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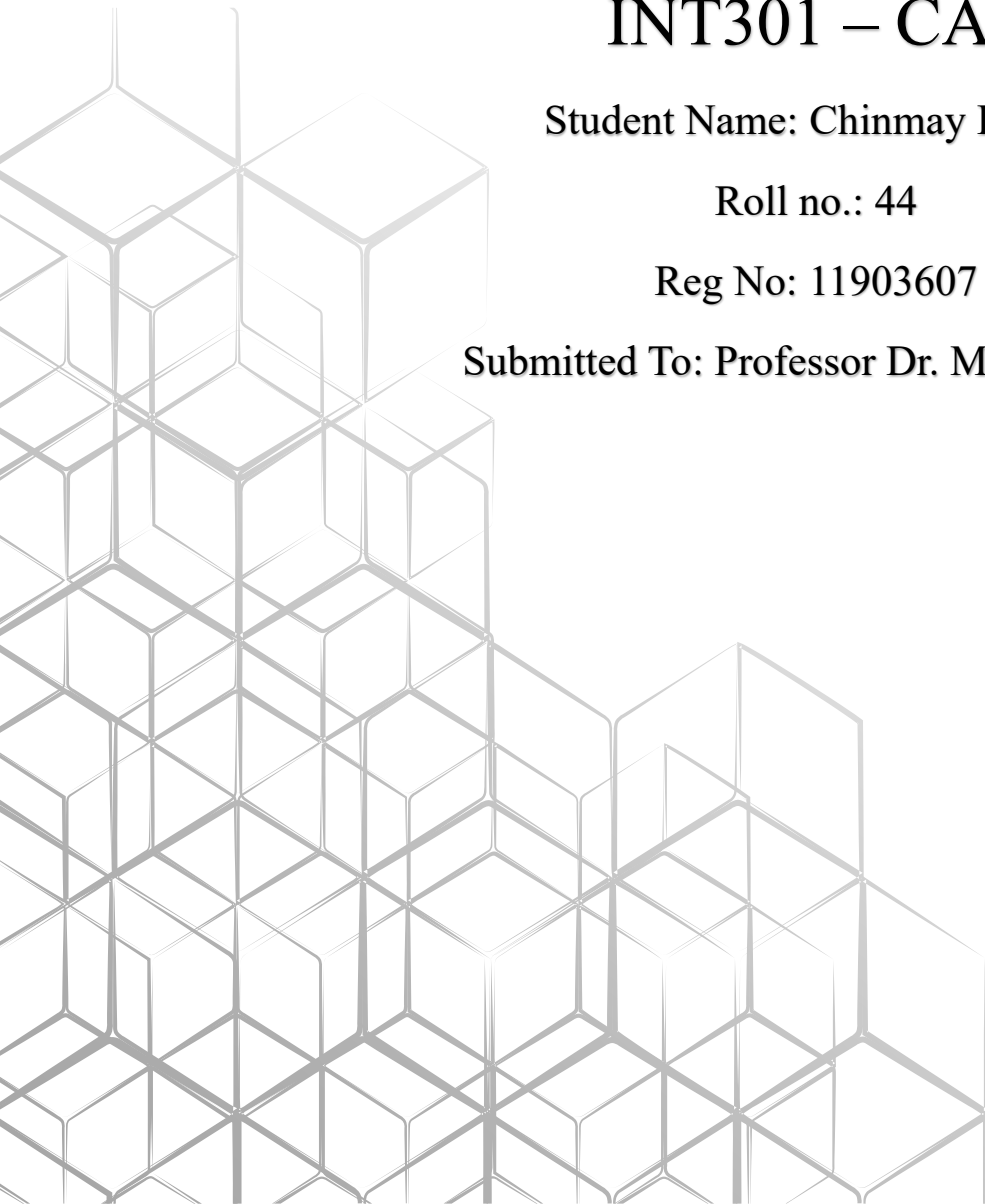
INT301 – CA3

Student Name: Chinmay Lahoti

Roll no.: 44

Reg No: 11903607

Submitted To: Professor Dr. Manjot Kaur



1. Introduction

As technology has advanced, the need for network security has increased manifold. Cybersecurity threats are prevalent in today's world, and organizations need to take proactive measures to safeguard their networks. As a network analyst working in the Infotech department of LPU, the objective of this project is to inspect HTTP traffic and retrieve the Username and Password from the <http://testphp.vulnweb.com/> website. This report will provide the steps involved in scanning the port.

