Batch: B-1   **Experiment Number: 1 - Networking Commands**
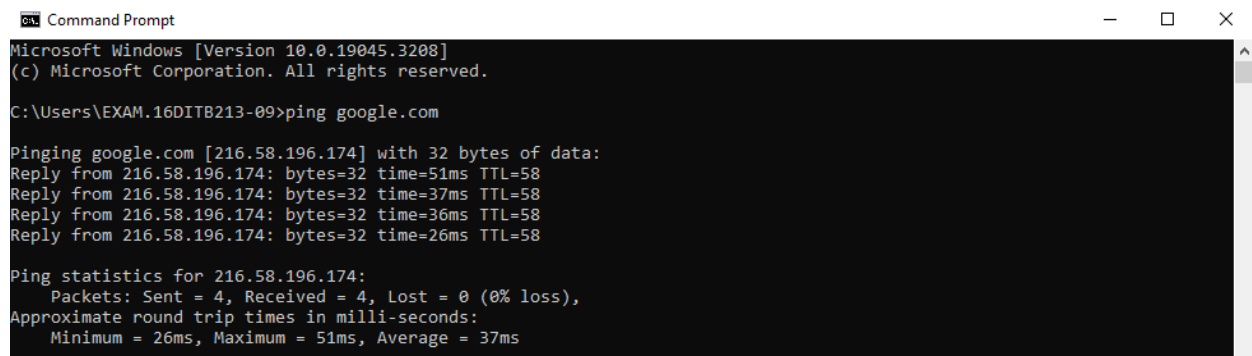
Roll Number: 16010422234   **Name: Chandana Ramesh Galgali**

Aim of the Experiment: Study of various networking commands.

Program/ Steps:

1. Type each networking command in the command prompt and paste snapshots of the output.
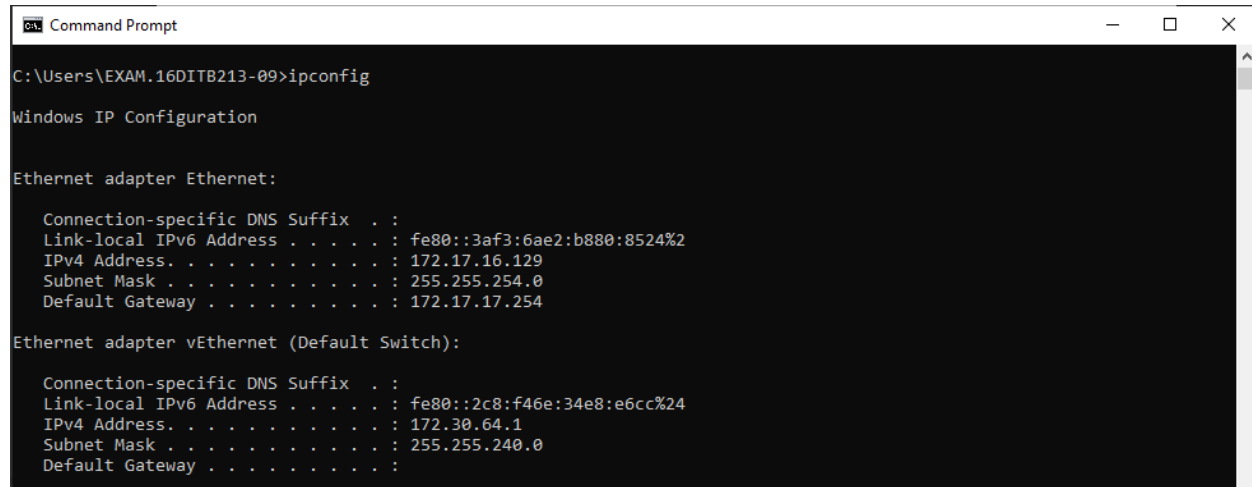
Output/Result:

