Bahria University,

Karachi Campus

LAB EXPERIMENT NO.

___03___

LIST OF TASKS

TASK NO	OBJECTIVE
01	Run the following commands on the command prompt of your PCs and attach snapshots of the result: • ping www.google.com • tracert www.yahoo.com • ping -i 6 www.facebook.com, did you receive the correct reply? If not, explain why. • nslookup www.live.com, did you result show 'Non-authoritative answer'? If yes, explain what does it indicate, you are advised to browse the internet to attain this answer. • Differentiate between Ping and PathPing commands. • Find all Active/ Used IP addresses on your network. • How to verify connection with remote computer?

Submitted On

11-10-2023

(Date: DD/MM/YY)

Shoaib Akhter 02-131212-009

Task 01: Run the following commands on the command prompt of your PCs and attach snapshots of the result:

Solution:

i. **ping www.google.com :**

```
C:\Users\Student>ping www.google.com

Pinging www.google.com [142.250.181.132] with 32 bytes of data:
Reply from 142.250.181.132: bytes=32 time=16ms TTL=58
Reply from 142.250.181.132: bytes=32 time=17ms TTL=58
Reply from 142.250.181.132: bytes=32 time=17ms TTL=58
Reply from 142.250.181.132: bytes=32 time=18ms TTL=58

Ping statistics for 142.250.181.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 16ms, Maximum = 18ms, Average = 17ms
```

ii. **tracert www.yahoo.com**

```
C:\Users\Student>tracert yahoo.com

Tracing route to yahoo.com [74.6.231.21]
over a maximum of 30 hops:

  1    <1 ms    <1 ms    <1 ms  10.10.0.1
  2     2 ms     1 ms     1 ms  bimcs.edu.pk [111.68.108.81]
  3     1 ms     1 ms     1 ms  172.31.253.21
  4     1 ms     1 ms     2 ms  khi77.pie.net.pk [202.125.134.65]
  5     1 ms     1 ms     1 ms  10.253.4.48
  6     1 ms     1 ms     1 ms  10.253.4.4
  7   140 ms   138 ms   139 ms  ge-1-3-0.pat1.dee.yahoo.com [80.81.192.115]
  8   121 ms   129 ms   128 ms  ae-0.pat2.dez.yahoo.com [209.191.112.7]
  9   139 ms   148 ms   149 ms  ae-3.pat2.frz.yahoo.com [209.191.112.25]
 10   220 ms   219 ms   221 ms  ae-11.pat1.dce.yahoo.com [209.191.64.24]
```

iii. **ping -i 6 www.facebook.com, did you receive the correct reply? If not, explain why.**

```
C:\Users\Student>ping -i 6 www.google.com

Pinging www.google.com [142.250.181.132] with 32 bytes of data:
Reply from 110.93.253.22: TTL expired in transit.
Reply from 110.93.253.22: TTL expired in transit.
Reply from 110.93.253.22: TTL expired in transit.
Request timed out.

Ping statistics for 142.250.181.132:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
```

Because this server is very far and I got only 6 seconds between each ping request. As well as there are many reasons in which some are following:

- Firewall or Security Settings: Your firewall or security settings could be blocking the ping requests or replies.
- DNS Resolution: If the DNS resolution for "www.facebook.com" is not working correctly, your computer may not be able to find the correct IP address to ping.\
- Facebook's Server Response: Facebook's servers might not respond to ping requests, as many websites and servers are configured not to respond to ping for security reasons.

iv. **nslookup www.live.com, did you result show 'Non-authoritative answer'? If yes, explain what does it indicate, you are advised to browse the internet to attain this answer.**

```
C:\Users\Student>nslookup www.google.com
Server:  bukcad.bukc.edu.pk
Address:  10.10.0.3

Non-authoritative answer:
Name:    www.google.com
Addresses:  2a00:1450:4019:80d::2004
          142.250.181.132
```

Yes , Non-authoritative answer simply means the answer is not fetched from the authoritative DNS server for the queried domain name.

v. **Differentiate between Ping and PathPing commands.**

- **Ping**:

We get the latency and packet loss between the source and the destination. Ping is a basic command-line utility used to test network connectivity between two devices. It sends ICMP echo request packets to a target IP address or hostname and waits for an ICMP echo reply. Ping provides a simple way to check if a remote host is reachable and measure the round-trip time for packets to reach the destination and return.

