



ITT 300

**INTRODUCTION TO DATA AND COMMUNICATION AND
NETWORKING**

**INDIVIDUAL ASSIGNMENT : ETHERNET CABLE
CONSTRUCTION AND PEER-TO-PEER NETWORK
CONFIGURATION**

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REPORT EVALUATION FORM

Criteria	Excellent (4)	Good (3)	Fair (2)	Poor (1)	MARK
Content Development	Content is accurate, focused and consistent; exhibits control in development of ideas, unified with a fresh insight	Content is somewhat accurate and fairly clear; offers solid but less accurate reasoning; contains some appropriate details and / or examples	Content is somewhat vague OR only loosely related to the writing task; at times may be off topic OR too broad with limited support	Content is unclear; lapses in coherence OR no relation to writing task; offers simplistic, undeveloped support for ideas.	
Style & Formatting	Report looks neat and professional. Using format correctly	Report look neat but violates one or two formatting rules	Report looks fairly neat, but violates some formatting rules	Report look untidy and does not follow formatting rules	
Critical Thinking	Skilfully evaluates information gathered from observation, experience, reflection or reasoning	Adequately demonstrates reasonable relationships among ideas	Simplistic analysis of complex issue; limited clarity and complexion of thought	Insufficient reasoning and lacks complexity of thought	
Organization and Clarity	- Report is well-organized, clear, and coherent. - Writing is concise and follows academic conventions. - Includes relevant diagrams or photographs.	- Report is mostly organized, clear, and coherent, with minor lapses in clarity. - Writing is generally concise and follows academic conventions. - Includes some relevant diagrams or photographs.	- Report lacks organization or clarity in some sections. - Writing is somewhat verbose or lacks clarity at times. - Includes few relevant diagrams or photographs.	- Report is poorly organized, unclear, or incoherent. - Writing is verbose or lacks clarity consistently. - Includes no relevant diagrams or photographs.	
Overall Quality of Work	- Demonstrated exceptional proficiency in cable construction and network configuration. - Produced a high-quality report with thorough documentation.	- Demonstrated proficiency in cable construction and network configuration. - Produced a good-quality report with adequate documentation.	- Demonstrated basic competency in cable construction and network configuration. - Produced a report with some deficiencies in documentation.	- Demonstrated limited competency in cable construction and network configuration. - Produced a report with significant deficiencies in documentation.	

TABLE OF CONTENT

CONTENT	PAGE
1.0 : INTRODUCTION 1.1 : Objective	3
2.0 : IMPLEMENTATION 2.1 : Ethernet Cable Construction 2.2 : Peer-To-Peer Network Configuration 2.3 : Testing And Evaluation	 4-6 7-8 9-15
3.0 : CONCLUSION	15

1.0 INTRODUCTION

Ethernet cables are essential components of wired networking, used to connect devices within a local area network (LAN). These cables transmit data by carrying electrical signals between networked devices such as computers, routers, and switches. Key elements of Ethernet cables include twisted pairs, shielding, insulation and jacket, and connectors. They come in various categories, such as Cat5, Cat6, and Cat6a, each with different data transmission rates and bandwidth limitations.

In this lab session, we will learn how to configure and crimp Unshielded Twisted Pair (UTP) Category 6 (Cat6) cables. Cat6 UTP cables are popular due to their capability to transmit data at speeds up to 10 Gbps, making them ideal for high-speed data transmission. This experiment aims to provide participants with practical experience in designing and building reliable network wiring, a crucial skill for anyone involved in network installation and maintenance.

Once the cable configuration is complete, we will explore the Peer-to-Peer (P2P) network model, where each device has equal status and can function as either a client or a server.

1.1 OBJECTIVE

- Aims to develop skills in constructing Ethernet cable and configuring a peer-to-peer(P2P) network using the cables created
- Gain practical experience in cable termination and network setup, essential skills for networking professionals.

2.0 IMPLEMENTATION

2.1 ETHERNET CABLE CONTRUCTION


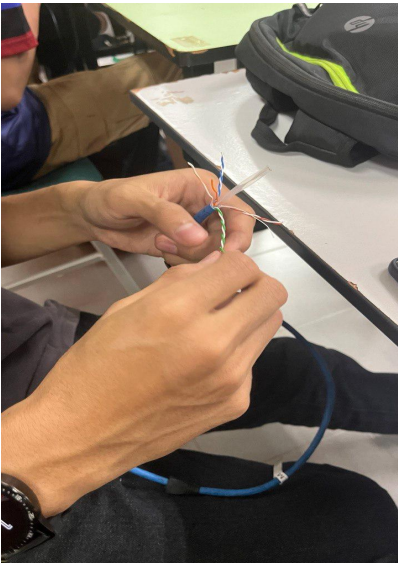
DIAGRAM	EXPLANATION
 <p>Diagram 2.1.1</p>	<p>STEP 1: the cable using wire cutter in about 2 cm length.</p> <p>STEP 2: Stripping outer jacket using cable stripper the outer jacket. When twisted make sure inner twisted pair is in a good condition or else percentage to success will greatly reduce.</p>
 <p>Diagram 2.1.2</p>	<p>STEP 3: we have to untwist the wire first then straighten it to make it easier to align.</p> <p>STEP 4: align the wire using TIA/EIA-568A</p>



Diagram 2.1.4

STEP 5 :

cut the wire after straighten it to make it easier when installation RJ45

STEP 6 :

after wire is already cut and their length is same then insert it into RJ-45 make sure all the copper is touch into golden piece inside RJ-45.

