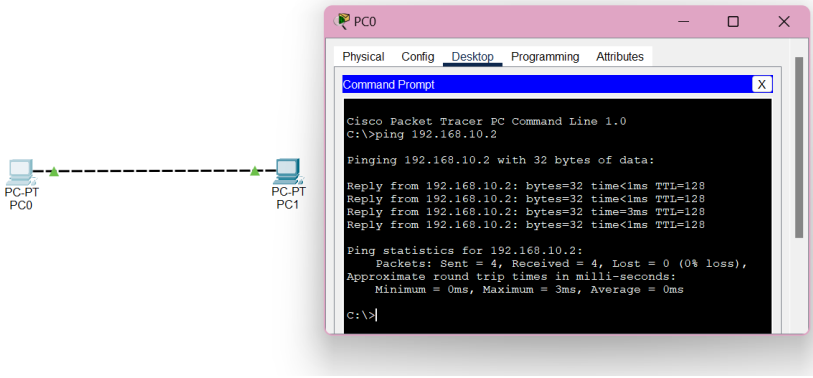
# CN LAB EXPERIMENTS

## CN EXPERIMENT- 01

4. Making connection between two host PCs (end devices) and analysing the communication using ping command.

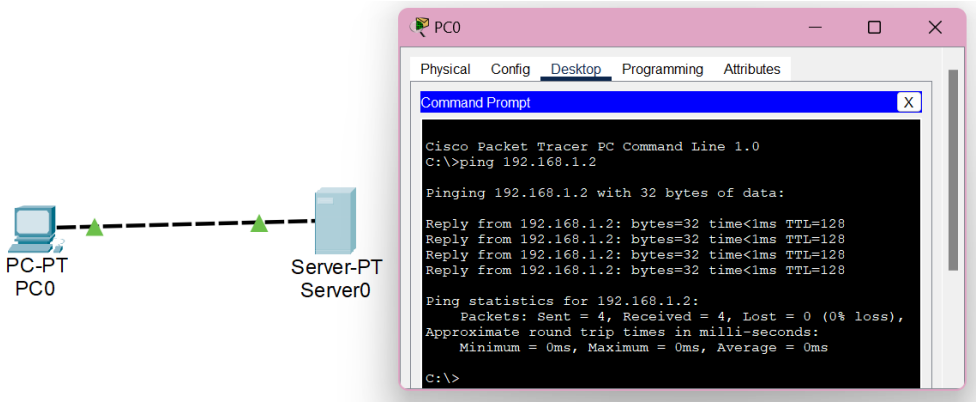
Simple steps: Make a connection and ping.




## CN EXPERIMENT- 02

2. Configuration of an Ethernet using the network devices in Cisco Packet Tracer.

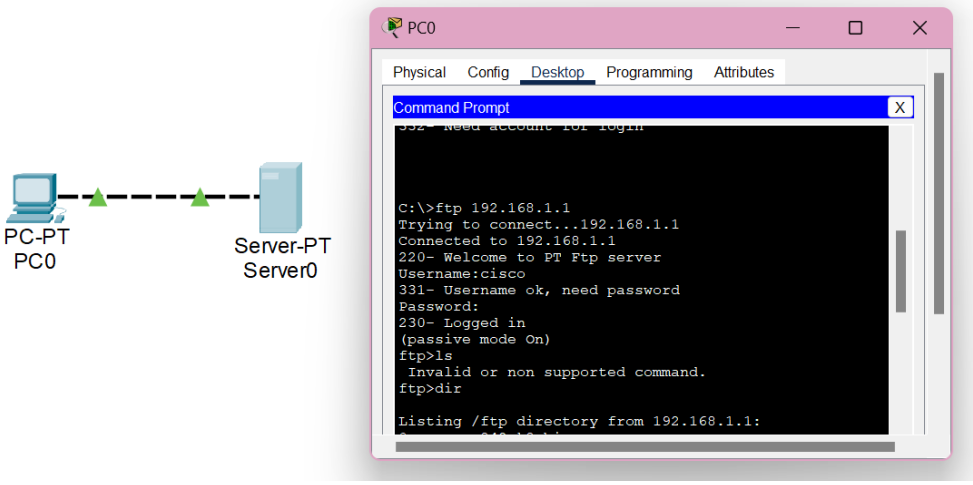
Simple steps: Make a connection and ping.




