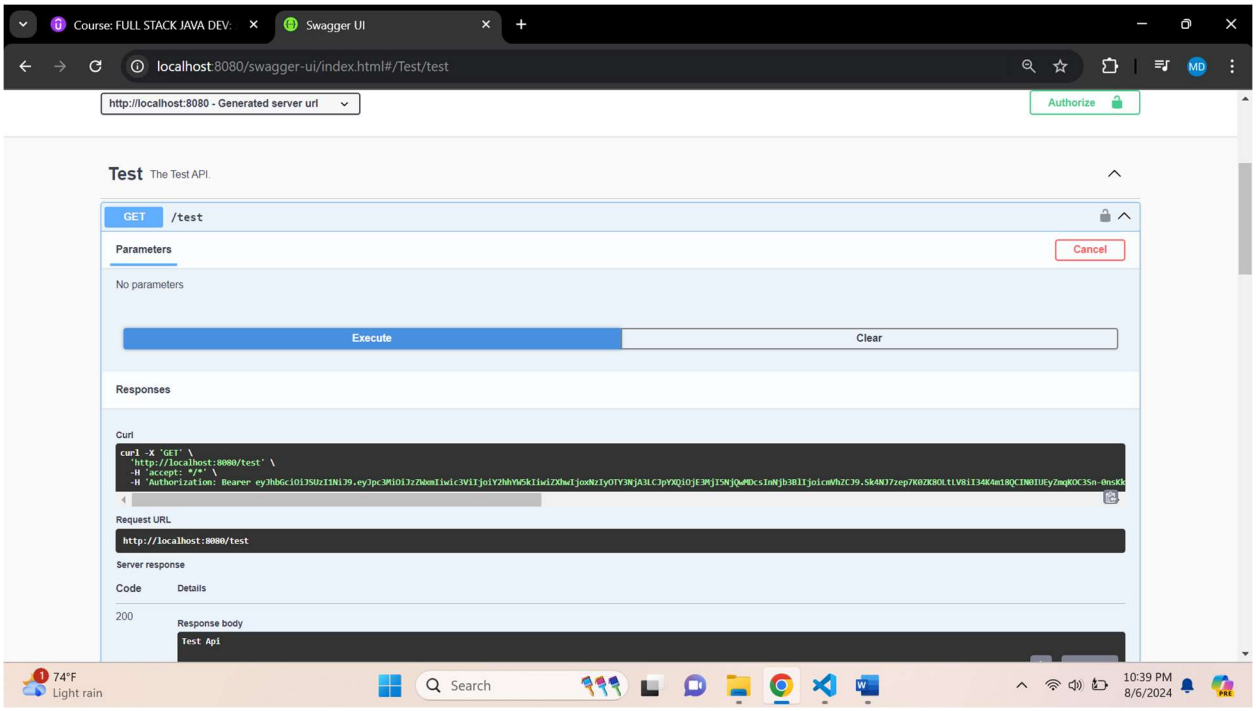


Auth Controller

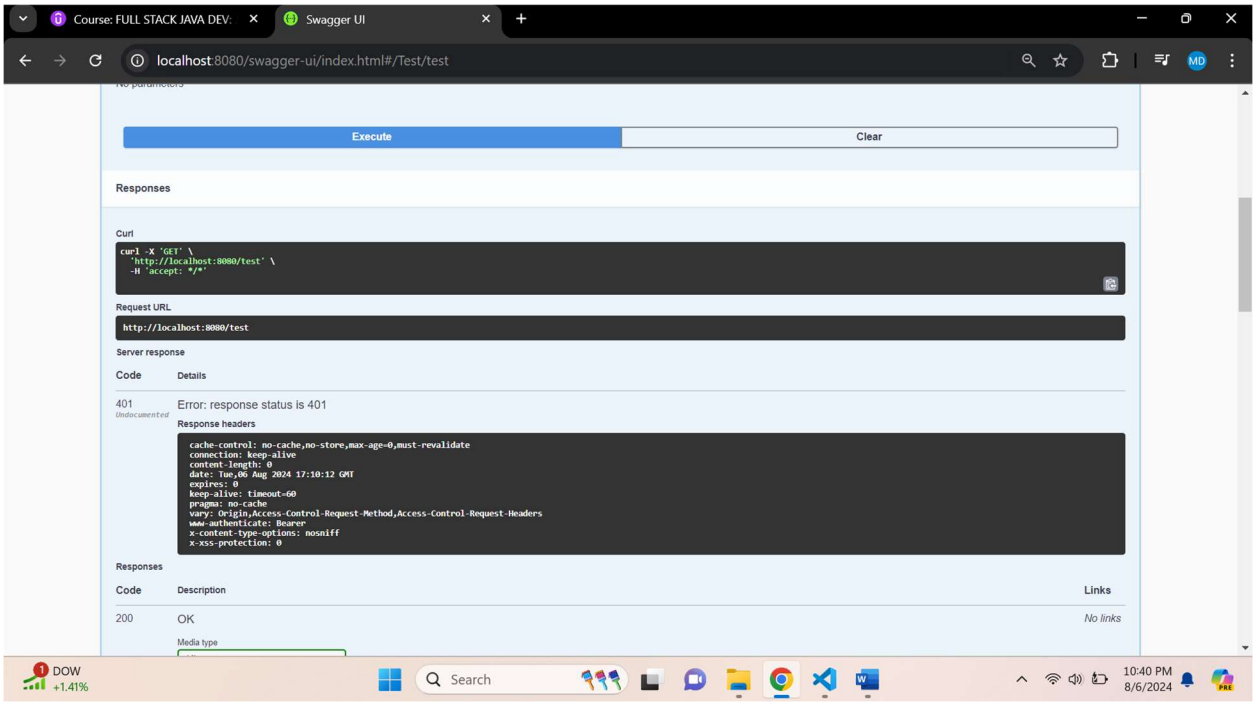




