Task 1: Physical and Data link layer

```
1) wmic NIC get "Name","Speed"
Name                                        Speed
Microsoft Kernel Debug Network Adapter
Realtek PCIe GbE Family Controller          9223372036854775807
Intel(R) Wireless-AC 9462                   433300000
Microsoft Wi-Fi Direct Virtual Adapter      9223372036854775807
Bluetooth Device (Personal Area Network)    3000000
Microsoft Wi-Fi Direct Virtual Adapter #2   9223372036854775807
WAN Miniport (SSTP)
WAN Miniport (IKEv2)
WAN Miniport (L2TP)
WAN Miniport (PPTP)
WAN Miniport (PPPOE)
WAN Miniport (IP)
WAN Miniport (IPv6)
WAN Miniport (Network Monitor)
```

```
2) wmic NIC where "NetEnabled='true'" get "Name","Speed"
Name                     Speed
```
Intel(R) Wireless-AC 9462 411650000

```
netsh int tcp show global
Querying active state...

TCP Global Parameters
----------------------------------------------
Receive-Side Scaling State         : enabled
Receive Window Auto-Tuning Level   : normal
Add-On Congestion Control Provider : default
ECN Capability                     :
```
disabled
```
RFC 1323 Timestamps                :
```
disabled
```
Initial RTO                        : 1000
Receive Segment Coalescing State   : enabled
Non Sack Rtt Resiliency            :
```
disabled
```
Max SYN Retransmissions            : 4
Fast Open                          : enabled
Fast Open Fallback                 : enabled
HyStart                            : enabled
Pacing Profile                     : off
```

```
3) getmac /v /fo list

Connection Name:  Ethernet
Network Adapter:  Realtek PCIe GbE Family Controller
Physical Address:
```
54-BF-64-47-2B-5F
```
Transport Name:   Media disconnected

Connection Name:  Wi-Fi
Network Adapter:  Intel(R) Wireless-AC 9462
```

```
Physical Address: 38-BA-F8-27-DB-0C
Transport Name:    \Device\Tcpip_{050B6464-AABA-4A2F-9CF8-D7014BAE7508}

Connection Name: Bluetooth Network Connection
Network Adapter: Bluetooth Device (Personal Area Network)
Physical Address: 38-BA-F8-27-DB-10
Transport Name:  Media disconnected
4)   netstat -e
Interface Statistics

                           Received              Sent

Bytes                    1545011226       1450927308
5)   netsh interface ip show interface

Idx     Met         MTU         State              Name
---  ----------  ----------  -----------  --------------------------
  1         75  4294967295  connected    Loopback Pseudo-Interface 1
  2         35        1500  connected    Wi-Fi
 14          5        1500  disconnected  Ethernet
 10         25        1500  disconnected  Local Area Connection* 1
  9         65        1500  disconnected  Bluetooth Network
Connection
 16         25        1500  disconnected  Local Area Connection* 2
```

Task 2: Network Layer

```
1) ipconfig /all
     IPv4 Address. . . . . . . . . . . : 192.168.1.10(Preferred)
     Default Gateway . . . . . . . . . : 192.168.1.254

arp -a
Interface: 192.168.1.10 --- 0x2
  Internet Address      Physical Address      Type
  192.168.1.5           60-8c-4a-d9-d8-5f     dynamic
  192.168.1.254         f0-68-65-ac-1f-a0(MAC Address)      dynamic
2)   Interface: 192.168.1.10 --- 0x2
  Internet Address      Physical Address      Type
  192.168.1.5           60-8c-4a-d9-d8-5f     dynamic
  192.168.1.254         f0-68-65-ac-1f-a0     dynamic
  192.168.1.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.22            01-00-5e-00-00-16     staticeno1
3) tracert www.youtube.com

Tracing route to youtube-ui.l.google.com [216.58.203.206]
over a maximum of 30 hops:

  1      1 ms     <1 ms     <1 ms  dsldevice.lan [192.168.1.254]
  2     21 ms     22 ms     21 ms  10.153.128.1
  3     27 ms     22 ms     21 ms  45.127.44.242
```

```
  4    22 ms    21 ms    22 ms  108.170.248.209
  5    22 ms    22 ms    22 ms  209.85.246.5
  6    22 ms    21 ms    22 ms  bom07s12-in-f14.1e100.net
[216.58.203.206]

Trace complete.
```

