NETWORK SECURITY AND CRYPTOGRAPHY

LAB FILE

LAB 2

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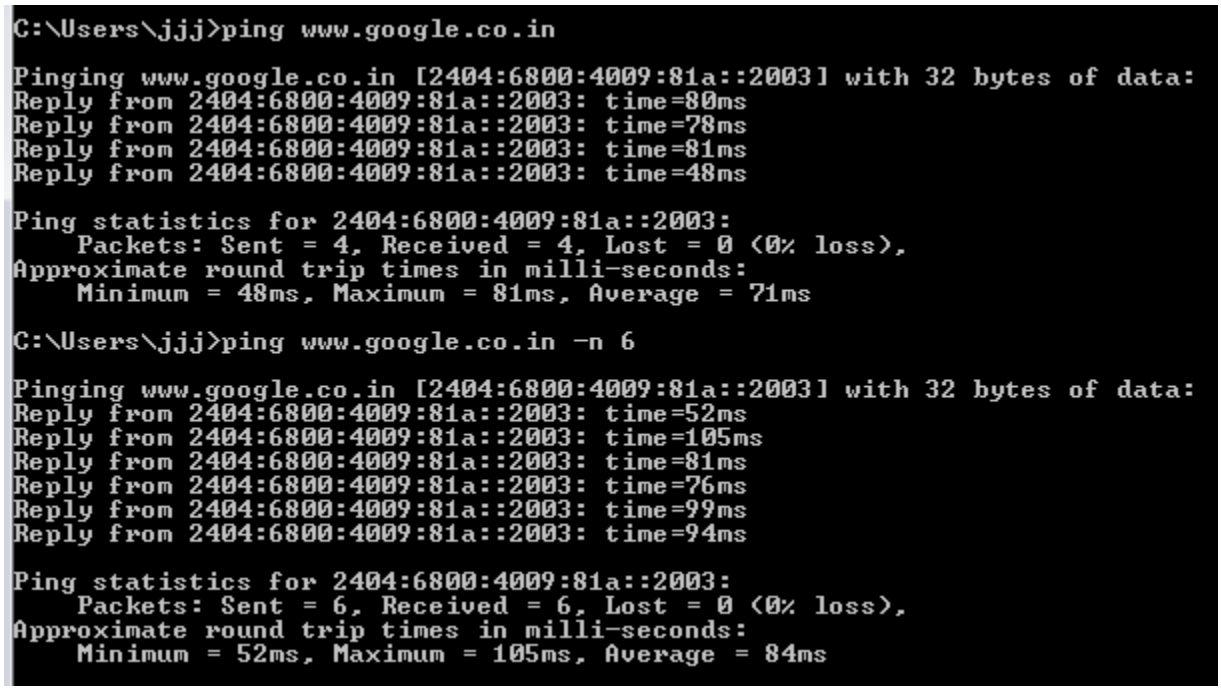
B TECH CSE 6B

MRU

1. PING is one of the most basic yet useful network commands to utilize in the command prompt application. It tells you whether your computer can reach some destination IP address or domain name, and if it can, how long it takes data to travel there and back again.



2. TRACERT stands for Trace Route. Like ping, it sends out a data packet as a way to troubleshoot any network issues you might have, but it instead tracks the route of the packet as it hops from server to server.

3. PATHPING is similar to tracert except more informative, which means it takes a lot longer to execute. After sending out packets from you to a given destination, it analyzes the route taken and computes packet loss on a per-hop basis.

```
C:\Users\jjj>pathping www.google.co.in

Tracing route to www.google.co.in [2404:6800:4002:810::2003]
over a maximum of 30 hops:
  0  Anmol [2401:4900:415e:166a:126:acb4:a9ce:51d8]
  1  2401:4900:415e:166a::ba
  2  2401:4900:415e:166a:0:17:fbf1:bf40
  3     *        *        *
Computing statistics for 50 seconds...
            Source to Here   This Node/Link
Hop  RTT    Lost/Sent = Pct  Lost/Sent = Pct  Address
  0                                           Anmol [2401:49
4:a9ce:51d8]
                                  0/ 100 =  0%   |
  1    7ms     0/ 100 =  0%     0/ 100 =  0%  2401:4900:415e
                                100/ 100 =100%   |
  2  ---     100/ 100 =100%     0/ 100 =  0%  2401:4900:415e


Trace complete.
```

4. IPCONFIG often comes up as the most-used networking command on Windows. Not only is it useful for the information it provides, but you can combine it with a couple of switches to execute certain tasks.

```
C:\Users\jjj>ipconfig

Windows IP Configuration


Ethernet adapter Local Area Connection 2:

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

Ethernet adapter Local Area Connection:

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

Wireless LAN adapter Wireless Network Connection:

   Connection-specific DNS Suffix  . :
   IPv6 Address. . . . . . . . . . . : 2401:4900:415e:166a:2058:ca2b:d701:a651
   Temporary IPv6 Address. . . . . . : 2401:4900:415e:166a:126:acb4:a9ce:51d8
   Link-local IPv6 Address . . . . . : fe80::2058:ca2b:d701:a651%12
   IPv4 Address. . . . . . . . . . . : 192.168.43.202
```

5. GETMAC Every device that's compliant with IEEE 802 standards has a unique MAC address (Media Access Control). The manufacturer assigns MAC addresses and stores them in the device's hardware.

```
C:\Users\Joel>getmac

Physical Address    Transport Name
=================== ==========================================================
00-FF-CB-10-15-73   Media disconnected
28-F0-76-10-E8-E2   Media disconnected
38-C9-86-21-D0-4D   \Device\Tcpip_{FCEE928D-4AE1-4204-8F5F-4C64CD07A080}
```

6. NSLOOKUP stands for Name Server Lookup. Its main use is finding out the IP address behind a certain domain name.

```
C:\Users\jjj>nslookup www.google.co.in
Server:  UnKnown
Address:  192.168.43.84

Non-authoritative answer:
Name:    www.google.co.in
Addresses:  2404:6800:4009:81a::2003
          216.58.196.99
```

7. NETSTAT is a tool for network statistics, diagnostics, and analysis.

```
C:\Users\jjj>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    192.168.43.202:49318   199.232.21.2:https     ESTABLISHED
  TCP    192.168.43.202:49324   104.18.3.159:https     TIME_WAIT
  TCP    192.168.43.202:49405   199.232.22.49:https    ESTABLISHED
  TCP    192.168.43.202:49411   ip-185-184-8-30:https  ESTABLISHED
  TCP    192.168.43.202:49421   46:https               ESTABLISHED
  TCP    192.168.43.202:49422   46:https               TIME_WAIT
  TCP    192.168.43.202:49425   a23-1-12-26:https      ESTABLISHED
  TCP    192.168.43.202:49432   a23-1-12-26:https      ESTABLISHED
  TCP    192.168.43.202:49433   ec2-52-220-138-206:https  ESTABLISHED
  TCP    192.168.43.202:49434   ec2-52-74-162-2:https  CLOSE_WAIT
```