PRACTICAL: 4

AIM:

Port scanning is a method for determining open ports and services available on a network or a host. It involves connecting with TCP and UDP ports on the system, once you found the IP addresses of a target network or host by the Footprinting technique. You have to map the network of this targeted organization. Nmap (Network Mapper) is a powerful, flexible, open-source, and easy-to-use tool for port scanning available for both Linux and Windows-based operating systems. Study practical approaches to implementing scanning and enumeration techniques using Nmap.

THEORY:

Port scanning: Finding out which ports are open on a network may be done using a port scan. Port scanning is comparable to knocking on doors to determine whether somebody is home since ports are where information is transferred and received on computers. By doing a port scan on a network or server, you may find out which ports are open and listening (receiving information) as well as whether there are any firewalls or other security measures between the sender and the destination.

The term "fingerprinting" describes this method. In order to determine the current state, it transmits a packet of network data to a port.

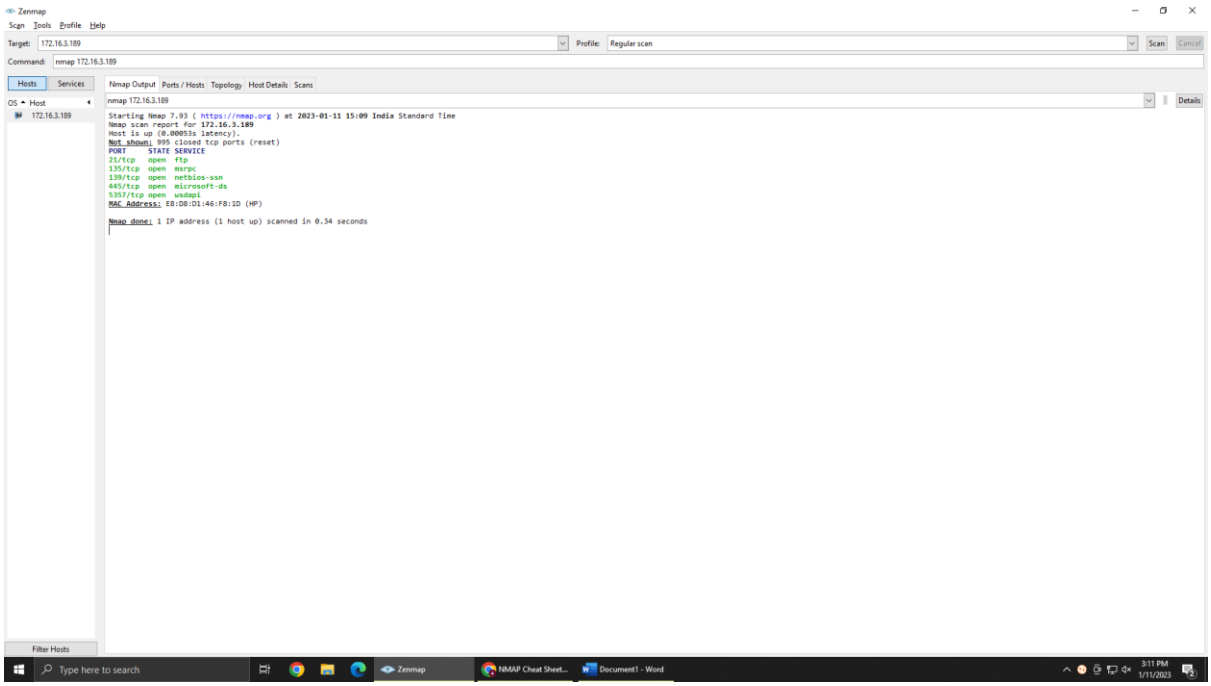
Nmap: A free and open source tool for network discovery and security auditing is called Nmap ("Network Mapper"). It is helpful for duties like managing service update schedules, network inventory, and host or service uptime, according to several systems and network managers.

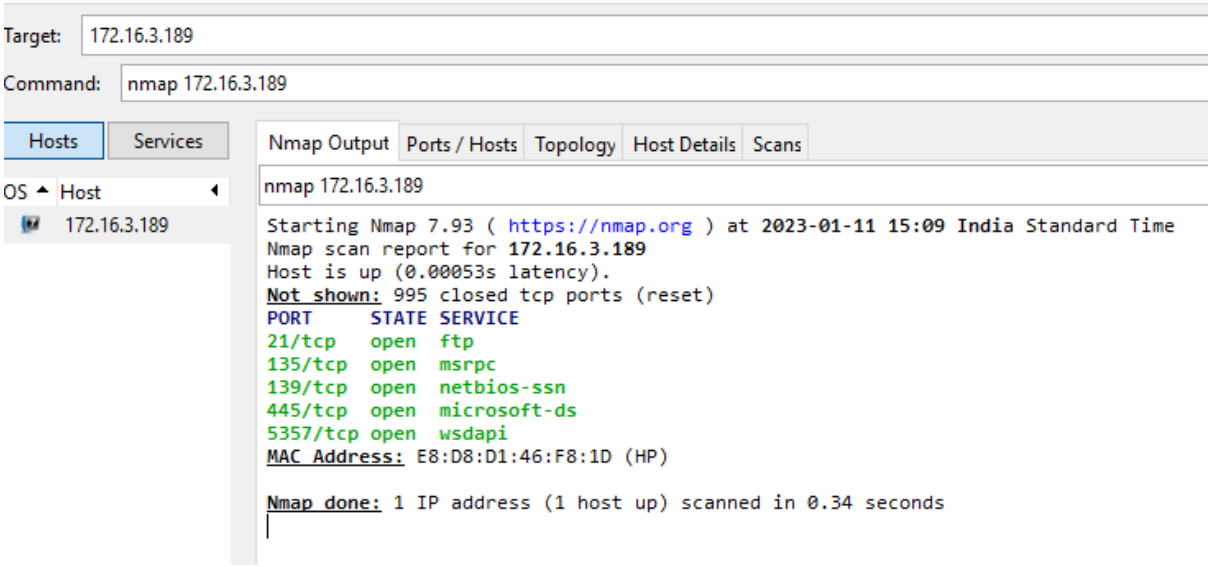
- The ability to instantly identify any device on a single or numerous networks, including servers, routers, switches, mobile devices, etc.
- Using pre-existing scripts from the Nmap Scripting Engine, you may attack systems using Nmap during security audits and vulnerability assessment.
- Zenmap is the name of Nmap's graphical user interface. It aids in the creation of network visual maps for enhanced use and reporting.