4) netstat -s

IPv4 Statistics

  Packets Received   = 40848421

Task 3: Transport layer

```
1)netstat -a
Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:135            DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:445            DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:3306           DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:5040           DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:5357           DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:5700           DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:6646           DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:7680           DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:9012           DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:33060          DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:49664          DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:49665          DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:49666          DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:49667          DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:49671          DESKTOP-P7NRESV:0       LISTENING
  TCP    0.0.0.0:52864          DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:8884         DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:15292        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:15393        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:45623        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:49247        DESKTOP-P7NRESV:49248   ESTABLISHED
  TCP    127.0.0.1:49248        DESKTOP-P7NRESV:49247   ESTABLISHED
  TCP    127.0.0.1:49669        DESKTOP-P7NRESV:49670   ESTABLISHED
  TCP    127.0.0.1:49670        DESKTOP-P7NRESV:49669   ESTABLISHED
  TCP    127.0.0.1:49995        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:54181        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:61484        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:61484        DESKTOP-P7NRESV:64966   ESTABLISHED
  TCP    127.0.0.1:61530        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:61531        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:61604        DESKTOP-P7NRESV:0       LISTENING
  TCP    127.0.0.1:61604        DESKTOP-P7NRESV:64962   ESTABLISHED
```

```
TCP    127.0.0.1:61656         DESKTOP-P7NRESV:0        LISTENING
TCP    127.0.0.1:64931         DESKTOP-P7NRESV:65001    ESTABLISHED
TCP    127.0.0.1:64962         DESKTOP-P7NRESV:61604    ESTABLISHED
TCP    127.0.0.1:64966         DESKTOP-P7NRESV:61484    ESTABLISHED
TCP    127.0.0.1:64991         DESKTOP-P7NRESV:64992    ESTABLISHED
TCP    127.0.0.1:64992         DESKTOP-P7NRESV:64991    ESTABLISHED
TCP    127.0.0.1:64993         DESKTOP-P7NRESV:64994    ESTABLISHED
TCP    127.0.0.1:64994         DESKTOP-P7NRESV:64993    ESTABLISHED
TCP    127.0.0.1:64997         DESKTOP-P7NRESV:64998    ESTABLISHED
TCP    127.0.0.1:64998         DESKTOP-P7NRESV:64997    ESTABLISHED
TCP    127.0.0.1:65001         DESKTOP-P7NRESV:0        LISTENING
TCP    127.0.0.1:65001         DESKTOP-P7NRESV:64931    ESTABLISHED
TCP    127.0.0.1:65013         DESKTOP-P7NRESV:65014    ESTABLISHED
TCP    127.0.0.1:65014         DESKTOP-P7NRESV:65013    ESTABLISHED
TCP    127.0.0.1:65081         DESKTOP-P7NRESV:65082    ESTABLISHED
TCP    127.0.0.1:65082         DESKTOP-P7NRESV:65081    ESTABLISHED
TCP    127.0.0.1:65246         DESKTOP-P7NRESV:65247    ESTABLISHED
TCP    127.0.0.1:65247         DESKTOP-P7NRESV:65246    ESTABLISHED
TCP    192.168.1.10:139        DESKTOP-P7NRESV:0        LISTENING
TCP    192.168.1.10:49153      161.69.226.73:https      ESTABLISHED
TCP    192.168.1.10:49156      104.26.2.23:https        TIME_WAIT
TCP    192.168.1.10:49160      bom05s10-in-f138:https   TIME_WAIT
TCP    192.168.1.10:49166      bom05s11-in-f2:https      TIME_WAIT