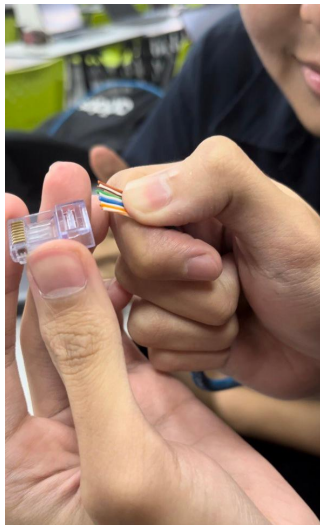


Diagram 2.1.5

STEP 7 :

Do an inspection before start crimping because if the error occur because of the wire is not touching the golden piece or the arrangement of wire is wrong.

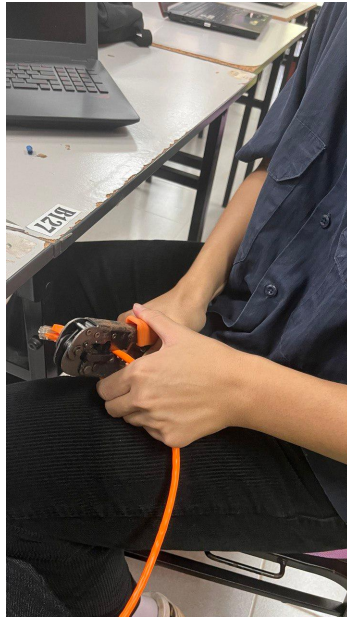


Diagram 2.1.6

Step 8 :

after all inspection is being done then we will start crimping the connector using crimping tool.

STEP 9 :

do another inspection if wire is being crimped properly because it should be firmly clamped and can no longer pull the cable out of RJ-45.

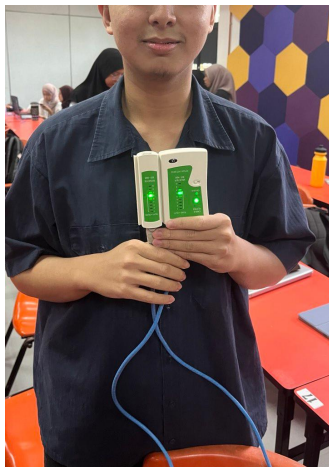


Diagram 2.1.7

STEP 10 :

using a tester insert both ends into a tester

STEP 11 :

Switch on the tester and then wait until evaluation is complete if all 8 light is shown and followed the number properly then your cable is ready to use.

2.2 PEER-TO-PEER NETWORK CONFIGURATION

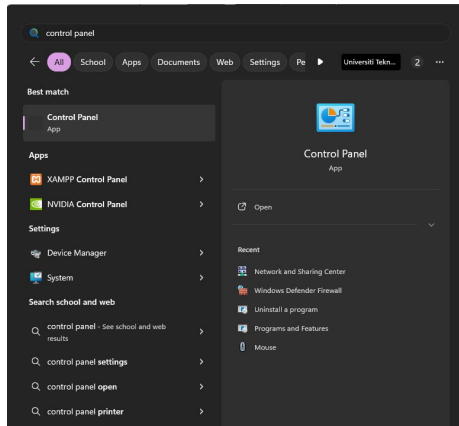


Diagram 2.2.1

STEP 1 :

Open windows tab and search for control panel

STEP 2 :

click open to open control panel

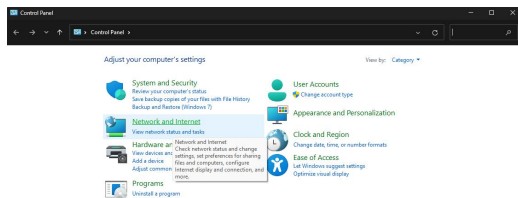


Diagram 2.2.2

STEP 3 :

Go and choose network and internet

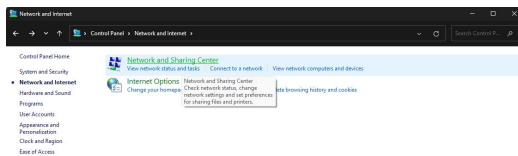


Diagram 2.2.3

STEP 4 :

Select network and sharing center

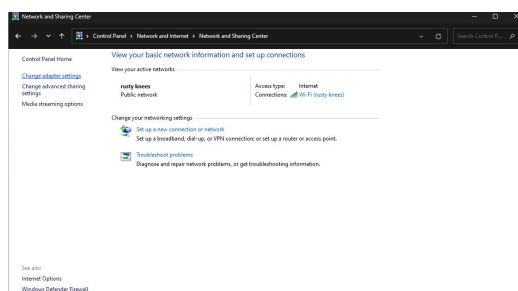


Diagram 2.2.4

STEP 5 :