1.1 Objective of the project:

- The primary objective of this project is to scan the target website for HTTP traffic and retrieve the Username and Password.
- The project aims to showcase the importance of network security and the need for organizations to take proactive measures to safeguard their networks.

1.2 Description of the project:

- The project involves the implementation of a sensor inside the firewall to inspect HTTP traffic and retrieve the Username and Password from the <http://testphp.vulnweb.com/> website. As a network analyst working in the Infotech department of LPU, the primary objective of this project is to showcase the importance of network security and the need for organizations to take proactive measures to safeguard their networks.
- The target website, <http://testphp.vulnweb.com/>, is designed to be vulnerable to various types of attacks, including SQL injection, Cross-Site Scripting (XSS), and more. The website is used for testing purposes and is not meant to be used for production purposes. It is essential to note that any unauthorized attempt to retrieve someone's Username and Password is strictly prohibited.
- To start the project, a network analyzer tool such as Wireshark was installed on the system. A network analyzer tool is essential for capturing network traffic. The next step was to configure the tool to listen to the network interface on which the sensor was implemented. This step allowed the tool to capture all the network traffic passing through the interface.
- Once the network analyzer tool was configured, the target website <http://testphp.vulnweb.com/> was accessed using a web browser. This step generated HTTP traffic that needed to be analyzed. The network analyzer tool captured the HTTP traffic, and the captured packets were analyzed using the tool.

- The captured packets contained various protocols, and it was essential to filter out the packets that contained the HTTP protocol. This step was necessary to focus on HTTP traffic only. After filtering out the packets containing the HTTP protocol, the next step was to filter out the packets that contained the POST method.
- HTTP requests can have different methods such as GET and POST. To retrieve the Username and Password, it was essential to filter out the packets that contained the POST method. Once the packets containing the POST method were filtered out, the next step was to look for the parameters "username" and "password."
- The "username" and "password" parameters contained the Username and Password that needed to be retrieved. These parameters were extracted from the captured packets using the network analyzer tool. The extracted Username and Password were then used to access the target website's admin page.

1.3 Scope of the Project:

The scope of the project is limited to the scanning of the target website for HTTP traffic and retrieving the Username and Password. The project does not involve any unauthorized attempt to retrieve someone's Username and Password.

2. System Description

2.1 Target System Description:

The target system is the <http://testphp.vulnweb.com/> website. The website is designed to be vulnerable to various types of attacks, including SQL injection, Cross-Site Scripting (XSS), and more. The website is used for testing purposes, and it is essential to note that any unauthorized attempt to retrieve someone's Username and Password is strictly prohibited.

2.2 Assumptions:

1. The network analyzer tool used for the project, i.e., Wireshark is installed and configured correctly.
2. The sensor installed inside the firewall is functioning correctly and is capturing all the network traffic currently working on your browser.
3. The target website, <http://testphp.vulnweb.com/>, is available and accessible.
4. The captured packets contain the Username and Password required for the project.
5. The captured packets are not encrypted.

2.3 Dependencies:

1. The project depends on the availability and accessibility of the target website. If the website is down or inaccessible, the project cannot be completed.
2. The project depends on the functionality of the network analyzer tool. If the tool is not working correctly, the project cannot be completed.
3. The project depends on the sensor installed inside the firewall to capture all the network traffic. If the sensor is not capturing all the traffic, the project cannot be completed.
4. The project depends on the captured packets containing the Username and Password. If the packets do not contain the required information, the project cannot be completed.
5. The project depends on the captured packets being unencrypted. If the packets are encrypted, the project cannot be completed.