TCP    192.168.1.10:49168      bom07s12-in-f2:https      TIME_WAIT
TCP    192.168.1.10:49170      bom07s20-in-f2:https      TIME_WAIT
TCP    192.168.1.10:49174      bom12s01-in-f2:https      TIME_WAIT
TCP    192.168.1.10:49177      bom07s18-in-f1:https      TIME_WAIT
TCP    192.168.1.10:49181      kul01s09-in-f70:https     TIME_WAIT
TCP    192.168.1.10:49184      bom12s05-in-f2:https      TIME_WAIT
TCP    192.168.1.10:49188      110:https                 TIME_WAIT
TCP    192.168.1.10:49209      bom07s01-in-f130:https   TIME_WAIT
TCP    192.168.1.10:49225      bom05s11-in-f10:https     TIME_WAIT
TCP    192.168.1.10:49231      bom05s15-in-f2:https      TIME_WAIT
TCP    192.168.1.10:49232      yx-in-f94:https           ESTABLISHED
TCP    192.168.1.10:49240      bom05s12-in-f2:https      ESTABLISHED
TCP    192.168.1.10:49246      104.26.2.23:https        TIME_WAIT
TCP    192.168.1.10:49249      ec2-52-7-111-248:https   CLOSE_WAIT
TCP    192.168.1.10:49251      bom07s15-in-f14:https     ESTABLISHED
TCP    192.168.1.10:49252      bom05s12-in-f14:https     ESTABLISHED
TCP    192.168.1.10:49253      52.157.234.37:https      ESTABLISHED
TCP    192.168.1.10:49254      bom07s12-in-f2:https      ESTABLISHED
TCP    192.168.1.10:49255      52.114.75.149:https      ESTABLISHED
TCP    192.168.1.10:49256      bom07s20-in-f4:https      ESTABLISHED
TCP    192.168.1.10:49257      bom05s11-in-f2:https      ESTABLISHED
TCP    192.168.1.10:49258      bom07s20-in-f3:https      ESTABLISHED
TCP    192.168.1.10:49259      bom05s11-in-f14:https     ESTABLISHED
TCP    192.168.1.10:49260      bom07s01-in-f14:https     ESTABLISHED
TCP    192.168.1.10:49261      bom07s01-in-f129:https   ESTABLISHED
TCP    192.168.1.10:49262      bom12s03-in-f2:https      ESTABLISHED
TCP    192.168.1.10:49263      bom05s15-in-f2:https      ESTABLISHED
TCP    192.168.1.10:49264      bom07s12-in-f2:https      ESTABLISHED
TCP    192.168.1.10:49266      161.69.226.73:https      ESTABLISHED
```

```
TCP    192.168.1.10:49267    ec2-54-199-73-11:https   ESTABLISHED
TCP    192.168.1.10:61473    bom05s09-in-f14:https    CLOSE_WAIT
TCP    192.168.1.10:64945    ec2-34-198-64-47:5222    ESTABLISHED
TCP    192.168.1.10:64968    40.90.189.152:https      ESTABLISHED
TCP    192.168.1.10:64978    40.90.189.152:https      ESTABLISHED
TCP    192.168.1.10:65006    ec2-52-11-25-131:https   ESTABLISHED
TCP    192.168.1.10:65027    ec2-13-230-53-95:https   ESTABLISHED
TCP    192.168.1.10:65090    bom12s03-in-f3:https     ESTABLISHED
TCP    192.168.1.10:65139    74.125.24.189:https      ESTABLISHED
TCP    192.168.1.10:65401    ec2-52-6-73-199:https    ESTABLISHED
TCP    192.168.1.10:65524    bom07s20-in-f4:https     TIME_WAIT
TCP    192.168.1.10:65525    bom07s20-in-f3:https     TIME_WAIT
TCP    192.168.1.10:65528    bom05s10-in-f14:https    ESTABLISHED
TCP    [::]:135              DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:445              DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:3306             DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:5357             DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:5700             DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:7680             DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:33060            DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:49664            DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:49665            DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:49666            DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:49667            DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:49671            DESKTOP-P7NRESV:0        LISTENING
TCP    [::]:52864            DESKTOP-P7NRESV:0        LISTENING
TCP    [::1]:50036           DESKTOP-P7NRESV:0        LISTENING
```

2)   netstat -nao | find /i "estab" /c
      53
3)   netstat -b | find /i "estab" /c
      57
      TCP