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TASK 1 (IP ADDRESS OF YOUR COMPUTER)


```
C:\Windows\system32\cmd.exe

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C:\Users\k191048>ipconfig

Windows IP Configuration


Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . : khifast.nu.edu.pk
   Link-local IPv6 Address . . . . . : fe80::6840:5034:8539:7ffd%13
   IPv4 Address. . . . . . . . . . . : 172.16.11.129
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 172.16.11.1

Ethernet adapter VMware Network Adapter VMnet1:
```
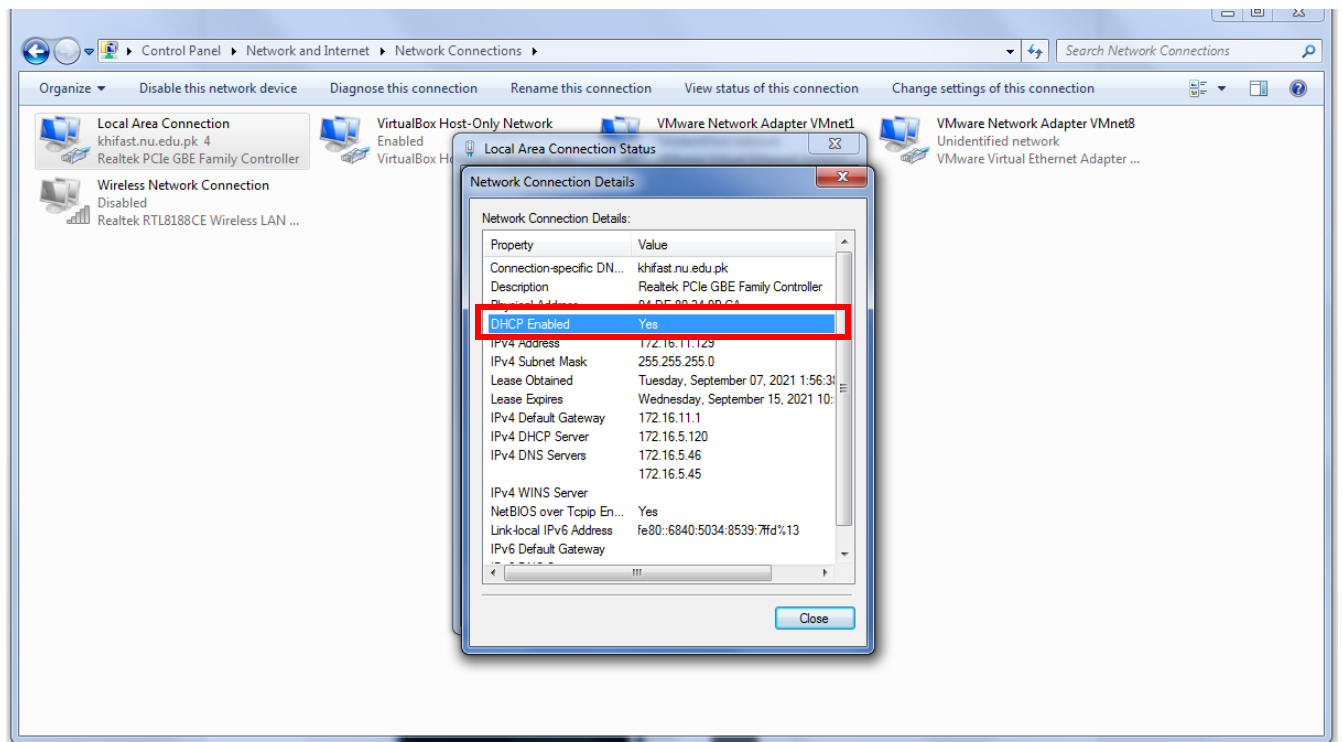
TASK 2 (MAC ADDRESS AND DHCP STATUS)


```
C:\Users\k191048>ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : L01D24
   Primary Dns Suffix  . . . . . . . : khifast.nu.edu.pk
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : khifast.nu.edu.pk

Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . : khifast.nu.edu.pk
   Description . . . . . . . . . . . : Realtek PCIe GBE Family Controller
   Physical Address. . . . . . . . . : 94-DE-80-34-9B-CA
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::6840:5034:8539:7ffd%13(Preferred)
   IPv4 Address. . . . . . . . . . . : 172.16.11.129(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : Tuesday, September 07, 2021 1:56:38 PM
   Lease Expires . . . . . . . . . . : Wednesday, September 15, 2021 10:56:38 PM
```
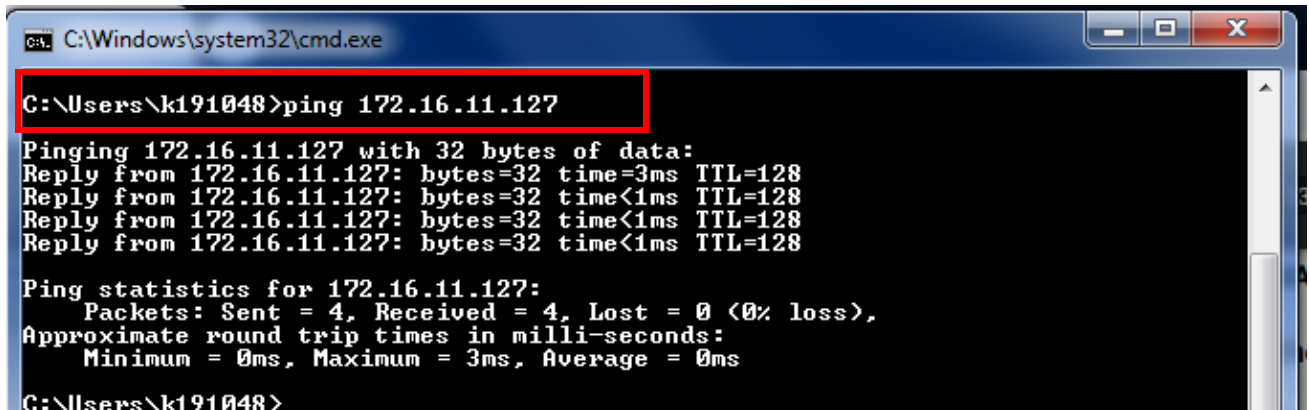
TASK 3 (HOSTNAME OF YOUR COMPUTER)


```
C:\Users\k191048>hostname
L01D24

C:\Users\k191048>_
```