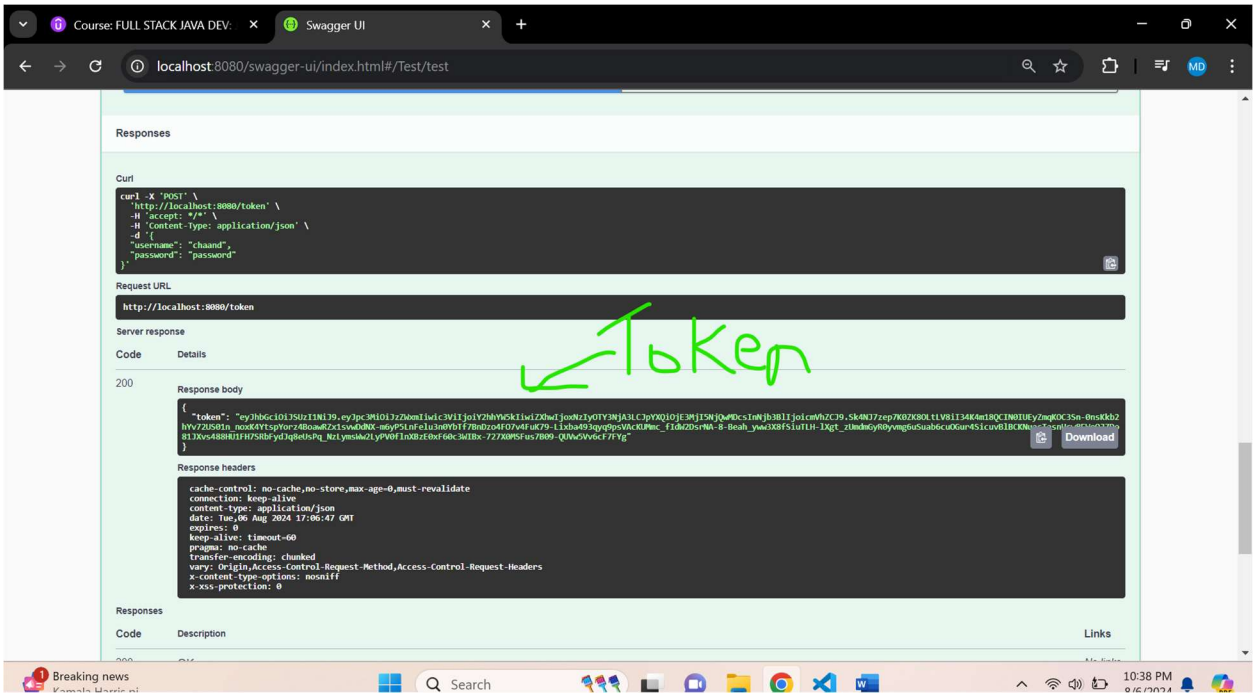
Click on execute button -> with no credentials -> and ypu get 401