Select change adapter settings

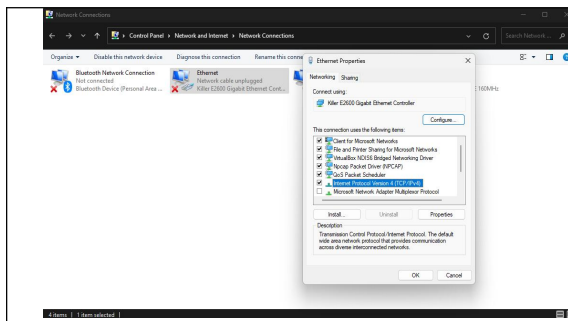


Diagram 2.2.5

STEP 6 :

Select ethernet and search for Internet protocol Version 4 (TCP/IPv4) then select button properties.

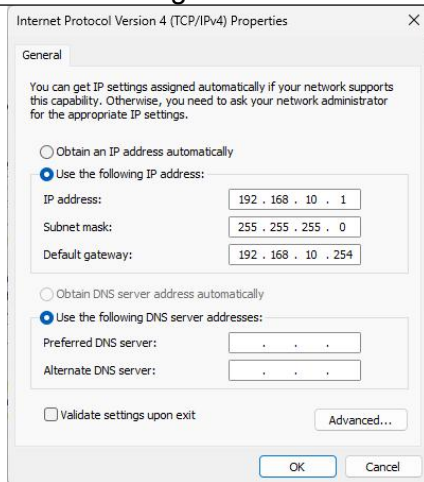
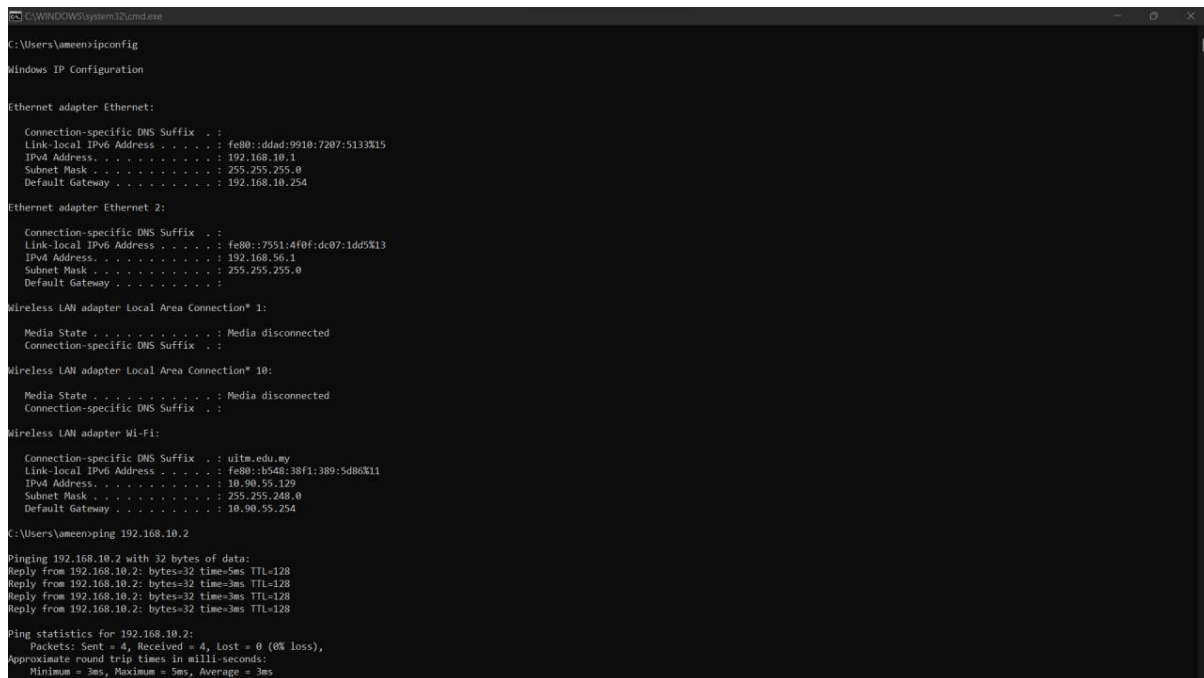


Diagram 2.2.6

STEP 7 :

change Ip address, subnet mask and default gateway following the picture for pc 1 and for pc 2 change Ip address into 192.168.10.2