TASK 4 (IP CONNECTIVITY BETWEEN TWO COMPUTERS)


```
C:\Users\k191048>ping 172.16.11.127

Pinging 172.16.11.127 with 32 bytes of data:
Reply from 172.16.11.127: bytes=32 time=3ms TTL=128
Reply from 172.16.11.127: bytes=32 time<1ms TTL=128
Reply from 172.16.11.127: bytes=32 time<1ms TTL=128
Reply from 172.16.11.127: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.11.127:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 3ms, Average = 0ms

C:\Users\k191048>
```

TASK 5 (MAC ADDRESS OF HOST)

```
C:\Windows\system32\cmd.exe

C:\Users\k191048>getmac

Physical Address        Transport Name
==================      ======================================================
94-DE-80-34-9B-CA       \Device\Tcpip_{491C59AA-8F39-4B78-A27B-BD2B26A586C5}
N/A                     Hardware not present
00-50-56-C0-00-01       \Device\Tcpip_{79E90AF7-8BE4-45FC-A0AE-D0CF73C28062}
00-50-56-C0-00-08       \Device\Tcpip_{3EA4EE55-9750-415E-952E-3EF408537867}
0A-00-27-00-00-00       \Device\Tcpip_{BBB3A707-8DB6-43A1-9E3F-BE60ABC35464}

C:\Users\k191048>_
```

TASK 6 (SHARE RESOURCES)

```
C:\Windows\system32\cmd.exe

C:\Users\k191048>net share

Share name    Resource                        Remark

-------------------------------------------------------------------------------
C$            C:\                             Default share
D$            D:\                             Default share
IPC$                                          Remote IPC
ADMIN$        C:\Windows                      Remote Admin
The command completed successfully.
```

TASK 7 (PORTS ON HOST CONNECTED TO APPLICATIONS)

```
C:\Windows\system32\cmd.exe

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C:\Users\k191048>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    172.16.11.129:49195    139.59.46.239:https    ESTABLISHED
  TCP    172.16.11.129:49440    a95-101-156-159:https  CLOSE_WAIT
  TCP    172.16.11.129:50413    fjr02s08-in-f10:https  ESTABLISHED
  TCP    172.16.11.129:53347    139.59.46.239:https    ESTABLISHED
  TCP    172.16.11.129:54586    fjr04s08-in-f4:https   CLOSE_WAIT
  TCP    172.16.11.129:55342    par10s22-in-f226:https  ESTABLISHED
  TCP    172.16.11.129:56908    muc11s15-in-f10:https  ESTABLISHED
  TCP    172.16.11.129:58318    fjr02s04-in-f14:https  ESTABLISHED
  TCP    172.16.11.129:60294    fjr04s05-in-f14:https  ESTABLISHED
  TCP    172.16.11.129:62226    fjr04s09-in-f1:https   ESTABLISHED
  TCP    172.16.11.129:62728    wb-in-f188:5228        ESTABLISHED
  TCP    172.16.11.129:64380    fjr04s05-in-f3:https   ESTABLISHED
  TCP    [fe80::c132:eaf6:46ba:1596%19]:1521  L01D24:49404          ESTABLISHED

  TCP    [fe80::c132:eaf6:46ba:1596%19]:49404  L01D24:1521          ESTABLISHE
D

C:\Users\k191048>
```