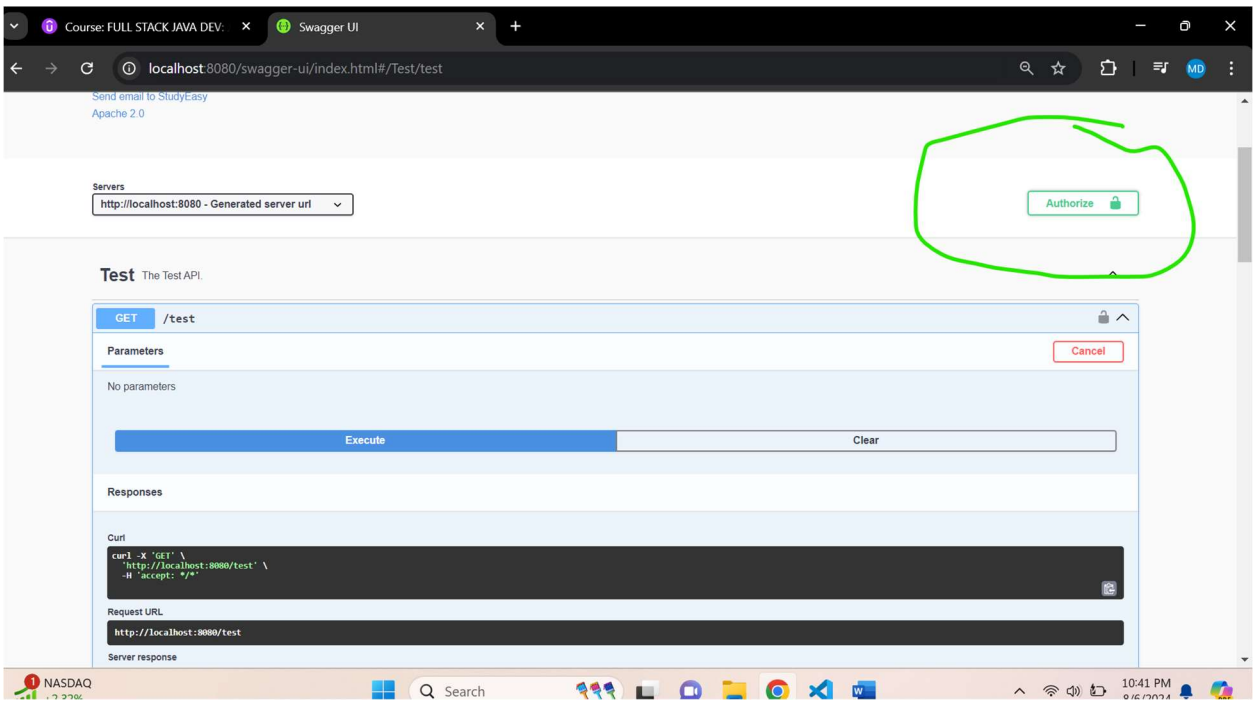


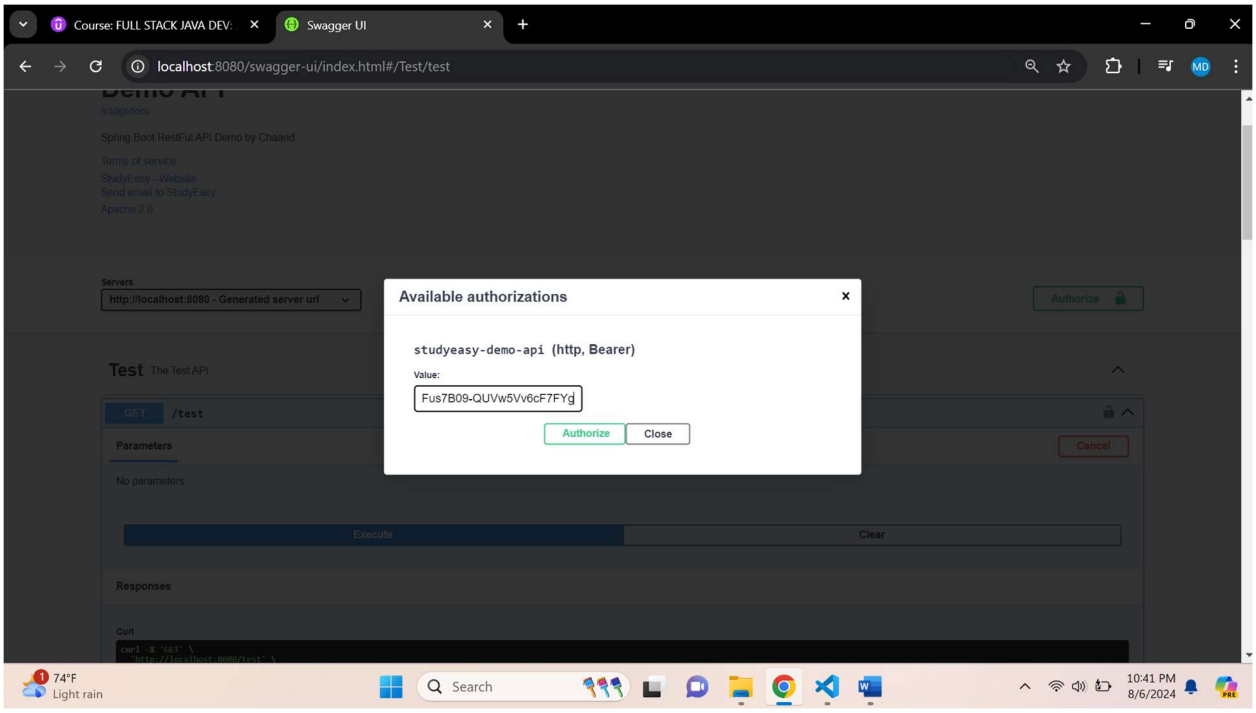
You get error



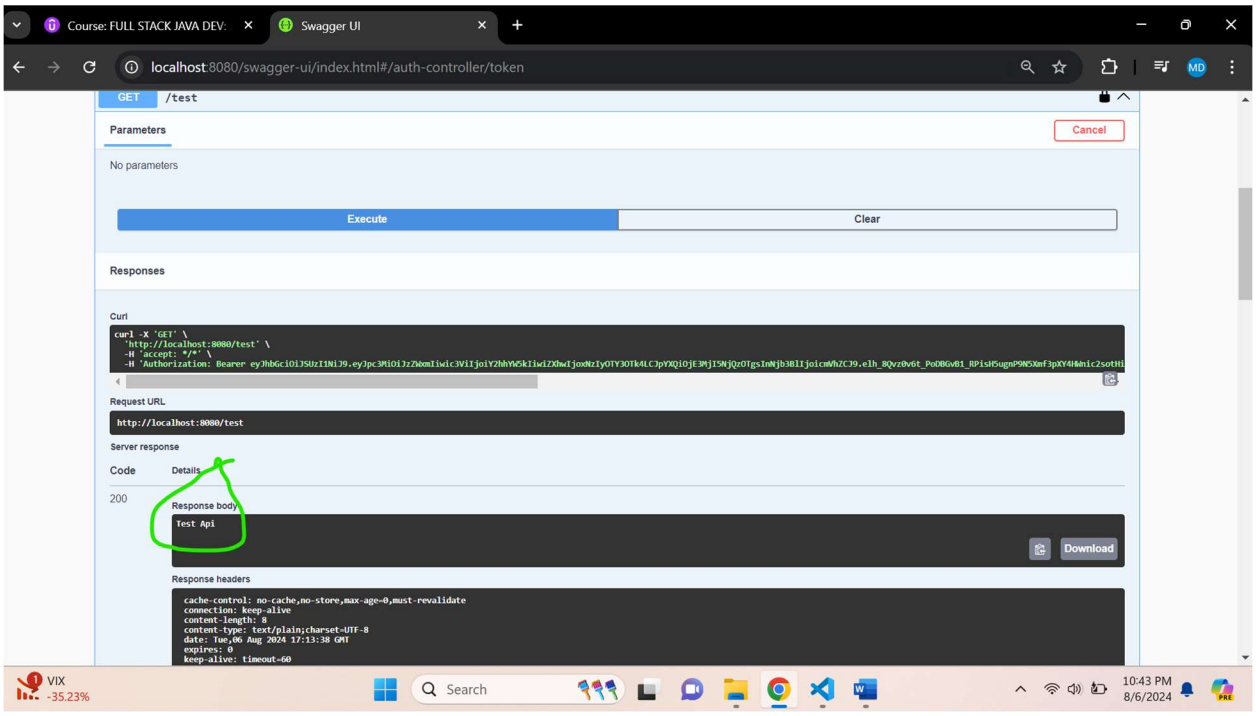
Use the token generated in the below and paste it in authorize field like below


Course: FULL STACK JAVA DEV:
Swagger UI
localhost:8080/swagger-ui/index.html#/Test/test
Responses
Curl
curl -X 'POST' \
'http://localhost:8080/token' \
-H 'accept: */*' \
-H 'Content-Type: application/json' \
-d '{
"username": "chaand",
"password": "password"
}'
Request URL
http://localhost:8080/token
Server response
Code
