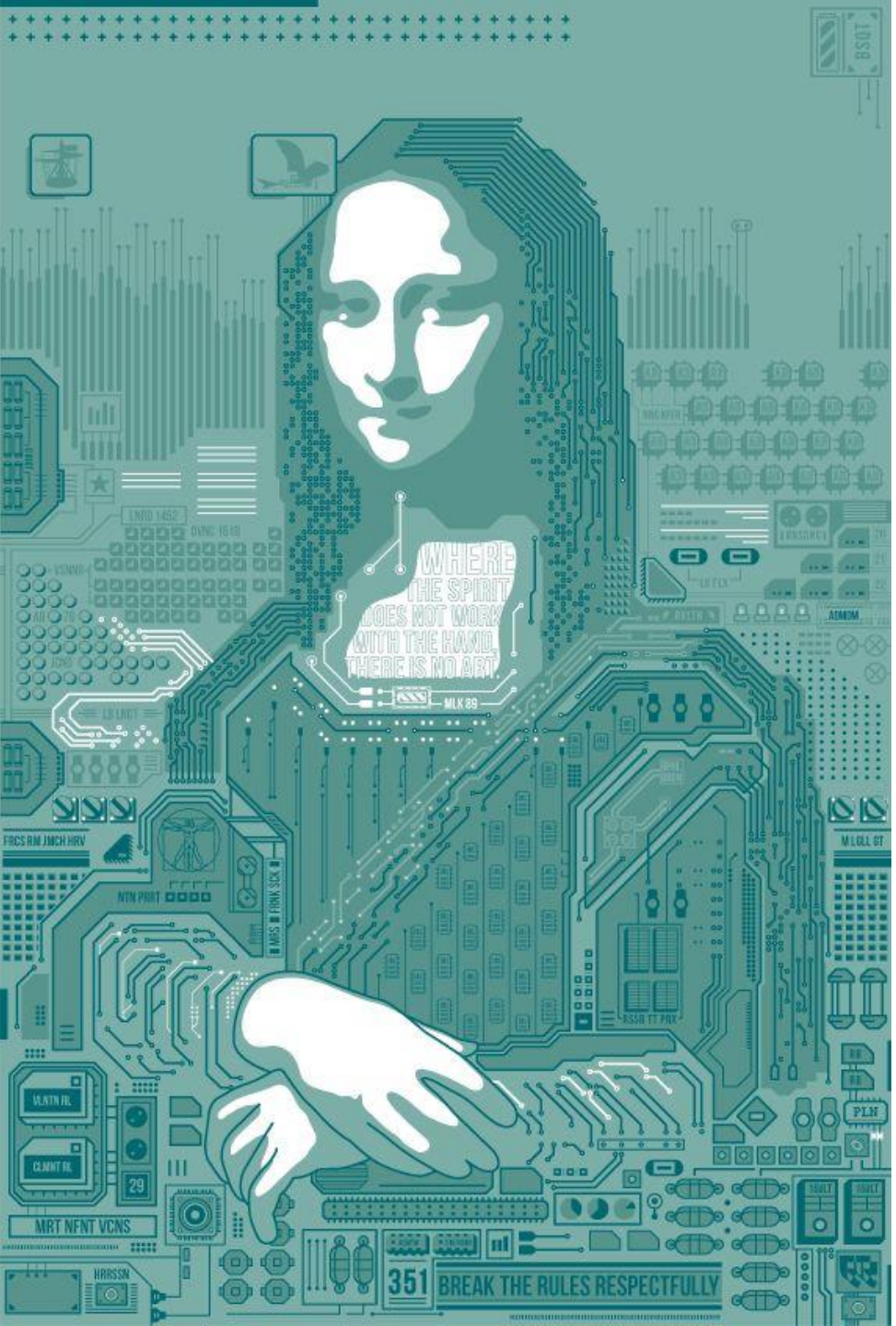


Ethical Hacking System

Web and Linux tools

BRIDGING GAPS IN CYBERSECURITY

Naveen Wijesinghe

Outline

- Problem Statement
- Literature Review
- Motivation
- Significance
- Aim of The Proposed System
- Objectives
- Major Processes
- Expected deliverables
- Methodology
- Hardware and Software requirements
- References

Introduction

With the rise of increasingly sophisticated cyber threats, the need for advanced ethical hacking and penetration testing tools has become critical. Ethical hackers simulate cyber-attacks to find and fix vulnerabilities in systems, networks, and applications, playing a vital role in securing sensitive data.