- **Pathping**:

we get a list of all the routers between the source and the destination, as well as the latency and packet loss between all the routers along the way and the source. PathPing, on the other hand, extends the functionality of Ping. It not only tests connectivity to a target but also provides information about the path taken by packets to reach the destination. It shows hop-by-hop latency and packet loss information for all the routers or devices along the route. PathPing is useful for identifying network issues along the entire path to a destination, helping to pinpoint where problems may be occurring.

vi. • Find all Active/ Used IP addresses on your network.

```
C:\Users\Student>arp -a

Interface: 192.168.56.1 --- 0xa
  Internet Address      Physical Address      Type
  192.168.56.255        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     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

Interface: 10.10.3.206 --- 0xe
  Internet Address      Physical Address      Type
  10.10.0.1             00-15-17-12-7a-49     dynamic
  10.10.0.3             9c-b6-54-03-e1-6a     dynamic
  10.10.3.204           50-81-40-7a-da-33     dynamic
  10.10.3.255           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     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
```

vii. • How to verify connection with remote computer?

```
C:\Users\Student>ping  10.10.0.1

Pinging 10.10.0.1 with 32 bytes of data:
Reply from 10.10.0.1: bytes=32 time<1ms TTL=64
Reply from 10.10.0.1: bytes=32 time<1ms TTL=64
Reply from 10.10.0.1: bytes=32 time<1ms TTL=64
Reply from 10.10.0.1: bytes=32 time<1ms TTL=64

Ping statistics for 10.10.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Task No. 5: Ping Parameters

1. **Ping -t:**

```
C:\Users\Shoaib Akhter>ping -t www.yahoo.com

Pinging new-fp-shed.wg1.b.yahoo.com [2001:4998:44:3507::8000] with 32 bytes of data:
Reply from 2001:4998:44:3507::8000: time=271ms
Reply from 2001:4998:44:3507::8000: time=379ms
Reply from 2001:4998:44:3507::8000: time=327ms
Reply from 2001:4998:44:3507::8000: time=607ms
Reply from 2001:4998:44:3507::8000: time=278ms
Reply from 2001:4998:44:3507::8000: time=271ms
Reply from 2001:4998:44:3507::8000: time=273ms
Reply from 2001:4998:44:3507::8000: time=271ms
Reply from 2001:4998:44:3507::8000: time=273ms
Reply from 2001:4998:44:3507::8000: time=272ms
Reply from 2001:4998:44:3507::8000: time=301ms
```

2. **Ping -a**

```
C:\Users\Shoaib Akhter>ping -a 8.8.8.8

Pinging dns.google [8.8.8.8] with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=26ms TTL=58
Reply from 8.8.8.8: bytes=32 time=25ms TTL=58
Reply from 8.8.8.8: bytes=32 time=26ms TTL=58
Reply from 8.8.8.8: bytes=32 time=26ms TTL=58

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 25ms, Maximum = 26ms, Average = 25ms
```

3. **Ping -w**

```
C:\Users\Shoaib Akhter>ping -w 9 www.google.com

Pinging www.google.com [2001:4860:4802:32::78] with 32 bytes of data:
Reply from 2001:4860:4802:32::78: time=21ms
Reply from 2001:4860:4802:32::78: time=20ms
Reply from 2001:4860:4802:32::78: time=21ms
Reply from 2001:4860:4802:32::78: time=21ms

Ping statistics for 2001:4860:4802:32::78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 20ms, Maximum = 21ms, Average = 20ms
```

4. **Ping -v tos**

```
C:\Users\Shoaib Akhter>ping -v tos www.google.com

Pinging www.google.com [216.239.38.120] with 32 bytes of data:
Reply from 216.239.38.120: bytes=32 time=30ms TTL=117
Reply from 216.239.38.120: bytes=32 time=216ms TTL=117
Reply from 216.239.38.120: bytes=32 time=152ms TTL=117
Reply from 216.239.38.120: bytes=32 time=30ms TTL=117

Ping statistics for 216.239.38.120:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 30ms, Maximum = 216ms, Average = 107ms
```

5. **Ping -l 70 :**

```
C:\Users\Shoaib Akhter>ping -l 70 www.google.com

Pinging www.google.com [2001:4860:4802:32::78] with 70 bytes of data:
Reply from 2001:4860:4802:32::78: time=102ms
Reply from 2001:4860:4802:32::78: time=21ms
Reply from 2001:4860:4802:32::78: time=191ms
Reply from 2001:4860:4802:32::78: time=183ms

Ping statistics for 2001:4860:4802:32::78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 21ms, Maximum = 191ms, Average = 124ms
```