

## Worksheet – 1.2

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**Subject Name:** Computer Network Lab

**Subject Code:** 20CSP-257

### 1. Aim/Overview of the practical:

Implement all the networking commands and show their working as output.

### 2. Task to be done/ Which logistics used:

- Implementation of Ping, Ipconfig, Tracert, Arp, Netstat, Nslookup, Hostname and Pathping etc.

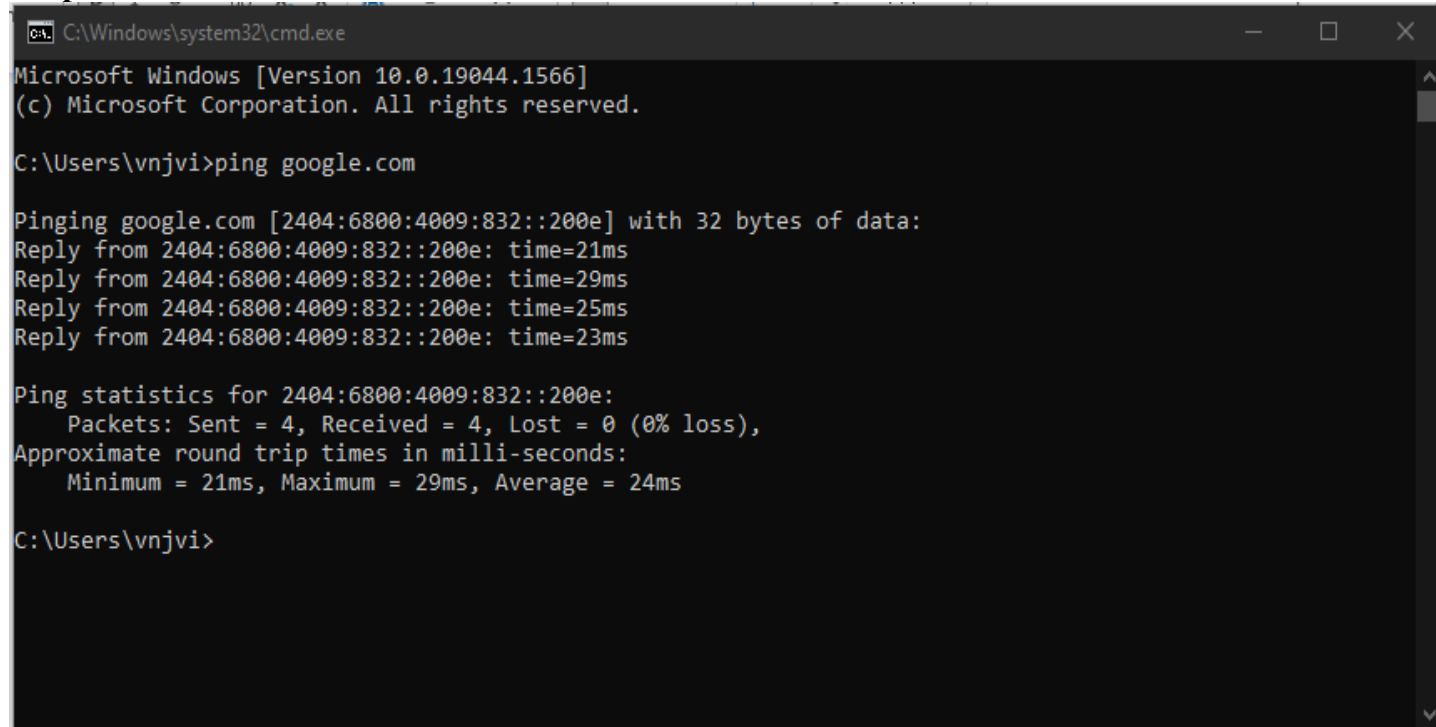
### 3. Steps for experiment/Code with Result/Output:

#### Ping:

**Syntax:** ping <<destination host IP or name>>

**Code:** ping google.com

**Output:**



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19044.1566]
(c) Microsoft Corporation. All rights reserved.