2.3 TESTING AND EVALUATION



```
C:\WINDOWS\system32\cmd.exe
C:\Users\ameen>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::ddad:9910:7207:5133%15
    IPv4 Address. . . . . : 192.168.10.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.10.254

Ethernet adapter Ethernet 2:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::7591:4f0f:dc07:1dd5%13
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Wireless LAN adapter Local Area Connection* 1:

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

Wireless LAN adapter Local Area Connection* 10:

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

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : uitm.edu.my
    Link-local IPv6 Address . . . . . : fe80::b548:30f1:309:5d86%11
    IPv4 Address. . . . . : 10.90.55.129
    Subnet Mask . . . . . : 255.255.248.0
    Default Gateway . . . . . : 10.90.55.254

C:\Users\ameen>ping 192.168.10.2

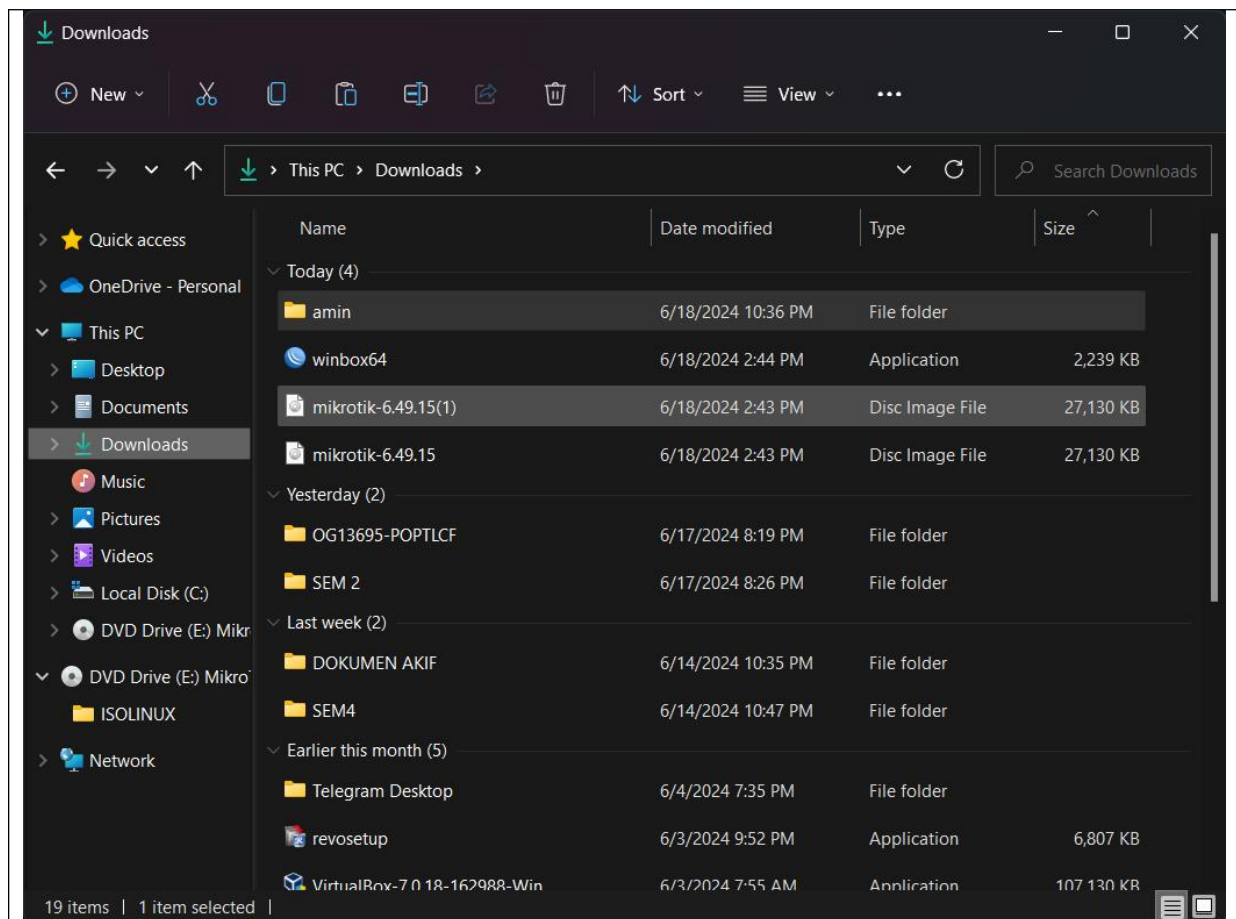
Pinging 192.168.10.2 with 32 bytes of data:
Reply from 192.168.10.2: bytes=32 time=5ms TTL=128
Reply from 192.168.10.2: bytes=32 time=3ms TTL=128
Reply from 192.168.10.2: bytes=32 time=3ms TTL=128
Reply from 192.168.10.2: bytes=32 time=3ms TTL=128

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 5ms, Average = 3ms
```

