

Aim:

Implementation of DHCP, APIPA and analysis of FTP & TELNET packets using Cisco Packet Tracer

Objective-1:-

Understanding the use of DHCP & APIPA.

DHCP:-

→ DHCP is a service that automatically assigns IP address to the device (like PCs, printers) when they connect to a network. Instead of manually setting an IP address.

APIPA:-

→ APIPA is a backup system used when a device can't get an IP address from DHCP server. If no DHCP server is available, the device assigns itself an IP address from a specific range. This allows local communication with nearby devices but no access to the internet.

Objective-2:-

An overview on message communication b/w 2 end hosts using FTP and TELNET packets.

FTP- used to transfer files, uploading / downloading files b/w 2 devices. It requires login, the files are uploaded, downloaded or viewed using respective commands.

→ How it works?

- \* Setting up connection
- \* Do Login
- \* Now, upload/download files
- \* Close the connection

### TELNET:-

It is used to control another computer remotely over a network, similar to controlling a device using a command line.

#### → How it works:-

- \* Connection setup
- \* Do Login
- \* Remote Control commands are sent
- \* Closing the connection as packets.

### Objective-3:-

Implementation of DHCP to generate & verify the IPv4 address for a PC connected to a network.

### Implementation of DHCP and APJP server:-

IPv4 address = 10.0.0.1

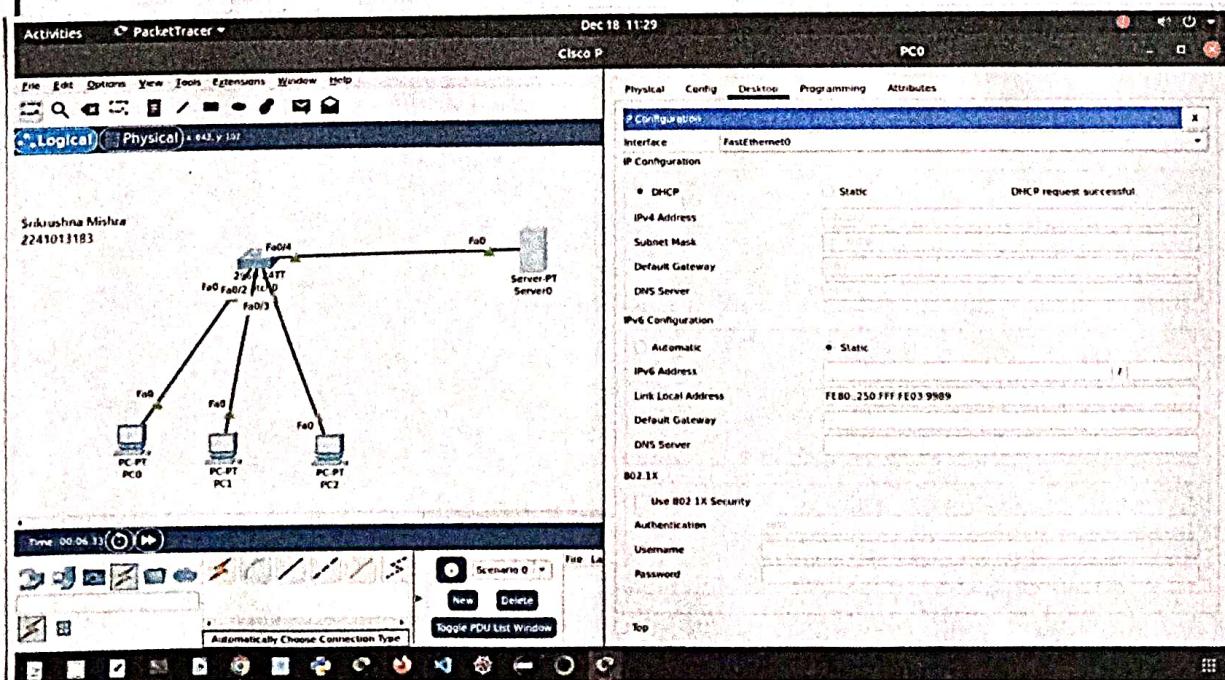
Subnet = 255.0.0.0.