C:\Users\vnjvi>ping google.com

Pinging google.com [2404:6800:4009:832::200e] with 32 bytes of data:
Reply from 2404:6800:4009:832::200e: time=21ms
Reply from 2404:6800:4009:832::200e: time=29ms
Reply from 2404:6800:4009:832::200e: time=25ms
Reply from 2404:6800:4009:832::200e: time=23ms

Ping statistics for 2404:6800:4009:832::200e:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 21ms, Maximum = 29ms, Average = 24ms

C:\Users\vnjvi>
```

## IPConfig:

Syntax: ipconfig <<parameter>>

Code: ipconfig /all

Output:

```
C:\Windows\system32\cmd.exe
C:\Users\vnjvi>ipconfig /all

Windows IP Configuration

Host Name . . . . . : DESKTOP-2K04IHP
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Realtek PCIe FE Family Controller
Physical Address. . . . . : 78-45-C4-AE-D2-9E
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix . :
Description . . . . . : Intel(R) Centrino(R) Wireless-N 1030
Physical Address. . . . . : AC-72-89-4D-59-04
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IPv6 Address. . . . . : 2405:201:d021:4894:d899:c840:1ada:f4c7(Preferred)
Temporary IPv6 Address. . . . . : 2405:201:d021:4894:fce7:76a3:3569:7b8d(Preferred)
Link-local IPv6 Address . . . . . : fe80::d899:c840:1ada:f4c7%4(Preferred)
IPv4 Address. . . . . : 192.168.29.121(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : 18 February 2022 15:16:59
Lease Expires . . . . . : 18 February 2022 19:29:40
Default Gateway . . . . . : fe80::267:62ff:feab:ee9a%4
                             192.168.29.1
DHCP Server . . . . . : 192.168.29.1
DHCPv6 IAID . . . . . : 61633161
DHCPv6 Client DUID. . . . . : 00-01-00-01-29-73-82-71-78-45-C4-AE-D2-9E
DNS Servers . . . . . : 2405:201:d021:4894::c0a8:1d01
                             192.168.29.1
NetBIOS over Tcpip. . . . . : Enabled

Ethernet adapter Bluetooth Network Connection:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Bluetooth Device (Personal Area Network)
Physical Address. . . . . : AC-72-89-4D-59-08
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
```

### Tracert:

**Syntax:** tracert << destination name or IP address >>

**Code:** tracert www.google.co.in

**Output:**

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

C:\Users\vnjvi>tracert www.google.co.in

Tracing route to www.google.co.in [2404:6800:4009:830::2003]
over a maximum of 30 hops:

  1      2 ms      2 ms      2 ms      2405:201:d021:4894:267:62ff:feab:ee9a
  2      *          *          *          Request timed out.
  3      *          4 ms      4 ms      2405:203:400:100:172:31:1:34
  4      *          *          *          Request timed out.
  5      *          13 ms     *          2001:4860:1:1::d10
  6      15 ms     11 ms     11 ms     2404:6800:810a::1
  7      *          17 ms     16 ms     2001:4860:0:1::5666
  8      11 ms     13 ms     10 ms     2001:4860:0:e00::2
  9      29 ms     38 ms     29 ms     2001:4860::9:4000:d772
 10      29 ms     31 ms     29 ms     2001:4860:0:115b::1
 11      35 ms     30 ms     30 ms     2001:4860:0:1::2039
 12      35 ms     39 ms     36 ms     bom12s20-in-x03.1e100.net [2404:6800:4009:830::2003]

Trace complete.

C:\Users\vnjvi>
```

### Arp:

**Syntax:** arp << Options >>

**Code:** arp -a & arp -a -N 192.168.29.121

**Output:**

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

C:\Users\vnjvi>arp -a

Interface: 192.168.29.121 --- 0x4
 Internet Address      Physical Address      Type
 192.168.29.1          00-67-62-ab-ee-9a    dynamic
 192.168.29.255        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

C:\Users\vnjvi>arp -a -N 192.168.29.121

Interface: 192.168.29.121 --- 0x4
 Internet Address      Physical Address      Type
 192.168.29.1          00-67-62-ab-ee-9a    dynamic
 192.168.29.255        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

