CN Assignment-01

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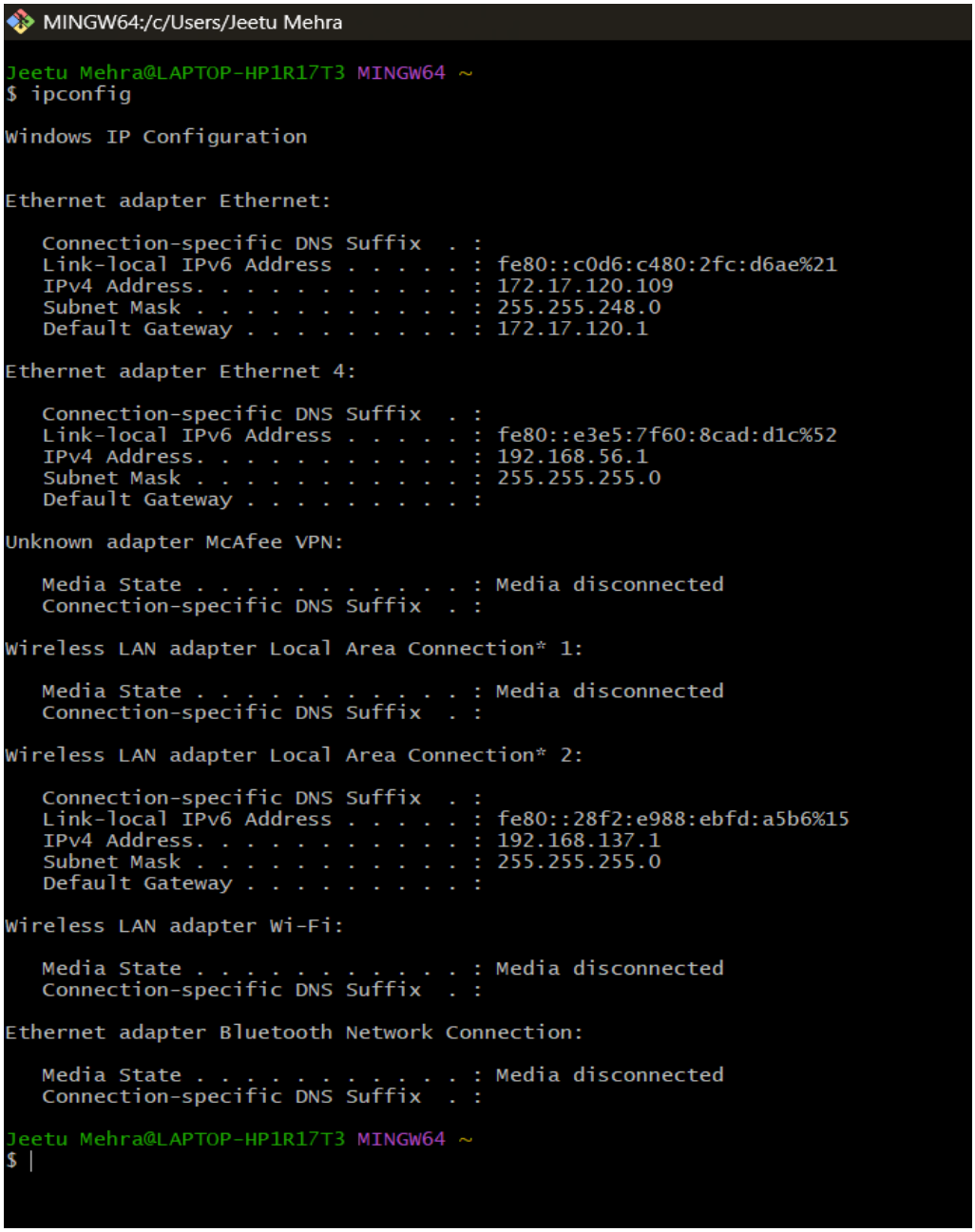
Question 1 : Study network configuration commands and execute them on your system. For Example:

1. IPCONFIG :

Output:



2. NSLOOKUP :

Output:

```
Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$ nslookup -type=google.com
unknown query type: google.com
DNS request timed out.
    timeout was 2 seconds.
Default Server:  UnKnown
Address:  8.8.8.8

>
```

3. HOSTNAME :

Output:

```
Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$ hostname
LAPTOP-HP1R17T3
```

4. PING :

Output:

```
Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$ ping mis.svnit.com

Pinging mis.svnit.com [13.248.169.48] with 32 bytes of data:
Reply from 13.248.169.48: bytes=32 time=4ms TTL=243
Reply from 13.248.169.48: bytes=32 time=4ms TTL=243
Reply from 13.248.169.48: bytes=32 time=4ms TTL=243
Reply from 13.248.169.48: bytes=32 time=5ms TTL=243

Ping statistics for 13.248.169.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 5ms, Average = 4ms

Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$ ping youtube.com

Pinging youtube.com [142.251.42.238] with 32 bytes of data:
Reply from 142.251.42.238: bytes=32 time=5ms TTL=115
Reply from 142.251.42.238: bytes=32 time=5ms TTL=115
Reply from 142.251.42.238: bytes=32 time=5ms TTL=115
Reply from 142.251.42.238: bytes=32 time=5ms TTL=115

Ping statistics for 142.251.42.238:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 5ms, Maximum = 5ms, Average = 5ms

Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$
```