Details
200
Response body
Token
{
"token": "eyJhbGciOiJSUzI1NiJ9.eyJpc3MiOiJzZbXmliwic3ViIjoiY2hhYW5kliwiZXhwIjoxNzIyOTY3NjA3LCJpYXQiOjE3MjI5NjQwMDcsInNjb3BlIjoicmVhZC9.Sk4NJ7zep7K0ZK8OLtLV8iI34K4m18QCIN0IUEyZmgKOC3Sn-0nsKkb2
Download
Response headers
cache-control: no-cache,no-store,max-age=0,must-revalidate
connection: keep-alive
content-type: application/json
date: Tue,06 Aug 2024 17:06:47 GMT
expires: 0
keep-alive: timeout=60
pragma: no-cache
transfer-encoding: chunked
vary: Origin,Access-Control-Request-Method,Access-Control-Request-Headers
x-content-type-options: nosniff
x-xss-protection: 0
Responses
Code
Description
Links
Breaking news
Search
10:38 PM


Course: FULL STACK JAVA DEV:
Swagger UI
localhost:8080/swagger-ui/index.html#/Test/test
Send email to StudyEasy
Apache 2.0
Servers
http://localhost:8080 - Generated server url
Authorize
Test The Test API.
GET /test
Parameters
Cancel
No parameters
Execute
Clear
Responses
Curl
curl -X 'GET' \
'http://localhost:8080/test' \
-H 'accept: */*'
Request URL
http://localhost:8080/test
Server response
NASDAQ
Search
10:41 PM