This project aims to unify fragmented ethical hacking tools into a single, user-friendly platform, available as both a web-based interface and a downloadable Linux toolkit. It also includes an educational module to promote responsible and informed cybersecurity practices, ensuring users have both the tools and knowledge to use them ethically and effectively.

Problem Statement

- Cybersecurity professionals need a centralized toolkit with diverse functionalities.
- Current tools may lack user-friendly interfaces or educational resources.
- Fragmented workflow and oversight in addressing attack vectors.
- Ethical hacking, without adequate knowledge or ethical considerations, can lead to legal and compliance issues, compromising the integrity of security assess

Literature Review

Topic	Author	Key Finding
Autonomous Security Analysis and Pentesting (ASAP)	Ankur Chowdhary	• Discusses the deployment of the ASAP-generated attack policy on target enterprise networks using automated exploitation tools like Metasploit • Identifies the shortcomings of the current semi-automated pen-testing procedures, emphasizing the need for improved methodologies due to significant human effort and potential suboptimal outcomes within given time constraints.

Topic	Author	Key Finding
Bash in the Wild: Language Usage, Code Smells, and Bugs	• Yiwen Dong, • Zheyang Li, • Yongqiang Tian, • Chengnian Sun, • Michael W. Godfrey, • Meiyappan Nagappan	• Bash Script Usage Study: Analyzes a million open-source Bash scripts from Github, revealing sensible utilization patterns. • Key Findings: Identifies frequently used features, dropping mild at the actual-global utility of Bash scripts. • Script Size and Errors: Larger scripts show a higher probability of errors, suggesting a correlation among script length and capacity troubles.
Ethical Hacking	• Ajinkya A. Farsole • Amruta G. Kashikar • Apurva Zunzunwala	• Ethical Hacking's Surge: Vital for countering illegal attacks on computer systems. • Security Imperative: Urges robust countermeasures to safeguard against threats.

Topic	Author	Key finding
Backdoor Remote Access Trojan (BRAT) Phishing Threat Analysis	Mur Salim	• Focus: Targets Remote Access Trojan (RAT) malware attacks. • Methodology: Involves ranges like RAT creation, trying out, and source code research. • Python Malware: Python-enabled malware exploits webcams and keyloggers, emphasizing risks. • Antivirus Detection: eleven of 71 antiviruses detect the malware, revealing capacity vulnerabilities.
Role of Ethical Hacking in System	Bhavin A Patel	• Ethical Hacking Defined: Describes it as using hacker skills and equipment for security trying out. • Growing Importance: Emphasizes the relevance of moral hacking amid the Internet's enlargement.

Topic	Author	Key Finding
Some ethical hacking possibilities in Kali Linux environment	• Petar Cisara, • Robert Pinter	• Kali Linux Usage: Highlights it as an OS with powerful equipment for various assaults. • Specialized Capabilities: Emphasizes Kali Linux's effectiveness and specificity in ethical hacking. • Comprehensive Tool Collection: Acknowledges the undeniable benefit of numerous hacking gear consolidated in a single region.
Design and Testing of an Arduino-based Network Jammer Device	• M.N.M. Najath, • Daminda Herath, • Amal Rajapakse	• Wireless Security Concerns: Highlights risks of illegal data get entry to in wi-fi generation, compromising steady statistics. • Network Jammer Introduction: Presents a low-fee Arduino-primarily based jammer to defend records inside a certain variety.

Motivation and Significant of the Project

- Cybersecurity Urgency: Increasing cyber-attacks spotlight the need for superior tools; this venture addresses the space.
- Cutting-edge Ethical Hacking System: Aims to provide professionals with advanced tools, overcoming limitations, and selling accountable practices.
- Educational Component: Recognizes the lack of cybersecurity resources, includes an educational segment to make packages sensible.
- **HackTheBox** Influence: Inspired by limitations in the "**HackTheBox**" platform, aims to surpass it with a comprehensive Web and Linux Toolkit.

Aim of The Proposed System

The project aims to develop an integrated ethical hacking system that addresses the challenges faced by penetration testers and cyber security professionals and open new educational avenues for cyber security novices.

Scope

- **Web Platform:** Creating an online hub accessible via a web browser for ethical hacking resources, including opportunities with Arduino.
- **Downloadable Linux Toolkit:** Developing a specialized toolkit for Linux users, downloadable and run through Terminal, catering to ethical hacking needs.
- **Comprehensive Toolkit:** Combining web and Linux tools to address diverse ethical hacking requirements, including simulations of cyber-attacks.
- **Educational Emphasis:** Featuring a dedicated section with tutorials and guides, fostering understanding of ethical hacking principles, and providing a hands-on Hacking Lab. Completion results in a valuable certificate.