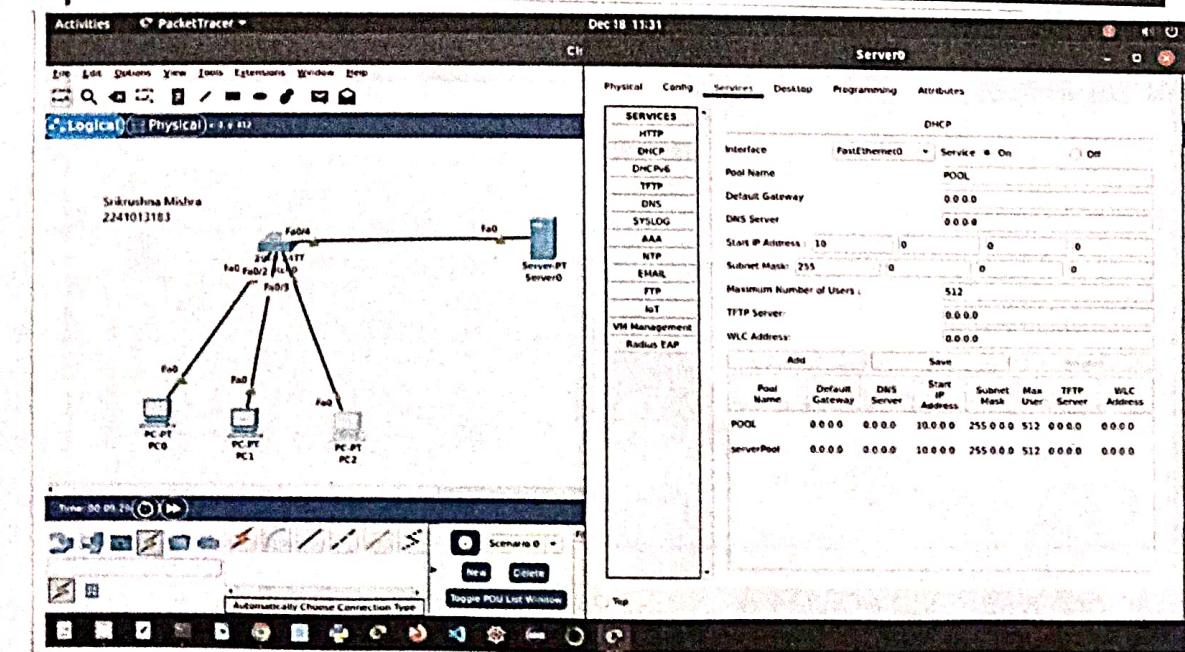
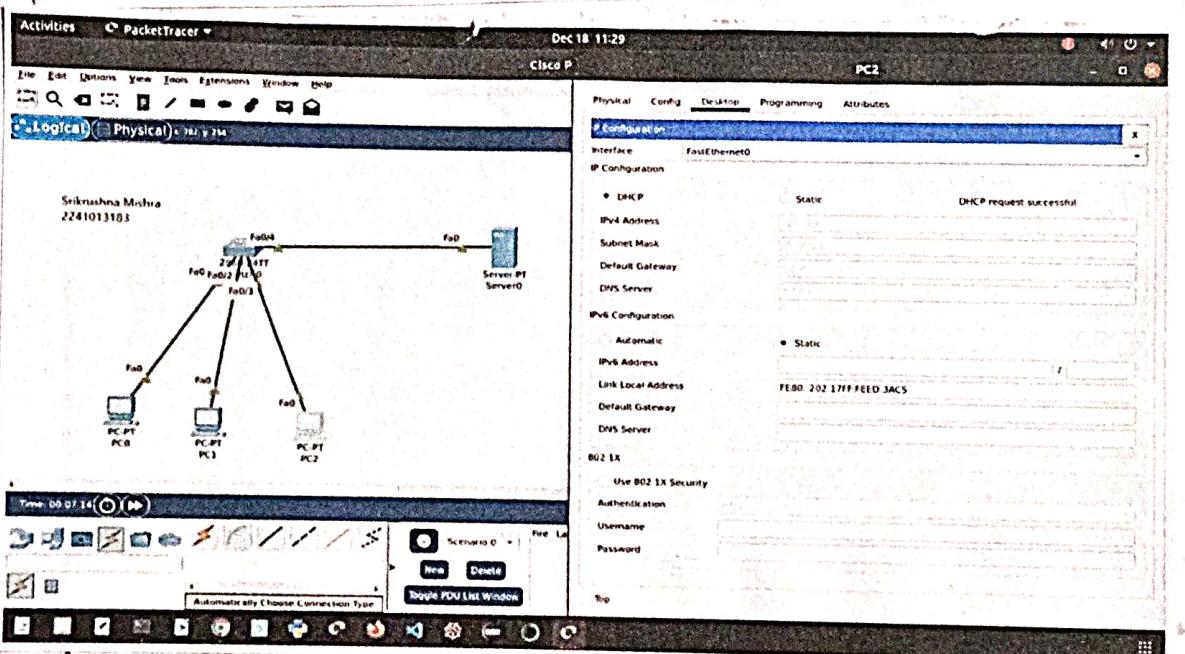
