**Lab 9**

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**Exercise 1: Project Setup & User Entity**

**Task 1.1: Add Security Dependencies**

Spring Security dependency added

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JWT dependencies added correctly

A screen shot of a computer program

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Maven dependencies resolve

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**Task 1.2: Create User Entity and Role Enum**

Role enum created

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Entity annotations correct

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A computer screen with colorful text

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Lifecycle callbacks implemented

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Getters/setters complete

A screen shot of a computer code

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A screenshot of a computer program

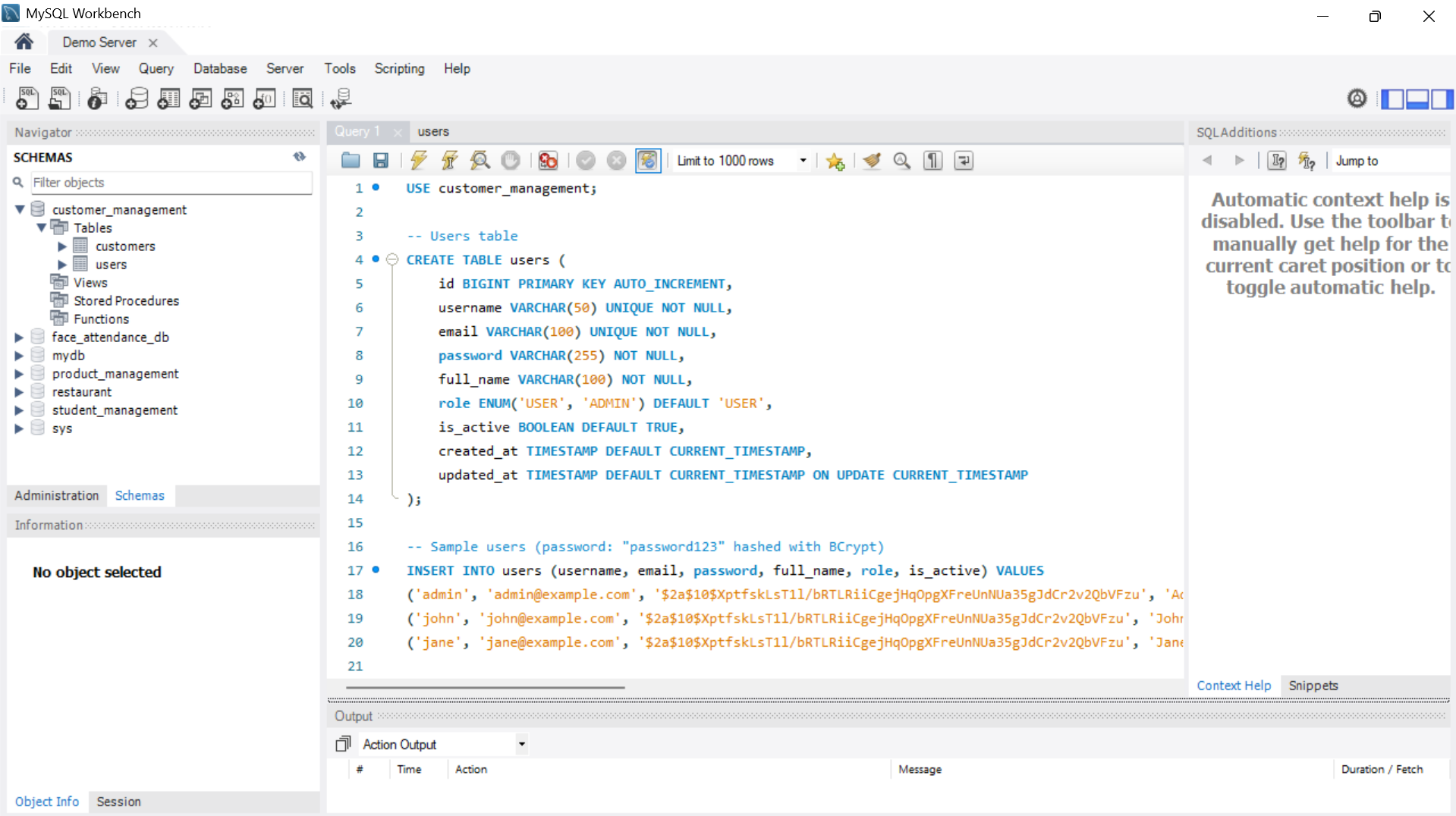
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A screen shot of a computer program

AI-generated content may be incorrect.

**Task 1.3: Database Setup**

User table created

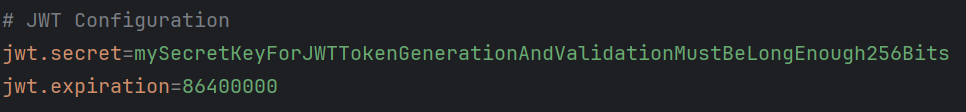


Sample users inserted

A screenshot of a computer

AI-generated content may be incorrect.