Objectives

DOWNLOADABLE LINUX TOOLKIT

IP Address tool	My Hostname tool
Ping IP Address tool	Hashing tool
Find IP address tool	Get All IP Addresses tool
HTTP response tool	Port Scanner tool
Reading content web tool	Reading URL Protected tool
DDOS Attack tool	Cam Phasing tool
Social Engineer Tools Steganography	Hacking Search engine

WEB SITE EDUCATION AREA

Cyber Security

Digital forensics

Pentesting

Linux

Contains many other things like Quiz.

Major Process of the Development

ETHICAL HACKING WEBSITE

- Serves as the foundation for the Ethical Hacking System, reachable to Cyber Security professionals and college students.
- Registration is required, ideally using stable emails (corporation or university) to deter unlawful activities.
- Offers the Ethical Hacking Toolkit download upon registration, coupled with an academic framework for comprehensive cybersecurity getting to know and certification.

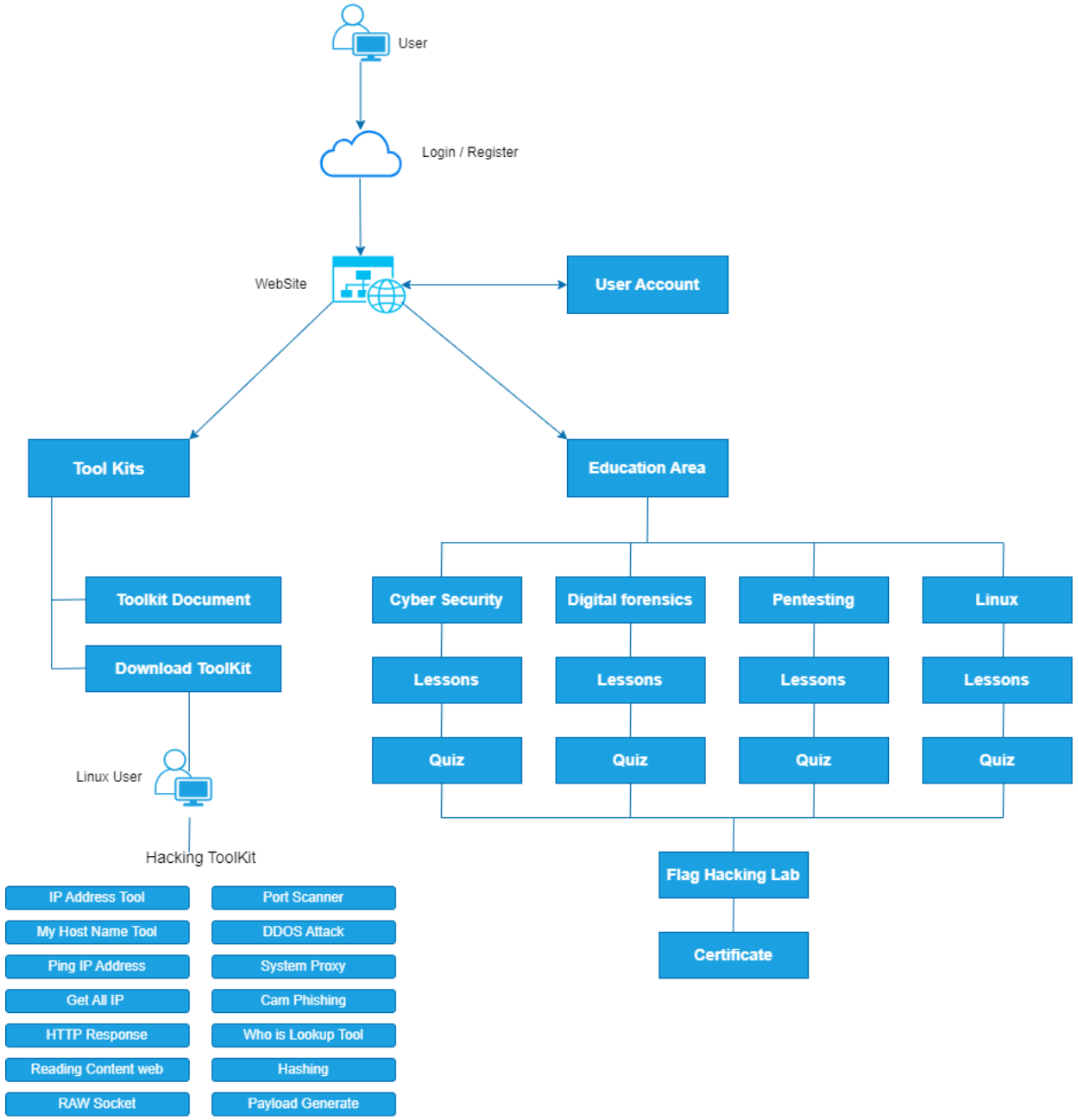
ETHICAL HACKING TOOLKIT

- Downloadable upon internet site registration, specifically designed for Linux customers.
- User-friendly inside the Linux terminal, facilitating various ethical hacking sports.
- Compatible with any Linux OS, the toolkit includes equipment such as IP Address, Port Scanner, DDOS Attack, and greater.
- Enables various functionalities like content reading, URL safety, and payload technology.

Expected Deliverables

- Developed Website and toolkits
- Software Requirement Specification (SRS)
- Design Documentation
- Test Cases and Test Plan
- User Manual