1. ping

2. ipconfig

Used without parameters:

ipconfig/all:

```
Command Prompt                                                                   —  ☐  ✕

C:\Users\EXAM.16DITB213-09>ipconfig/all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : 16DITB213-09
   Primary Dns Suffix  . . . . . . . : SVV.local
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : SVV.local

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Realtek PCIe GbE Family Controller
   Physical Address. . . . . . . . . : 3C-52-82-6D-28-04
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::3af3:6ae2:b880:8524%2(Preferred)
   IPv4 Address. . . . . . . . . . . : 172.17.16.129(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.254.0
   Default Gateway . . . . . . . . . : 172.17.17.254
   DHCPv6 IAID . . . . . . . . . . . : 104616578
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2A-32-D0-E2-3C-52-82-6D-28-04
   DNS Servers . . . . . . . . . . . : 172.31.0.25
                                       172.31.0.26
   NetBIOS over Tcpip. . . . . . . . : Enabled

Ethernet adapter vEthernet (Default Switch):

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Hyper-V Virtual Ethernet Adapter
   Physical Address. . . . . . . . . : 00-15-5D-2D-E7-2D
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::2c8:f46e:34e8:e6cc%24(Preferred)
   IPv4 Address. . . . . . . . . . . : 172.30.64.1(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.240.0
   Default Gateway . . . . . . . . . :
   DHCPv6 IAID . . . . . . . . . . . : 402658653
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2A-32-D0-E2-3C-52-82-6D-28-04
   DNS Servers . . . . . . . . . . . : fec0:0:0:ffff::1%1
                                       fec0:0:0:ffff::2%1
                                       fec0:0:0:ffff::3%1
   NetBIOS over Tcpip. . . . . . . . : Enabled
```

ipconfig/renew:

```
Command Prompt            ✕    +   ⌄                              —  ☐  ✕

C:\Users\daxay>ipconfig /renew

Windows IP Configuration

No operation can be performed on Local Area Connection* 1 while it has its media disconnected.
No operation can be performed on Local Area Connection* 2 while it has its media disconnected.

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   IPv6 Address. . . . . . . . . . . : 2405:201:2a:7857:3da:944c:ebd8:4274
   Temporary IPv6 Address. . . . . . : 2405:201:2a:7857:a4da:a0bd:269a:fa95
   Link-local IPv6 Address . . . . . : fe80::61b:c461:4770:5e60%15
   IPv4 Address. . . . . . . . . . . : 192.168.29.148
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::8ea3:99ff:fe9b:a5d5%15
                                       192.168.29.1
```

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ipconfig/renew:

```
C:\Users\daxay>ipconfig/release

Windows IP Configuration

No operation can be performed on Local Area Connection* 1 while it has its media disconnected.

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . . . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

    Media State . . . . . . . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    IPv6 Address. . . . . . . . . . . : 2405:201:2a:7857:3da:944c:ebd8:4274
    Temporary IPv6 Address. . . . . . : 2405:201:2a:7857:a4da:a0bd:269a:fa95
    Link-local IPv6 Address . . . . . : fe80::61b:c461:4770:5e60%15
    Default Gateway . . . . . . . . . : fe80::8ea3:99ff:fe9b:a5d5%15
```

ipconfig/flushdns:

```
Command Prompt                                                        —  □  ×

C:\Users\EXAM.16DITB213-09>ipconfig/flushdns

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.
```

3. tracert

```
C:\Users\EXAM.16DITB213-09>tracert www.google.co.in

Tracing route to www.google.co.in [142.250.199.163]
over a maximum of 30 hops:

  1     1 ms     1 ms     1 ms  172.17.17.254
  2     1 ms     1 ms     1 ms  172.17.52.240
  3     1 ms    <1 ms     1 ms  172.30.250.250
  4     2 ms     2 ms     1 ms  182.73.90.241
  5    11 ms     8 ms     6 ms  116.119.73.96
  6    15 ms    13 ms    12 ms  72.14.212.48
  7     4 ms     6 ms     3 ms  216.239.47.175
  8     5 ms     5 ms     7 ms  108.170.234.157
  9     5 ms     5 ms     3 ms  bom07s37-in-f3.1e100.net [142.250.199.163]

Trace complete.
```

tracert-d

```
Command Prompt                                                        —  □  ×

C:\Users\EXAM.16DITB213-09>tracert -d  www.google.co.in

Tracing route to www.google.co.in [142.250.199.163]
over a maximum of 30 hops:

  1     1 ms     1 ms     1 ms  172.17.17.254
  2     1 ms     1 ms     1 ms  172.17.52.240
  3     1 ms    <1 ms    <1 ms  172.30.250.250
  4     2 ms     2 ms     3 ms  182.73.90.241
  5     3 ms     2 ms     2 ms  116.119.73.96
  6     5 ms     3 ms     5 ms  72.14.212.48
  7     4 ms     3 ms     3 ms  216.239.47.175
  8     3 ms     4 ms     6 ms  108.170.234.157
  9     8 ms     4 ms     3 ms  142.250.199.163

Trace complete.
```