3. Simulating the Ethernet by transmitting ICMP. FTP and TFTP messages between two end devices.

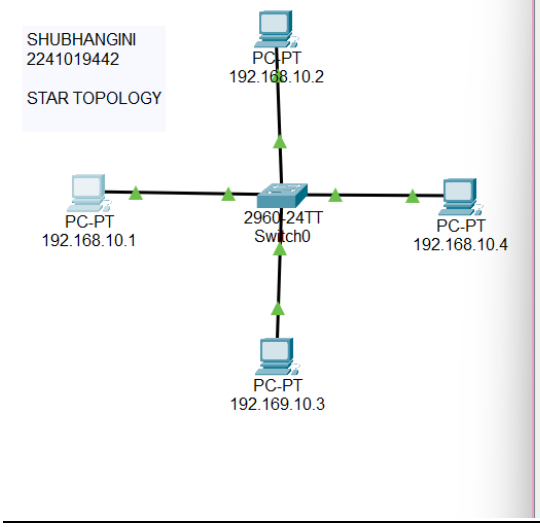
Steps:

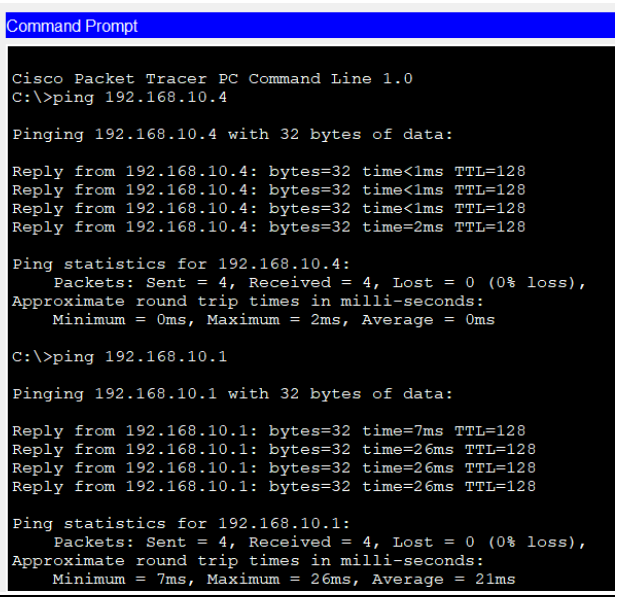
1. To enable FTP and TFTP server -> go to server -> services -> switch ‘ON’ both.
2. To simulate the ftp server -> go to cmd of PC -> ping ftp 192.168.1.1 -> login w username and password(in server -> go to services -> ftp -> see user id and password.)
3. On the PC, use **Command Prompt** to transfer files via FTP.



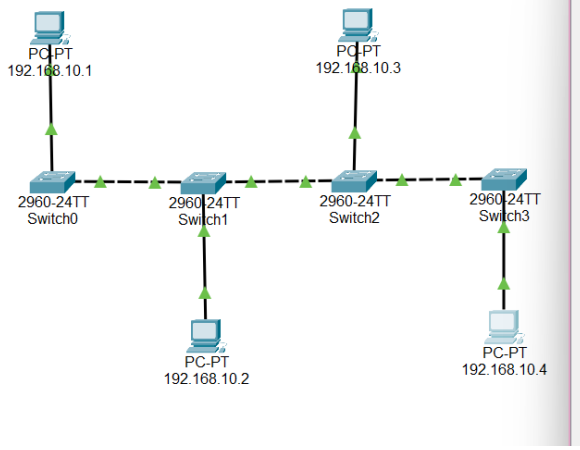
CN EXPERIMENT- 03 (Steps for all: Make the topology and ping.)

