

Name:

Professor Mayfield

Date:

DCOM 101 – Introduction to Data Communications

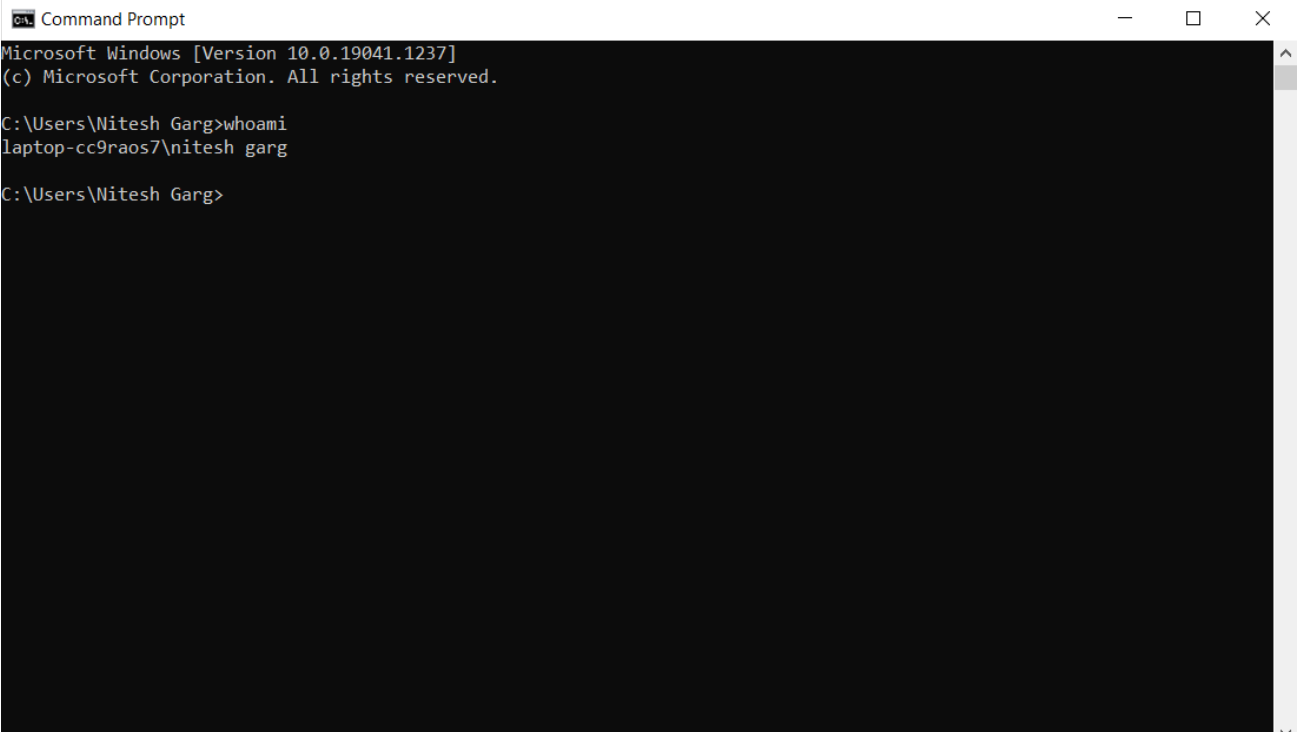
Final Project

Instructions: In this Final Project, you will test the skills and knowledge gained throughout this course. The steps listed below are loosely based on the Assignments you have completed thus far, so don't hesitate to look back and use those resources. Follow the steps in each section, and paste screenshots when prompted.

This assignment is worth 10% of your final grade.