2.4 Functional Dependencies:

1. The ability to capture and analyze network traffic to retrieve the Username and Password from the <http://testphp.vulnweb.com/> website.
2. The ability to filter captured packets to identify those that contain the required information.
3. The ability to extract the Username and Password from the captured packets and display them to the user.

2.5 Non-Functional Dependencies:

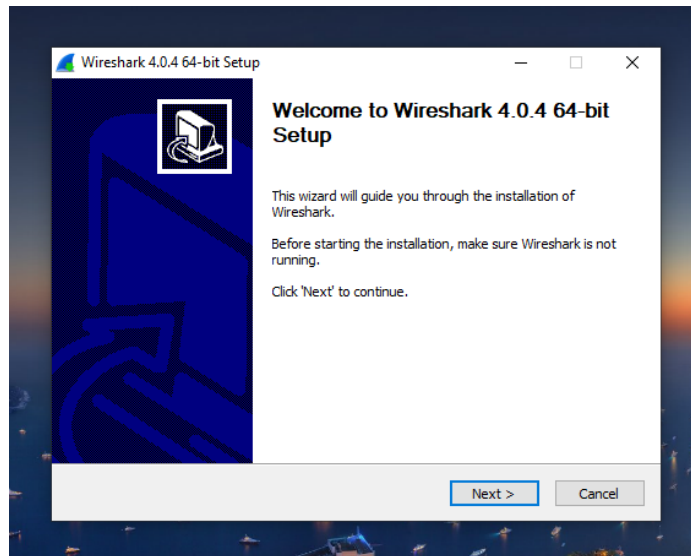
1. The network analyzer tool used for the project must be fast and accurate in capturing and analyzing network traffic.
2. The sensor installed inside the firewall must be reliable and able to capture all the network traffic.
3. The system must be secure to protect the captured data from unauthorized access.
4. The system must have a user-friendly interface to display the retrieved Username and Password.

2.6 Data set used in support of your project:

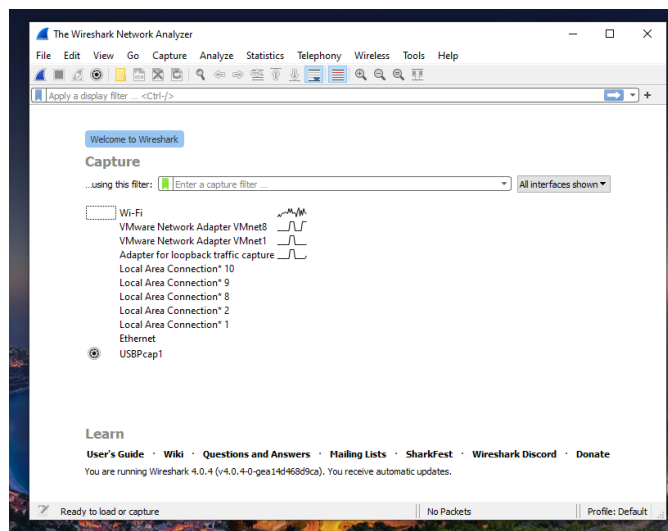
1. In this project, a data set is not required to support the project's objective. The project's objective is to retrieve the Username and Password from the <http://testphp.vulnweb.com/> website by capturing and analyzing network traffic.
2. The data set needed for this project is the network traffic captured by the sensor installed inside the firewall. This data set contains all the packets transmitted between the client and the <http://testphp.vulnweb.com/> website. The captured data is analyzed using the network analyzer tool to identify the packets containing the Username and Password.