Diagram 2.3.1

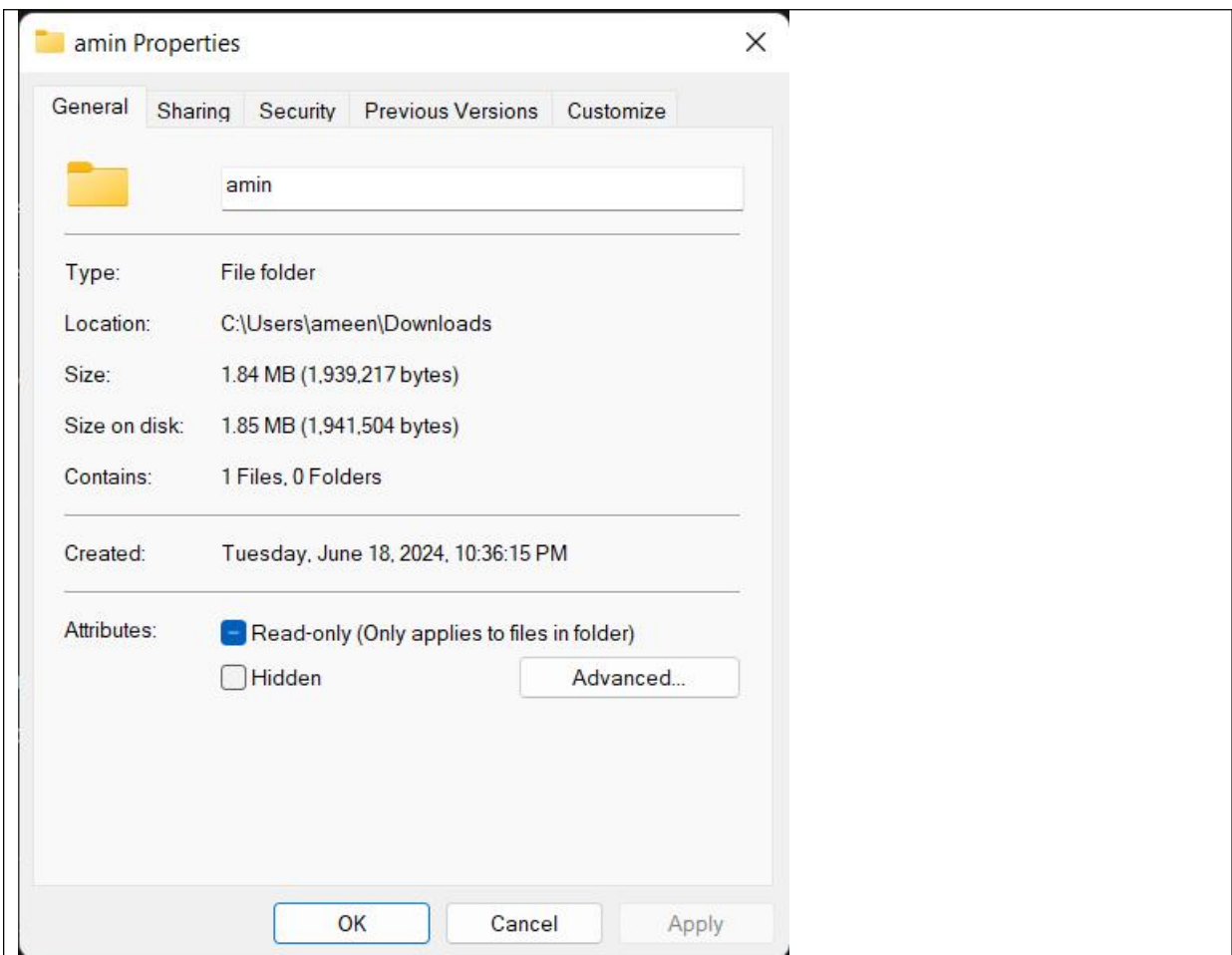
Step 1 : Push button windows + R or open window tab then find command prompt and run it as administrator

Step 2 : Ping ip address that already configure for example if use pc 1 to ping then type “ping 192.168.10.2” or if using pc 2 type “ping 192.168.10.1” to ping each other laptop then it will show how packet will be send and how much packet will be receive.



