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Information Security Department

Intelligent Web Service-Based Intrusion Detection

A Graduate Project Submitted to the Department of Information Security of the College of Information Technology, University of Babylon, in Partial Fulfilment of the Requirements for the Bachelor's degree in Information Security of Information Technology.

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ABSTRACT

The project "Intelligent Web Service-Based Intrusion Detection" aims to develop a secured web application that introduce an attendance management system with modern security features to detect and prevent intrusions. The project focusing on detection of both the SQL injection (SQLi) and the cross-site scripting (XSS) attacks. The system incorporates user authentication with different access levels (teacher, admin, student) and employs various security measures to safeguard sensitive data.

The security aspect of the application includes a dedicated proposed security class response for detecting and preventing the attacks. Key functionalities include: SQL Injection Detection: Utilizing pattern matching to identify common SQL keywords and prevent malicious database queries.

Cross-Site Scripting (XSS) Detection: Implementing regular expression matching to identify and sanitize potential XSS payloads within user inputs.

The system provide user friendly interface for managing users, classes, and courses, facilitating seamless attendance tracking via QR codes and manual entry. The system offers administrative settings for customization and reporting functionalities to monitor and analyze attendance data. The system's architecture includes tables to log attack details and block malicious IP addresses. It also includes sections for system settings, user management, and attendance reports to support efficient management and reporting. "Intelligent Web Service-Based Intrusion Detection" presents an innovative web based solution that enhances attendance management while prioritizing security through proactive intrusion detection and prevention techniques.