**4. Spring Security**

**Role-Based Authentication:**

• **Theory:**

**1.How to define roles (e.g., USER, ADMIN) and restrict access to specific URLs or methods based on user roles:-** Spring Security allows role-based access control using roles (e.g., USER, ADMIN) to restrict access to specific URLs or methods.

🔹 1. Defining Roles in Spring Security

Spring Security uses GrantedAuthority to define roles. In a database, roles are usually stored as ROLE\_USER, ROLE\_ADMIN, etc.

2. Restricting Access to URLs Using Roles

We configure access control using Spring Security’s HttpSecurity.

3. Restricting Access to Methods Using @PreAuthorize or @Secured

Spring allows method-level security using annotations like @PreAuthorize and @Secured.

**2. Securing endpoints using @Secured or @PreAuthorize:-**

Spring Security provides **method-level security** to restrict access to specific methods based on user roles. The two main annotations used are:

1️.**@Secured** → Restricts access based on roles.  
2️.**@PreAuthorize** → Uses SpEL (Spring Expression Language) to apply more flexible security rules.