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Computer Science – Term 1 (2020-21)

Grade 9 –Project Documentation (All Project Tasks)

Table of Contents:

Project Task	Description
Project Task 1	Design a solution for team member in the same department of the Hope Probe Control Centre to collaborate easily
Project Task 2	Design a solution to enable team members from two different department share IT resources.
Project Task 3	Design a solution to reduce the IP configuration time for the team members
Project Task 4	Design a solution for the two teams as they are struggling in remembering the IP addresses

Instructions for each individual Project Task:

- ☑ Expand (▶ button) and complete each Project Task the same week your teacher assigns it.
 - ☑ Write the activity book answers for each Project Task (*you can write them electronically here*)
 - ☑ For each Project Task, please add screenshots/images of:
 - your Project Task (*to prove you completed the solution on Packet Tracer*)
 - testing of your Project Task (*to prove you tested the solution on Packet Tracer*)
- Please note:*** Write a brief description for each screenshot/image taken.
- ☑ After completing, please submit this document back to your teacher through LMS for marking. (LMS link: <https://lms.moe.gov.ae>)

Project Task 1

a) My Project Task 1 Completed Book Page Answers:

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Project Task 1 design a solution for collaboration

Design a solution for the team members in the same department of the Hope Probe Control Centre to collaborate easily. Each team member has a PC desktop and a centralized server. The problem is when they need to submit the teamwork. They have to collect the team member work separately using a memory stick then combine it in one document.

1. Describe the proposed solution?

- **Design a computer network.**
- **Connected two Lan .**

2. What is the advantage of your solution?

The computer network will help two teams to Share files and chat .

54

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Unit 2 Network Media and Models

3. Now the Hope Probe Control Centre ask you to design the following networks. Design and connects the two LANs.

- The engineering department will need a LAN with _____ connected to: _____

One PC , one
laptop

and

one srver

switch

- The IT department will need a LAN with _____ connected to: _____

One server

and

Two pc and one laptop

One switch

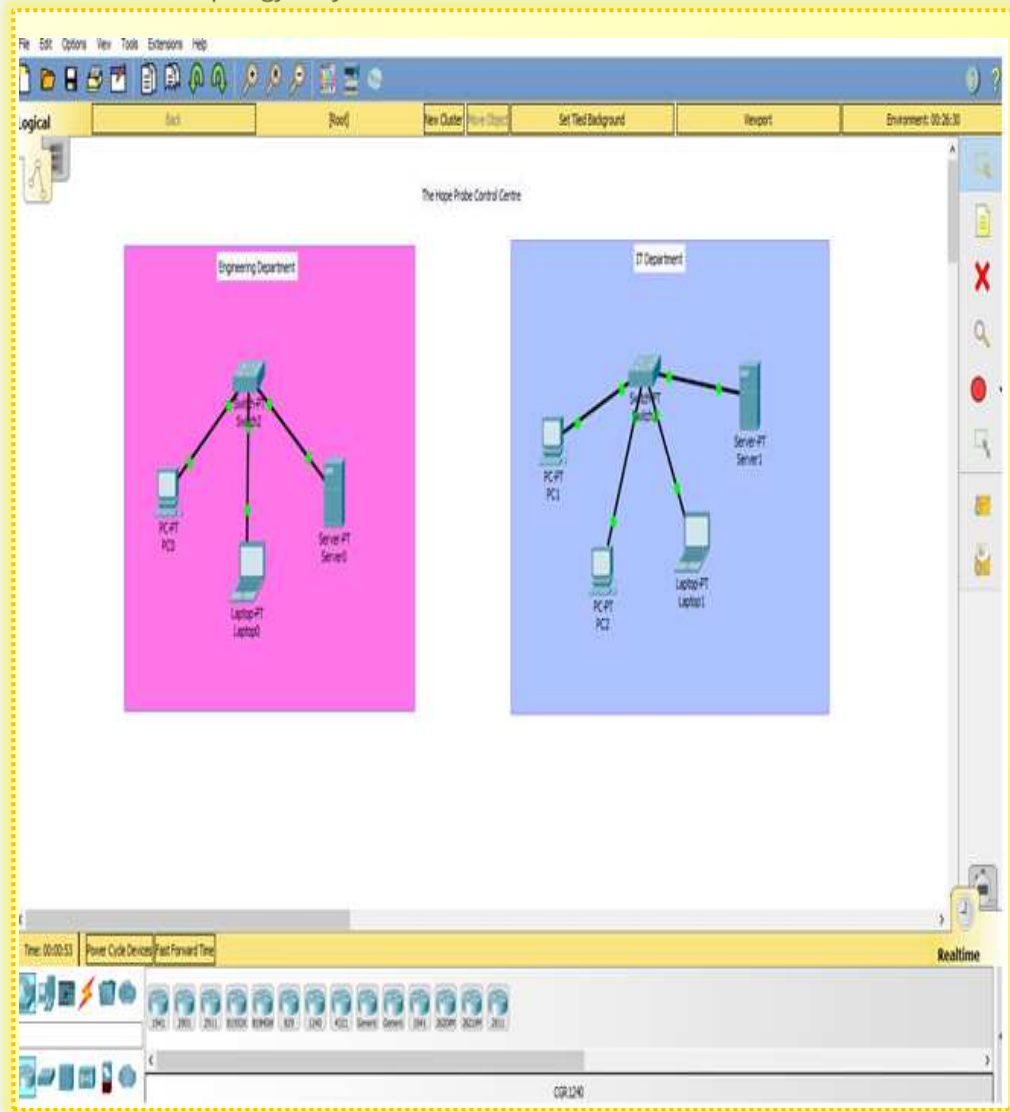
4. Identify and name the network devices/media.