5. TRACERT :

Output:

```
Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$ tracert google.com

Tracing route to google.com [142.251.222.78]
over a maximum of 30 hops:

  1     1 ms     1 ms     1 ms  172.17.120.1
  2    <1 ms    <1 ms    <1 ms  172.16.1.1
  3     *        *        *     Request timed out.
  4     *        *        *     Request timed out.
  5     *        *        *     Request timed out.
  6     *        *        *     Request timed out.
  7     *        *        *     Request timed out.
  8     *        *        *     Request timed out.
  9     *        *        *     Request timed out.
 10     *        *        *     Request timed out.
 11     *        *        *     Request timed out.
 12     *
```

6. NETSTAT :

Output:

```
Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$ netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:50852        LAPTOP-HP1R17T3:50853  ESTABLISHED
  TCP    127.0.0.1:50853        LAPTOP-HP1R17T3:50852  ESTABLISHED
  TCP    172.17.120.109:49254   mx1:https              ESTABLISHED
  TCP    172.17.120.109:49259   104.26.6.247:https     ESTABLISHED
  TCP    172.17.120.109:49447   4.213.25.242:https     ESTABLISHED
  TCP    172.17.120.109:50504   104.18.32.47:https     ESTABLISHED
  TCP    172.17.120.109:51629   52.182.143.210:https   ESTABLISHED
  TCP    172.17.120.109:52419   170.72.239.29:https    ESTABLISHED
  TCP    172.17.120.109:52420   a23-47-126-25:https    ESTABLISHED
  TCP    172.17.120.109:52421   a23-47-126-33:https    ESTABLISHED
  TCP    172.17.120.109:52422   a23-47-126-25:https    ESTABLISHED
  TCP    172.17.120.109:52423   server-18-66-40-54:https  ESTABLISHED
  TCP    172.17.120.109:52425   ec2-52-201-25-58:https  CLOSE_WAIT
  TCP    172.17.120.109:52426   ec2-52-201-25-58:https  ESTABLISHED
  TCP    172.17.120.109:52428   ec2-52-201-25-58:https  CLOSE_WAIT
  TCP    172.17.120.109:52429   4.188.92.87:https      ESTABLISHED
  TCP    172.17.120.109:52430   ec2-54-205-137-114:https  ESTABLISHED
  TCP    172.17.120.109:52431   ec2-54-205-137-114:https  ESTABLISHED
  TCP    172.17.120.109:52432   a23-55-245-27:https    ESTABLISHED
  TCP    172.17.120.109:52433   a184-51-92-204:https   ESTABLISHED
  TCP    172.17.120.109:52434   104.18.87.42:https     ESTABLISHED
  TCP    172.17.120.109:52540   sb-in-f188:5228        ESTABLISHED
```

7. ARP(Address Resolution Protocol)

Output:

```
Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$ arp -a

Interface: 172.17.120.109 --- 0x15
  Internet Address      Physical Address      Type
  172.17.120.1          00-23-89-80-9e-3b     dynamic
  172.17.120.154        00-e0-4c-73-24-a3     dynamic
  172.17.120.250        e4-fa-c4-0a-14-bc     dynamic
  172.17.127.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

Interface: 192.168.56.1 --- 0x34
  Internet Address      Physical Address      Type
  192.168.56.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static

Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$
```