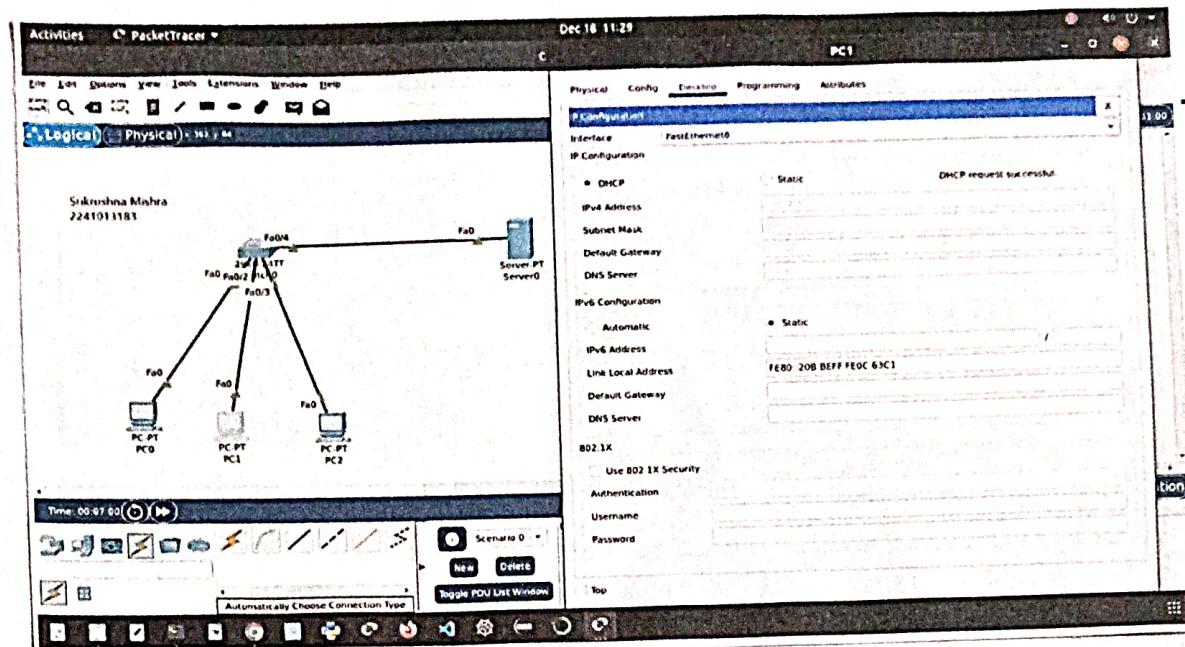
Services → DHCP [Service = ON]