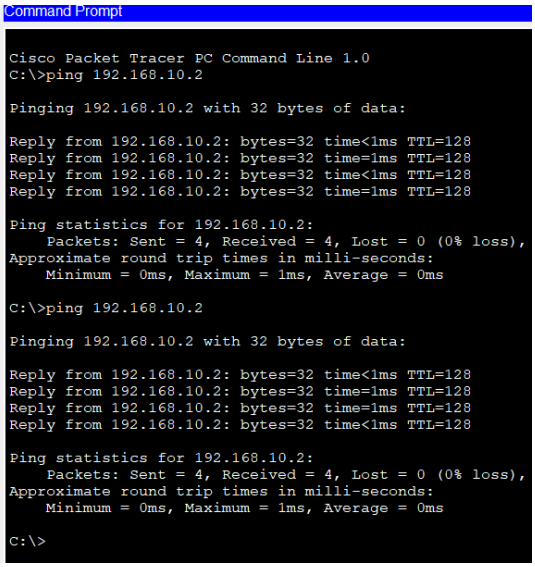
2. Constructing and simulating a network based on star topology



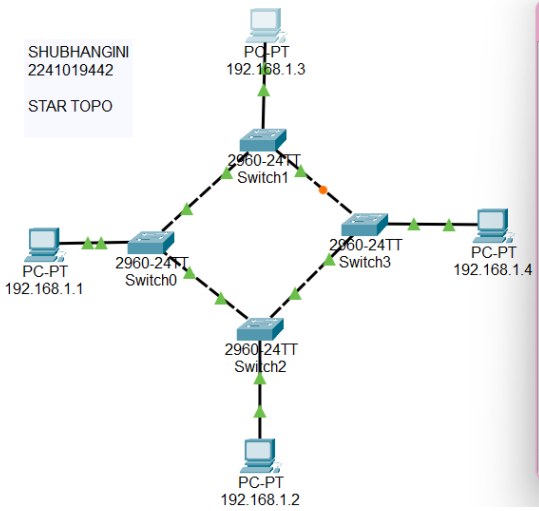



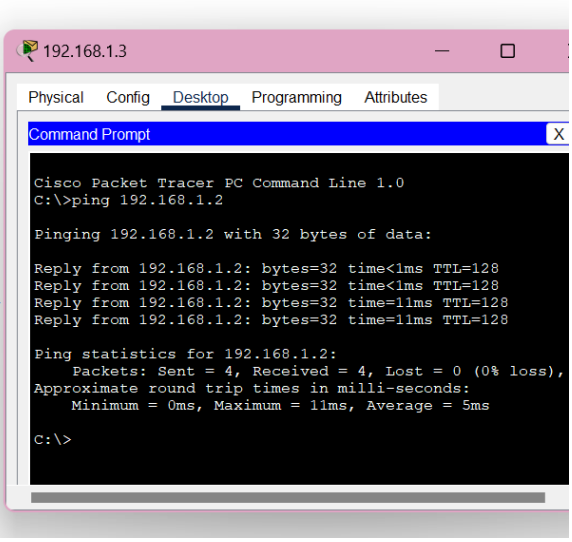

3. Constructing and simulating a network based on bus topology.



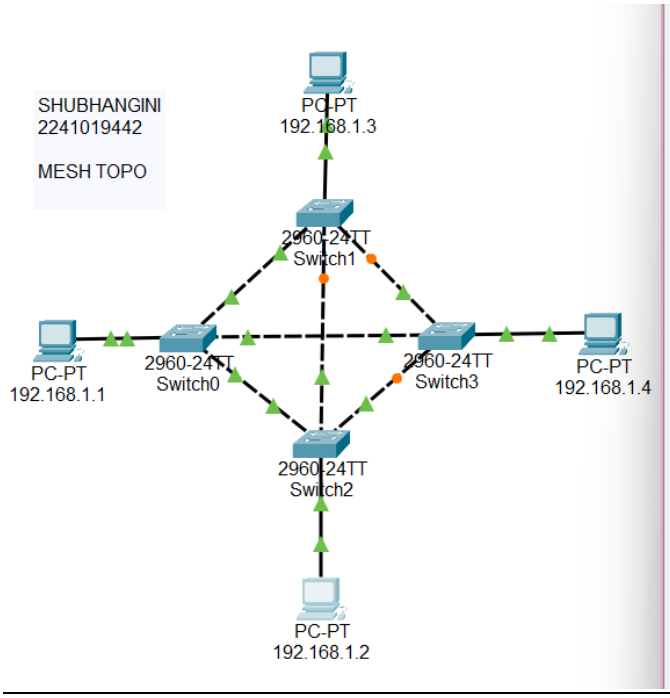



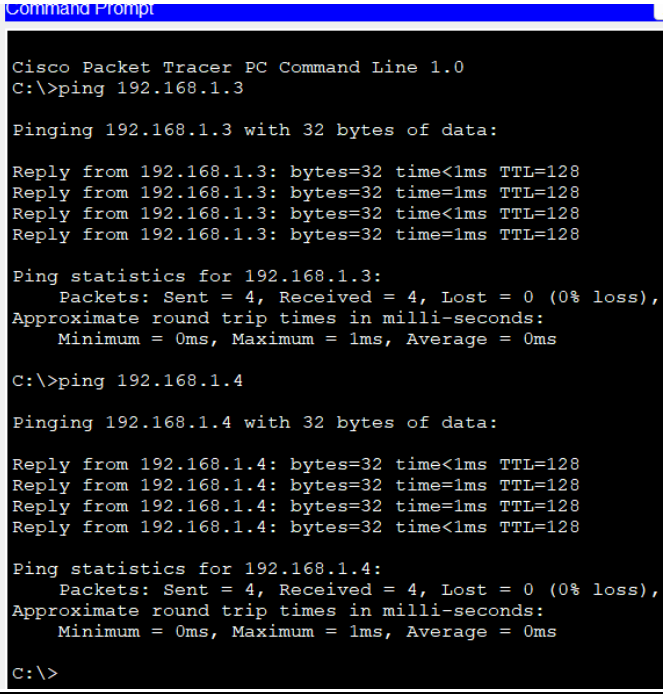

4. Constructing and simulating a network based on ring topology.