3. Analysis Report

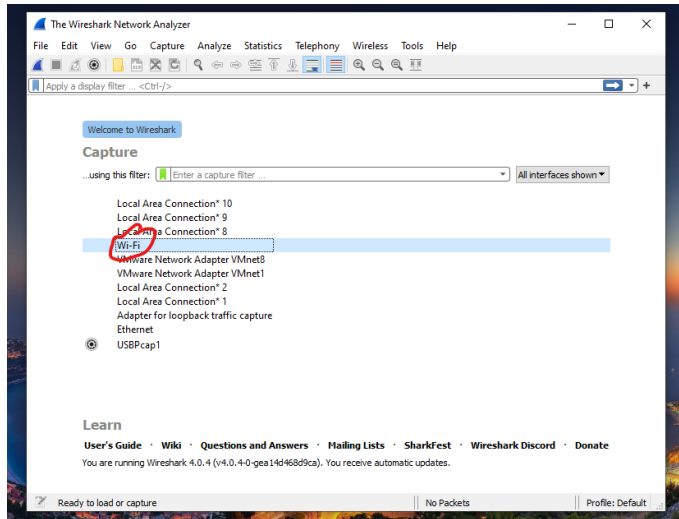
1. **Download and install Wireshark:** Wireshark is a free and open-source network analyzer tool that can be downloaded from the official website. Once downloaded, install the tool on your computer.



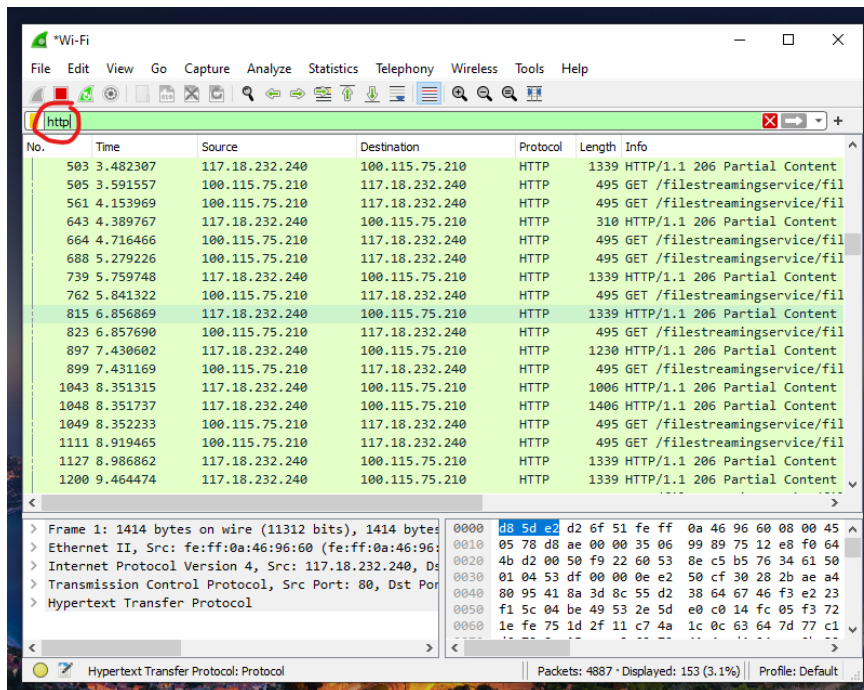
2. **Start Wireshark:** Launch Wireshark on your computer. You will be presented with a welcome screen.



