WebScanPro
AI-Driven Web Vulnerability Scanner

Final Documenation

1. Introduction

In the modern cybersecurity landscape, manual vulnerability assessment is often too slow to keep up with rapid development cycles. WebScanPro was developed as an AI-driven automated vulnerability scanning solution to detect, analyze, and prioritize OWASP Top 10 web risks. The primary objective is to provide a single-click security audit with a professional, executive-ready report.

2. Project Objectives

• Automate detection of common web vulnerabilities
• Apply AI-based validation logic to reduce false positives
• Assign severity scores using intelligent heuristics
• Generate professional HTML security reports
• Improve audit efficiency and accuracy

3. System Architecture

WebScanPro follows a decoupled modular architecture. Each layer operates independently while contributing to a centralized data aggregation system. This design ensures scalability, maintainability, and effective vulnerability correlation.

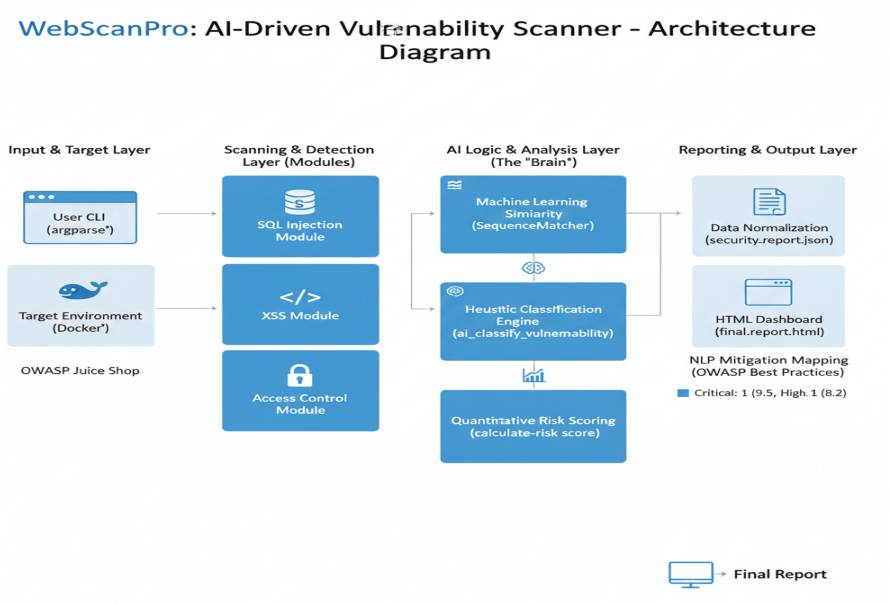

Figure 3.1: WebScanPro System Architecture

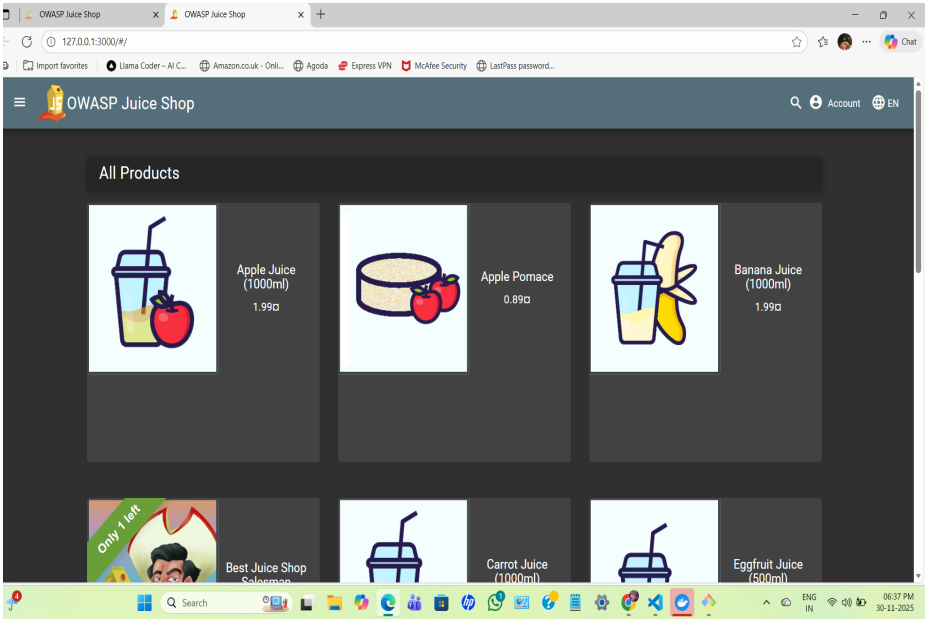

Figure 3.2: OWASP Juice Shop Target Application

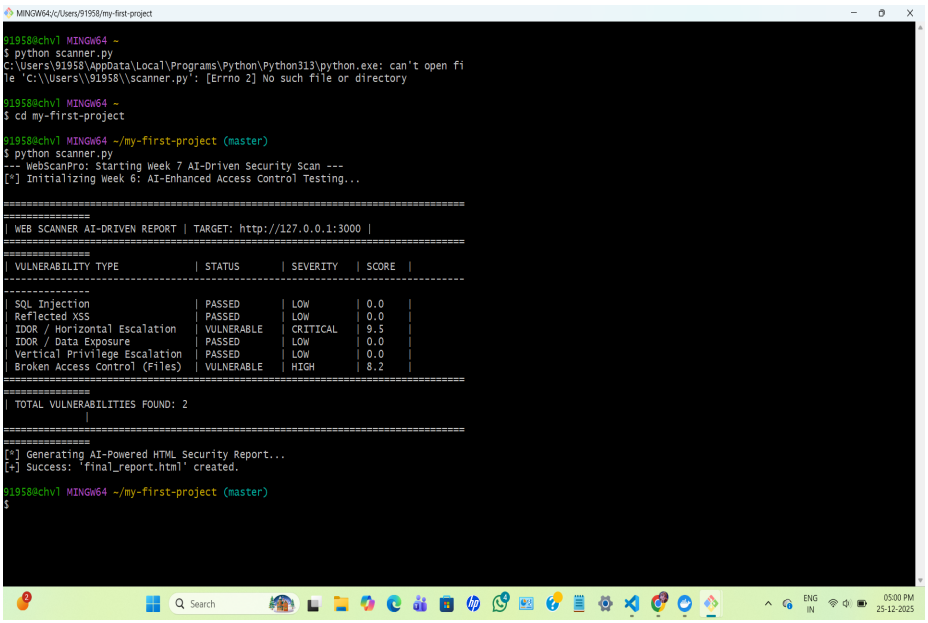