C:\Users\vnjvi>
```

## Netstat:

Syntax: netstat << Options >>

Code: netstat

Output:

```
C:\Windows\system32\cmd.exe
C:\Users\vnjvi>netstat

Active Connections

Proto Local Address          Foreign Address         State
TCP    127.0.0.1:49724        DESKTOP-2K04IHP:49725  ESTABLISHED
TCP    127.0.0.1:49725        DESKTOP-2K04IHP:49724  ESTABLISHED
TCP    127.0.0.1:49730        DESKTOP-2K04IHP:49731  ESTABLISHED
TCP    127.0.0.1:49731        DESKTOP-2K04IHP:49730  ESTABLISHED
TCP    127.0.0.1:49738        DESKTOP-2K04IHP:49739  ESTABLISHED
TCP    127.0.0.1:49739        DESKTOP-2K04IHP:49738  ESTABLISHED
TCP    127.0.0.1:49743        DESKTOP-2K04IHP:49744  ESTABLISHED
TCP    127.0.0.1:49744        DESKTOP-2K04IHP:49743  ESTABLISHED
TCP    127.0.0.1:49749        DESKTOP-2K04IHP:49750  ESTABLISHED
TCP    127.0.0.1:49750        DESKTOP-2K04IHP:49749  ESTABLISHED
TCP    127.0.0.1:49774        DESKTOP-2K04IHP:49775  ESTABLISHED
TCP    127.0.0.1:49775        DESKTOP-2K04IHP:49774  ESTABLISHED
TCP    127.0.0.1:63737        DESKTOP-2K04IHP:63738  ESTABLISHED
TCP    127.0.0.1:63738        DESKTOP-2K04IHP:63737  ESTABLISHED
TCP    127.0.0.1:63741        DESKTOP-2K04IHP:63742  ESTABLISHED
TCP    127.0.0.1:63742        DESKTOP-2K04IHP:63741  ESTABLISHED
TCP    127.0.0.1:63779        DESKTOP-2K04IHP:63780  ESTABLISHED
TCP    127.0.0.1:63780        DESKTOP-2K04IHP:63779  ESTABLISHED
TCP    127.0.0.1:63795        DESKTOP-2K04IHP:63796  ESTABLISHED
TCP    127.0.0.1:63796        DESKTOP-2K04IHP:63795  ESTABLISHED
TCP    127.0.0.1:63799        DESKTOP-2K04IHP:63800  ESTABLISHED
TCP    127.0.0.1:63800        DESKTOP-2K04IHP:63799  ESTABLISHED
TCP    127.0.0.1:63806        DESKTOP-2K04IHP:63807  ESTABLISHED
TCP    127.0.0.1:63807        DESKTOP-2K04IHP:63806  ESTABLISHED
TCP    127.0.0.1:63824        DESKTOP-2K04IHP:63825  ESTABLISHED
TCP    127.0.0.1:63825        DESKTOP-2K04IHP:63824  ESTABLISHED
TCP    127.0.0.1:63827        DESKTOP-2K04IHP:63828  ESTABLISHED
TCP    127.0.0.1:63828        DESKTOP-2K04IHP:63827  ESTABLISHED
TCP    127.0.0.1:63836        DESKTOP-2K04IHP:63837  ESTABLISHED
TCP    127.0.0.1:63837        DESKTOP-2K04IHP:63836  ESTABLISHED
TCP    127.0.0.1:63883        DESKTOP-2K04IHP:63884  ESTABLISHED
TCP    127.0.0.1:63884        DESKTOP-2K04IHP:63883  ESTABLISHED
TCP    127.0.0.1:63915        DESKTOP-2K04IHP:63916  ESTABLISHED
TCP    127.0.0.1:63916        DESKTOP-2K04IHP:63915  ESTABLISHED
TCP    127.0.0.1:63917        DESKTOP-2K04IHP:63918  ESTABLISHED
TCP    127.0.0.1:63918        DESKTOP-2K04IHP:63917  ESTABLISHED
TCP    127.0.0.1:63926        DESKTOP-2K04IHP:63927  ESTABLISHED
TCP    127.0.0.1:63927        DESKTOP-2K04IHP:63926  ESTABLISHED
TCP    127.0.0.1:63958        DESKTOP-2K04IHP:63959  ESTABLISHED
TCP    127.0.0.1:64027        DESKTOP-2K04IHP:64028  ESTABLISHED
TCP    127.0.0.1:64028        DESKTOP-2K04IHP:64027  ESTABLISHED
TCP    192.168.29.121:49677    20.197.71.89:https      ESTABLISHED
TCP    192.168.29.121:49747    52.114.14.223:https     ESTABLISHED
TCP    192.168.29.121:64012    ec2-44-226-241-1:https  ESTABLISHED
TCP    192.168.29.121:64142    49.44.113.154:https     CLOSE_WAIT
TCP    192.168.29.121:64193    bam-7:https             TIME_WAIT
TCP    192.168.29.121:64197    140:https                TIME_WAIT
TCP    192.168.29.121:64199    20.44.229.112:https     TIME_WAIT
TCP    192.168.29.121:64200    52.109.56.20:https      TIME_WAIT
TCP    192.168.29.121:64201    52.109.56.20:https      TIME_WAIT
TCP    [2405:201:d021:4894:fce7:76a3:3569:7b8d]:49819 [2a01:111:f100:7000::6fdd:5252]:https ESTABLISHED
TCP    [2405:201:d021:4894:fce7:76a3:3569:7b8d]:49877 [2405:200:1630:4a7::57]:https CLOSE_WAIT
TCP    [2405:201:d021:4894:fce7:76a3:3569:7b8d]:64144 [2405:200:1608:1731::312c:715f]:https CLOSE_WAIT
TCP    [2405:201:d021:4894:fce7:76a3:3569:7b8d]:64145 [2405:200:1608:1731::312c:715f]:https CLOSE_WAIT
TCP    [2405:201:d021:4894:fce7:76a3:3569:7b8d]:64202 [2620:1ec:42::132]:https ESTABLISHED
```

### Nslookup:

**Syntax:** nslookup <<exit | finger | help | ls | lserver | root | server | set | view>> <<options>>

**Code:** nslookup

**Output:**

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

C:\Users\vnjvi>nslookup
Default Server:  reliance.reliance
Address:  2405:201:d021:4894::c0a8:1d01

> www.facebook.com
Server:  reliance.reliance
Address:  2405:201:d021:4894::c0a8:1d01

Non-authoritative answer:
Name:    star-mini.c10r.facebook.com
Addresses:  2a03:2880:f16e:181:face:b00c:0:25de
           157.240.192.35
Aliases:  www.facebook.com

> exit

C:\Users\vnjvi>
```