- Source Code of the Web and tools

System Overview



Methodology for the Proposed System

Needs assessment

Define requirements

Research and planning

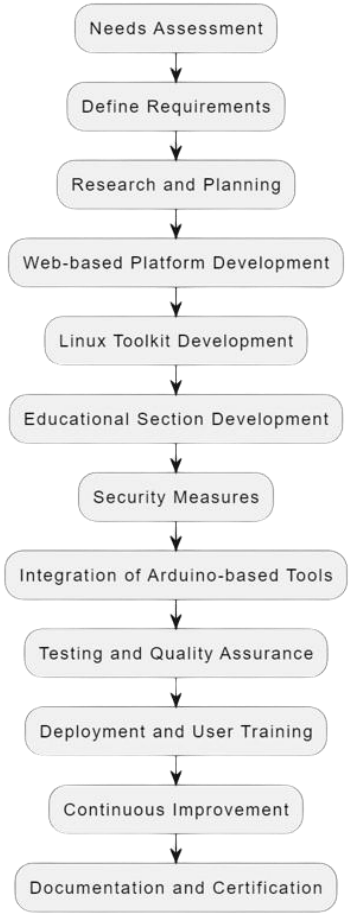
Development of web-based platform, Linux toolkit, and educational section

Security measures and integration of Arduino-based tools

Testing and quality assurance

Deployment and user training

Continuous improvement and documentation



Resource Requirements for Project

Software resources	Hardware resources
Python , Django, Flask - Pycharm	Arduino Node MCU
Arduino Cloud	
OS Windows 10 , Linux kali and Ubuntu	Intel Core (TM) i5-1035G1 CPU @ 1.00GHz 1.19GHz
Metasploitable 2	
C language	1TB HDD
Github Desktop (Pro version)	512 SSD
MySQL	16GB RAM
Webstorm	
HTML/CSS/JS	
Bash Script	

References

[1] A. Chowdhary, “Autonomous Security Analysis and Pentesting (ASAP),” *ResearchGate*, Aug. 2020. https://www.researchgate.net/publication/343537449_Autonomous_Security_Analysis_and_Pentesting_ASAP (accessed Feb. 01, 2024).

[2] Y. Dong, Z. Li, Y. Tian, C. Sun, M. W. Godfrey, and M. Nagappan, “Bash in the Wild: Language Usage, Code Smells, and Bugs,” *ResearchGate*, Apr. 2022. https://www.researchgate.net/publication/366820748_Bash_in_the_Wild_Language_Usage_Code_Smells_and_Bugs (accessed Feb. 01, 2024).

[3] M. Salim, “Analisis Ancaman Phishing Backdoor Remote Access Trojan (BRAT),” *ResearchGate*, Jul. 2023.https://www.researchgate.net/publication/373392308_Analisis_Ancaman_Phishing_Backdoor_Remote_Access_Trojan_BRAT (accessed Feb. 01, 2024).