5. Constructing and simulating a network based on mesh topology.



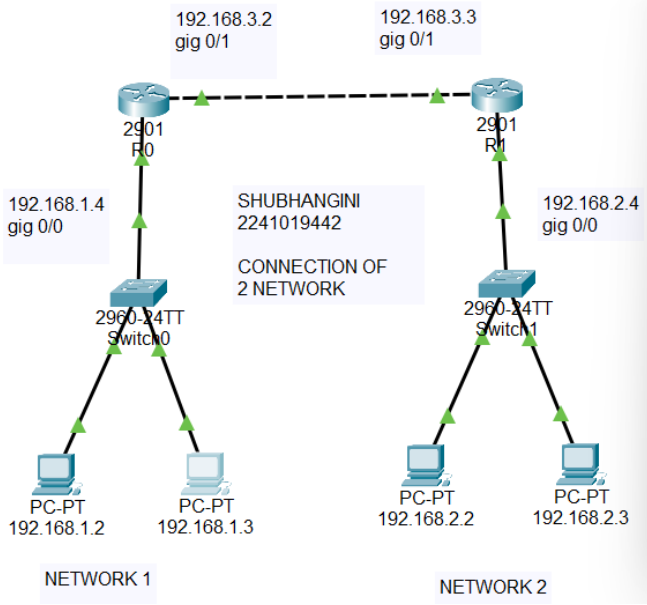



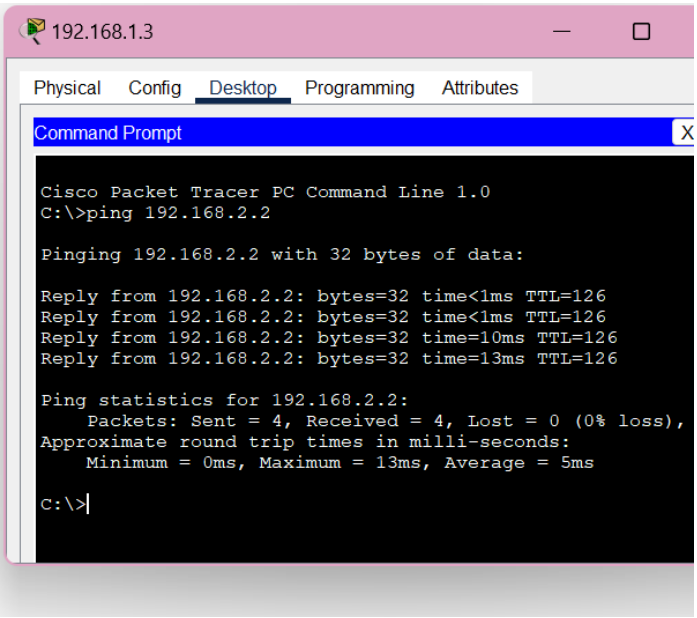

CN EXPERIMENT- 04

2. Constructing and analysing the communication between two networks (of different classes).

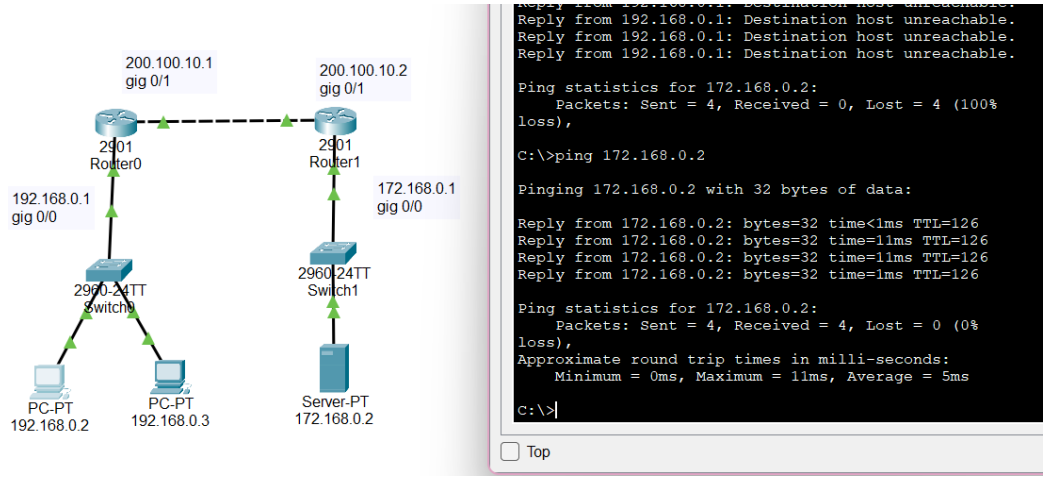
STEPS:

Use 4 pcs, 2 (2960) switches and 2(2901)Routers -> make the required connection (Make sure to take different classes)-> hover on the arrow and see which gig its showing -> if it shows gig 0/0 then select the router -> put the network address in gig 0/0 and same w 0/1 (do same w network 2) -> then do the static analysis with next hop (for eg: for R0 the next hop is 192.168.3.3) and for R1 next hop is 192.168.3.2 , for ref: https://youtu.be/lmnptnqn-WI?si=Zhh-ibLVwQp7CXY2



3. Configuring and implementing NAT using a router to analyse the communication between PCs(in a private network) and a public server.