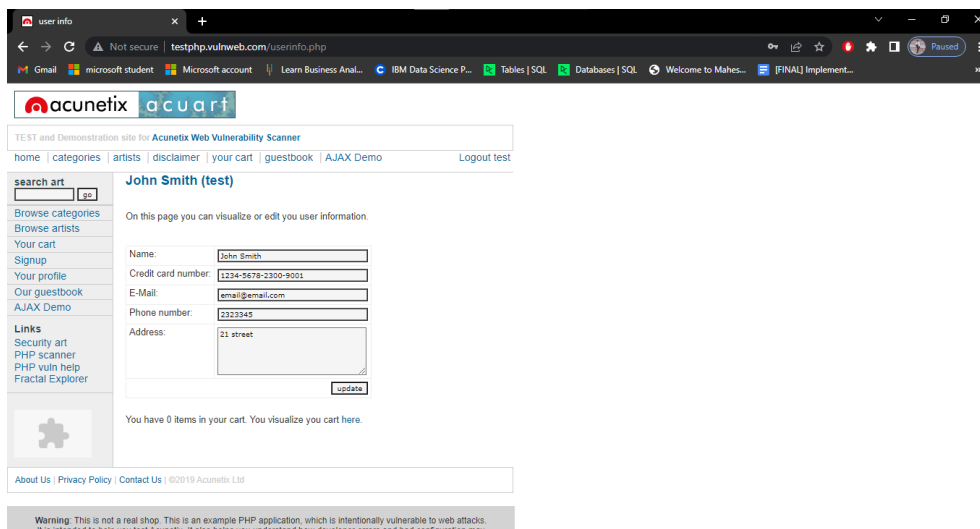
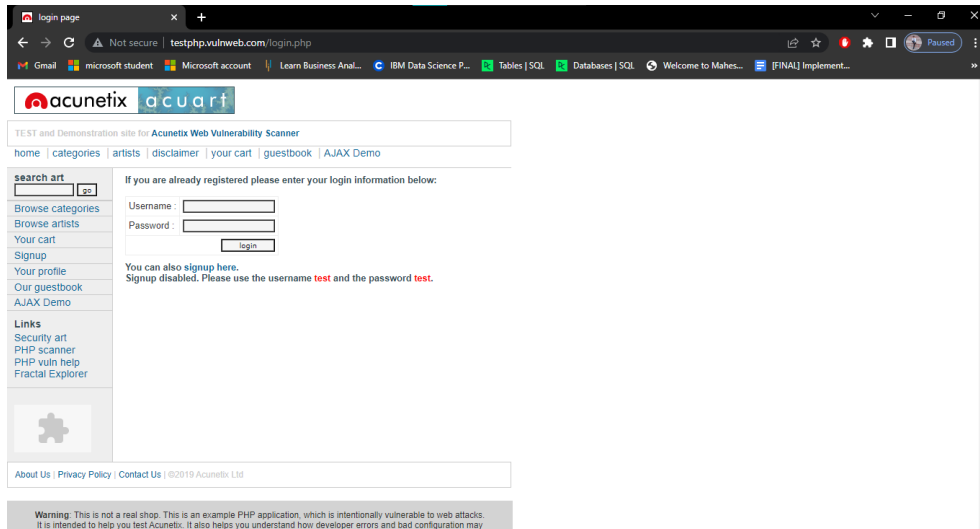
3. **Choose the appropriate interface:** In the top left corner, select the network interface that is connected to the network where the sensor is installed. Click on the interface to start capturing packets.



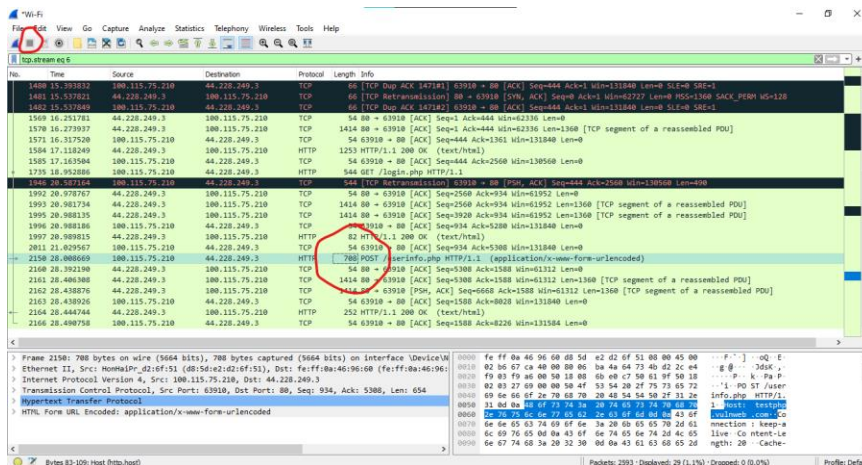
4. **Filter HTTP traffic:** In the filter bar, type "http" to display only HTTP traffic.