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4. Arp

```
Command Prompt                                                                    —   □   ×
C:\Users\EXAM.16DITB213-09>Arp -N 192.168.42.171

Displays and modifies the IP-to-Physical address translation tables used by
address resolution protocol (ARP).

ARP -s inet_addr eth_addr [if_addr]
ARP -d inet_addr [if_addr]
ARP -a [inet_addr] [-N if_addr] [-v]

  -a            Displays current ARP entries by interrogating the current
                protocol data.  If inet_addr is specified, the IP and Physical
                addresses for only the specified computer are displayed.  If
                more than one network interface uses ARP, entries for each ARP
                table are displayed.
  -g            Same as -a.
  -v            Displays current ARP entries in verbose mode.  All invalid
                entries and entries on the loop-back interface will be shown.
  inet_addr     Specifies an internet address.
  -N if_addr    Displays the ARP entries for the network interface specified
                by if_addr.
  -d            Deletes the host specified by inet_addr. inet_addr may be
                wildcarded with * to delete all hosts.
  -s            Adds the host and associates the Internet address inet_addr
                with the Physical address eth_addr.  The Physical address is
                given as 6 hexadecimal bytes separated by hyphens. The entry
                is permanent.
  eth_addr      Specifies a physical address.
  if_addr       If present, this specifies the Internet address of the
                interface whose address translation table should be modified.
                If not present, the first applicable interface will be used.
Example:
  > arp -s 157.55.85.212   00-aa-00-62-c6-09  .... Adds a static entry.
  > arp -a                                    .... Displays the arp table.
```

5. Netstat

```
Command Prompt                                                                    —   □   ×
C:\Users\EXAM.16DITB213-09>Netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:11300        kubernetes:49378       ESTABLISHED
  TCP    127.0.0.1:49378        kubernetes:11300       ESTABLISHED
  TCP    172.17.16.129:7680     172.17.15.19:58668     TIME_WAIT
  TCP    172.17.16.129:7680     172.17.15.98:64178     TIME_WAIT
  TCP    172.17.16.129:7680     16DITB213-21:63970     TIME_WAIT
  TCP    172.17.16.129:7680     172.17.16.161:60790    TIME_WAIT
  TCP    172.17.16.129:7680     16DITB212-04:58776     TIME_WAIT
  TCP    172.17.16.129:7680     16DITB110-21:49154     ESTABLISHED
  TCP    172.17.16.129:7680     172.17.20.205:60713    TIME_WAIT
  TCP    172.17.16.129:7680     172.17.22.61:63118     ESTABLISHED
  TCP    172.17.16.129:7680     172.17.22.229:50505    ESTABLISHED
  TCP    172.17.16.129:49320    win-sccm:10123         ESTABLISHED
  TCP    172.17.16.129:49689    20.197.71.89:https     ESTABLISHED
  TCP    172.17.16.129:49696    sf-in-f188:5228        ESTABLISHED
  TCP    172.17.16.129:49799    bom12s13-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49800    bom07s35-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49801    bom12s19-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49803    bom07s32-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49804    bom12s01-in-f3:https   ESTABLISHED
  TCP    172.17.16.129:49805    bom12s01-in-f3:https   ESTABLISHED
  TCP    172.17.16.129:49808    bom07s37-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49819    bom07s36-in-f10:https  ESTABLISHED
  TCP    172.17.16.129:49820    bom07s36-in-f10:https  ESTABLISHED
  TCP    172.17.16.129:49846    198:https              ESTABLISHED
  TCP    172.17.16.129:49850    bom07s35-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49912    bom12s01-in-f3:https   ESTABLISHED
  TCP    172.17.16.129:49989    125.56.219.18:https    CLOSE_WAIT
  TCP    172.17.16.129:49993    125.56.219.18:https    CLOSE_WAIT
  TCP    172.17.16.129:49998    204.79.197.222:https   CLOSE_WAIT
  TCP    172.17.16.129:49999    125.56.219.18:https    CLOSE_WAIT
  TCP    172.17.16.129:50060    a23-46-207-30:https    CLOSE_WAIT
  TCP    172.17.16.129:50073    13.107.228.254:https   CLOSE_WAIT
  TCP    172.17.16.129:50075    13.107.213.48:https    CLOSE_WAIT
  TCP    172.17.16.129:50505    bom07s20-in-f3:https   ESTABLISHED
  TCP    172.17.16.129:50519    52.179.216.235:https   TIME_WAIT
  TCP    172.17.16.129:50521    bom12s14-in-f5:https   ESTABLISHED
  TCP    172.17.16.129:50522    172.17.1.11:13111      TIME_WAIT
  TCP    172.17.16.129:50527    172.17.1.11:13111      TIME_WAIT
  TCP    172.17.16.129:50530    172.17.14.221:ms-do    TIME_WAIT
  TCP    172.17.16.129:50532    syd15s06-in-f3:https   ESTABLISHED
  TCP    172.17.16.129:50533    172.17.1.11:13111      TIME_WAIT
  TCP    172.17.16.129:50541    52.179.216.235:https   ESTABLISHED
```