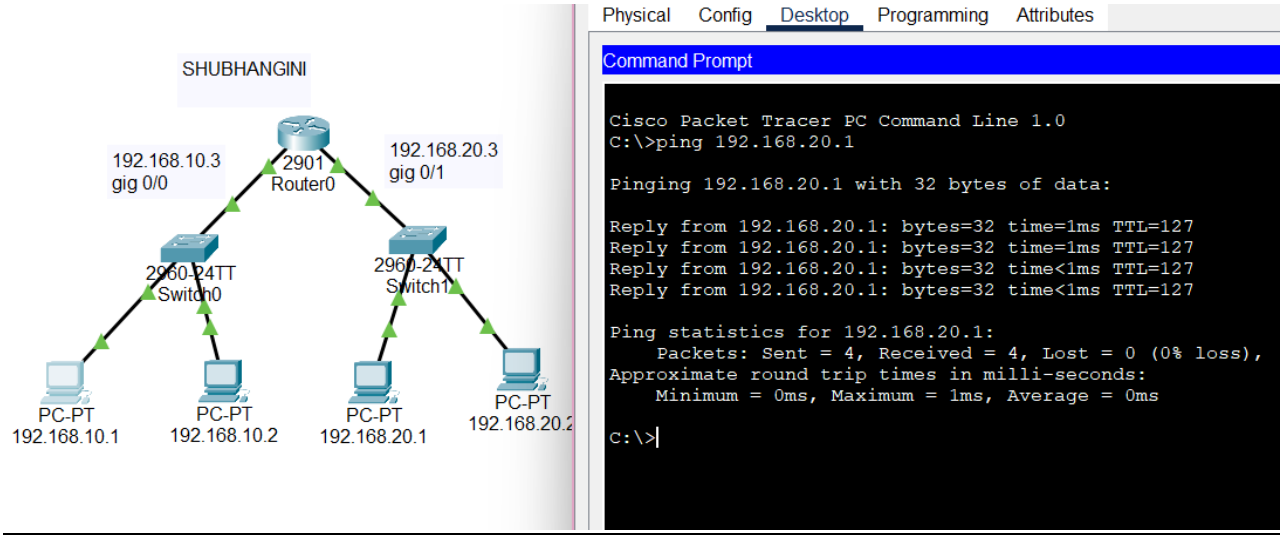

In Router 0: CLI

```
Router(config)#
Router(config)#interface gig0/0
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#interface gig0/1
Router(config-if)#ip nat outside
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
Router#debug ip nat
IP NAT debugging is on
Router#
Router#
```

CN EXPERIMENT- 06

2. Implementing the sub-netting technique to divide a network into smaller subnets (with predefined users) and analysing the communication between PCs in both intra and inter-subnets.

STEPS: Use 4 pcs, 2 (2960) switches and 2(2901) Routers -> make the required connection-> hover on the arrow and see which gig its showing -> if it shows gig 0/0 then select the router -> put the network address in gig 0/0 and same w 0/1 -> then do the static analysis with next hop (for eg: for R0 the next hop is 192.168.20.3). NOTE: WHILE PC CONFIG IN PLACE OF SUBNET WRITE 255.255.255.128.

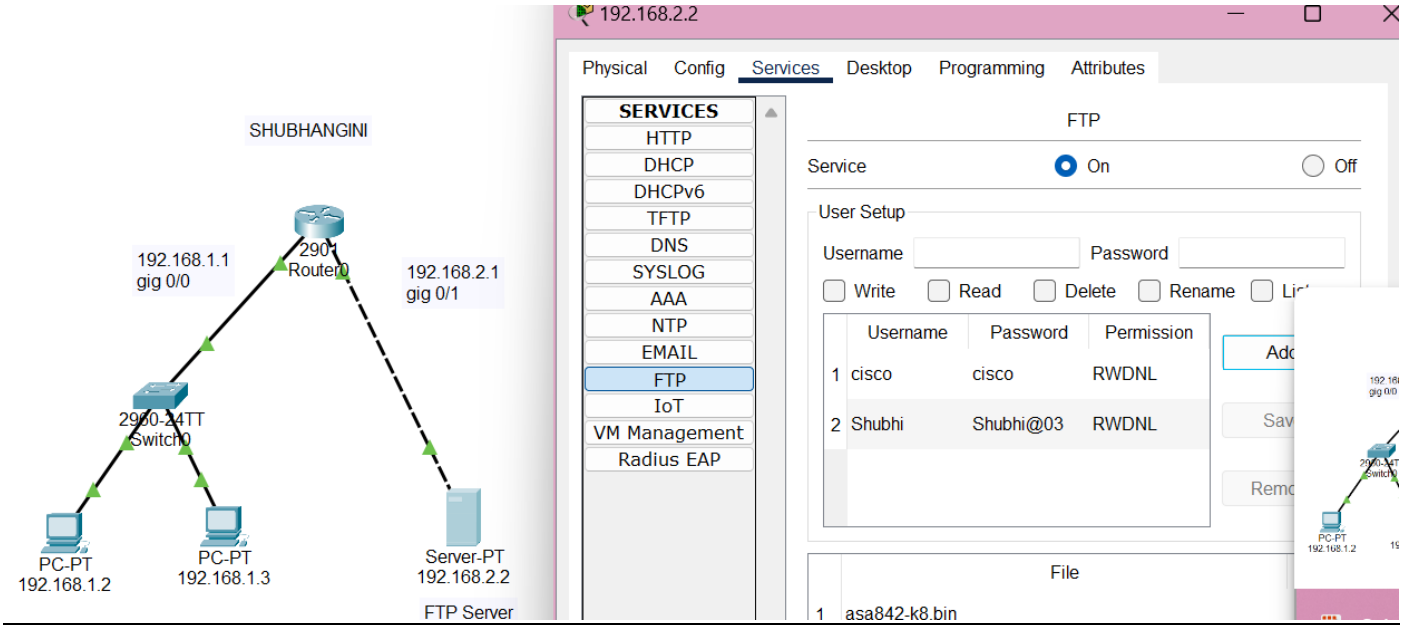



3. Implementing the VLSM technique to optimize the IPv4 address allocations to PCs (belonging to subnets) and interfaces in a given network and analysing the communication between PCs in the network.