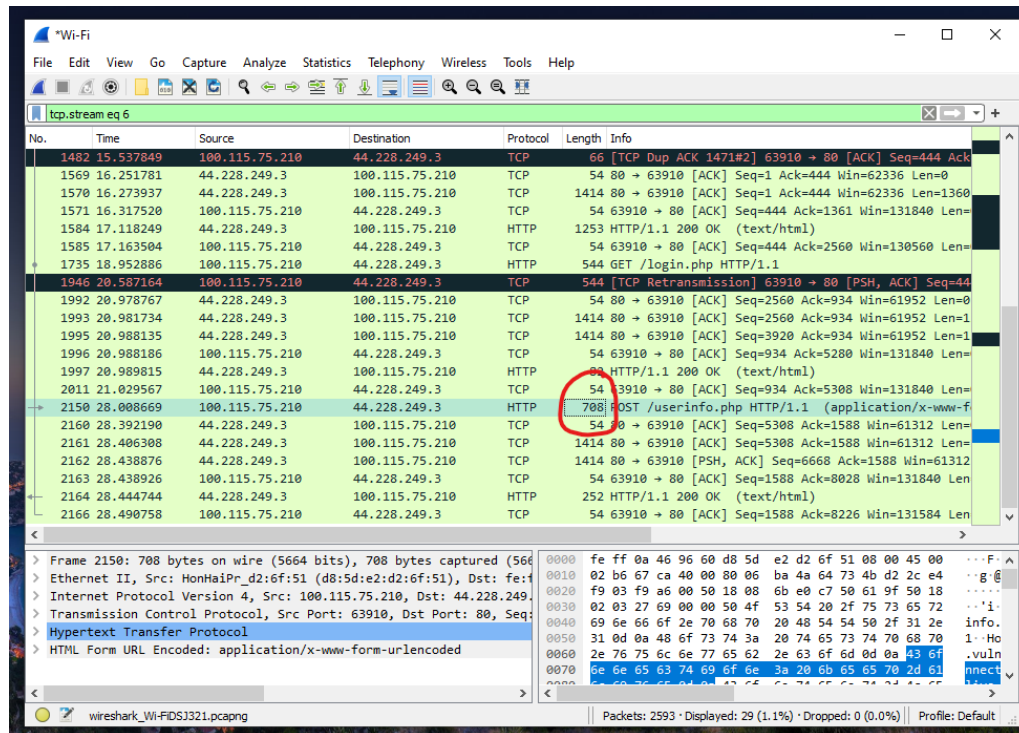
5. **Access the test website:** Open a web browser and access <http://testphp.vulnweb.com/>. Type in any username and password combination and click on "Login."



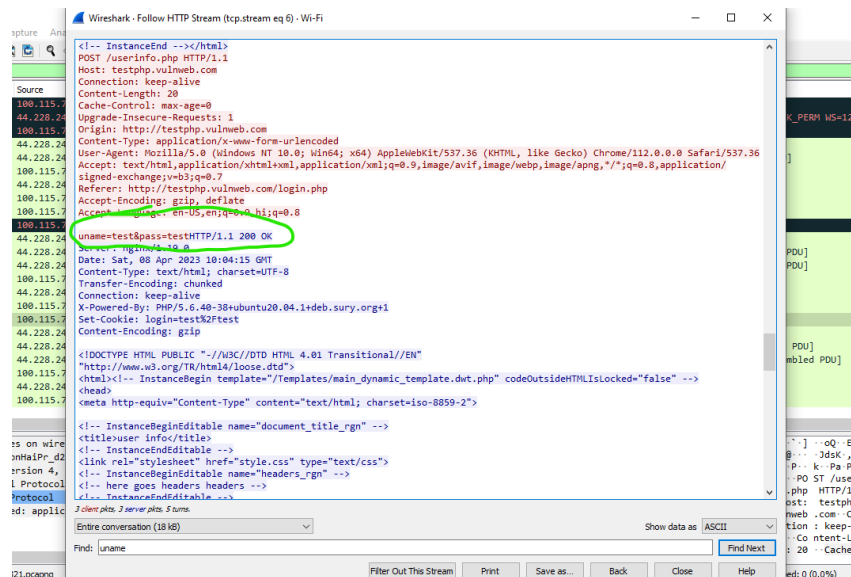
6. **Stop packet capture:** Once you have logged in to the website, go back to Wireshark and stop the packet capture.