TASK 8 (ALL OTHER HOSTS AVAILABLE ON NETWORK)

TASK 9 (DEFAULT GATEWAY)

TASK 10 (PATH OF ROUTERS TO GOOGLE.COM)

```
C:\Windows\system32\cmd.exe                                    _ □ X

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C:\Users\k191048>tracert google.com

Tracing route to google.com [216.58.207.14]
over a maximum of 30 hops:

  1     1 ms     1 ms     1 ms  172.16.11.1
  2    <1 ms    <1 ms    <1 ms  172.16.5.5
  3     1 ms    <1 ms     1 ms  58-27-234-100.wateen.net [58.27.234.100]
  4     1 ms     2 ms     1 ms  58-27-182-213.wateen.net [58.27.182.213]
  5     1 ms     1 ms     1 ms  58-27-182-57.wateen.net [58.27.182.57]
  6     1 ms     1 ms     1 ms  58-27-183-226.wateen.net [58.27.183.226]
  7     1 ms     1 ms     1 ms  khi77.pie.net.pk [202.125.136.253]
  8     1 ms     2 ms     2 ms  10.253.4.72
  9     4 ms     2 ms     2 ms  10.253.4.26
 10    20 ms    20 ms    20 ms  74.125.118.170
 11    20 ms    20 ms    20 ms  172.253.51.55
 12    20 ms    21 ms    20 ms  216.239.62.225
 13    21 ms    21 ms    20 ms  fjr02s03-in-f14.1e100.net [216.58.207.14]

Trace complete.
```
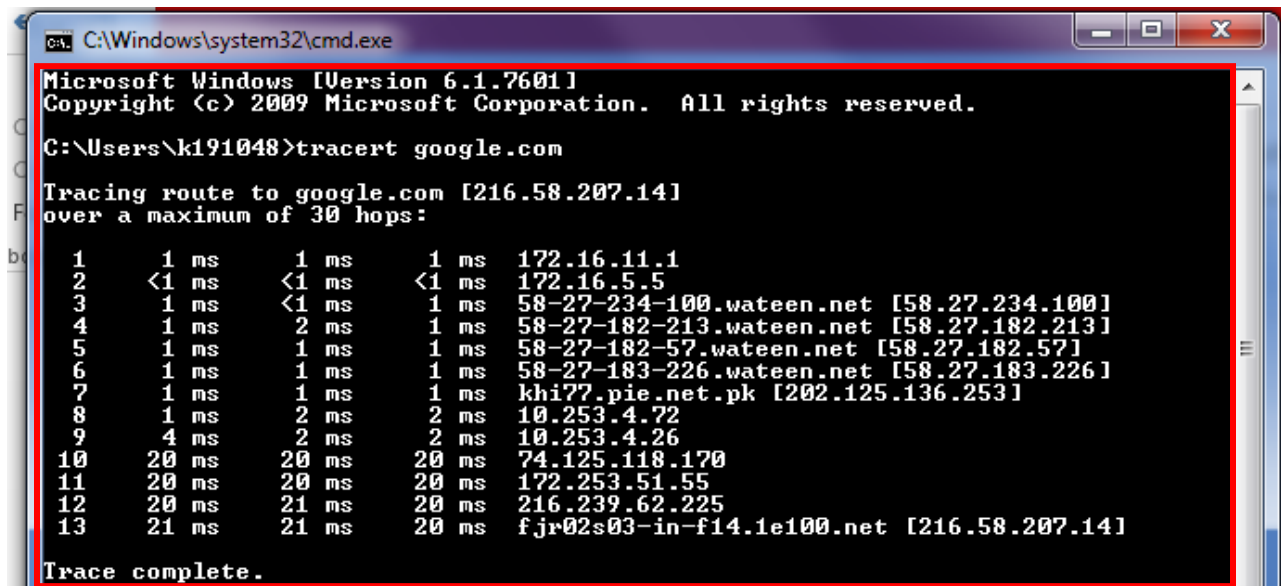
TASK 11 (BLUE MACHINE FAILS)

Hostname could be Wrong.

TASK 12 (NORMAL HOME INSTALLATION)

Straight-Through ethernet cables with RJ-45 connectors.

TASK 13 (SWITCH TO ANOTHER SWTICH USING STRAIGHT THROUGH CABLE)

No, Straight-Through cables are used to connect different devices together.

For Example:

1. Router to Hub
2. Computer to Switch

Cross-Over cables can be used to make connection between the devices mentioned in the question.

TASK 14 (HOME NETWORK SETUP)

Star-Topology is installed in my home, since it is easy and cheap to setup, and It's got several advantages such as,

1. It is easy to troubleshoot and maintain.
2. More devices can be added very easily.
3. It uses Ethernet cables that are also very cheap and easy to obtain.
4. It's performance is fast with low traffic.

- Hub   → Physical Layer
- Switch   → Data Link Layer
- Router   → Network Layer