Click on authorize button



The major error was caused due to invalid password like below

```
@Bean
public InMemoryUserDetailsManager users() {
    return new InMemoryUserDetailsManager(
         User.withUsername("chaand")
         .password("{noop}password")
         .authorities("read")
         .build());
   }
```

{noop} -> no encoding

SecurityConfig.java

```
package org.studyeasy.SpringRestdemo.security;

import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;
import org.springframework.security.authentication.AuthenticationManager;
import org.springframework.security.authentication.ProviderManager;
import org.springframework.security.authentication.dao.DaoAuthenticationProvider;
import org.springframework.security.config.Customizer;
import org.springframework.security.config.annotation.web.builders.HttpSecurity;
import
org.springframework.security.config.annotation.web.configuration.EnableWebSecurit
y;
import org.springframework.security.config.http.SessionCreationPolicy;
import org.springframework.security.core.userdetails.User;
import org.springframework.security.core.userdetails.UserDetailsService;
import org.springframework.security.oauth2.jwt.JwtDecoder;
import org.springframework.security.oauth2.jwt.JwtEncoder;
import org.springframework.security.oauth2.jwt.NimbusJwtDecoder;
import org.springframework.security.oauth2.jwt.NimbusJwtEncoder;
import org.springframework.security.provisioning.InMemoryUserDetailsManager;
import org.springframework.security.web.SecurityFilterChain;
import org.studyeasy.SpringRestdemo.config.RsaKeyProperties;

import com.nimbusds.jose.jwk.JWK;
import com.nimbusds.jose.jwk.JWKSet;
import com.nimbusds.jose.jwk.RSAKey;
import com.nimbusds.jose.jwk.source.ImmutableJWKSet;
import com.nimbusds.jose.jwk.source.JWKSource;
import com.nimbusds.jose.proc.SecurityContext;
```

```java
@Configuration
@EnableWebSecurity
public class SecurityConfig {

    private final RsaKeyProperties rsaKeys;

    public SecurityConfig(RsaKeyProperties rsaKeys) {
        this.rsaKeys = rsaKeys;
    }

    @Bean
    public InMemoryUserDetailsManager users() {
        return new InMemoryUserDetailsManager(
                User.withUsername("chaand")
                        .password("{noop}password")
                        .authorities("read")
                        .build());
    }

    @Bean
    public AuthenticationManager authManager(UserDetailsService
userDetailsService) {
        var authProvider = new DaoAuthenticationProvider();
        authProvider.setUserDetailsService(userDetailsService);
        return new ProviderManager(authProvider);
    }

    @Bean
    JwtDecoder jwtDecoder() {
        return NimbusJwtDecoder.withPublicKey(rsaKeys.publicKey()).build();
    }

    @Bean
    JwtEncoder jwtEncoder() {
        JWK jwk = new
RSAKey.Builder(rsaKeys.publicKey()).privateKey(rsaKeys.privateKey()).build();
        JWKSource<SecurityContext> jwks = new ImmutableJWKSet<>(new JWKSet(jwk));
        return new NimbusJwtEncoder(jwks);
    }

    @Bean
    public SecurityFilterChain securityFilterChain(HttpSecurity http) throws
Exception {
        http
                .authorizeHttpRequests(authorize -> authorize
```

```
                        .requestMatchers("/token").permitAll()
                        .requestMatchers("/").permitAll()
                        .requestMatchers("/swagger-ui/**").permitAll()
                        .requestMatchers("/v3/api-docs/**").permitAll()
                        .requestMatchers("/test").authenticated())
                .oauth2ResourceServer(oauth2 -> oauth2
                        .jwt(Customizer.withDefaults()))
                .sessionManagement(session -> session
                        .sessionCreationPolicy(SessionCreationPolicy.STATELESS))
                .csrf(csrf -> csrf.disable())
                .headers(headers -> headers
                        .frameOptions(frameOptions -> frameOptions.disable()));
        return http.build();
    }

}
```