Netstat -a

```
Command Prompt                                                                    —  □  ×

C:\Users\EXAM.16DITB213-09>Netstat -a

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    0.0.0.0:135            16DITB213-09:0         LISTENING
  TCP    0.0.0.0:445            16DITB213-09:0         LISTENING
  TCP    0.0.0.0:2179           16DITB213-09:0         LISTENING
  TCP    0.0.0.0:2701           16DITB213-09:0         LISTENING
  TCP    0.0.0.0:5040           16DITB213-09:0         LISTENING
  TCP    0.0.0.0:7680           16DITB213-09:0         LISTENING
  TCP    0.0.0.0:8003           16DITB213-09:0         LISTENING
  TCP    0.0.0.0:11100          16DITB213-09:0         LISTENING
  TCP    0.0.0.0:49664          16DITB213-09:0         LISTENING
  TCP    0.0.0.0:49665          16DITB213-09:0         LISTENING
  TCP    0.0.0.0:49666          16DITB213-09:0         LISTENING
  TCP    0.0.0.0:49667          16DITB213-09:0         LISTENING
  TCP    0.0.0.0:49674          16DITB213-09:0         LISTENING
  TCP    0.0.0.0:49676          16DITB213-09:0         LISTENING
  TCP    0.0.0.0:59847          16DITB213-09:0         LISTENING
  TCP    127.0.0.1:11200        16DITB213-09:0         LISTENING
  TCP    127.0.0.1:11300        16DITB213-09:0         LISTENING
  TCP    127.0.0.1:11300        kubernetes:49378       ESTABLISHED
  TCP    127.0.0.1:30523        16DITB213-09:0         LISTENING
  TCP    127.0.0.1:49378        kubernetes:11300       ESTABLISHED
  TCP    127.0.0.1:49505        16DITB213-09:0         LISTENING
  TCP    127.0.0.1:59858        16DITB213-09:0         LISTENING
  TCP    127.0.0.1:60212        16DITB213-09:0         LISTENING
  TCP    127.0.0.1:64178        16DITB213-09:0         LISTENING
  TCP    172.17.16.129:139      16DITB213-09:0         LISTENING
  TCP    172.17.16.129:7680     172.17.14.224:61080    TIME_WAIT
  TCP    172.17.16.129:7680     16DITB213-21:64040     TIME_WAIT
  TCP    172.17.16.129:7680     16DITB212-13:63371     TIME_WAIT
  TCP    172.17.16.129:7680     16DITB212-13:63422     TIME_WAIT
  TCP    172.17.16.129:7680     16DITB212-13:63560     TIME_WAIT
  TCP    172.17.16.129:7680     16DITA122-18:61297     TIME_WAIT
  TCP    172.17.16.129:7680     172.17.16.215:60774    TIME_WAIT
  TCP    172.17.16.129:7680     172.17.22.61:63118     ESTABLISHED
  TCP    172.17.16.129:7680     172.17.22.70:15237     ESTABLISHED
  TCP    172.17.16.129:7680     172.17.22.229:50505    ESTABLISHED
  TCP    172.17.16.129:7680     172.17.24.103:52980    TIME_WAIT
  TCP    172.17.16.129:7680     172.17.24.103:53133    TIME_WAIT
  TCP    172.17.16.129:49320    win-sccm:10123         ESTABLISHED
  TCP    172.17.16.129:49689    20.197.71.89:https     ESTABLISHED
  TCP    172.17.16.129:49696    sf-in-f188:5228        ESTABLISHED
  TCP    172.17.16.129:49799    bom12s13-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49800    bom07s35-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49801    bom12s19-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49803    bom07s32-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49804    bom12s01-in-f3:https   ESTABLISHED
  TCP    172.17.16.129:49805    bom12s01-in-f3:https   ESTABLISHED
```

```