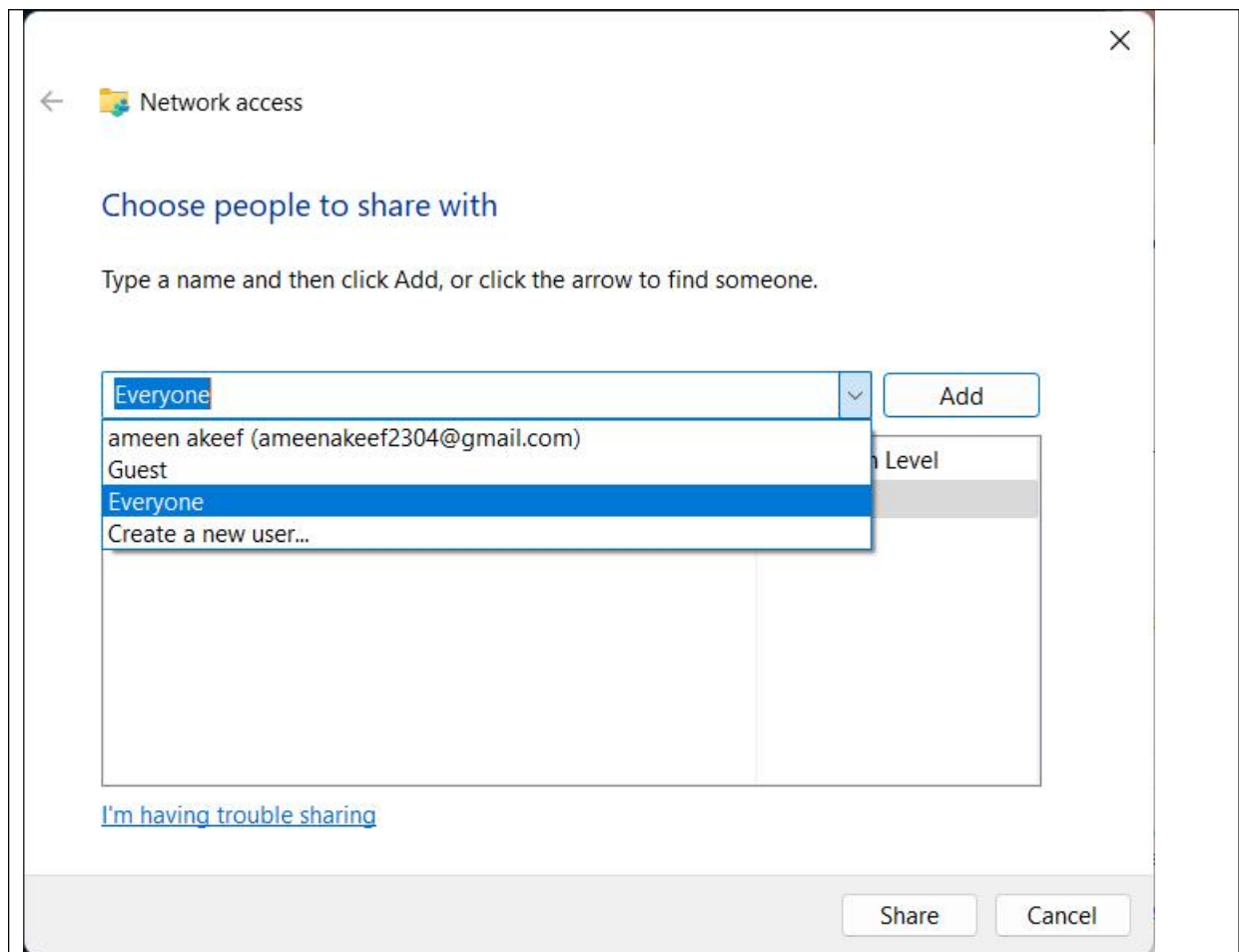
STEP 3:

Create a folder to determine the file that we want to share to another laptop.