### Hostname:

**Syntax:** hostname <<options>>

**Code:** hostname

**Output:**

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

C:\Users\vnjvi>hostname
DESKTOP-2K04IHP

C:\Users\vnjvi>
```

### Pathping:

**Syntax:** pathping [/n] [/h <maximumhops>] [/g <hostlist>] [/p <Period>] [/q <numqueries>] [/w <timeout>] [/i <IPaddress>] [/4 <IPv4>] [/6 <IPv6>][<targetname>]

**Code:** pathping /n www.google.com

**Output:**

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

C:\Users\vnjvi>pathping /n www.google.com

Tracing route to www.google.com [2404:6800:4007:826::2004]
over a maximum of 30 hops:
  0  2405:201:d021:4894:20c3:ffcf:4cc0:8287
  1  2405:201:d021:4894:267:62ff:feab:ee9a
  2  * * *
Computing statistics for 25 seconds...
Hop  RTT      Source to Here   This Node/Link   Address
  0                               Lost/Sent = Pct  Lost/Sent = Pct
  0                               1/ 100 = 1%     0/ 100 = 0%
  1    4ms     1/ 100 = 1%     0/ 100 = 0%     2405:201:d021:4894:267:62ff:feab:ee9a

Trace complete.

C:\Users\vnjvi>
```

**Learning outcomes (What I have learnt):**

1. Studied about various type of Networking command
2. Executed all type of networking command and observed the output.

**Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):**

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			