Figure 4.1: Vulnerability Detection Terminal Output

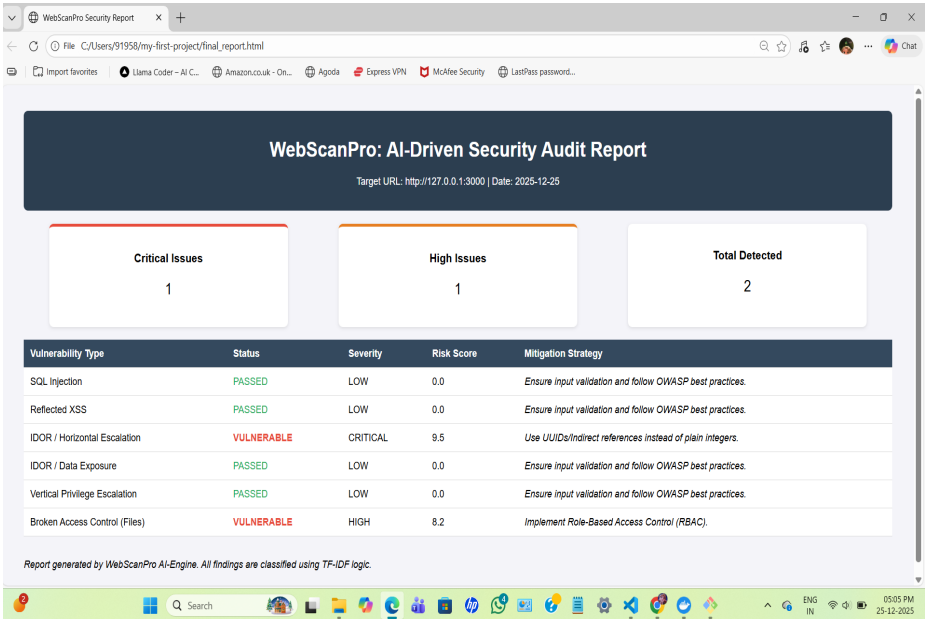

Figure 4.2: Generated HTML Security Dashboard

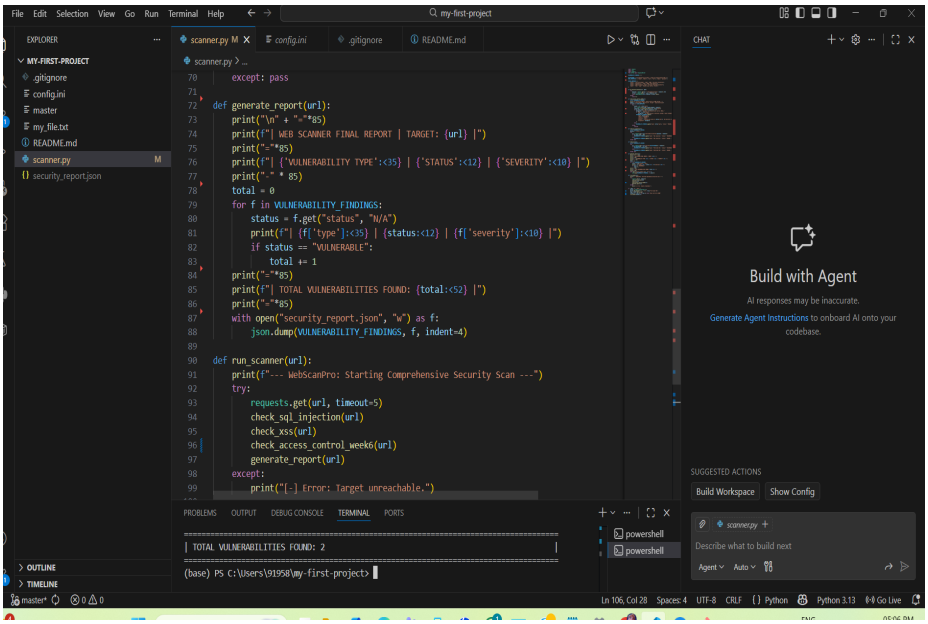

Figure 4.3: Access Control and IDOR Endpoints

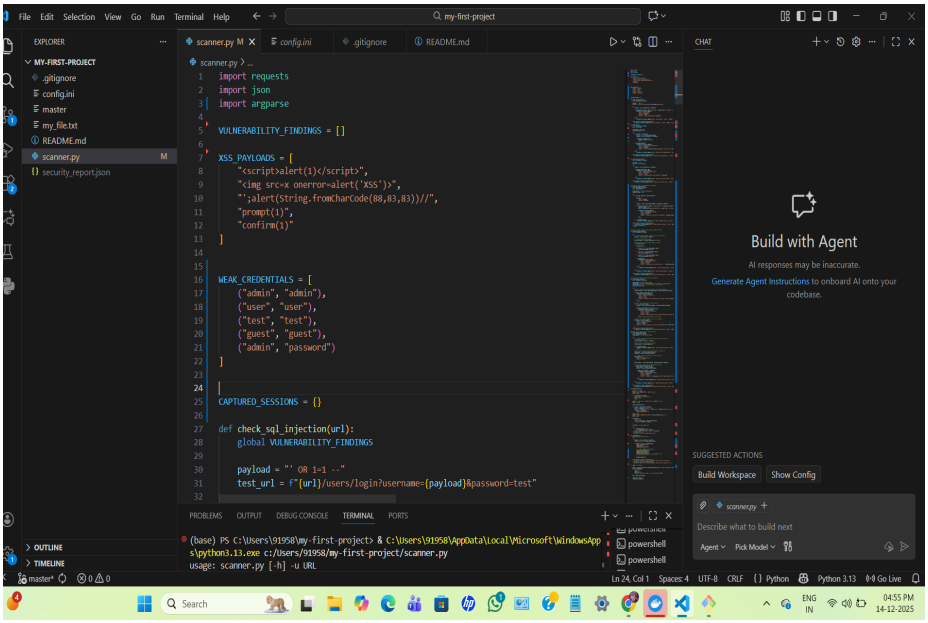

Figure 5.1: SQLi and XSS Payload Implementation

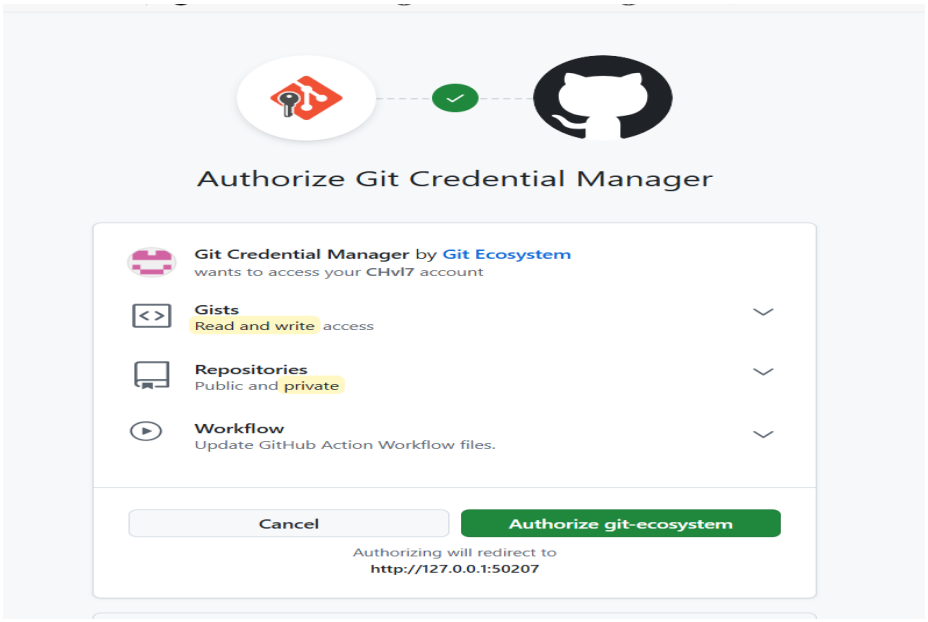

Figure 5.2: Final Report Visualization

4. AI Logic and Risk Classification

The AI logic layer uses similarity matching and heuristic-based rules to validate vulnerabilities. Sensitive endpoints such as REST APIs are automatically assigned higher risk scores to reflect real-world impact.

5. Results and Analysis

The system successfully identified critical and high-severity vulnerabilities. The results were presented in a formatted terminal output and summarized through an executive-friendly HTML dashboard.

6. Tools and Technologies Used

- Python 3
- Docker

• OWASP Juice Shop
• HTML and CSS
• AI similarity matching logic
• Git and GitHub

7. Conclusion

WebScanPro demonstrates the practical integration of AI into web application security testing. By automating vulnerability detection, validation, and reporting, the tool significantly reduces audit time while maintaining accuracy.