	pc
	Server
	Laptop
	Media (Copper straight)
	Switch

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5. Sketch the topology for your network.



6. Connect all the devices in Cisco Packet Tracer.

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Unit 2 Network Media and Models

Task Testing

Testing	
check the connection status between the devices.	Is it green?
all the network devices are added?	Y/N

Task Evaluation

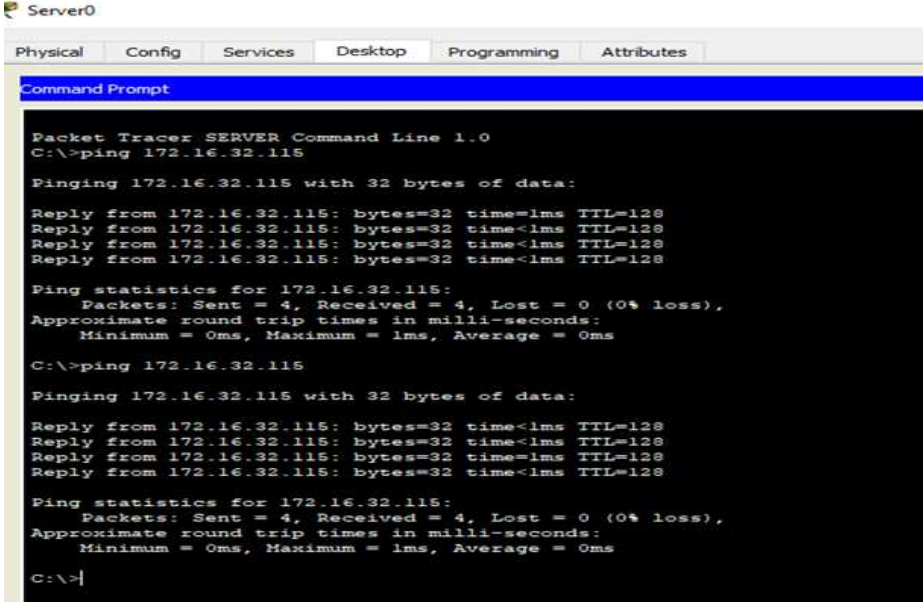
Have you completed the following for your Hope Probe Control Centre?

Evaluation		
Task	Done?	Comment
Design a solution	<input checked="" type="checkbox"/> Yes	
Sketch the proposed solution	<input checked="" type="checkbox"/> Yes	
connect the network devices	<input checked="" type="checkbox"/> Yes	
use the appropriate medium	<input checked="" type="checkbox"/> Yes	

Remember to save your network topology. You will use it in the next part of the project.



b) My Project Task 1 Screenshots & Testing Images:

My Screenshots & Testing Images	Screenshot/Image Description
 <p>The screenshot shows a Packet Tracer interface for a server named 'Server0'. The 'Command Prompt' window is open, displaying the following text:</p> <pre> Packet Tracer SERVER Command Line 1.0 C:\>ping 172.16.32.115 Pinging 172.16.32.115 with 32 bytes of data: Reply from 172.16.32.115: bytes=32 time=1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Ping statistics for 172.16.32.115: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 1ms, Average = 0ms C:\>ping 172.16.32.115 Pinging 172.16.32.115 with 32 bytes of data: Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time=1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Ping statistics for 172.16.32.115: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 1ms, Average = 0ms C:\> </pre>	<p>Type here a description of what the screenshot is showing.</p> <p>💡 Press the + button at the end of this table to add a new row.</p>

Project Task 2

a) My Project Task 2 Completed Book Page Answers:

Unit 3 Network hardware and Protocols

Project Task 2 Sharing the resources between the members

Design a solution to enable team members from the same department share IT. The problem is when they need to use the printer, they need to go to the second floor to use it. As you a network specialist how you will let them use the printer and other IT resources between the same department.

1. Describe the proposed solution?

Configure the computer network.

2. What is the advantage of your solution?

The computer network will help the team members to collaborate easily and share the resources between them.

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73

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3. Use the tables below to configure the LANs.

Engineering		
Device	IP address	Subnet mask
server	172.16.32.8	255.255.0.0
PC	172.16.32.115	255.255.0.0
laptop	172.16.32.23	255.255.0.0

IT		
Device	IP address	Subnet mask
server	193.170.67.4	255.255.255.0
PC1	193.170.67.55	255.255.255.0
PC2	193.170.67.66	255.255.255.0
laptop	193.170.67.77	255.255.255.0

Task Testing

Test if the devices can communicate using the ping command. Complete the table below to show which ones can communicate and which ones fail. Fix any problems.

Testing			
Ping from	Device to ping	Use IP address or hostname	Successful Ping?
Eng server	Eng PC	Use IP address	<input checked="" type="checkbox"/> Yes
Eng PC	Eng laptop	Use IP address	<input checked="" type="checkbox"/> Yes
IT PC1	IT server	Use IP address	<input checked="" type="checkbox"/> Yes
IT laptop	IT PC2	Use IP address	<input checked="" type="checkbox"/> Yes



Unit 3 Network hardware and Protocols

Task Evaluation

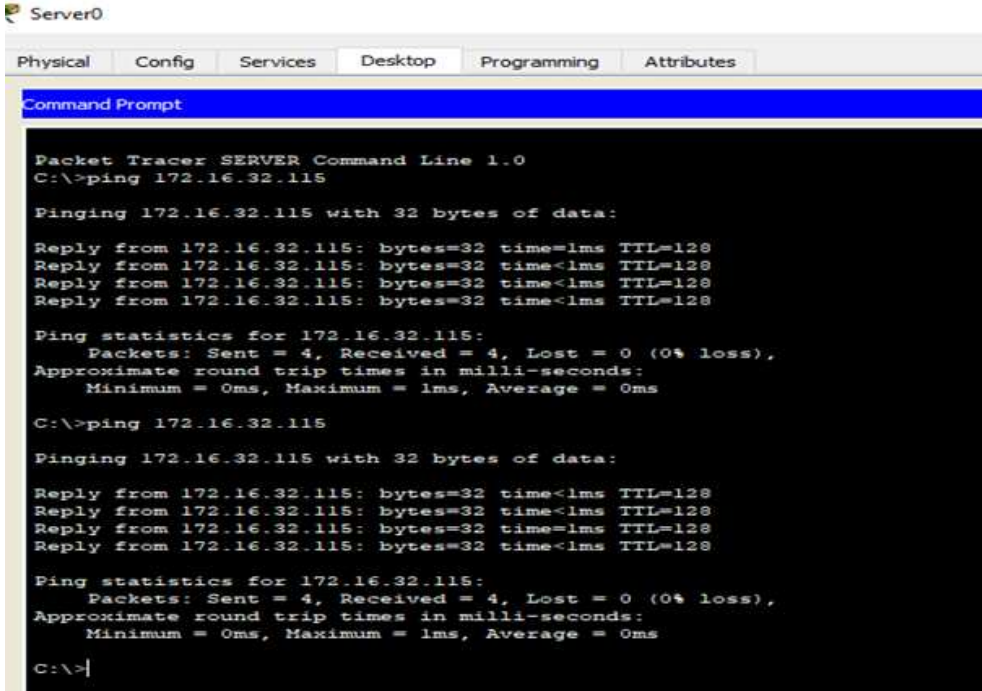
Have you completed the following for your Hope Probe Control Centre?