7. **Analyze the captured packets:** In the packet list, locate the packets that contain the HTTP POST request for the login form. Expand the packet details to view the form data.



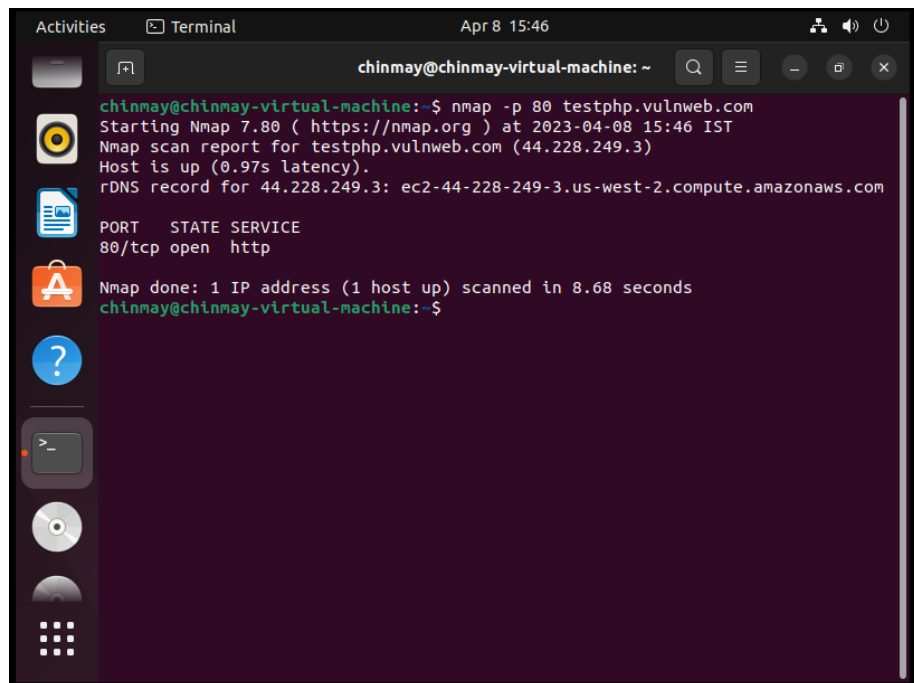
8. **Locate the Username and Password:** Look for the "Username" and "Password" fields in the form data. The values entered in these fields will be displayed next to them.



9. You can start by scanning the website's port to determine which services are running and which ports are open. This can be done using a port scanner tool like Nmap.