Command Prompt                                                                    —  □  ×
  TCP    172.17.16.129:49808    bom07s37-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49819    bom07s36-in-f10:https  ESTABLISHED
  TCP    172.17.16.129:49820    bom07s36-in-f10:https  ESTABLISHED
  TCP    172.17.16.129:49846    198:https              ESTABLISHED
  TCP    172.17.16.129:49850    bom07s35-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:49912    bom12s01-in-f3:https   ESTABLISHED
  TCP    172.17.16.129:49989    a125-56-219-18:https   CLOSE_WAIT
  TCP    172.17.16.129:49993    a125-56-219-18:https   CLOSE_WAIT
  TCP    172.17.16.129:49998    204.79.197.222:https   CLOSE_WAIT
  TCP    172.17.16.129:49999    a125-56-219-18:https   CLOSE_WAIT
  TCP    172.17.16.129:50060    a23-46-207-30:https    CLOSE_WAIT
  TCP    172.17.16.129:50073    13.107.228.254:https   CLOSE_WAIT
  TCP    172.17.16.129:50075    13.107.213.48:https    CLOSE_WAIT
  TCP    172.17.16.129:50505    bom07s20-in-f3:https   ESTABLISHED
  TCP    172.17.16.129:50551    bom05s12-in-f10:https  ESTABLISHED
  TCP    172.17.16.129:50572    bom07s30-in-f13:https  ESTABLISHED
  TCP    172.17.16.129:50574    bom12s13-in-f5:https   ESTABLISHED
  TCP    172.17.16.129:50595    52.184.216.246:https   ESTABLISHED
  TCP    172.17.16.129:50599    172.17.24.85:ms-do     TIME_WAIT
  TCP    172.17.16.129:50601    maa05s23-in-f14:https  ESTABLISHED
  TCP    172.17.16.129:50610    e2a:https              ESTABLISHED
  TCP    172.17.16.129:50611    172.17.1.11:13111      ESTABLISHED
  TCP    172.17.16.129:50612    172.17.15.98:ms-do     SYN_SENT
  TCP    172.17.16.129:50614    172.17.26.63:ms-do     SYN_SENT
  TCP    172.17.16.129:50615    172.17.20.216:ms-do    SYN_SENT
  TCP    172.30.64.1:139        16DITB213-09:0         LISTENING
  TCP    [::]:135               16DITB213-09:0         LISTENING
  TCP    [::]:445               16DITB213-09:0         LISTENING
  TCP    [::]:2179              16DITB213-09:0         LISTENING
  TCP    [::]:2701              16DITB213-09:0         LISTENING
  TCP    [::]:7680              16DITB213-09:0         LISTENING
  TCP    [::]:8003              16DITB213-09:0         LISTENING
  TCP    [::]:11100             16DITB213-09:0         LISTENING
  TCP    [::]:49664             16DITB213-09:0         LISTENING
  TCP    [::]:49665             16DITB213-09:0         LISTENING
  TCP    [::]:49666             16DITB213-09:0         LISTENING
  TCP    [::]:49667             16DITB213-09:0         LISTENING
  TCP    [::]:49674             16DITB213-09:0         LISTENING
  TCP    [::]:49676             16DITB213-09:0         LISTENING
  TCP    [::]:59847             16DITB213-09:0         LISTENING
  TCP    [::1]:30523            16DITB213-09:0         LISTENING
  TCP    [::1]:49677            16DITB213-09:0         LISTENING
  TCP    [::1]:60212            16DITB213-09:0         LISTENING
  UDP    0.0.0.0:53             *:*
  UDP    0.0.0.0:123            *:*
  UDP    0.0.0.0:500            *:*
  UDP    0.0.0.0:4500           *:*
  UDP    0.0.0.0:5050           *:*
  UDP    0.0.0.0:5353           *:*
  UDP    0.0.0.0:5353           *:*
  UDP    0.0.0.0:5353           *:*
  UDP    0.0.0.0:5353           *:*
```

