Final Project Report

Ethical Phishing Simulation Platform

Author: [Your Name] Date: [Date]

Abstract

Phishing is one of the most common cyber threats, exploiting human error to compromise systems. This project develops an Ethical Phishing Simulation Platform designed for training and awareness. It allows administrators to simulate phishing attacks in a safe lab environment, track user behavior (opens and clicks), and educate users through a training landing page.

Beyond the standard requirements, the platform introduces unique features: a Resilience Score for each user and visual analytics dashboards (doughnut and bar charts). These innovations make the system more practical, measurable, and impactful for awareness programs.

Introduction

Phishing awareness is a crucial part of cybersecurity training. Technical controls alone cannot prevent human mistakes such as clicking suspicious links. Organizations often run simulated phishing campaigns to test and improve employee awareness.

This project builds a platform to:
- Simulate phishing emails in a controlled environment.
- Track interactions (email opens, link clicks).
- Educate users immediately after an unsafe action.
- Visualize campaign results via dashboards and charts.
- Quantify awareness with a Resilience Score.

Tools & Technologies

• Python 3 + Flask: lightweight web server and routing.
• SQLite: local database for logging emails, opens, and clicks.
• HTML + CSS + Jinja2: dynamic templates for dashboard and training pages.
• Chart.js (CDN): interactive visualizations (doughnut and bar charts).
• Virtual Environment (venv): isolates dependencies.
• Ubuntu VM: safe lab environment for development/testing.

Implementation Steps

1. Setup & Database: Initialized Flask app and SQLite database. Created EmailLog model for storing subject, recipient, opened/clicked events, and timestamps.

2. Dashboard Creation: Implemented /dashboard route showing totals, opens, clicks, and detailed logs.

3. Tracking Interactions: Added unique tracking pixel for “open” events and unique tracking links for “click” events. Redirected clicks to /thanks/<id> route.

4. Training Page: Created thanks.html template with phishing awareness tips. Users are redirected here after clicking a link.

5. Unique Features: Added Resilience Score logic in dashboard() and visual analytics with Chart.js (doughnut + bar charts).

Conclusion

The Ethical Phishing Simulation Platform successfully meets the core requirements of simulating phishing, tracking user actions, and educating users. The added features — Resilience Score and Visual Analytics — make the system unique, practical, and impressive for both academic and professional contexts.

This project demonstrates hands-on skills in web development, databases, data visualization, and cybersecurity awareness training. It not only improves understanding of phishing attacks but also provides a measurable way to assess and strengthen user resilience.