

Internship Final Report

Student Name: Intern name
University: Amrita Vishwa Vidyapeetham
Major: Computer Science
Internship Duration: April 10th, 2025 - May 3rd, 2025
Company: Hack Secure
Domain: Cyber Security
Mentor: Mr.Nishant Prajapati
Assistant Mentor: Mr. Aman Pandey
Coordinator: Mr. Shivam Kapoor

Objectives

My primary objectives for this internship were to:

1. Develop a deep understanding of cybersecurity principles and practices.
2. Gain hands-on experience in identifying, analyzing, and mitigating security threats.
3. Enhance my skills in using cybersecurity tools and techniques in real-world scenarios.

Tasks and Responsibilities

During my internship, I was involved in the following key tasks:

- **Vulnerability Assessment:** Conducted a thorough scan of a target website to identify open ports and potential vulnerabilities.
- **Penetration Testing:** Performed brute-force attacks and directory enumeration on the website to uncover hidden directories and files.
- **Traffic Analysis:** Intercepted network traffic using Wireshark during a simulated login attempt, successfully capturing and analyzing transmitted credentials.
- **Decryption and Cryptanalysis:** Decrypted password-protected files using cryptographic tools and analyzed encoded hash values to recover plaintext passwords.
- **Reverse Engineering:** Used PE Explorer to analyze an executable file, identifying the entry point and other critical information.
- **Network Security:** Executed a de-authentication attack on a controlled network environment, capturing the handshake and subsequently cracking the Wi-Fi password using a custom wordlist.
- **Payload Creation:** Developed and deployed a Metasploit payload to establish a reverse shell connection on a virtual machine.

Intermediate Task

Task

- **Outcomes** – Summary of findings, tools used, and key results.
- **Conclusion** – Skills gained, challenges faced, and improvements.
- **Screenshot** – Proof of task completion with clear visuals.

You need to complete the task in the same format as the others. Make sure your report is clear, concise, and properly structured. After completing your task and writing the report, verify it with your assistant mentor or senior mentor. Once approved, submit your report via the Google Form provided before the internship ends

Note:

- You need to complete one of the three given Ethical Hacking (EH) projects. Follow these steps while making your report: (ONLY FOR RED TEAMERS)

1. **Select and complete ONE project from the given three.**
2. **Explain your tool's working process and its key functions.**
3. **Attach relevant screenshots showing your work**
4. **Upload your project on GitHub and provide the hyperlink in your report.**

Learning Outcomes

- **Technical Proficiency:** I gained practical experience in various cybersecurity tools and techniques, including vulnerability scanning, penetration testing, and cryptographic analysis.
- **Understanding of Cybersecurity Lifecycle:** I developed a comprehensive understanding of the steps involved in securing systems, from initial vulnerability assessment to implementing mitigations.
- **Problem-Solving Skills:** Tackling complex security challenges enhanced my analytical thinking and my ability to devise effective solutions under pressure.
- **Professional Development:** My experience improved my ability to work in a team, communicate technical information clearly, and manage time efficiently in a fast-paced environment.

Challenges and Solutions

- **Adapting to Complex Tools:** Initially, mastering advanced cybersecurity tools like Metasploit and Wireshark was challenging. I overcame this by dedicating time to study tutorials and practicing in a simulated environment, which significantly improved my proficiency.
- **Handling Advanced Security Scenarios:** The complexity of real-world security threats required a deep understanding of underlying principles. I tackled this by engaging in continuous learning and seeking guidance from my coordinator and team members.

Conclusion

My internship at Hack Secure was an enriching experience that significantly expanded my knowledge and skills in cybersecurity. The practical exposure to real-world security challenges and the application of advanced tools have solidified my interest in pursuing a career in cybersecurity. This experience has been instrumental in preparing me for the complexities of the cybersecurity field.

Acknowledgments

I express my sincere gratitude to Hack Secure, especially my mentor, Mr. Aman Pandey, and assistant mentor Mr. Prabhat Raj, for their guidance and support throughout my internship. I also thank Amrita Vishwa Vidyapeetham for providing this internship opportunity, which has been crucial in my personal and professional development.

This report encapsulates the essence of my internship experience, highlighting the integration of academic knowledge with practical skills in a professional setting. It reflects my journey of learning, growth, and development in the field of cybersecurity.