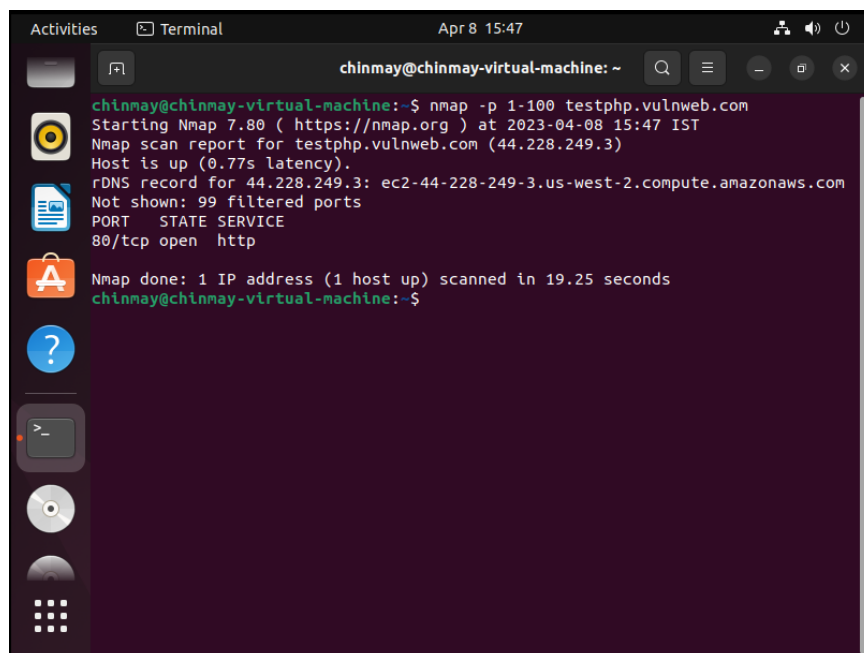
Command: `nmap testphp.vulnweb.com`

10. To scan a single port (e.g., port 80) using nmap: `nmap -p 80 testphp.vulnweb.com`



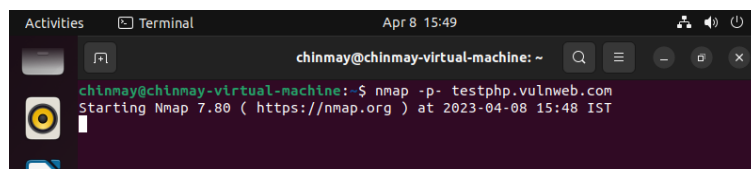
```
chinnmay@chinnmay-virtual-machine: ~  
chinnmay@chinnmay-virtual-machine:~$ nmap -p 80 testphp.vulnweb.com  
Starting Nmap 7.80 ( https://nmap.org ) at 2023-04-08 15:46 IST  
Nmap scan report for testphp.vulnweb.com (44.228.249.3)  
Host is up (0.97s latency).  
rDNS record for 44.228.249.3: ec2-44-228-249-3.us-west-2.compute.amazonaws.com  
  
PORT      STATE SERVICE  
80/tcp    open  http  
  
Nmap done: 1 IP address (1 host up) scanned in 8.68 seconds  
chinnmay@chinnmay-virtual-machine:~$
```

11. To scan a range of ports (e.g., ports 1 to 100) using nmap: `nmap -p 1-100 testphp.vulnweb.com`



```
chinnmay@chinnmay-virtual-machine: ~  
chinnmay@chinnmay-virtual-machine:~$ nmap -p 1-100 testphp.vulnweb.com  
Starting Nmap 7.80 ( https://nmap.org ) at 2023-04-08 15:47 IST  
Nmap scan report for testphp.vulnweb.com (44.228.249.3)  
Host is up (0.77s latency).  
rDNS record for 44.228.249.3: ec2-44-228-249-3.us-west-2.compute.amazonaws.com  
Not shown: 99 filtered ports  
  
PORT      STATE SERVICE  
80/tcp    open  http  
  
Nmap done: 1 IP address (1 host up) scanned in 19.25 seconds  
chinnmay@chinnmay-virtual-machine:~$
```

12. To scan all ports using nmap: `nmap -p- testphp.vulnweb.com`



```
chinnmay@chinnmay-virtual-machine: ~  
chinnmay@chinnmay-virtual-machine:~$ nmap -p- testphp.vulnweb.com  
Starting Nmap 7.80 ( https://nmap.org ) at 2023-04-08 15:48 IST
```

4. Reference/Bibliography:

1. Wireshark - <https://www.wireshark.org/>
2. HTTP - <https://developer.mozilla.org/en-US/docs/Web/HTTP>
3. <http://testphp.vulnweb.com/> - https://www.owasp.org/index.php/OWASP_Vulnerable_Web_Applications_Directory_Project
4. Capture Filters in Wireshark - https://www.wireshark.org/docs/wsug_html_chunked/ChCapCaptureFilterSection.html
5. Display Filters in Wireshark - https://www.wireshark.org/docs/wsug_html_chunked/ChWorkDisplayFilterSection.html
6. Wireshark User Guide - https://www.wireshark.org/docs/wsug_html/
7. Nmap - <https://nmap.org/>
8. Nmap Tutorial - <https://nmap.org/book/toc.html>

5. Github Link:

<https://github.com/chinmaylahoti/INT301-CA3>