

SPRING SECURITY COURSE

1. Introduction to Spring Security:

- 1.1 Overview of security challenges in web applications.
- 1.2 Introduction to Spring Security framework.
- 1.3 Security concepts and terminology.

2. Authentication:

- 2.1 User authentication.
- 2.2 Password-based authentication.
- 2.3 Authentication providers.
- 2.4 Custom authentication logic.

3. Authorization:

- 3.1 Role-based access control.
- 3.2 Permission-based access control.
- 3.3 Securing URLs and methods.
- 3.4 Configuring access rules.

4. User Management:

- 4.1 UserDetailsService and UserDetails.



- 4.2 User account storage.
- 4.3 User registration and management.
- 4.4 Password hashing and salting.

5. Spring Security Filters:

- 5.1 Overview of filter chain.
- 5.2 Authentication and authorization filters.
- 5.3 Custom filter development.
- 5.4 CSRF protection.

6. Authentication Providers:

- 6.1 In-memory authentication.
- 6.2 Database-backed authentication.
- 6.3 LDAP and Active Directory integration.
- 6.4 OAuth and OpenID Connect.

7. Single Sign-On (SSO):

- 7.1 Introduction to SSO.
- 7.2 Implementing SSO with Spring Security.
- 7.3 Auth 2.0 and OpenID Connect for SSO.

8. Session Management:



- 8.1 Managing user sessions.
- 8.2 Session fixation protection.
- 8.3 Session timeout and concurrent session control.

9. Cross-Site Request Forgery (CSRF) Protection:

- 9.1 Understanding CSRF attacks.
- 9.2 Implementing CSRF protection with Spring Security.

10. Cross-Origin Resource Sharing (CORS):

- 10.1 Configuring CORS for secure API access.

11. Password Management:

- 11.1 Resetting and changing passwords.
- 11.2 Email-based password reset.

12. Remember Me Authentication:

- 12.1 Persistent login.
- 12.2 Remember Me functionality.

13. Customizing and Extending Spring Security:

- 13.1 Implementing custom authentication providers.
- 13.2 Customizing authentication success and failure handling.
- 13.3 Custom access control logic.



14. Best Practices and Security Considerations:

- 14.1 Security headers.
- 14.2 Secure configuration.
- 14.3 Logging and monitoring for security.

15. Testing and Integration:

- 15.1 Unit testing Spring Security.
- 15.2 Integration testing security configurations.

16. Real-World Examples and Case Studies:

- 16.1 Applying Spring Security to practical scenarios.
- 16.2 Case studies of secure application architectures.

17. Security Pitfalls and Common Vulnerabilities:

- 17.1 Identifying and mitigating common security vulnerabilities.

18. Future Trends and Advanced Topics:

- 18.1 Introduction to advanced security topics.
- 18.2 Evolving security challenges.