Advantages and Disadvantages

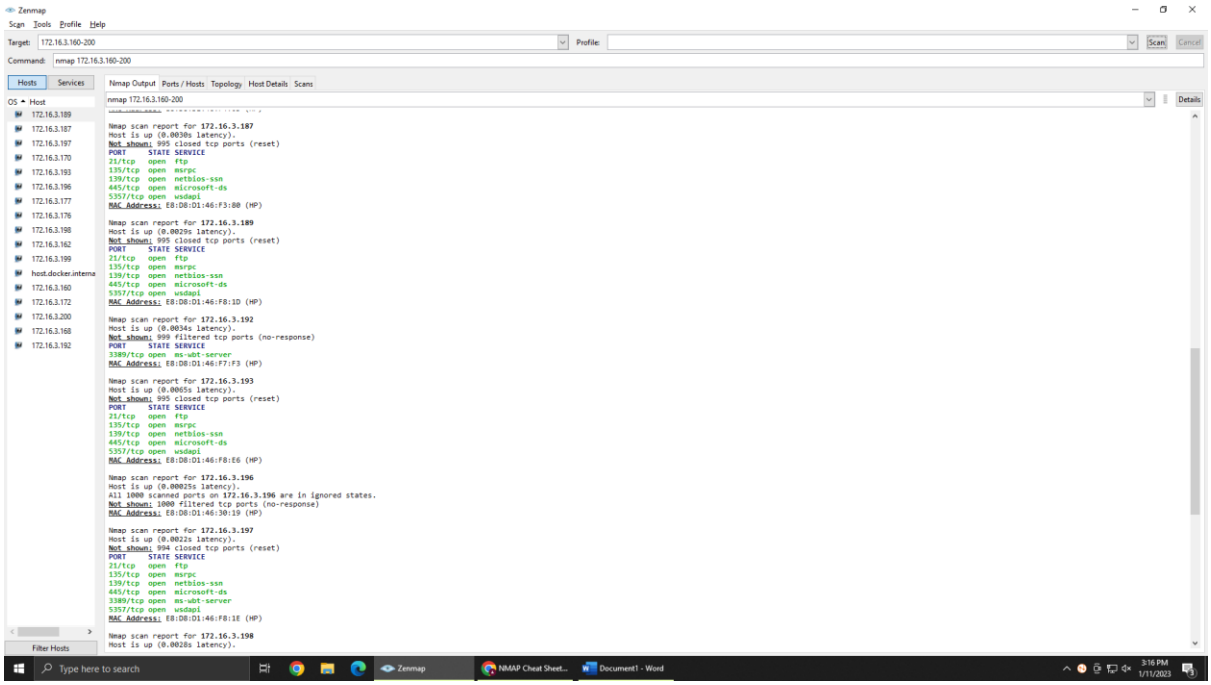
Advantages	Disadvantages
Only for beginner	Not all the configuration which we need
OS Detection, Checking Firewall rules and unique process of fingerprinting applications/devices.	You cannot use this tool if there is no Network.

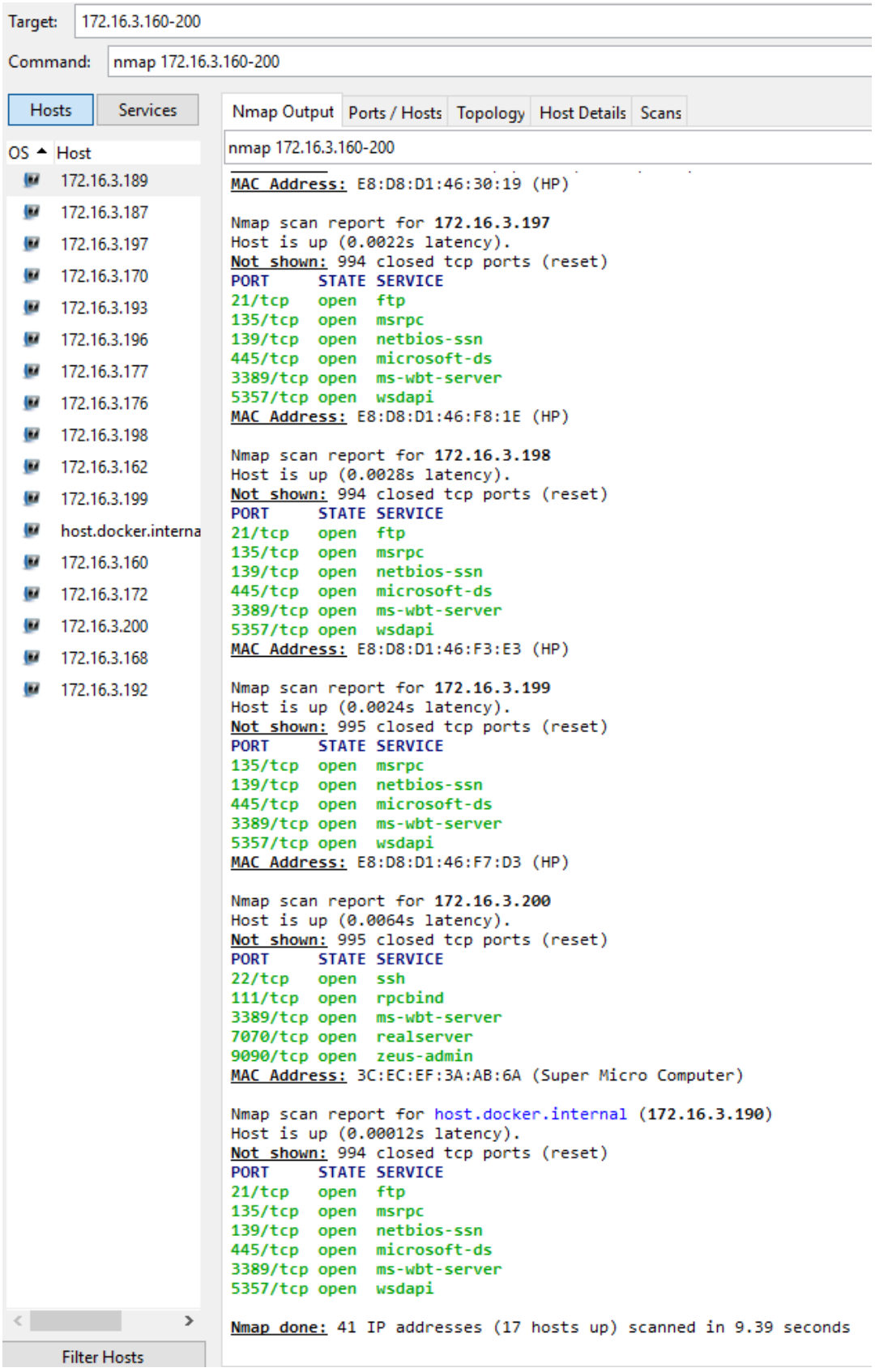
OUTPUT:



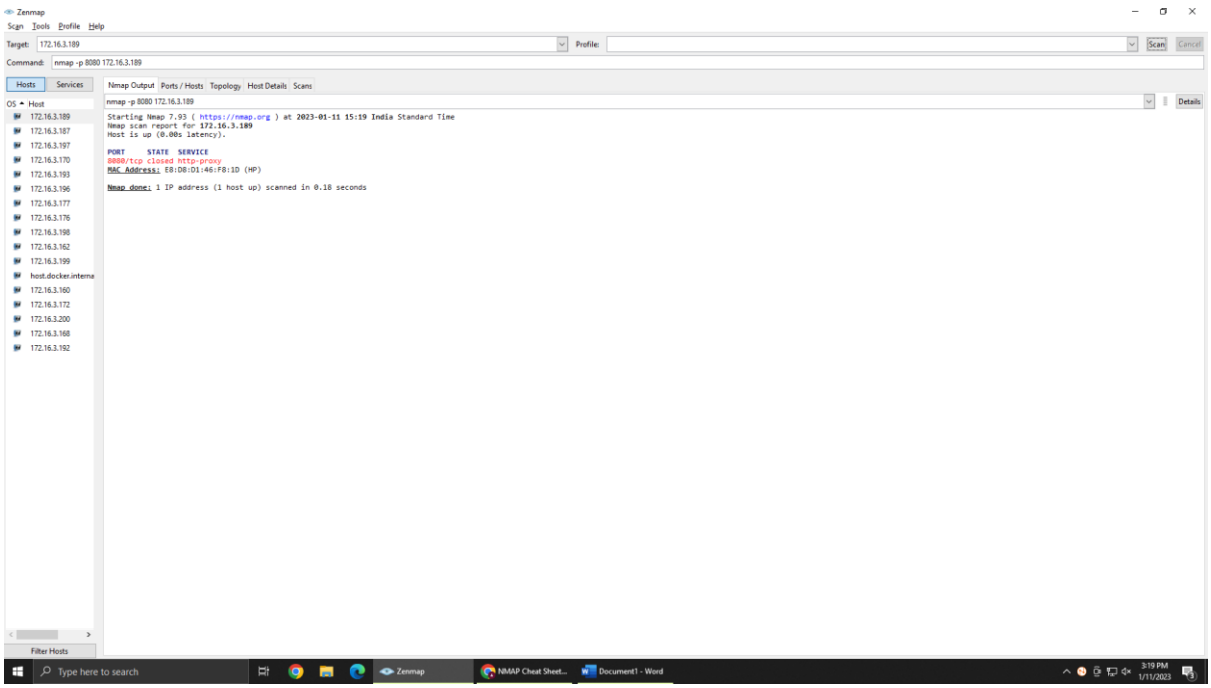


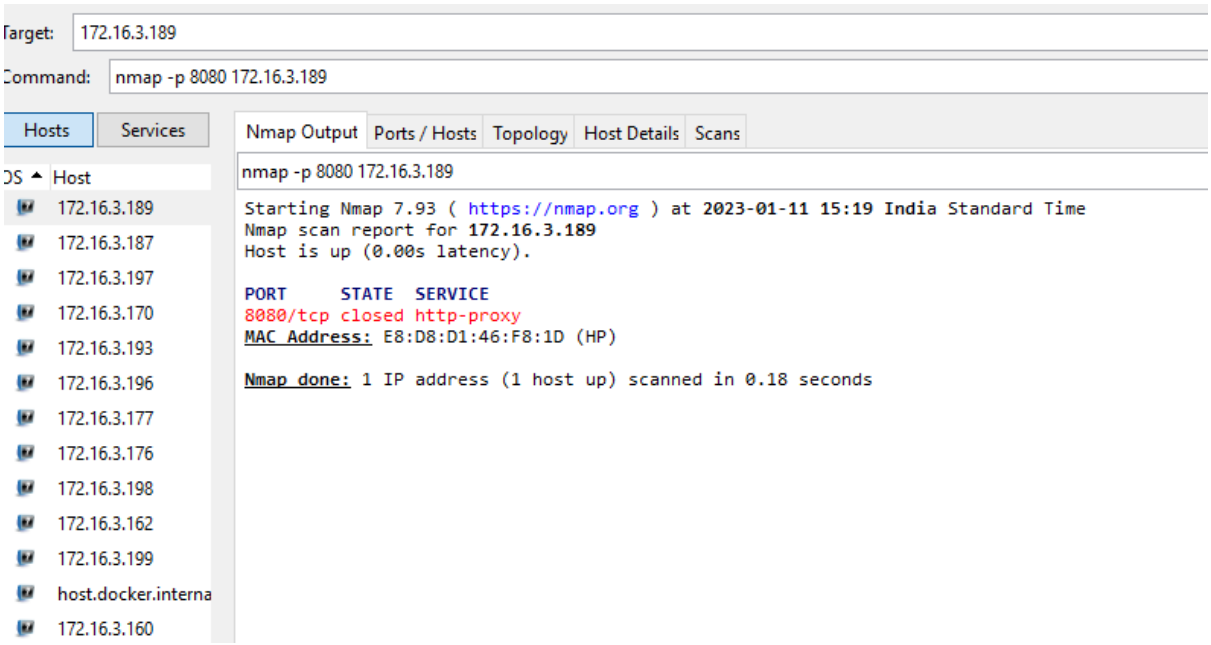
Scanning a single target- nmap172.16.3.189


Zenmap
Scan Tools Profile Help
Target: 172.16.3.160-200
Profile:
Scan
Cancel
Command: nmap 172.16.3.160-200
Hosts
Services
OS Host
Nmap Output
Ports / Hosts
Topology
Host Details
Scans
nmap 172.16.3.160-200
Details
Nmap scan report for 172.16.3.187
Host is up (0.0030s latency).
Not shown: 995 closed tcp ports (reset)
PORT STATE SERVICE
21/tcp open ftp
135/tcp open msrpc
139/tcp open netbios-ssn
445/tcp open microsoft-ds
5357/tcp open wsdapi
MAC Address: E8:D8:D1:46:F3:80 (HP)
Nmap scan report for 172.16.3.189
Host is up (0.0029s latency).
Not shown: 995 closed tcp ports (reset)
PORT STATE SERVICE
21/tcp open ftp
135/tcp open msrpc
139/tcp open netbios-ssn
445/tcp open microsoft-ds
5357/tcp open wsdapi
MAC Address: E8:D8:D1:46:F8:1D (HP)
Nmap scan report for 172.16.3.192
Host is up (0.0034s latency).
Not shown: 999 filtered tcp ports (no-response)
PORT STATE SERVICE
3389/tcp open ms-wbt-server
MAC Address: E8:D8:D1:46:F7:F3 (HP)
Nmap scan report for 172.16.3.193
Host is up (0.0065s latency).
Not shown: 995 closed tcp ports (reset)
PORT STATE SERVICE
21/tcp open ftp
135/tcp open msrpc
139/tcp open netbios-ssn
445/tcp open microsoft-ds
5357/tcp open wsdapi
MAC Address: E8:D8:D1:46:F8:E6 (HP)
Nmap scan report for 172.16.3.196
Host is up (0.00025s latency).
All 1000 scanned ports on 172.16.3.196 are in ignored states.
Not shown: 1000 filtered tcp ports (no-response)
MAC Address: E8:D8:D1:46:30:19 (HP)
Nmap scan report for 172.16.3.197
Host is up (0.0022s latency).
Not shown: 994 closed tcp ports (reset)
PORT STATE SERVICE
21/tcp open ftp
135/tcp open msrpc
139/tcp open netbios-ssn
445/tcp open microsoft-ds
3389/tcp open ms-wbt-server
5357/tcp open wsdapi
MAC Address: E8:D8:D1:46:F8:1E (HP)
Nmap scan report for 172.16.3.198
Host is up (0.0028s latency).
Filter Hosts
Type here to search
Zenmap
NMAP Cheat Sheet...
Document1 - Word
3:16 PM
1/11/2023