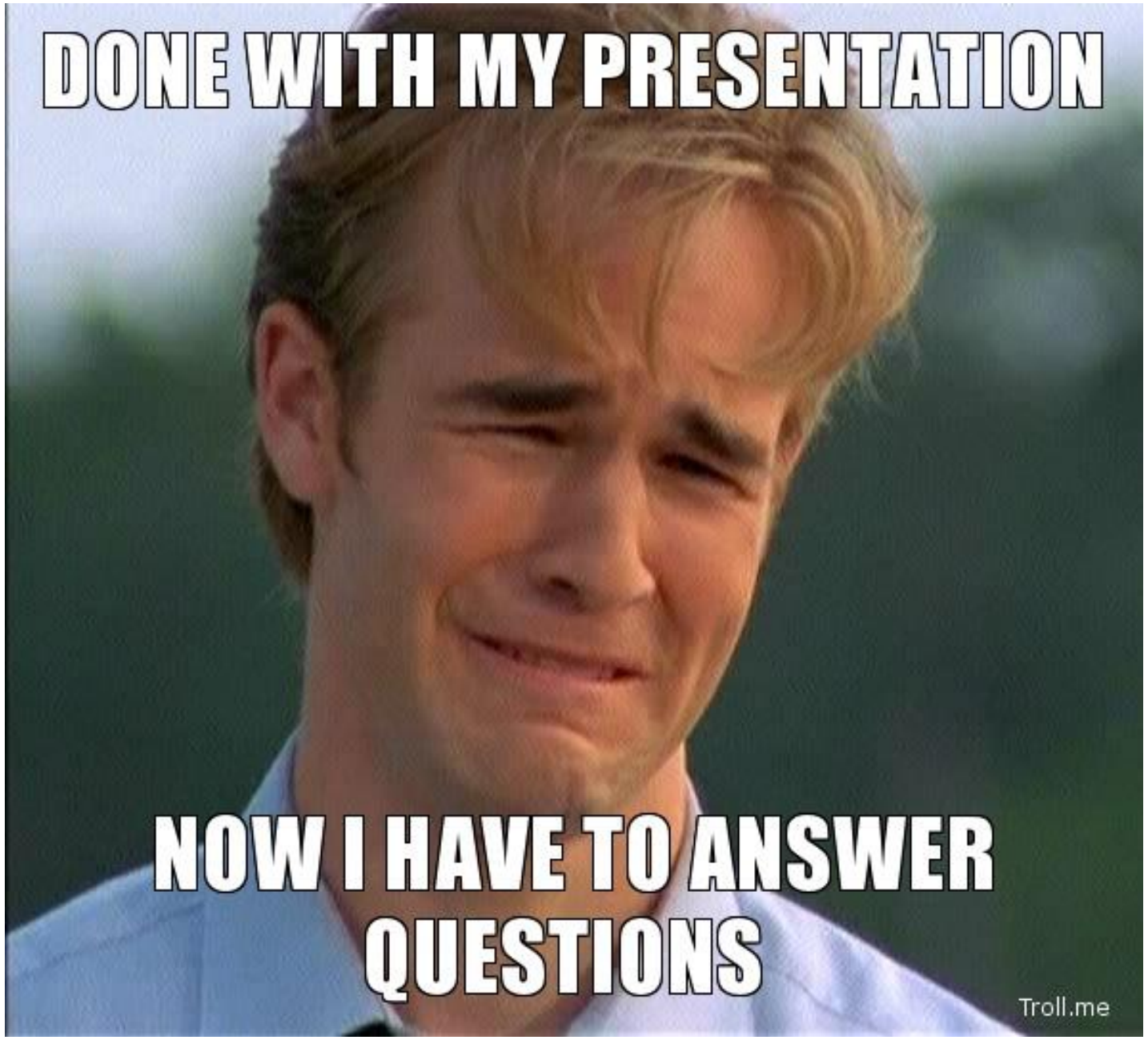
[4] B. A Patel, “(PDF) Role of Ethical Hacking in System,” *ResearchGate*, Jan. 2016. https://www.researchgate.net/publication/325102785_Role_of_Ethical_Hacking_in_System (accessed Feb. 01, 2024).

[5] P. Cisar and R. Pinter, “Journal of Applied Technical and Educational Sciences jATES Some ethical hacking possibilities in Kali Linux environment,” *Journal of Applied Technical and Educational Sciences jATES* , vol. 9, no. 4, pp. 129–149, 2019, doi: https://doi.org/10.24368/jates.v9i4.139.

[6] M. N. M. Najath, D. Herath, and A. Rajapakse, “Design and Testing of an Arduino-based Network JammerDevice,”*ResearchGate*,Dec.2022.https://www.researchgate.net/publication/366611575_Design_and_Testing_of_an_Arduino-based_Network_Jammer_Device (accessed Feb. 03, 2024).

[7] trustedsec, “trustedsec/social-engineer-toolkit,” *GitHub*, Aug. 30, 2020. https://github.com/trustedsec/social-engineer-toolkit (accessed Feb. 2024).

Any Questions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