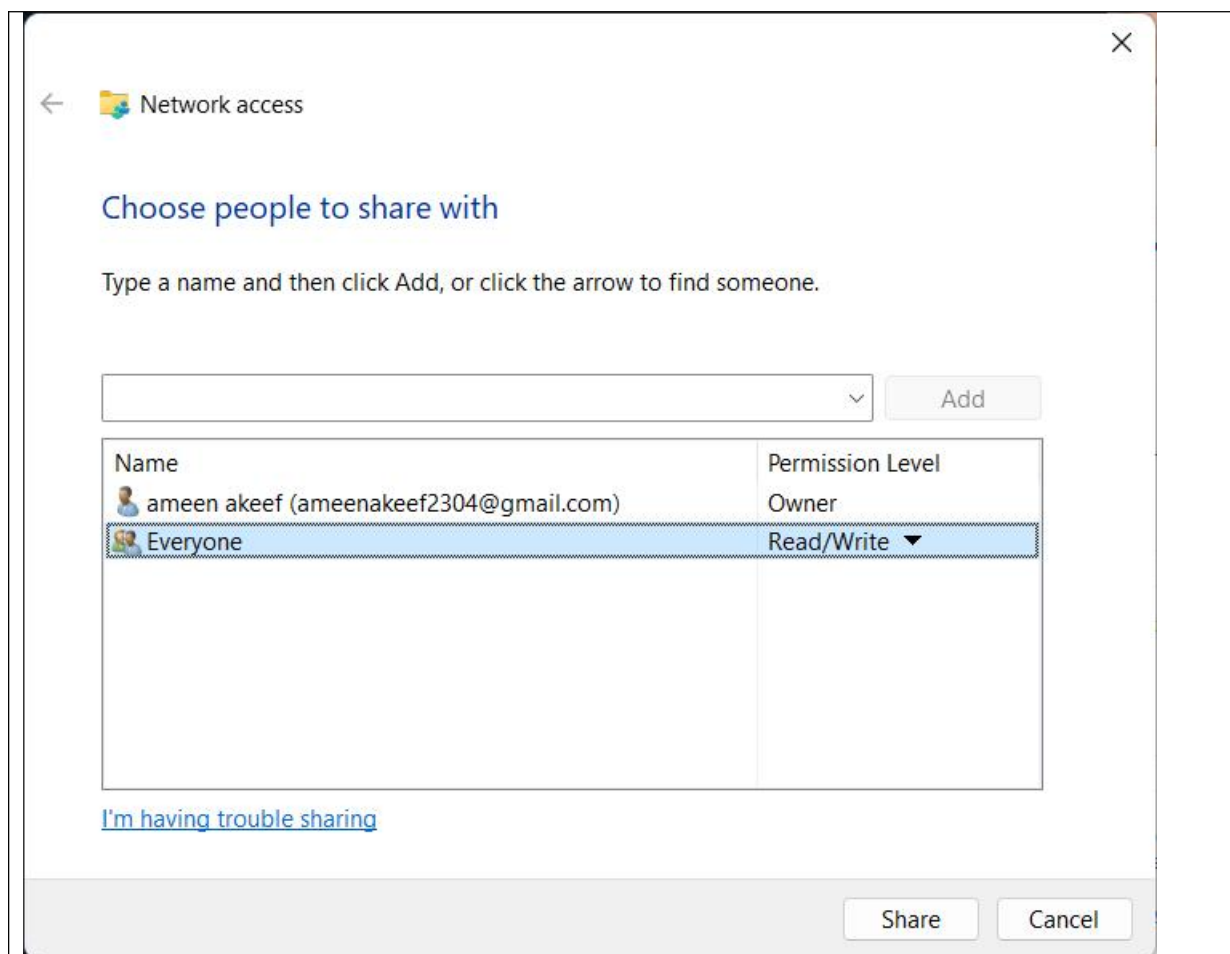


STEP 4:

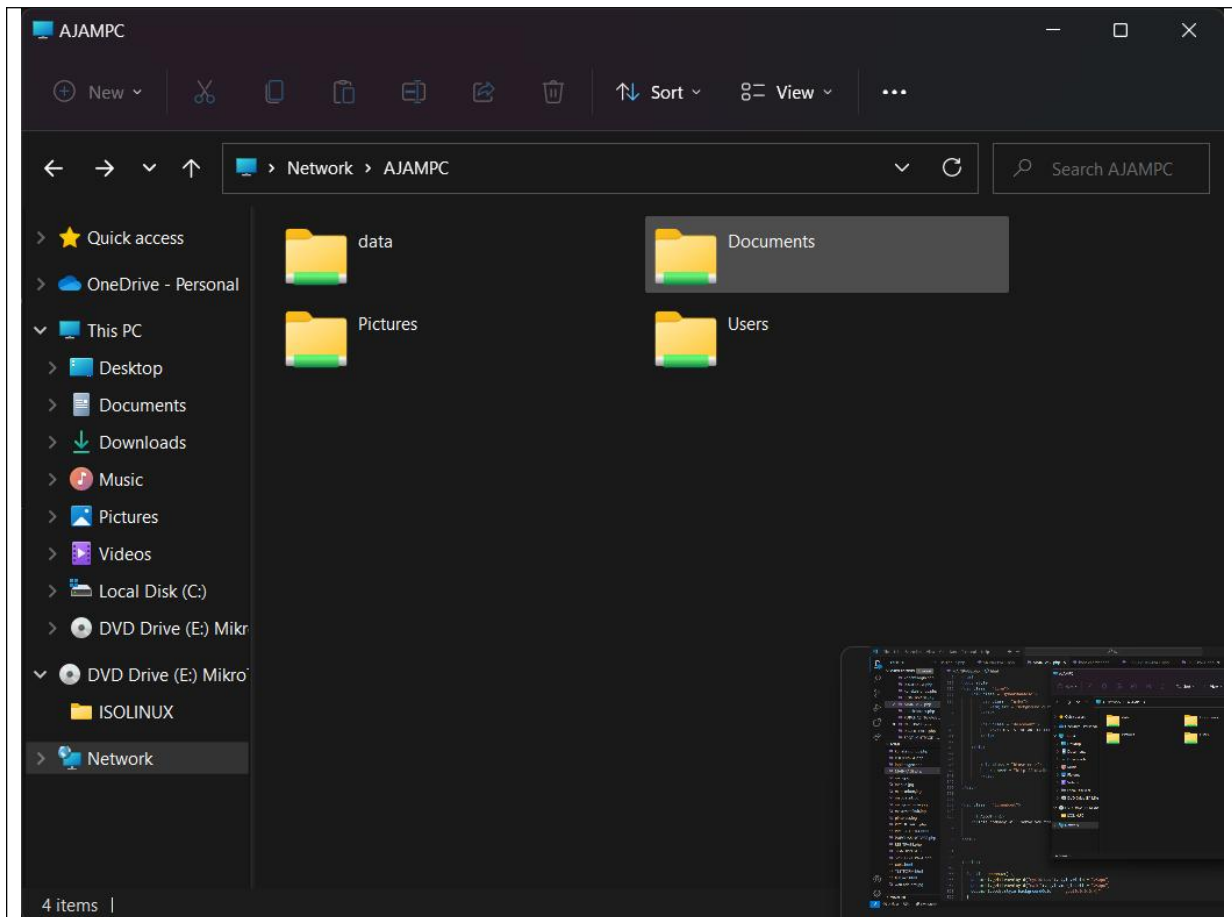
After that, go to the 'file properties' and go to the sharing section and click 'Share'



STEP 5:
Set the people who we want to share with to 'Everyone'.



