

Spring Boot Authentication & Authorization (Without JWT)

1. Project Setup using Spring Initializr

- Website: <https://start.spring.io>
- Project: Maven
- Language: Java
- Spring Boot: 3.2.x
- Group: com.auth
- Artifact: authapi
- Dependencies:
 - Spring Web
 - Spring Security
 - Spring Data JPA
 - MySQL Driver
 - Lombok (optional)

2. Package Structure

com.auth.authapi

- config/
 - SecurityConfig.java
- controller/
 - AuthController.java, RoleTestController.java
- model/
 - User.java
- repository/
 - UserRepository.java
- service/
 - AuthService.java
- AuthApiApplication.java

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3. Authentication Logic

- User registers via /api/auth/register (POST)
- User logs in via /api/auth/login (POST)
- Passwords stored in DB using BCrypt encryption
- Valid credentials -> success message
- Invalid credentials -> "Invalid credentials" (401)

4. Authorization Logic

- Endpoints like /api/user/data accessible only by users with role USER
- Endpoints like /api/admin/data accessible only by users with role ADMIN
- Configured via Spring Security with hasRole("USER") / hasRole("ADMIN")

5. Postman Testing

- Register:
 - Method: POST
 - URL: http://localhost:8080/api/auth/register
 - Headers: Content-Type = application/json
 - Body:

```
{  
  "username": "gaurav",  
  "password": "pass123",  
  "confirmPassword": "pass123",  
  "role": "USER"  
}
```

- Login:

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- Method: POST

- URL: `http://localhost:8080/api/auth/login`

- Headers: Content-Type = `application/json`

- Body:

```
{  
  "username": "gaurav",  
  "password": "pass123"  
}
```

- User Authorization:

- Method: GET

- URL: `http://localhost:8080/api/user/data`

- Auth: Basic Auth (username: gaurav, password: pass123)

- Expected: "Hello USER - You are authorized!"

- Invalid Credentials:

- Response: 401 Unauthorized

- Message: "Invalid credentials"

- Admin Authorization:

- Method: GET

- URL: `http://localhost:8080/api/admin/data`

- Auth: Basic Auth (username: admin, password: admin123)

- Expected: "Hello ADMIN - You are authorized!"