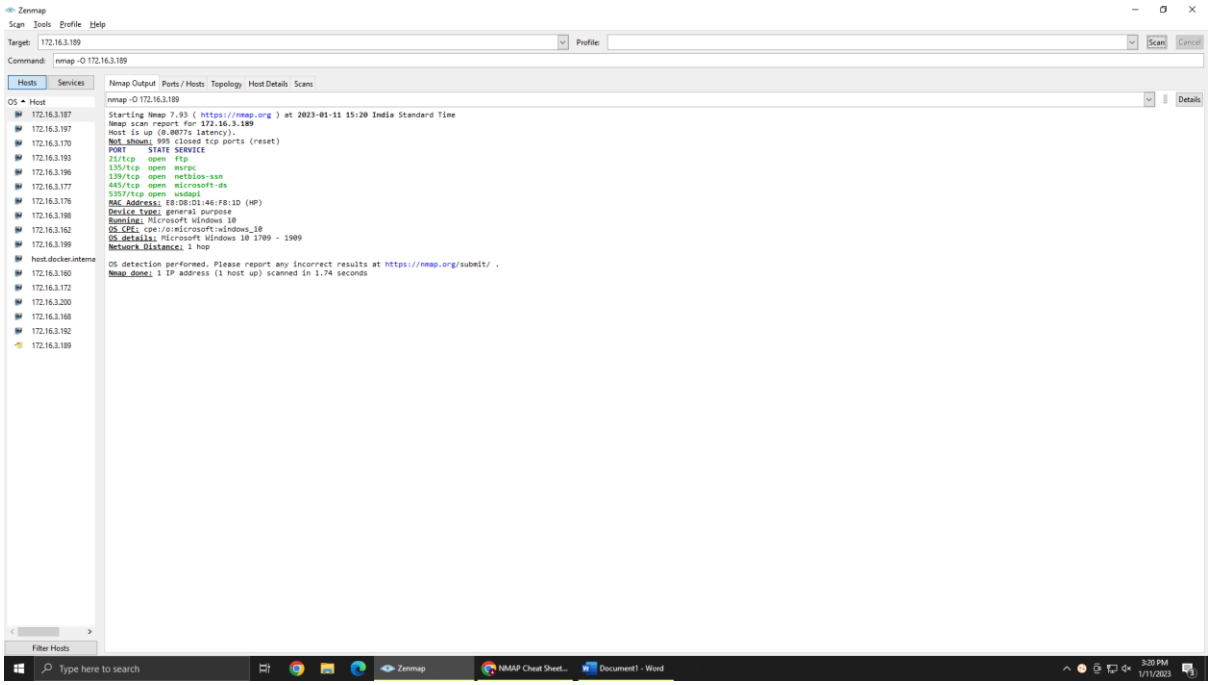


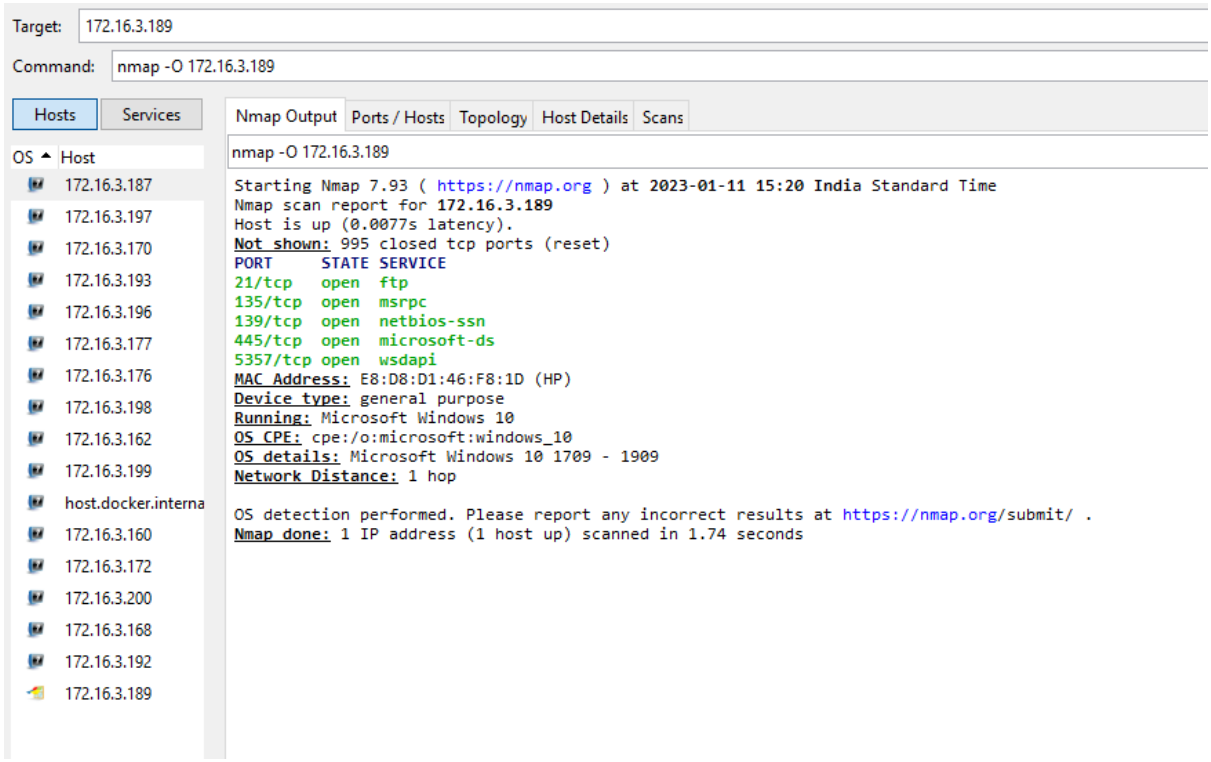
Scanning a range of hosts nmap 172.16.3.160-200