STEP 6 :
Then, for the permission set to the 'Read/Write' then click 'Share'

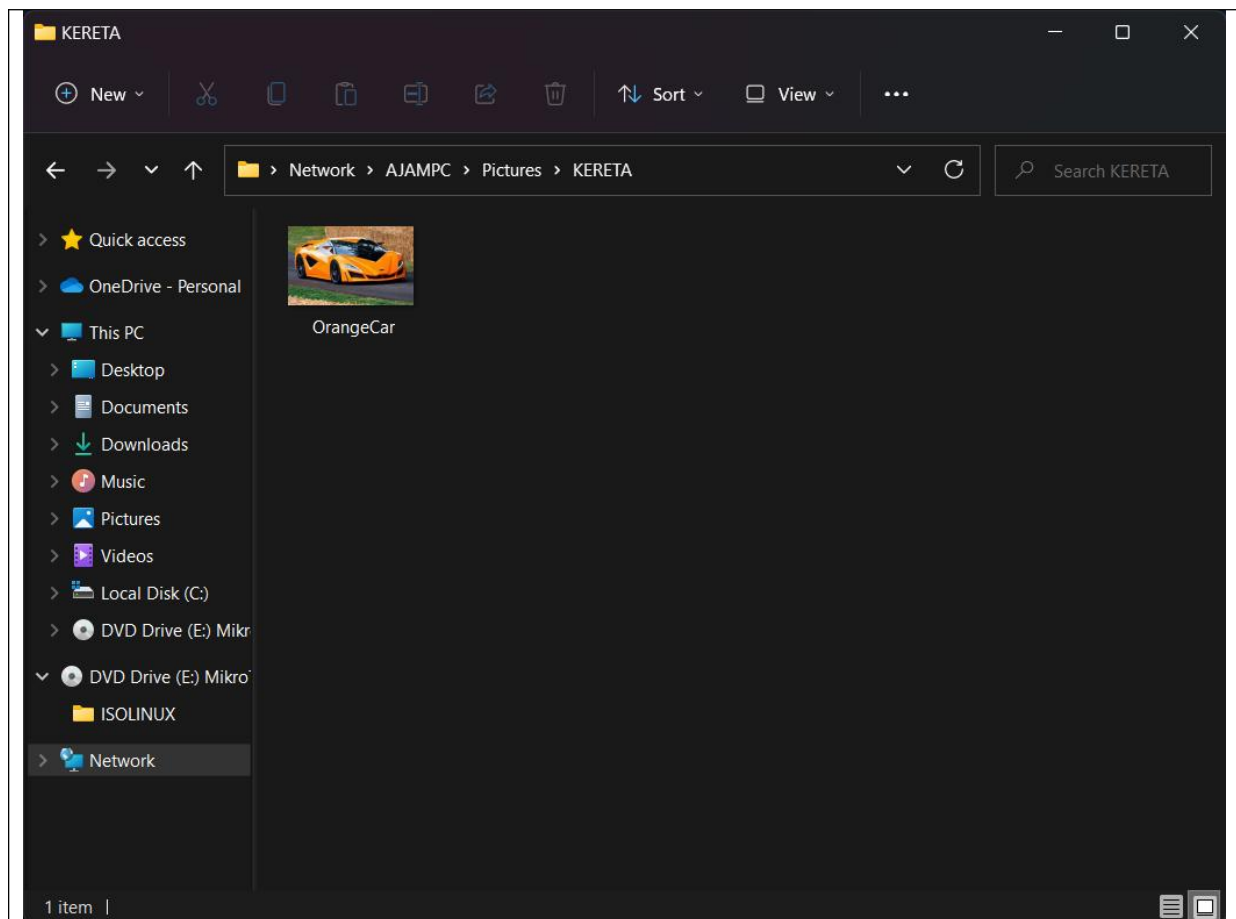


STEP 7 :

After that, we go for the file sharing from Ajam's laptop. We have to go to the 'Network' on pc.

STEP 8:

And then we search for the Ajam's pc name which is 'AJAMPC' and click it.



STEP 9:

Lastly, we will find the file that ajam share with us which is 'OrangeCar'.

3.0 CONCLUSION

Ethernet cable construction and peer-to-peer (P2P) network setup is an important part to create an effective network. Ethernet cable, also with twisted pair and connectors, will give a fast and reliable data transmission.

P2P network allows devices to connect to each other and share any resources directly without any server. This makes them easier to scale and harder to fail when transferring data.

By achieving these basics, then anyone can build an efficient and dependable network for home or office. It will give smoother communications and file sharing between each device.