Hack_EDU

Secure Coding Curriculum

Our industry-leading content engages and trains developers by asking them to problem solve by writing code in an application sandbox. With lessons on hundreds of topics and more than a dozen software languages, learning administrators will have everything they need to run a continuous multi-year training program for their developers.

Programming Languages

- Python
- Ruby
- .Net/C#
- Go
- Node.JS/ JavaScript
- Java (Android)
- Scala
- Clojure
- Perl
- Swift (iOS)
- C/C++
- Java
- PHP

Courses and Lessons

A hallmark of our training, HackEDU teaches both offensive (exploiting a vulnerability), and defensive (finding and fixing vulnerabilities in code) to help developers fully understand how vulnerabilities work and how to prevent them.

Our courses are made up of multiple lessons around a specific topic. Lessons take only 20-30 minutes to complete and use real vulnerabilities from OWASP Top 10 and bug bounty programs to provide practical knowledge to prevent future attacks.

OWASP Top 10 Course – The Open Web Application Security Project (OWASP) publishes a list of the most common and most critical security risks to web applications. Trained coders will be able to identify and eliminate the first vulnerabilities hackers look for.

OWASP Top 10		
Lesson	**Front End**	**Back End**
Broken Access Control	X	X
Cryptographic Failures	X	X
SQL Injection: Part 1	X	X
SQL Injection: Part 2		X
SQL Injection: Part 3		X
Reflected Cross-Site Scripting (XSS)	X	X
Stored Cross-Site Scripting (XSS)	X	X
DOM-Based Cross-Site Scripting (XSS)	X	X
Command Injection		X
Insecure Design	X	X
XML External Entities (XXE)	X	X
Security Misconfiguration	X	X
Vulnerable and Outdated Components	X	X
Identification and Authentication Failures	X	X
Software and Data Integrity Failures	X	X
Security Logging and Monitoring Failures	X	X
Server-side Request Forgery (SSRF)		X

OWASP API Top 10

Lesson	Front End	Back End
Improper Assets Management		X
Lack of Resources and Rate Limiting		X
API Security Misconfiguration		X
Broken Functional Level Authorization		X
Broken Object Level Authorization		X
Excessive Data Exposure		X
Mass Assignment	X	X

OWASP API Top 10 Course – Web Application APIs are common and often exploited. This course enables developers to create, manage and deploy APIs with confidence they are not opening a door for criminals.

OWASP Mobile Top 10 Android Course – Hacking into mobile applications has been on the rise. Security aware developers ensure apps deployed for Android devices do not expose the company, or the applications' users, to hacking.

OWASP Mobile Top 10 (Android)

Lessons	
Extraneous Functionality	Reverse Engineering
Client Code Quality	Code Tampering
Insecure Authorization	Insecure Data Storage
Improper Platform Usage	Insufficient Cryptography
Insecure Authentication	Insecure Communication

OWASP Mobile Top 10 (iOS)

Lessons	
Reverse Engineering	Client Code Quality
Extraneous Functionality	Insecure Communication
Insecure Data Storage	Code Tampering
Improper Platform Usage	Insecure Authentication
Insufficient Cryptography	Insecure Authorization

OWASP Mobile Top 10 – iOS Course – iOS applications have known vulnerabilities. Security aware developers ensure apps deployed for iOS devices do not expose the company, or the applications users, to hacking.

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Web Application Security Extended Course – Many vulnerabilities exist that do not appear on the OWASP Top 10. Reduce the risk of a breach with increased insight into cyber criminal exploits.

Web Application Security (Extended)

Lesson	Front End	Back End
JSON Web Token (JWT) Authentication Security	X	X
Cross-Site Request Forgery (CSRF)	X	X
Abusing the $where Operator		X
Using Comparison Operators		X
User Input as Keys		X
OAuth Implementation Vulnerabilities: Part 1	X	X
OAuth Implementation Vulnerabilities: Part 2	X	X

Publicly Disclosed Vulnerabilities

Lesson	Front End	Back End
Capital One: Part 1		X
Capital One: Part 2		X
Capital One: Part 3		X
Apache Struts 2		X
MySpace “Samy” Worm	X	X
Remote Code Execution		X
Blind XXE	X	X
ClickJacking	X	X
Zip Slip		X
XXS in Third-Party Integration	X	X

Publicly Disclosed Vulnerabilities Course – This course explains how well-known vulnerabilities have been exploited. Examining the tactics and thinking of cyber criminals helps developers to internalize the principle of creating secure applications.

Native Applications Course – A foundational course of secure coding for every application developer. Understanding these basic security concepts enables applications to be built on a repeatable security aware foundation.

Native Applications

Lesson	Front End	Back End
Stack Overflow		X
Off-By-One		X
Heap Overflow		X
Format String		X

DevSecOps Course - The DevSecOps (Development Security Operations) course is designed to teach how to integrate security practices into the software development life cycle in an automated fashion, from pre-development through production monitoring.

Lessons for DevSecOps

Lessons	
Threat Modeling	Commit Hooks
Docker Introduction	Static Application Security Testing (SAST)
Dockerfile Introduction	Dynamic Application Security Testing (DAST)
Docker Image Scanning	Security Unit Tests
Docker Container Hardening	Security Configuration Management
Docker Secret Handling	Infrastructure as Code
Dependency Management	

Challenges

Challenges require software developers to practice finding and fixing vulnerabilities in software. Learners can engage in both offensive (finding a vulnerability and providing a flag) and defensive challenges (fixing the code properly) to apply learned concepts.

Articles

A supplement to Lessons and Challenges, articles are written to provide a deeper level of information for those learners who would like more information. Examples include articles on how to focus security into your code review, what is necessary to add security IDE plugins into your project, and articles on how to securely manage secrets in a development process.

Compliance

HIPAA – Courses such as the OWASP Top 10, OWASP Top 10 mobile, and Native Applications prepare developers to meet the requirements of HIPAA compliance, a necessity for any health care organization to meet their compliance requirements.

PCI - Meet the requirements of PCI compliance requirements by training on the most common and critical web vulnerabilities with our OWASP Top 10 content.

Translated Languages

All lessons are available in English. Select lessons are translated into the following written languages: French Canadian, Korean, Spanish and Simplified Chinese.

HackEDU is a developer-focused secure coding training platform that teaches learners how to find, fix, and prevent vulnerabilities by coding in a live virtual sandbox environment.