



SpyPro Security Solutions Pvt.Ltd., Hyderabad



APPLICATION SECURITY

Course Overview:

Application Security Course

Step into the world of **Application Security** and build a strong foundation in securing modern applications. This course is designed for beginners, developers, and tech enthusiasts who want to understand how to protect web applications from security threats.

You will learn the basics of application security, common vulnerabilities, secure coding practices, and real-time security testing. Through practical examples and hands-on learning, you will gain the skills needed to identify and fix security issues.

By the end of the course, you will be ready with **practical knowledge and job-ready skills** to start a career in **Application Security**.

1. Introduction to Application Security :

- What is Application Security
- Importance of Application Security in Real World
- Types of Applications (Web, Mobile, API, Desktop)
- CIA Triad (Confidentiality, Integrity, Availability)
- Secure SDLC (Software Development Life Cycle)
- Threats vs Vulnerabilities vs Risks
- OWASP Overview
- Common Application Attack Vectors

2. Web Application Architecture :

- Client–Server Architecture
- Frontend vs Backend
- HTTP vs HTTPS
- Request–Response Cycle
- Cookies, Sessions, Tokens
- Authentication vs Authorization
- REST APIs Basics
- MVC Architecture

3. OWASP Top 10 (Latest Version) :

- Broken Access Control
- Cryptographic Failures
- Injection Attacks (SQL, NoSQL, OS Command)
- Insecure Design
- Security Misconfiguration
- Vulnerable & Outdated Components
- Identification & Authentication Failures
- Software & Data Integrity Failures
- Security Logging & Monitoring Failures
- Server-Side Request Forgery (SSRF)

4. Authentication & Authorization Security:

- Login Mechanism Security
- Password Storage (Hashing & Salting)
- Multi-Factor Authentication (MFA)
- Session Management
- JWT (JSON Web Tokens)
- Role-Based Access Control (RBAC)
- OAuth 2.0 Basics
- Common Auth Vulnerabilities

5. Input Validation & Injection Attacks :

- What is Input Validation
- SQL Injection
- Cross-Site Scripting (XSS – Stored, Reflected, DOM)
- Command Injection

- LDAP Injection
- File Inclusion (LFI & RFI)
- Secure Coding Practices
- Real-World Injection Examples

6. Client-Side Security :

- JavaScript Security Issues
- DOM-Based Attacks
- Cross-Site Request Forgery (CSRF)
- CORS Misconfigurations
- Clickjacking
- Secure Cookies
- Browser Storage Risks (LocalStorage, sessionStorage)

7. API Security :

- API Security Fundamentals
- API Authentication Methods
- OWASP API Top 10
- Rate Limiting & Throttling
- API Input Validation
- Broken Object Level Authorization (BOLA)
- API Logging & Monitoring
- Securing REST APIs

8.Spring Framework & Spring Boot :

- Secure Coding Principles
- Common Developer Mistakes
- Input Sanitization
- Output Encoding
- Error Handling Best Practices
- Logging Sensitive Data Issues
- Code Review for Security
- Secure Framework Usage

9. Application Security Testing :

- Static Application Security Testing (SAST)
- Dynamic Application Security Testing (DAST)
- Interactive Application Security Testing (IAST)
- Manual vs Automated Testing
- Vulnerability Assessment vs Penetration Testing
- Bug Bounty Basics
- Reporting Vulnerabilities

10. Tools for Application Security :

- Burp Suite
- OWASP ZAP
- SQLMap
- Nikto
- Postman (Security Testing)
- Nmap (Basic for AppSec)
- GitHub Security Tools
- SAST Tools Overview

11. Cloud & DevSecOps Security :

- Cloud Application Security Basics
- CI/CD Security
- Secrets Management
- Container Security Basics
- DevSecOps Concepts
- Secure Deployment Practices

12. Case Studies & Projects:

- Real-World Application Breaches
- Vulnerability Analysis Reports
- Secure Login System Project
- OWASP Top 10 Lab Practice
- End-to-End Secure Web App Demo



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