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```
UDP    0.0.0.0:5353              *:*
UDP    0.0.0.0:5355              *:*
UDP    0.0.0.0:8004              *:*
UDP    0.0.0.0:15000             *:*
UDP    0.0.0.0:15001             *:*
UDP    0.0.0.0:15001             *:*
UDP    0.0.0.0:15001             *:*
UDP    0.0.0.0:15001             *:*
UDP    0.0.0.0:15001             *:*
UDP    0.0.0.0:15001             *:*
UDP    0.0.0.0:64279             *:*
UDP    0.0.0.0:64280             *:*
UDP    127.0.0.1:1900            *:*
UDP    127.0.0.1:51418           *:*
UDP    127.0.0.1:51609           *:*
UDP    127.0.0.1:55358           *:*
UDP    127.0.0.1:57202           *:*
UDP    127.0.0.1:58141           *:*
UDP    127.0.0.1:62224           *:*
UDP    127.0.0.1:62961           *:*
UDP    127.0.0.1:64620           *:*
UDP    172.17.16.129:137         *:*
UDP    172.17.16.129:138         *:*
UDP    172.17.16.129:1900        *:*
UDP    172.17.16.129:51608       *:*
UDP    172.30.64.1:67            *:*
UDP    172.30.64.1:68            *:*
UDP    172.30.64.1:137           *:*
UDP    172.30.64.1:138           *:*
UDP    172.30.64.1:1900          *:*
UDP    172.30.64.1:51610         *:*
UDP    [::]:123                  *:*
UDP    [::]:500                  *:*
UDP    [::]:4500                 *:*
UDP    [::]:5353                 *:*
UDP    [::]:5353                 *:*
UDP    [::]:5353                 *:*
UDP    [::]:5355                 *:*
UDP    [::]:15000                *:*
UDP    [::]:64281                *:*
UDP    [::1]:1900                *:*
UDP    [::1]:51606               *:*
UDP    [fe80::2c8:f46e:34e8:e6cc%24]:1900  *:*
UDP    [fe80::2c8:f46e:34e8:e6cc%24]:51607 *:*
UDP    [fe80::3af3:6ae2:b880:8524%2]:1900  *:*
UDP    [fe80::3af3:6ae2:b880:8524%2]:51605 *:*
```

Netstat -e