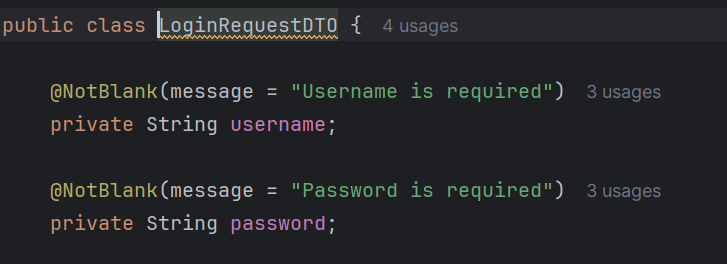
JWT config added



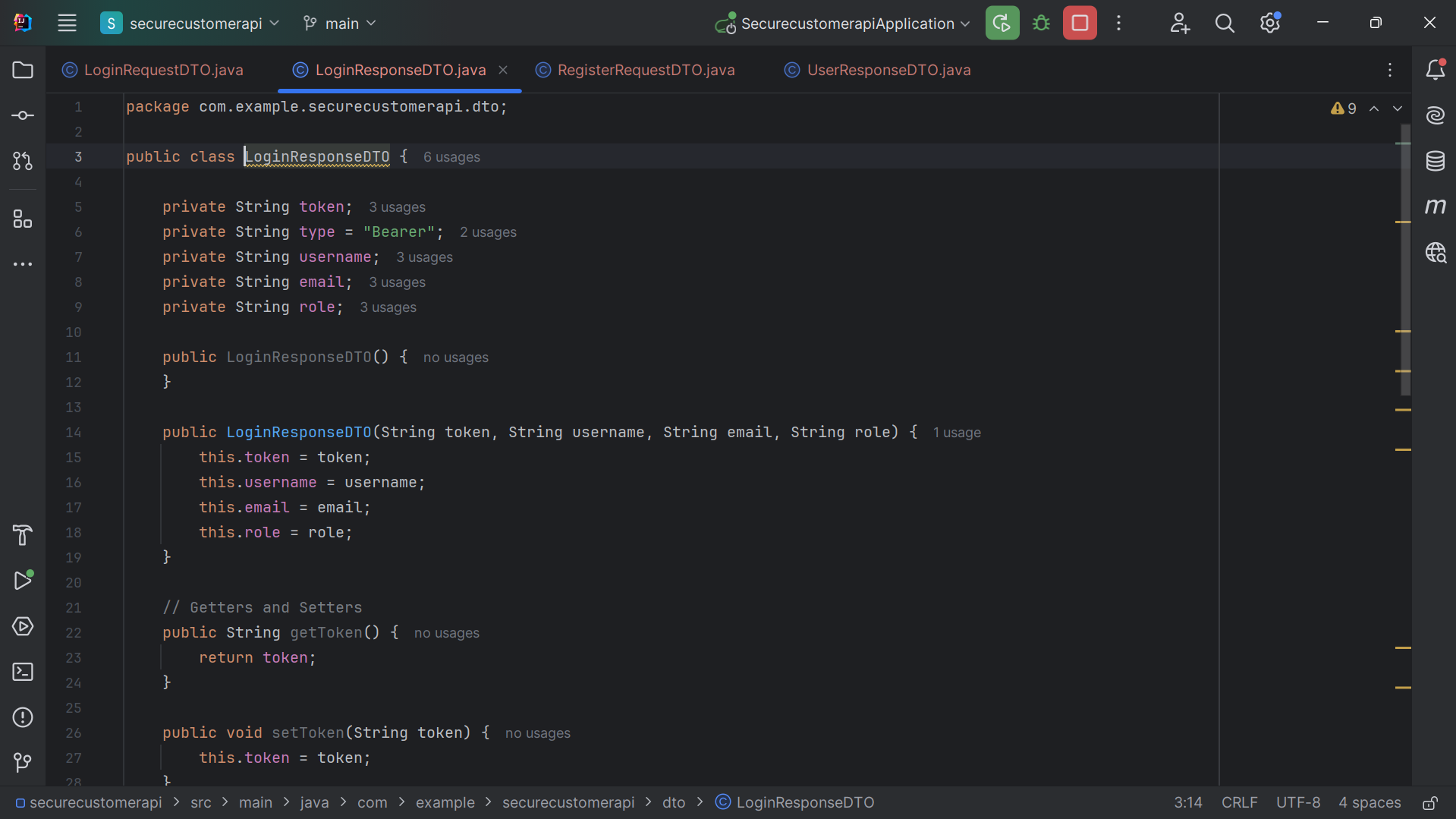
**Exercise 2: DTO & Repository**

**Task 2.1: Create Authentication DTOs**

LoginRequestDTO with validation



LoginResponseDTO complete



RegisterRequestDTO with validation

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UserResponseDTO complete

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**Task 2.2: Create User Repository**