Evaluation		
Task	Done?	Comment
Proposed a solution	<input checked="" type="checkbox"/> Yes	
configure the IP addresses for the devices	<input checked="" type="checkbox"/> Yes	
Test the network connectivity	<input checked="" type="checkbox"/> Yes	

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b) My Project Task 2 Screenshots & Testing Images:

My Screenshots & Testing Images	Screenshot/Image Description
 <p>The screenshot shows a Packet Tracer Server0 interface with a Command Prompt window open. The prompt displays the output of a ping command to 172.16.32.115. The output shows four successful replies with 32 bytes of data, a time of 1ms, and a TTL of 128. The ping statistics indicate that 4 packets were sent and received, with 0% loss, and the average round trip time is 0ms.</p> <pre> Packet Tracer SERVER Command Line 1.0 C:\>ping 172.16.32.115 Pinging 172.16.32.115 with 32 bytes of data: Reply from 172.16.32.115: bytes=32 time=1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Ping statistics for 172.16.32.115: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 1ms, Average = 0ms C:\>ping 172.16.32.115 Pinging 172.16.32.115 with 32 bytes of data: Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time=1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Ping statistics for 172.16.32.115: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 1ms, Average = 0ms C:\> </pre>	<p>Type here a description of what the screenshot is showing.</p> <p>💡 Press the + button at the end of this table to add a new row.</p>

Project Task 3

a) My Project Task 3 Completed Book Page Answers:

Computer Science G9

Project Task 3
reduce the time for the IP configuration

Design a solution to reduce the IP configuration time for the team members. The technician takes too long time to configure IP addresses for the whole network. You have been told to provide a solution that will help the technician configure IP addresses quickly and to avoid making mistakes.

1. Describe the proposed solution?
Configure a DHCP servers and clients.
2. What is the advantage of your solution?
The DHCP server will help the technician configure IP addresses quickly and to avoid making mistakes.

88

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Unit 3 Network hardware and Protocols

DHCP

- Configure the server on the engineering LAN to be a _____ server.
- Configure the laptop on the engineering LAN to get an IP address from the engineering **DHCP server**

Engineering			
Device	IP address	Subnet mask	Service
Eng server	172.16.32.8	255.255.0.0	_____
Eng PC	172.16.32.115	255.255.0.0	
Eng laptop	172.16.32.23	255.255.0.0	

- Configure the server on the IT's LAN to be **DHCP** server.
- Configure the laptop on the IT's LAN so that it gets an IP address from the IT's **DHCP server**

Accounts			
Device	IP address	Subnet mask	Service
IT server	193.170.67.4	255.255.255.0	DHCP
IT PC1	193.170.67.55	255.255.255.0	
IT PC2	193.170.67.66	255.255.255.0	
IT laptop	193.170.67.77	255.255.255.0	

Computer Science G9

Task Testing

Test if the devices can communicate using the ping command. Complete the table below to show which ones can communicate and which ones fail. Fix any problems.

Testing			
Ping from	Device to ping	Use IP address or hostname	Successful ping?
Eng PC	Eng laptop	Use IP address	<input checked="" type="checkbox"/> Yes
IT server	IT laptop	Use IP address	<input checked="" type="checkbox"/> Yes

