Internship Final Report

Student Name: Thokala Srinivasa Rao

University: Parul University

Major: CSE – Cyber Security

Internship Duration: August 01st ,2024 to August 31st, 2024

Company: ShadowFox

Domain: Cyber Security

Mentor: Mr. Surendharan

Assistant Mentor: Mr. Pranshu

Coordinator: Mr. Aakash

===========**===========

Objectives

The primary objectives of my internship at ShadowFox were to gain hands-on experience in various aspects of cybersecurity and to apply theoretical knowledge in real-world scenarios.

The following are the specific objectives of my internship,

- Understand and execute basic cybersecurity techniques like identifying and analyse open ports for a given website or IP enhance my skills in network scanning and vulnerability assessment.
- Enhance my skills in various tools like derb, john, hashing, encryption and decryption.
- Practicing my skills in exploit development and network exploitation like creating and deploying a Metasploit payload for a reverse shell connection.

Tasks and Responsibilities

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

- **Open Port Scanning:** Utilized networking scanning tools like Nmap to perform port scanning. Analysed the results to identify which ports were open and assess potential vulnerabilities with them.
- **Directory Brute Forcing:** Employed tools such as DirBuster to perform directory brute forcing. Compiled a list of discovered directories and assessed their potential security implications.
- **Network Traffic Interception:** Configured Wireshark to capture network traffic during the login process. Analysed the captured packets to extract and identify credentials transferred over the network.
- **Decrypting Veracrypt File:** Used hashing algorithms and tools to decode the password provided. Accessed the Veracrypt file using the decoded password and extracted the secret code.
- **Finding entry point address:** Analyzed the Veracrypt executable with PE Explorer. Located and documented the address of the entry point as part of reverse engineering the executable.
- **Creating a Metasploit Payload:** Created a payload using Metasploit Framework and configured it for reverse shell connectivity. Set up the payload on a virtual machine and successfully established a reverse shell connection.
- **Detailed Attack report on Testphp Website:** Analyzed and documented the vulnerabilities discovered on the website. Created a detailed report that included information gathering, attack methodologies, and suggested improvements to enhance website security

Learning Outcomes

Throughout y one month internship at shadowfox, I achieved sever key learning outcomes, which significantly contributed to my development as a cybersecurity professional.

The following are some key points that I had gained the knowledge and skills:

- Enhanced technical skills
- Practical experience and problem solving
- Professional growth

Challenges and Solutions

Intercepting Network Traffic

Intercepting and analyzing network traffic using Wireshark was initially overwhelming due to the volume of data captured and the complexity of filtering relevant information was challenging.

I focused on filtering Wireshark captures to isolate traffic related to login sessions. By applying specific display filters and analyzing relevant packet details, I was able to extract the credentials efficiently. I also referred to online resources and documentation to better understand Wireshark's features and capabilities.

Creating and Deploying Metasploit payload

Configuring the Metasploit payload and establishing a reverse shell connection from a Windows 10 virtual machine presented issues related to network settings and payload configuration was challenging.

I ensured that the virtual machine's network settings were correctly configured to allow for external connections. I meticulously followed Metasploit's setup instructions and tested the payload in a controlled environment to troubleshoot and resolve connection issues.

Conclusion

My internship at ShadowFox 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 ShadowFox, especially my mentor, Mr. Surendharan, and assistant mentor Mr. Pranshu, 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