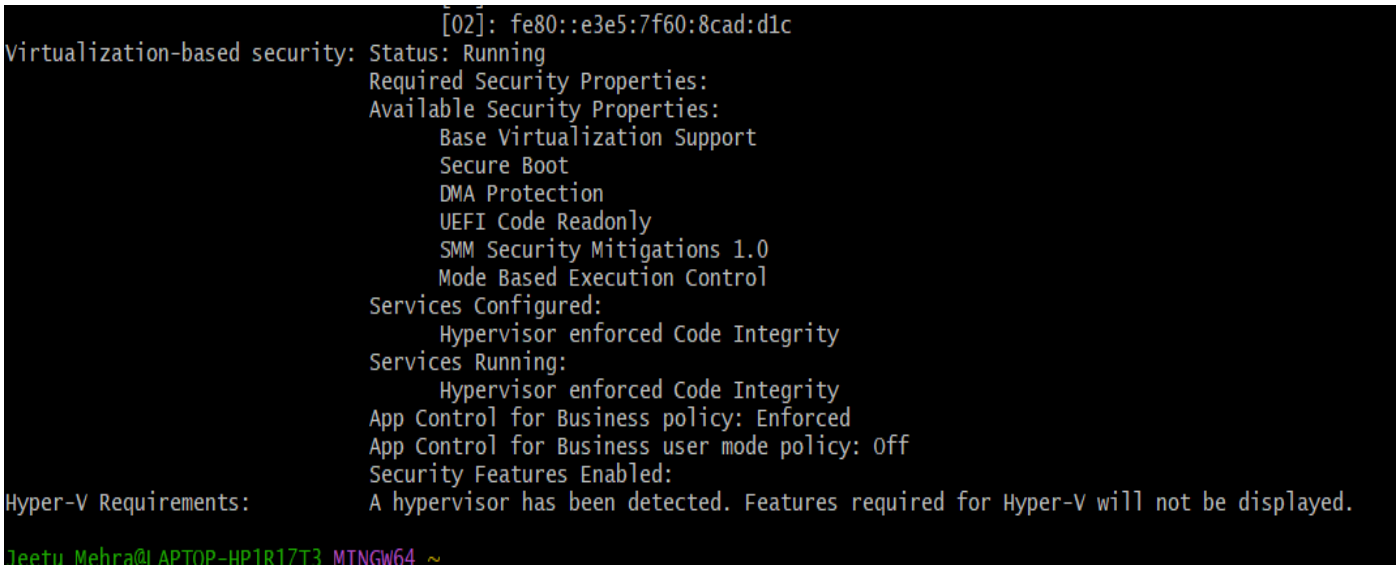
8. SYSTEMINFO

Output:

```
Jeetu Mehra@LAPTOP-HP1R17T3 MINGW64 ~
$ systeminfo

Host Name:                 LAPTOP-HP1R17T3
OS Name:                   Microsoft Windows 11 Home Single Language
OS Version:                10.0.26100 N/A Build 26100
OS Manufacturer:           Microsoft Corporation
OS Configuration:          Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:          Jeetu Mehra
Registered Organization:   N/A
Product ID:                00342-42697-27534-AAOEM
Original Install Date:     11/15/2025, 9:42:17 PM
System Boot Time:          1/10/2026, 3:10:14 PM
System Manufacturer:       LENOVO
System Model:              83DX
```

```
System Manufacturer:          LENOVO
System Model:                 83DX
System Type:                  x64-based PC
Processor(s):                 1 Processor(s) Installed.
                              [01]: AMD64 Family 25 Model 117 Stepping 2 AuthenticAMD ~2516 Mhz
BIOS Version:                 LENOVO NZCN28WW, 6/23/2025
Windows Directory:            C:\WINDOWS
System Directory:             C:\WINDOWS\system32
Boot Device:                  \Device\HarddiskVolume1
System Locale:                en-us;English (United States)
Input Locale:                 00004009
Time Zone:                    (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Total Physical Memory:        15,674 MB
Available Physical Memory:    4,087 MB
Virtual Memory: Max Size:     27,962 MB
Virtual Memory: Available:    8,097 MB
Virtual Memory: In Use:       19,865 MB
Page File Location(s):        C:\pagefile.sys
Domain:                       WORKGROUP
Logon Server:                 \\LAPTOP-HP1R17T3
Hotfix(s):                    3 Hotfix(s) Installed.
                              [01]: KB5066131
                              [02]: KB5072033
                              [03]: KB5071142
Network Card(s):              5 NIC(s) Installed.
                              [01]: Realtek PCIe GbE Family Controller
                                    Connection Name: Ethernet
                                    DHCP Enabled:    Yes
                                    DHCP Server:     172.16.1.3
                                    IP address(es)
                                    [01]: 172.17.120.109
                                    [02]: fe80::c0d6:c480:2fc:d6ae
                              [02]: Realtek RTL8852BE WiFi 6 802.11ax PCIe Adapter
                                    Connection Name: Wi-Fi
                                    Status:          Media disconnected
                              [03]: Bluetooth Device (Personal Area Network)
                                    Connection Name: Bluetooth Network Connection
                                    Status:          Media disconnected
                              [04]: TAP-Windows Adapter V9
                                    Connection Name: McAfee VPN
                                    Status:          Media disconnected
                              [05]: VirtualBox Host-Only Ethernet Adapter
                                    Connection Name: Ethernet 4
                                    DHCP Enabled:    No
                                    IP address(es)
                                    [01]: 192.168.56.1
                                    [02]: fe80::e3e5:7f60:8cad:d1c
Virtualization-based security: Status: Running
                              Required Security Properties:
                              Available Security Properties:
                                    Base Virtualization Support
                                    Secure Boot
```



2) Explore computer network setup.

Computer Network Setup

- A computer network connects devices to share data and internet.
- Main components: Device → NIC → Router (gateway) → ISP → Internet.
- Each device has an IP address, MAC address, and hostname.
- Router assigns IPs (DHCP) and connects LAN to internet.
- DNS converts domain names to IP addresses.
- Protocols like TCP/IP manage communication.

Useful commands:

- ipconfig → IP & gateway
- ping → connectivity
- tracert → path
- arp -a → IP–MAC mapping
- netstat → active connections