CN EXPERIMENT- 07

2. An overview on message communication between two end hosts using FTP and TELNET packets.

STEPS: Step the configuration as usual-> 192.168.2.2 will be our FTP server->then go to FTP server -> services -> FTP -> and create a new userid and pswd -> give permission and add-> go to PC0 and open text editor -> write Hello world and save it as abc.txt -> go to cmd and try to ping FTP server (192.168.2.2) -> once its done write ftp 192.168.2.2 ,itll ask the user id and password -> then upload the abc.txt file to the server by writing "put abc.txt" (the file is uploaded)-> write dir to check if its uploaded-> now to download it in another PC go to cmd -> write ftp 192.168.2.2 login w user id and password -> write "get hello.txt" and then file will be downloaded.




```
C:\>ftp 192.168.2.2
Trying to connect...192.168.2.2
Connected to 192.168.2.2
220- Welcome to PT Ftp server
Username:Shubhi
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>put hello.txt

Writing file hello.txt to 192.168.2.2:
File transfer in progress...

[Transfer complete - 33 bytes]

33 bytes copied in 0.08 secs (412 bytes/sec)
ftp>dir

Listing /ftp directory from 192.168.2.2:
0    : asa842-k8.bin
1    : asa923-k8.bin
2    : c1841-advipservicesk9-mz.124-15.T1.bin
3    : c1841-ipbase-mz.123-14.T7.bin
4    : c1841-ipbasek9-mz.124-12.bin
5    : c1900-universalk9-mz.SPA.155-3.M4a.bin
6    : c2600-advipservicesk9-mz.124-15.T1.bin
7    : c2600-i-mz.122-28.bin
8    : c2600-ipbasek9-mz.124-8.bin
9    : c2800nm-advipservicesk9-mz.124-15.T1.bin
```