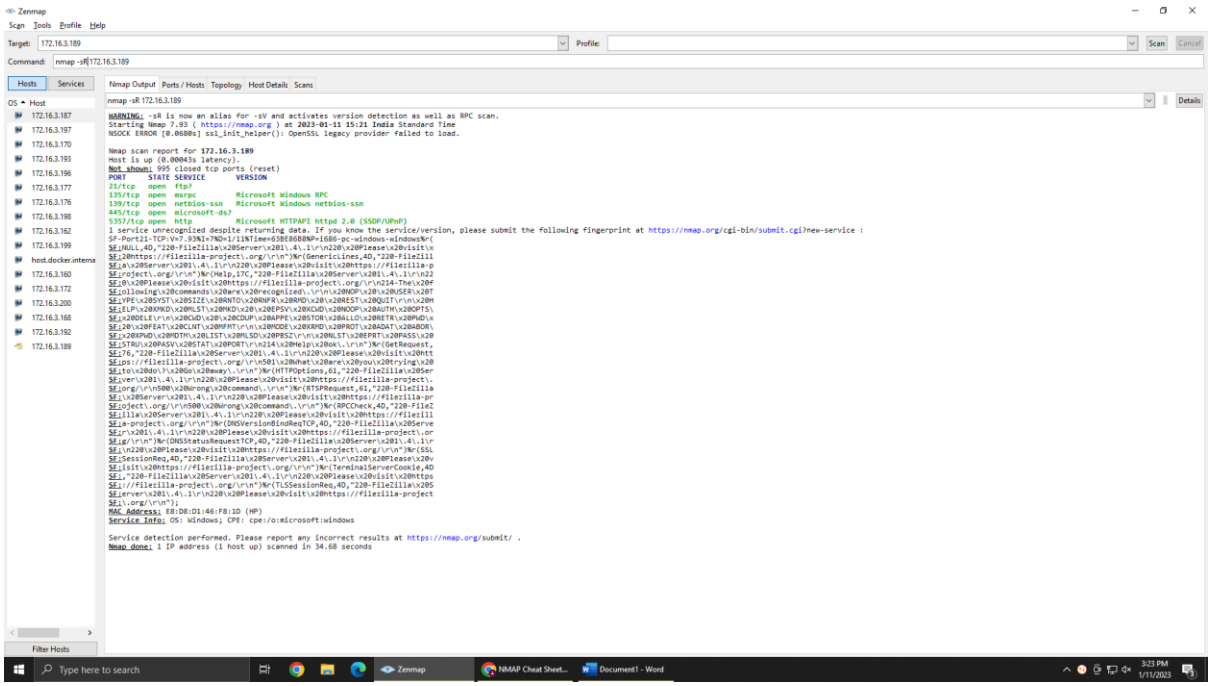


Scan specific port – nmap -p 8080 172.16.3.189

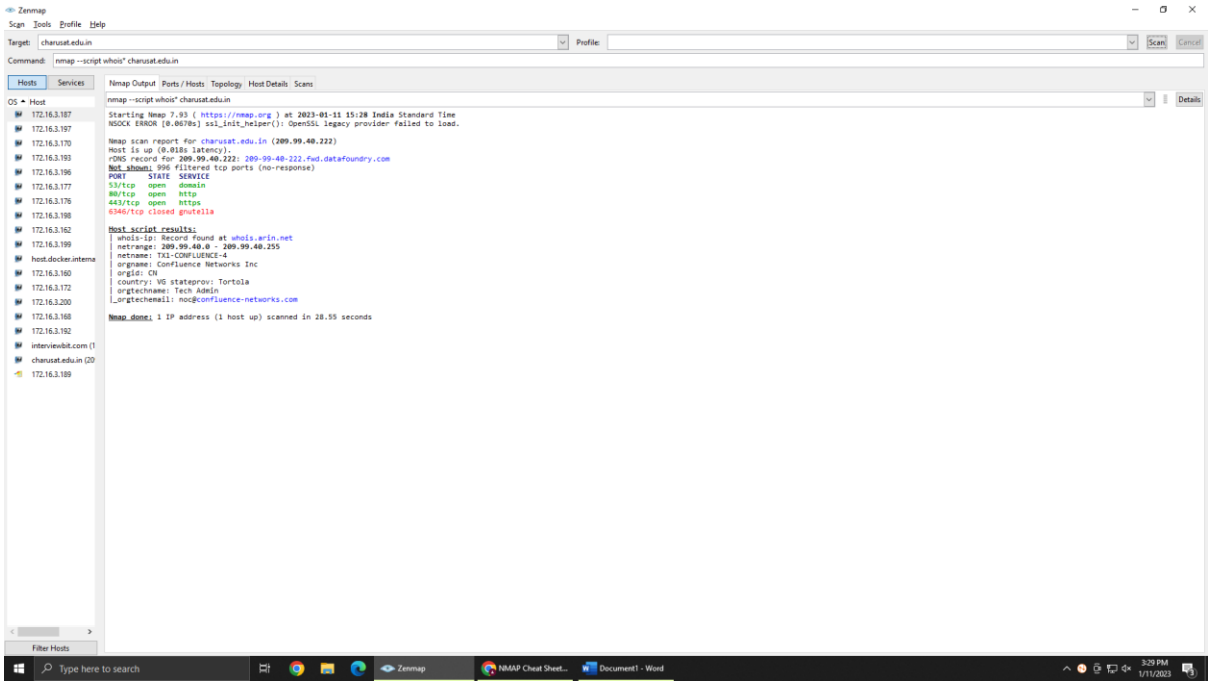


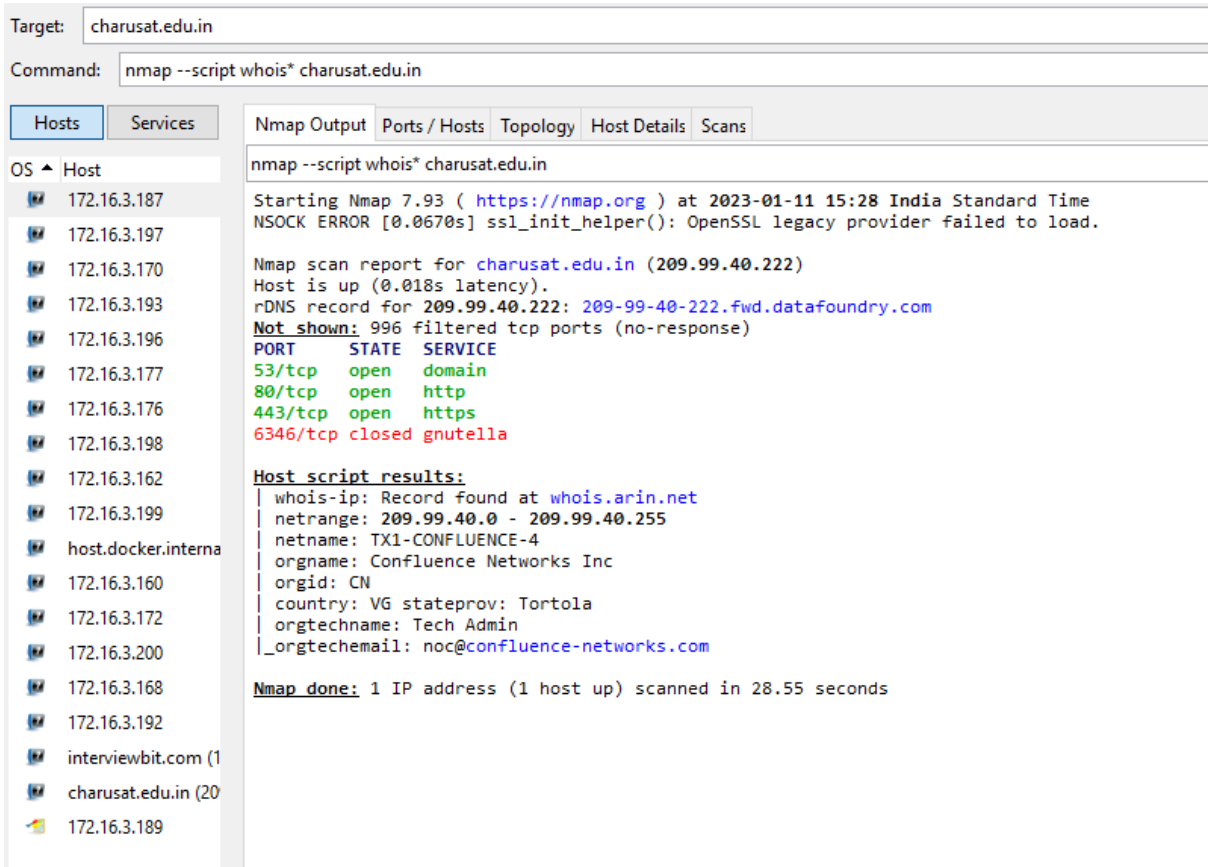