A. Basic Network Troubleshooting

1. Open Command Prompt type the command that prints the current username. **Take a screenshot of the command results and place it below.**

A screenshot of a Windows Command Prompt window. The title bar reads "Command Prompt". The window content shows the following text: "Microsoft Windows [Version 10.0.19041.1237]", "(c) Microsoft Corporation. All rights reserved.", "C:\Users\Nitesh Garg>whoami", "laptop-cc9raos7\nitesh garg", and "C:\Users\Nitesh Garg>". The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
Command Prompt
Microsoft Windows [Version 10.0.19041.1237]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Nitesh Garg>whoami
laptop-cc9raos7\nitesh garg

C:\Users\Nitesh Garg>
```

2. Gather your IP address information. **Take a screenshot of that information and place it below.**

```
Command Prompt
C:\Users\Nitesh Garg>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : D3-WDS11.COM

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:

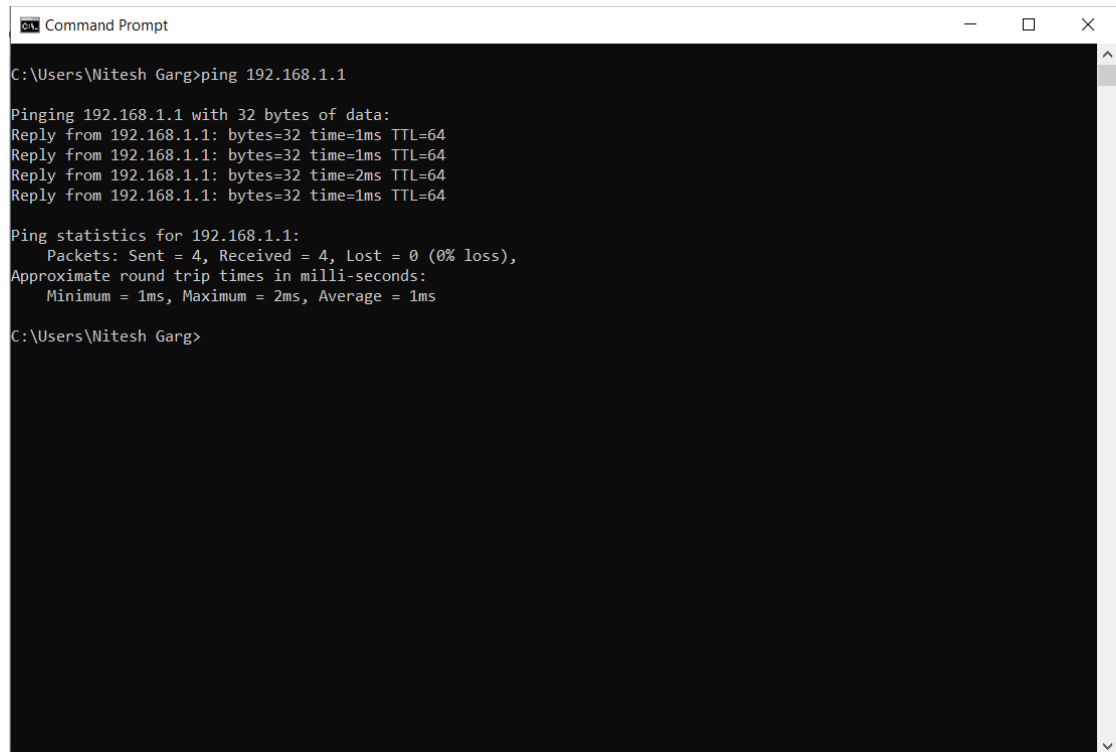
    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::31d5:4c4d:fa9c:bac2%16
    IPv4 Address. . . . . : 192.168.1.3
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter Bluetooth Network Connection:

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

C:\Users\Nitesh Garg>
```

3. Is your home/office making use of Classful IP Addressing or Classless?
Answer: Classful addressing (Class C).
4. Is your IP address manually assigned, or are you using DHCP?
Answer: DHCP is in use.
5. What is the Organization's Unique Identifier (OUI) of your MAC address?
Answer: F0-2F-74
6. What is the serial number of your MAC address?
Answer: F0-2F-74-A1-7F-7B
7. Return to your Command Prompt and use an ICMP Echo Request to reach your Default Gateway. **Take a screenshot of the command results and paste it below.**