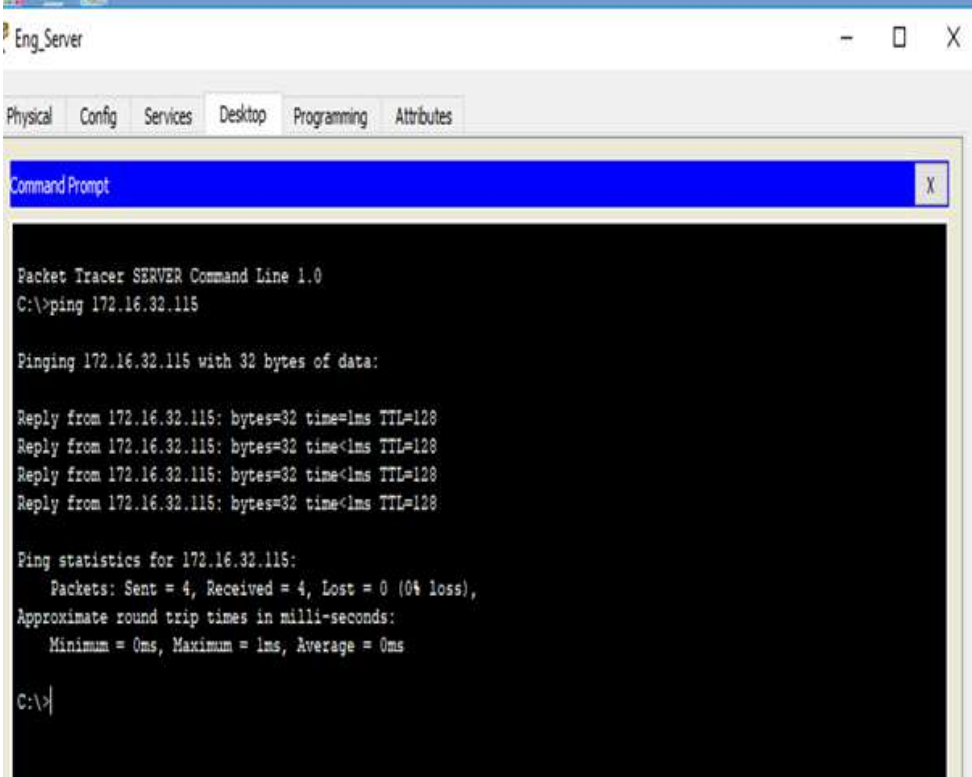
Task Evaluation

Have you completed the following for your Hope Probe Control Centre?

Evaluation		
Task	Done?	Comment
Proposed a solution	<input checked="" type="checkbox"/> Yes	
configure the IP addresses for the devices	<input checked="" type="checkbox"/> Yes	
Test the network connectivity	<input checked="" type="checkbox"/> Yes	

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b) My Project Task 3 Screenshots & Testing Images:

My Screenshots & Testing Images	Screenshot/Image Description
 <p>The screenshot shows a Packet Tracer SERVER Command Line window titled 'Eng_Server'. The window has tabs for 'Physical', 'Config', 'Services', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The command prompt shows the following output:</p> <pre>Packet Tracer SERVER Command Line 1.0 C:\>ping 172.16.32.115 Pinging 172.16.32.115 with 32 bytes of data: Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Reply from 172.16.32.115: bytes=32 time<1ms TTL=128 Ping statistics for 172.16.32.115: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 1ms, Average = 0ms C:\></pre>	<p>Type here a description of what the screenshot is showing.</p> <p>💡 Press the + button at the end of this table to add a new row.</p>

Project Task 4

a) My Project Task 4 Completed Book Page Answers:

Unit 3

Network hardware and Protocols

Project Task 4 help the teams to remember the IP addresses

Design a solution for the two teams as they are struggling in remembering the IP addresses. The engineers and scientists are struggling to remember IP addresses for servers, printers, and anything else they need to use on the network. You have been asked to provide a solution that will help them communicate with other network devices without having to remember IP addresses.

1. Describe the proposed solution?

Configure a DNS servers and clients.

2. What is the advantage of your solution?

The DNS server will help the team members to communicate Network .

107

Computer Science G9

- The Hope Probe Control Centre ask you to map the IP addresses to common names.
- Use the table below to name the hosts on the **engineering LAN**.

Engineering				
Device	IP address	Subnet mask	Hostname	Service
Eng server	172.16.32.8	255.255.0.0	Engserver1	DHCP DNS
Eng PC	172.16.32.115	255.255.0.0	EngPC1	

- Configure the server on the engineering LAN to be a **DNS server**.
- Use the table below to name the hosts on the **IT LAN**.

Accounts				
Device	IP address	Subnet mask	Hostname	Service
IT server	193.170.67.4	255.255.255.0	ITServer	DHCP DNS
IT PC1	193.170.67.55	255.255.255.0	ITPC1	
IT PC2	193.170.67.66	255.255.255.0	ITPC2	

- Configure the server on the IT LAN to be a **DNS server**.

Unit 3 Network hardware and Protocols

Task Testing

Test if the devices can communicate using the ping command. Complete the table below to show which ones can communicate and which ones fail. Try to fix any problems.