Operating system detection – nmap -O 172.16.3.189

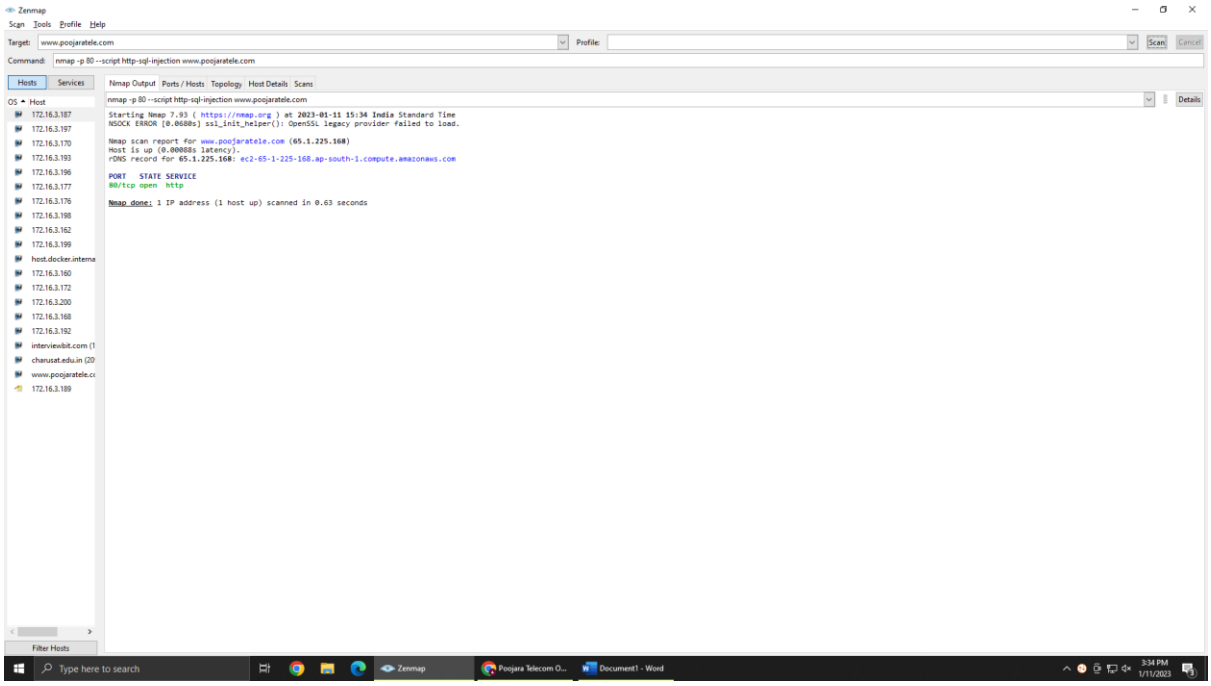


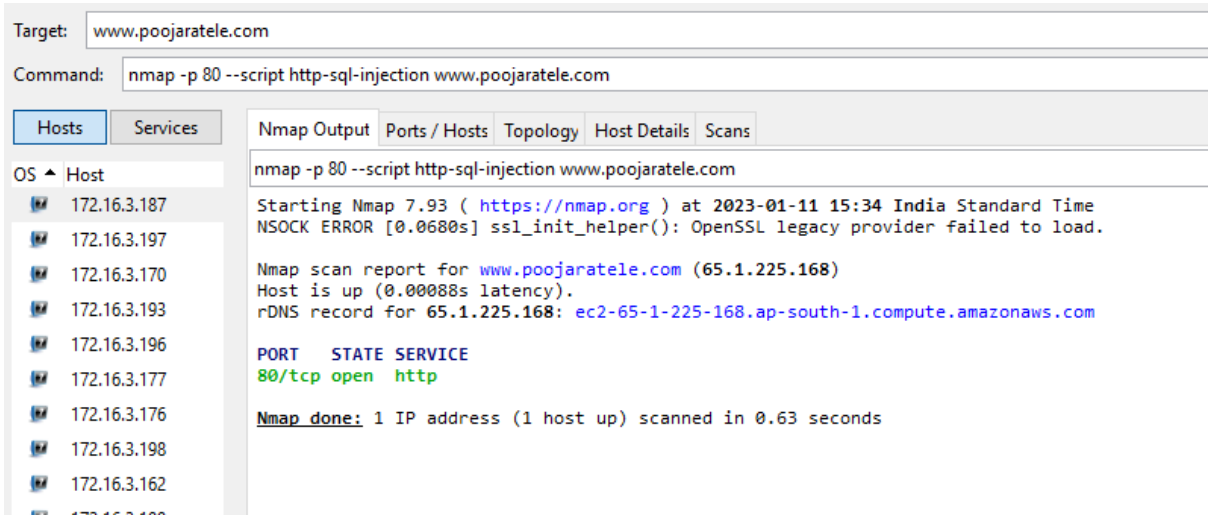
Perform a RPC scan – nmap -sR 172.16.3.189