```
Command Prompt

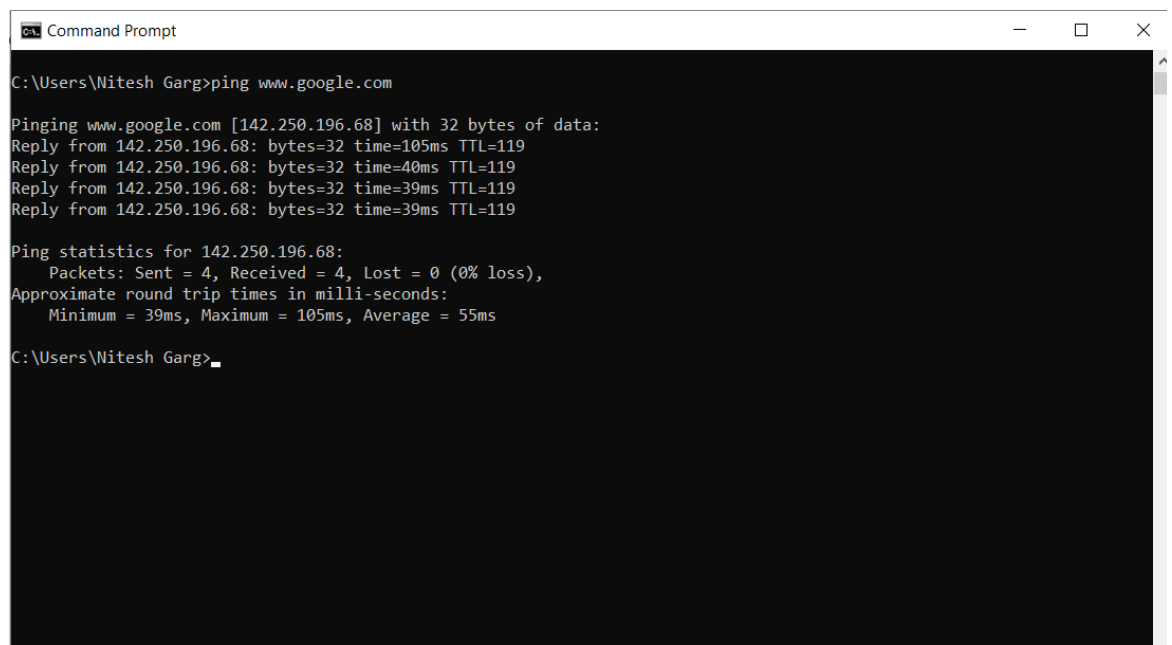
C:\Users\Nitesh Garg>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64
Reply from 192.168.1.1: bytes=32 time=2ms TTL=64
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\Users\Nitesh Garg>
```

8. Use the same ICMP Echo Request command to communicate with a website of your choosing. **Take a screenshot of the command results and place it below.**



```
Command Prompt

C:\Users\Nitesh Garg>ping www.google.com

Pinging www.google.com [142.250.196.68] with 32 bytes of data:
Reply from 142.250.196.68: bytes=32 time=105ms TTL=119
Reply from 142.250.196.68: bytes=32 time=40ms TTL=119
Reply from 142.250.196.68: bytes=32 time=39ms TTL=119
Reply from 142.250.196.68: bytes=32 time=39ms TTL=119

Ping statistics for 142.250.196.68:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 39ms, Maximum = 105ms, Average = 55ms

C:\Users\Nitesh Garg>_
```

B. Binary, Decimal and IP Addressing

1. Convert the following decimal numbers into binary.

128	10000000
254	11111110
18	00010010
12	00001100
226	11100010

2. Convert the following binary numbers into decimal:

01111000	120
01011101	93
10101100	172
10101010	170
11001110	206

3. Complete the following Private IP Addressing information page:

Private IP Addressing Information Table					
Class	Default IP Address(es)	Subnet Mask	Max Addresses	Assignable Hosts	IP Range
A	10.0.0.138	255.0.0.0	16,777,216	16,777,214	10.0.0.0 – 10.255.255.255
B	127.0.0.0	255.240.0.0	65,536	65,534	172.16.0.0 – 172.31.255.255
C	192.168.1.1, 192.168.1.254	255.255.0.0	256	254	192.168.0.0 – 192.168.255.255