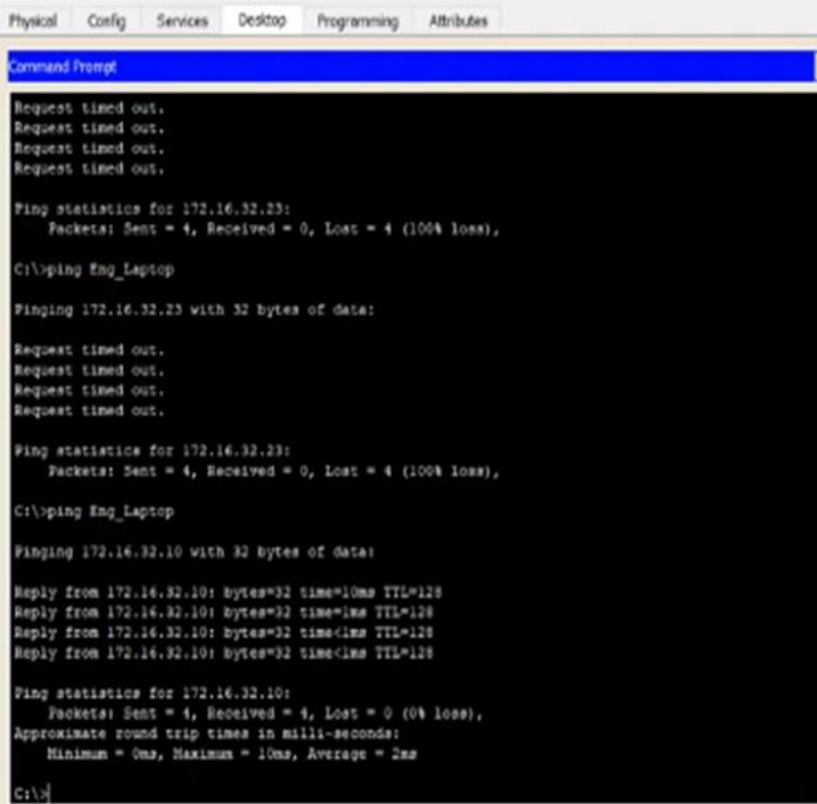
Testing			
Ping from	Device to ping	Use IP address or hostname	Successful ping?
Eng server	Eng PC	Use hostname	<input checked="" type="checkbox"/> Yes
Eng PC	Eng server	Use hostname	<input checked="" type="checkbox"/> Yes
IT PC1	IT Server	Use hostname	<input checked="" type="checkbox"/> Yes
IT Server	ITPC2	Use hostname	<input checked="" type="checkbox"/> Yes

Task Evaluation

Have you completed the following for your Hope Probe Control Centre?

Evaluation		
Task	Done?	Comment
Proposed a solution	<input checked="" type="checkbox"/> Yes	
configure the IP addresses for the devices	<input checked="" type="checkbox"/> Yes	
Test the network connectivity	<input checked="" type="checkbox"/> Yes	

b) My Project Task 4 Screenshots & Testing Images:

My Screenshots & Testing Images	Screenshot/Image Description
 <pre>Physical Config Services Desktop Programming Attributes Command Prompt Request timed out. Request timed out. Request timed out. Request timed out. Ping statistics for 172.16.32.23: Packets: Sent = 4, Received = 0, Lost = 4 (100% loss), C:\>ping Eng_Laptop Pinging 172.16.32.23 with 32 bytes of data: Request timed out. Request timed out. Request timed out. Request timed out. Ping statistics for 172.16.32.23: Packets: Sent = 4, Received = 0, Lost = 4 (100% loss), C:\>ping Eng_Laptop Pinging 172.16.32.10 with 32 bytes of data: Reply from 172.16.32.10: bytes=32 time=10ms TTL=128 Reply from 172.16.32.10: bytes=32 time<1ms TTL=128 Reply from 172.16.32.10: bytes=32 time<1ms TTL=128 Reply from 172.16.32.10: bytes=32 time<1ms TTL=128 Ping statistics for 172.16.32.10: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 10ms, Average = 2ms C:\></pre>	<p>Type here a description of what the screenshot is showing.</p> <p>💡 Press the + button at the end of this table to add a new row.</p>