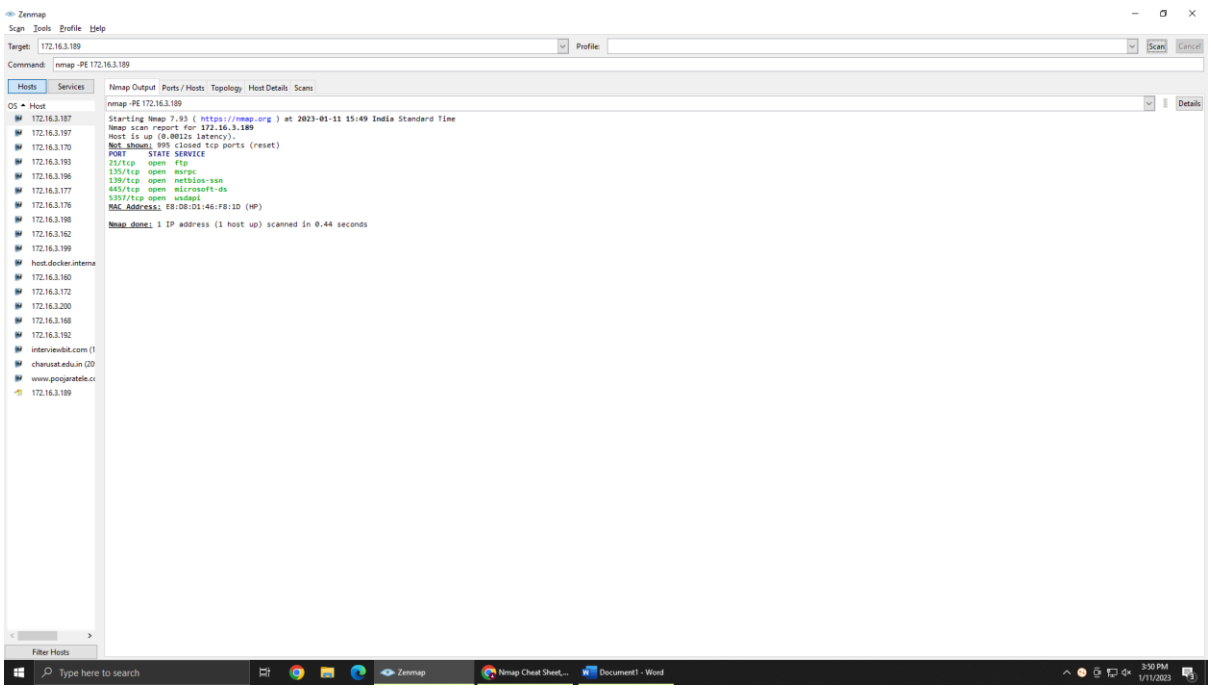
Query for who is - nmap –script whois* charusat.edu.in