```
C:\Users\EXAM.16DITB213-09>Netstat -e
Interface Statistics

                         Received           Sent

Bytes                  903343326        907388658
Unicast packets           944124           901998
Non-unicast packets       485436            45612
Discards                       0                0
Errors                         0                0
Unknown protocols              0
```

Netstat -n

Netstat -o

Netstat -p

Netstat -s

```
C:\Users\EXAM.16DITB213-09>Netstat -s

IPv4 Statistics

  Packets Received                   = 770999
  Received Header Errors             = 0
  Received Address Errors            = 164
  Datagrams Forwarded                = 0
  Unknown Protocols Received         = 1
  Received Packets Discarded         = 8413
  Received Packets Delivered         = 772891
  Output Requests                    = 897303
  Routing Discards                   = 0
  Discarded Output Packets           = 1736
  Output Packet No Route             = 34
  Reassembly Required                = 0
  Reassembly Successful              = 0
  Reassembly Failures                = 0
  Datagrams Successfully Fragmented  = 0
  Datagrams Failing Fragmentation    = 0
  Fragments Created                  = 0

IPv6 Statistics

  Packets Received                   = 77224
  Received Header Errors             = 0
  Received Address Errors            = 678
  Datagrams Forwarded                = 0
  Unknown Protocols Received         = 0
  Received Packets Discarded         = 683
  Received Packets Delivered         = 81027
  Output Requests                    = 5808
  Routing Discards                   = 0
  Discarded Output Packets           = 4
  Output Packet No Route             = 0
  Reassembly Required                = 12
  Reassembly Successful              = 6
  Reassembly Failures                = 0
  Datagrams Successfully Fragmented  = 0
  Datagrams Failing Fragmentation    = 0
  Fragments Created                  = 0

ICMPv4 Statistics

                           Received    Sent
  Messages                 852         1962
  Errors                   0           0
  Destination Unreachable  753         1627
  Time Exceeded            68          0
  Parameter Problems       0           0
  Source Quenches          0           0
  Redirects                0           0
```

```
  Echo Replies             26          5
  Echos                    5           330
  Timestamps               0           0
  Timestamp Replies        0           0
  Address Masks            0           0
  Address Mask Replies     0           0
  Router Solicitations     0           0
  Router Advertisements    0           0

ICMPv6 Statistics

                           Received    Sent
  Messages                 82          101
  Errors                   0           0
  Destination Unreachable  7           21
  Packet Too Big           0           0
  Time Exceeded            0           0
  Parameter Problems       0           0
  Echos                    0           0
  Echo Replies             0           0
  MLD Queries              0           0
  MLD Reports              4           0
  MLD Dones                0           0
  Router Solicitations     0           22
  Router Advertisements    0           0
  Neighbor Solicitations   19          32
  Neighbor Advertisements  52          26
  Redirects                0           0
  Router Renumberings      0           0

TCP Statistics for IPv4

  Active Opens                        = 9309
  Passive Opens                       = 2169
  Failed Connection Attempts          = 1449
  Reset Connections                   = 800
  Current Connections                 = 33
  Segments Received                   = 649423
  Segments Sent                       = 892797
  Segments Retransmitted              = 21399

TCP Statistics for IPv6

  Active Opens                        = 274
  Passive Opens                       = 34
  Failed Connection Attempts          = 271
  Reset Connections                   = 32
  Current Connections                 = 0
  Segments Received                   = 19284
  Segments Sent                       = 18401
  Segments Retransmitted              = 896
```

```
UDP Statistics for IPv4

  Datagrams Received     = 208039
  No Ports               = 8103
  Receive Errors         = 5056
  Datagrams Sent         = 20683

UDP Statistics for IPv6

  Datagrams Received     = 124400
  No Ports               = 595
  Receive Errors         = 87
  Datagrams Sent         = 4008
```

Netstat -r

Post Lab Question-Answers:

1. ICMP is used in _____

a) Ping

b) Traceroute

c) Ifconfig

d) Both Ping & Traceroute

2. _____ command is used to manipulate TCP/IP routing table.

a) route

b) Ipconfig

c) Ifconfig

d) Traceroute

3. Select the false statement from the following.

a) Nslookup is used to query a DNS server for DNS data

b) Ping is used to check connectivity

c) Pathping combines the functionality of ping with that of route

d) Ifconfig can configure TCP/IP network interface parameters

---

Outcomes: Understand the data communication system, network topologies and network devices.

Conclusion (based on the Results and outcomes achieved):
The experiment highlights the importance of these networking commands in troubleshooting and managing network connections. They provide valuable insights into DNS resolution, network connectivity, and network path analysis, enabling network administrators and users to diagnose and resolve network-related issues effectively.

References:

Books/ Journals/ Websites:

1. Behrouz A Forouzan, Data Communication and Networking, Tata Mc Graw hill, India, 4th Edition
2. A. S. Tanenbaum, "Computer Networks", 4th edition, Prentice Hall
3. Behrouz A Forouzan, Data Communication and Networking, Tata Mc Graw hill, India, 4th Edition
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