

Extended web application security in Java (EWISEC-J)

ID EWISEC-J Price 3,000.— €(excl. tax) Duration 4 days

Course Overview

Your Web application written in Java works as intended, so you are done, right? But did you consider feeding in incorrect values? 16Gbs of data? A null? An apostrophe? Negative numbers, or specifically -1 or -2^31? Because that's what the bad guys will do – and the list is far from complete.

Handling security needs a healthy level of paranoia, and this is what this course provides: a strong emotional engagement by lots of hands-on labs and stories from real life, all to substantially improve code hygiene. Mistakes, consequences, and best practices are our blood, sweat and tears.

The curriculum goes through the common Web application security issues following the OWASP Top Ten but goes far beyond it both in coverage and the details. All this is put in the context of Java, and extended by core programming issues, discussing security pitfalls of the Java language and the runtime environment.

So that you are prepared for the forces of the dark side.

So that nothing unexpected happens.

Nothing.

Who should attend

Extended web application security in Java.

Prerequisites

General Java and Web development.

Course Objectives

- Getting familiar with essential cyber security concepts
- Understanding how cryptography supports security
- Learning how to use cryptographic APIs correctly in Java

- Understanding Web application security issues
- Detailed analysis of the OWASP Top Ten elements
- Putting Web application security in the context of Java
- Going beyond the low hanging fruits
- Input validation approaches and principles
- Managing vulnerabilities in third party components

Detailed Course Outline

Day 1

- **Cyber security basics**
 - What is security?
 - Threat and risk
 - Cyber security threat types - the CIA triad
 - Consequences of insecure software
- **The OWASP Top Ten 2021**
 - The OWASP Top 10 2021
 - A01 - Broken Access Control
 - Access control basics
 - Confused deputy
 - File upload
 - Open redirects and forwards
 - A02 - Cryptographic Failures
 - Information exposure
 - Cryptography for developers

Day 2

- A03 - Injection
 - Input validation
 - Injection
 - SQL injection
 - SQL injection best practices
 - Parameter manipulation
 - Code injection
 - Script injection
 - Dangerous file inclusion
 - HTML injection - Cross-site scripting (XSS)

Day 3

- A04 - Insecure Design
 - The STRIDE model of threats
 - Secure design principles of Saltzer and Schroeder
 - Client-side security

- A05 - Security Misconfiguration
 - Configuration principles
 - Server misconfiguration
 - Cookie security
 - XML entities
- A06 - Vulnerable and Outdated Components
 - Using vulnerable components
 - Assessing the environment
 - Hardening
 - Untrusted functionality import
 - Vulnerability management
- A07 - Identification and Authentication Failures
 - Authentication
 - Session management

Day 4

- A07 - Identification and Authentication Failures (continued)
 - Password management
- A08 - Software and Data Integrity Failures
 - Integrity protection
 - Subresource integrity
 - Insecure deserialization
- A09 - Security Logging and Monitoring Failures
 - Logging and monitoring principles
 - Insufficient logging
 - Case study - Plaintext passwords at Facebook
 - Log forging
 - Logging best practices
- A10 - Server-Side Request Forgery (SSRF)
 - Server-side Request Forgery (SSRF)
 - Case study - SSRF and the Capital One Breach
- Web application security beyond the Top Ten
 - Denial of service
- Wrap up
 - Secure coding principles
 - And now what?

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