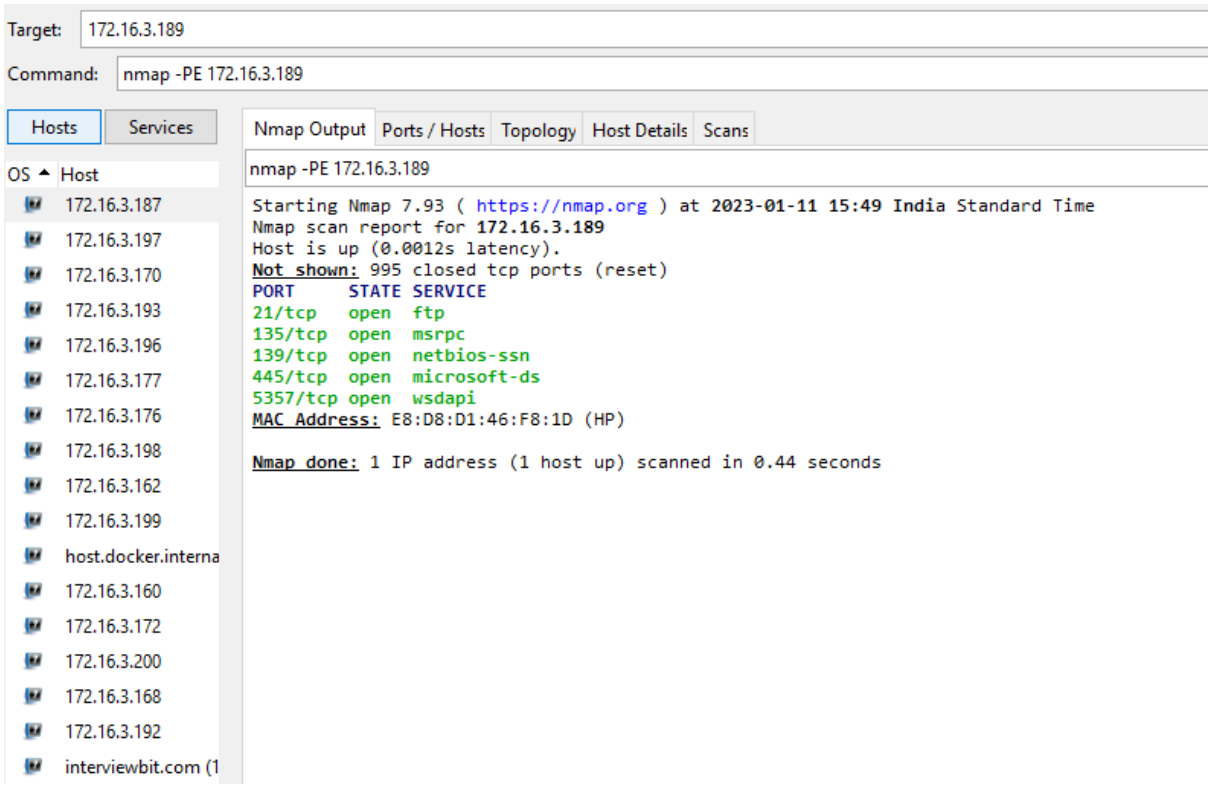




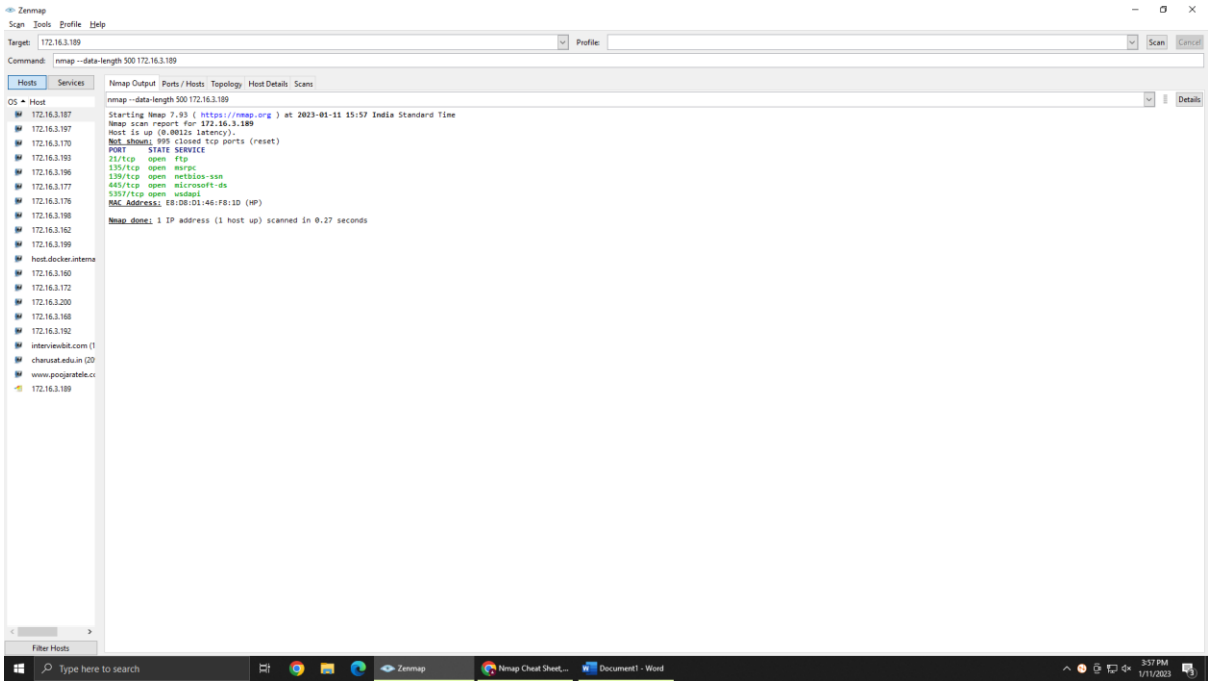
SQL injection detection

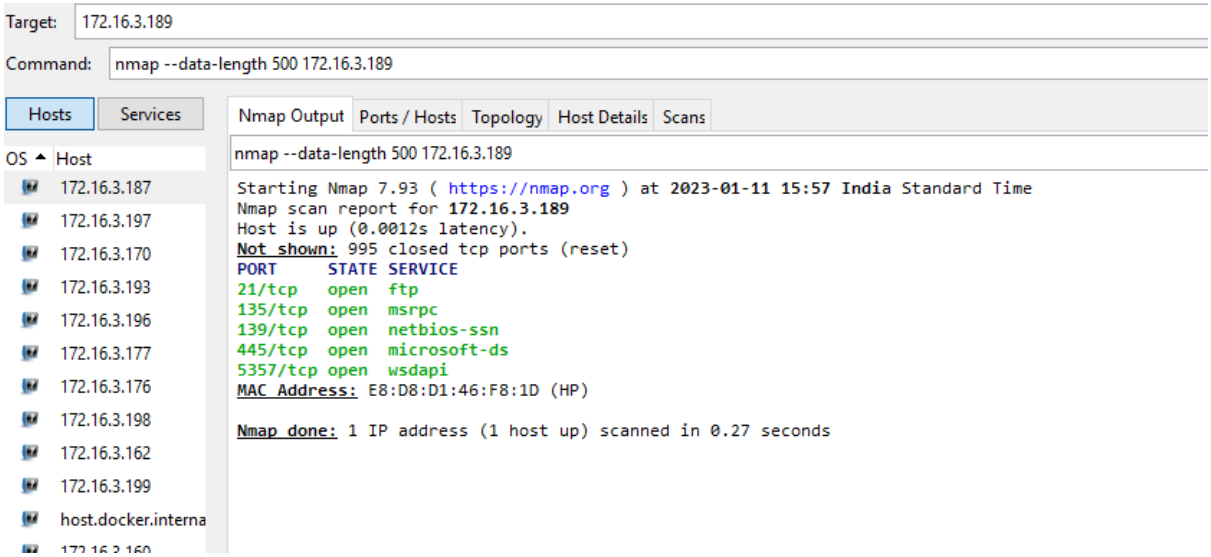
Nmap -p 80 –script http-sql-injection www.poojaratele.com



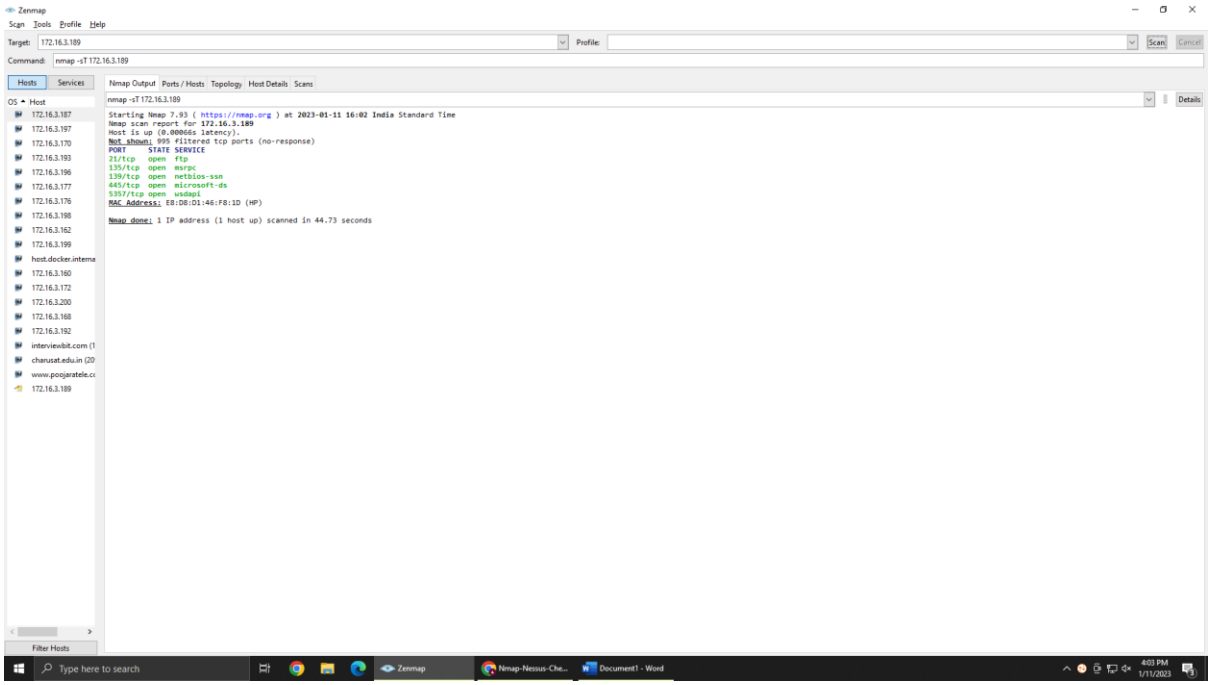


ICMP echo ping – nmap -PE 172.16.3.189





Randomally Append data



Target: 172.16.3.189

Command: nmap -sT 172.16.3.189

Hosts | Services

Nmap Output | Ports / Hosts | Topology | Host Details | Scans

OS ▲ Host

172.16.3.187
172.16.3.197
172.16.3.170
172.16.3.193
172.16.3.196
172.16.3.177
172.16.3.176
172.16.3.198
172.16.3.162
172.16.3.199
host.docker.interna
172.16.3.160
172.16.3.172
172.16.3.200

nmap -sT 172.16.3.189

```
Starting Nmap 7.93 ( https://nmap.org ) at 2023-01-11 16:02 India Standard Time
Nmap scan report for 172.16.3.189
Host is up (0.00066s latency).
Not shown: 995 filtered tcp ports (no-response)
PORT     STATE SERVICE
21/tcp   open  ftp
135/tcp  open  msrpc
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
5357/tcp open  wsdapi
MAC Address: E8:D8:D1:46:F8:1D (HP)

Nmap done: 1 IP address (1 host up) scanned in 44.73 seconds
```

TCP connect port

LATEST APPLICATIONS:

The most commonly used port are: A ping scan. These ICMP (Internet Control Message Protocol) scans look over a full IP address range or a single target IP address to see if the target is online.

TCP , UDP scan commonly used port scan by port scanning tools.

Scan every IP address.
Automate systems and vulnerability scans

LEARNING OUTCOME:

How to check how many ports are open or closed to particular pc, we can check a series of pc's.also and how to know operating system of another pc's .also check UDP,TCP ports and many more about Mapping the network using IP address of any targeted organization using Nmap

REFERENCES:

1. Nmap download: https://nmap.org/download.html#windows