Repository extends JpaRepository



Custom query methods defined

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**Exercise 3: JWT & Security Components**

**Task 3.1: Create JWT Token Provider**

generateToken() implemented

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getUsernameFromToken() implemented

A screen shot of a computer

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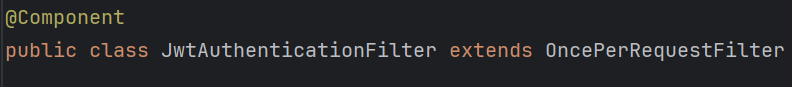
validateToken() implemented

A screen shot of a computer program

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**Task 3.2: Create JWT Authentication Filter**

Filter extends OncePerRequestFilter



JWT extraction from header



Token validation logic

A screen shot of a computer code

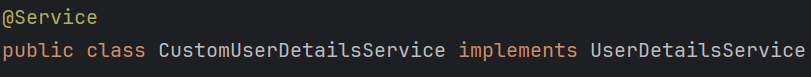
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Authentication set in SecurityContext



**Task 3.3: Create Custom UserDetailsService**

Implements UserDetailsService



loadUserByUsername() implemented

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Authorities conversion correct

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**Exercise 4: Security Configuration**

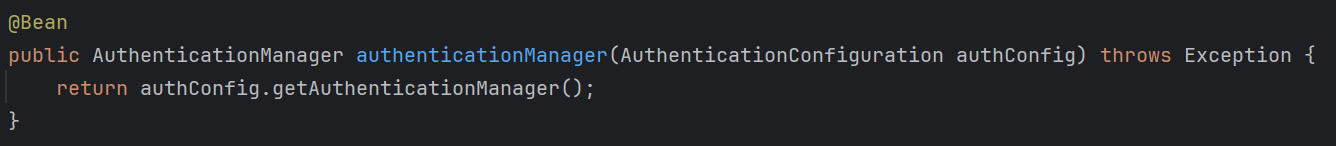
**Task 4.1: Create Security Config**

PasswordEncoder bean created

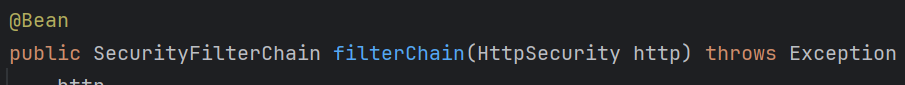
A screenshot of a computer screen

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AuthenticationManager configured



SecurityFilterChain configured



A screen shot of a computer code

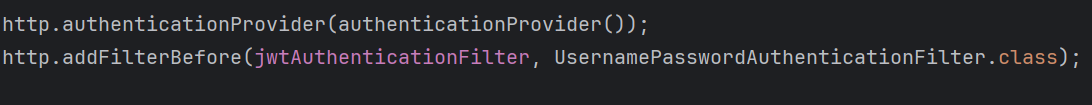
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Endpoint security rules correct

A screen shot of a computer program

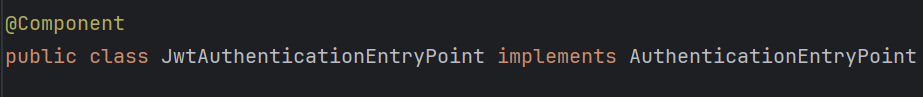
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JWT filter added correctly



**Task 4.2: Create Authentication Entry Point**

Implements AuthenticationEntryPoint



Returns proper 401 JSON response

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**Exercise 5: User Service & Auth Controller**

**Task 5.1: Implement User Service**

UserService created



Custom methods in UserService

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Implementation of custom methods

login()

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register()

A screen shot of a computer program

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getCurrentUser()

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**Task 5.2: Create Auth Controller**

Create endpoints

POST /api/auth/login

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POST /api/auth/register

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GET /api/auth/me

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POST /api/auth/logout

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**Task 5.3: Update Customer Controller**

Add @PreAuthorize annotations:

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A computer screen shot of a program code

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**Workflow:**

**1. Registration**

Client → POST /api/auth/register {username, email, password}

Server → Hash password with BCrypt

Server → Save user to database

Server → Return: 201 Created

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**2. Login**

Client → POST /api/auth/login {username, password}

Server → Verify username exists

Server → Compare password with hashed password

Server → Generate JWT token with username, role, expiry

Server → Return: {token: "eyJhbG...", username, email, role}

Client → Store token in localStorage

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**3. Accessing protected endpoints**

Client → GET /api/customers

Header: Authorization: Bearer eyJhbG...

Server → JwtAuthenticationFilter intercepts request

Server → Extract token from Authorization header

Server → Validate token (signature, expiry)

Server → Extract username from token

Server → Load user details from database

Server → Set authentication in SecurityContext

Server → Process request Server → Return response

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AI-generated content may be incorrect.