Insecure by Design: A Hands-On Learning Platform for Web Security Training

Progress Report 1

CSIS 4495-003 | Applied Research Project

Winter 2026

Instructor: Arasanipalai Kandhadai, Padmapriya

Thilan Udahage Don | 300398798

Work Log

Thilan Udahage Don

Date	Number of Hours	Description of Work
20th Jan	1	Participated in the instructor-led project consultation. Discussed feasibility of building an intentionally vulnerable Spring Boot application and clarified expectations for the proposal.
20th Jan	1	Conducted research on existing vulnerable web applications (DVWA, WebGoat, Juice Shop). Identified gaps such as outdated frameworks and lack of structured guidance. Documented findings for proposal use.
21st Jan	1.5	Co-drafted the pre-proposal for instructor approval. Summarized research findings and outlined the initial problem definition, research questions, and project scope.
22nd Jan	1	Reviewed OWASP Top 10 documentation to determine which vulnerabilities would be most suitable for embedding into a Spring Boot MVC application. Took notes on implementation patterns and potential risks.
23rd Jan	1	Attended scheduled team meeting. Discussed proposal structure, division of responsibilities, and GitHub setup tasks.
23rd Jan	1.5	Created the GitHub repository structure following course requirements. Added folders (ReportsAndDocuments, Implementation, Misc), created worklog.md and deliverables.md, updated README.
24th Jan	2	Attended scheduled Saturday team meeting. Collaborated with Allwyn on drafting the proposal. Focused on introduction, research problem framing, and practical contributions.
25th Jan	2	Reviewed each section for coherence, corrected structural inconsistencies, and ensured that the introduction, methodology, and expected results flowed logically. Added missing justification points and improved the clarity of research questions.

Date	Number of Hours	Description of Work
26th Jan	1	Conducted a full review of the proposal draft to ensure consistency between the problem statement, methodology, and timeline. Verified that all sections met rubric requirements. Checked formatting, corrected grammar. Prepared the document for submission.
27th Jan	1	Participated in in-class proposal check-in. Instructor requested that we justify the project by referencing data that highlights the need for practical security training. Reviewed industry reports, including a Fortinet article noting that many security professionals lack hands-on experience with real vulnerabilities. Added this evidence to the proposal to strengthen the problem motivation.
31st Jan	1	Attended scheduled Friday team meeting. Discussed Week 5 tasks, including setting up the Spring Boot skeleton, configuring H2 database, and planning the first vulnerability implementation.
1st Feb	1.5	Attended scheduled Saturday team meeting. Reviewed architecture outline and refined user flows. Finalized vulnerability placement strategy for SQLi, XSS, and Broken Auth.
2nd Feb	1	Drafted initial documentation structure for implementation and vulnerability planning to be added to GitHub later in the week.
4th Feb	1.5	Set up local Spring Boot development environment. Verified dependencies, created initial project structure, and tested basic application startup.
5th Feb	1	Conducted research on SQL Injection patterns in Spring Boot applications. Reviewed insecure repository usage examples and documented potential implementation approaches.
6th Feb	1	Drafted initial content for Progress Report 1, summarizing research, architecture planning, and early setup work completed so far.
7th Feb	1	Added implementation_plan.md, vulnerability_placement.md to the GitHub repository. Documented planned workflows and frontend responsibilities.

Date	Number of Hours	Description of Work
8th Feb	1.5	Reviewed the Spring Boot project structure and verified local environment functionality. Updated work logs and prepared remaining content for Progress Report 1.
9th Feb	1	Finalized and formatted Progress Report 1. Checked in all documentation files and uploaded the completed report to the GitHub repository under ReportsAndDocuments.

Summary Description

During this reporting period, I contributed extensively to the proposal development, research foundation, and shared implementation tasks for our project Insecure by Design. In addition to my documentation and planning responsibilities, I also contributed to coding tasks as outlined in our proposal. This included reviewing and organizing Thymeleaf templates, preparing the UI layout for upcoming vulnerabilities, verifying routing between controllers and views, and setting up the Spring Boot project locally.

After receiving instructor feedback on January 27, I incorporated industry-supported evidence from Fortinet's 2024 Cybersecurity Skills Gap Report to strengthen the motivation for our project. I also created several documentation files directly in the repository, vulnerability_placement.md and implementation_plan.md to support both frontend and backend development.

Following proposal submission, I participated in weekly Friday and Saturday meetings to plan the architecture and vulnerability placement strategy. I also conducted research on SQL Injection patterns and frontend-related vulnerabilities to support upcoming implementation tasks. The project remains aligned with the original proposal and is progressing as planned.

Repo Check-In of Implementation Completed

Since the proposal phase concluded, I have checked in several updates to the GitHub repository. These include:

- Creation of the repository structure (ReportsAndDocuments, Implementation, Misc)
- Added worklog.md, deliverables.md, and updated README.md
- Added implementation planning notes and vulnerability placement documentation
- Verified Spring Boot project setup and added initial template structure
- Progress Report 1 draft (this document)

All work was checked in under my own commits, following the requirement for individual contributions.

AI Use Section

Table of AI Tools and Specific Use

AI Tool	Version	Feature Used	Value Add
Chatgpt	5.1 free	Help with Maven dependencies	Used only to get an idea, then did my own research and continued.

Appendix

References

Fortinet. (2024). 2024 Cybersecurity Skills Gap Report. Retrieved January 2026, from https://www.fortinet.com/content/dam/fortinet/assets/reports/2024-cybersecurity-skills-gap-report.pdf

Mudge, R. (digininja). (n.d.). Damn Vulnerable Web Application (DVWA) [GitHub repository]. Retrieved January 2026, from https://github.com/digininja/DVWA

OWASP Foundation. (n.d.). OWASP Juice Shop. Retrieved January 2026, from https://owasp.org/www-project-juice-shop/

OWASP Foundation. (n.d.). OWASP WebGoat. Retrieved January 2026, from https://owasp.org/www-project-webgoat/