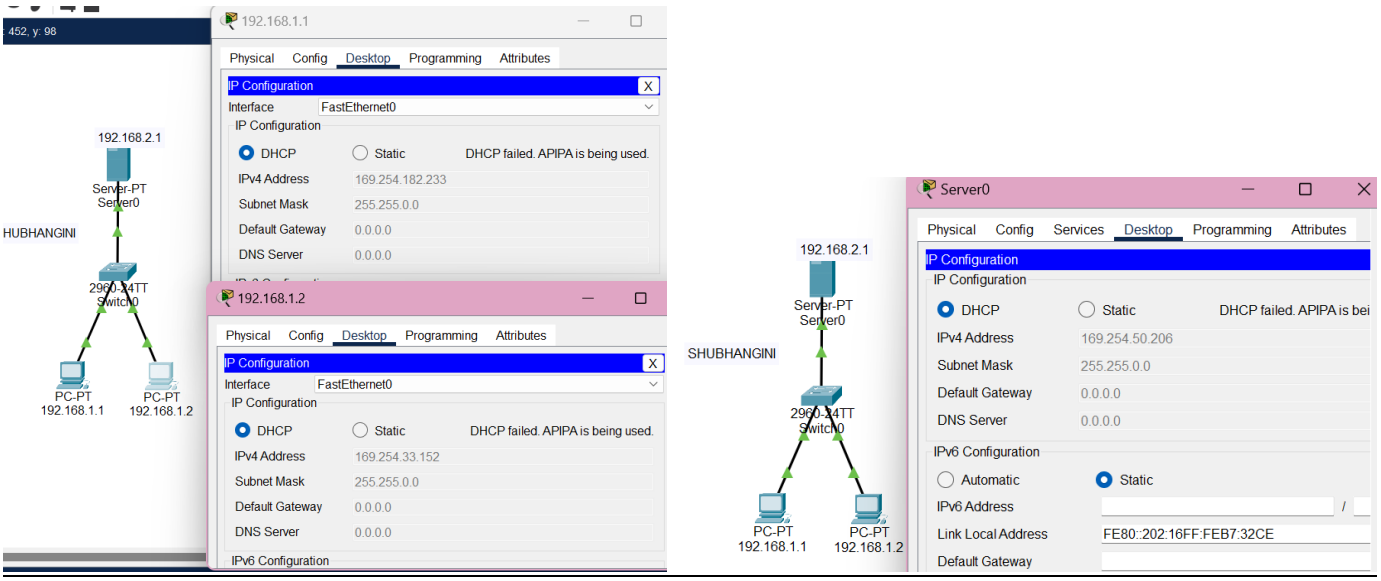
192.168.1.3

Physical Config Desktop Programming Attributes

Command Prompt

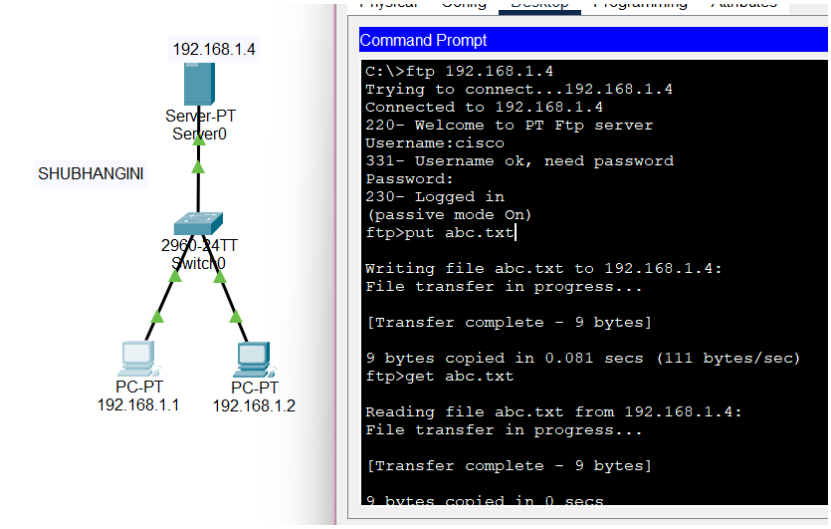
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp 192.168.2.2
Trying to connect...192.168.2.2
Connected to 192.168.2.2
220- Welcome to PT Ftp server
Username:Shubhi
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>get hello.txt

Reading file hello.txt from 192.168.2.2:
File transfer in progress...

[Transfer complete - 33 bytes]

33 bytes copied in 0.011 secs (3000 bytes/sec)
ftp>dir

Listing /ftp directory from 192.168.2.2:
0    : asa842-k8.bin
1    : asa923-k8.bin
```

3. Implementing APIPA to generate and verify the IPv4 address for a PC connected to a network.

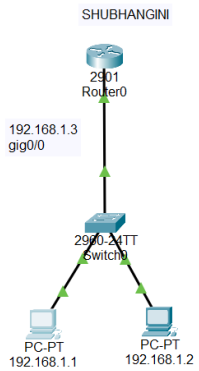



4. Configuring a client - server network and analysing the message communication between them using FTP and TELNET packets.

a) FTP




B) Telnet- https://www.youtube.com/watch?v=g54jjJrZByQ




Step 1:

Step2: In Router 0 CLI

```
Router(config-if)#host R1-Telnet
R1-Telnet(config)#enable password cisco
R1-Telnet(config)#ip domain-name cisco.com
R1-Telnet(config)#username Admin password cisco
R1-Telnet(config)#line vty 0 15
R1-Telnet(config-line)#login local
R1-Telnet(config-line)#transport input Telnet
R1-Telnet(config-line)#exit
R1-Telnet(config)#do wr
Building configuration...
[OK]
R1-Telnet(config)#
R1-Telnet(config)#
```

Step3:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>telnet 192.168.1.1
Trying 192.168.1.1 ...
% Connection timed out; remote host not responding
C:\>telnet 192.168.1.3
Trying 192.168.1.3 ...Open


User Access Verification

Username: Admin
Password:
R1-Telnet>
R1-Telnet>
```