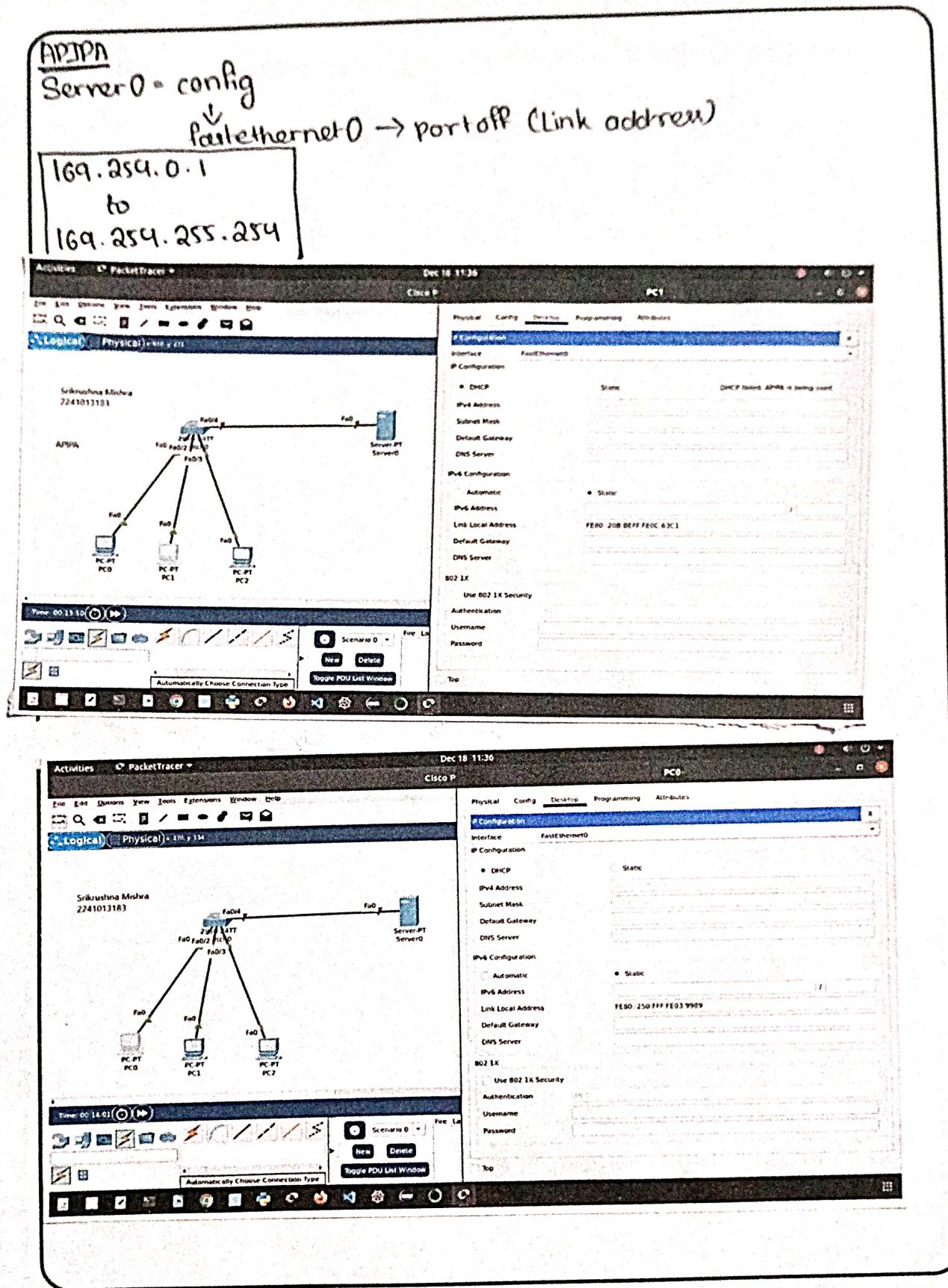
Pool name = POOL

maximum no. of user = 512

∴ Add DHCP = assigns IP addresses

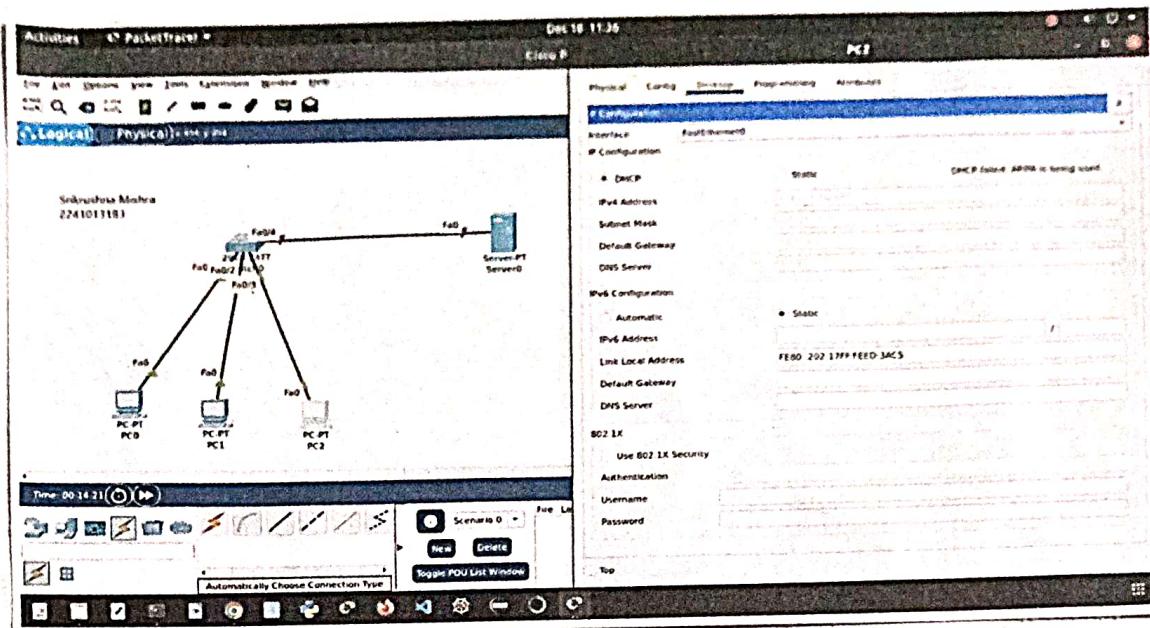






Name: \_\_\_\_\_

[1] Regd. Number: \_\_\_\_\_



#### Objective-4:-

Configure a client-server n/w & analysing the message communication b/w them using FTP and TELNET Packets.

Server  $\Rightarrow$  0  $\rightarrow$  Fast Ethernet 0  $\Rightarrow$  on port status

Everyone should be static  $\Rightarrow$  PC<sub>0</sub> PC<sub>1</sub> PC<sub>2</sub>

we will make it FTP server.

{ Services  
  ↓  
DHCP  
  ↓  
Services off }

<u>PC<sub>0</sub></u>	<u>PC<sub>1</sub></u>	<u>PC<sub>2</sub></u>
10.0.0.2	10.0.0.3	10.0.0.4
255.0.0.0	255.0.0.0	255.0.0.0

$\therefore$  Server 0

Services   FTP = service = ON

Username = ~~Network~~ NETWORK

Password = cisco

{ write  
Read  
delete  
rename  
list } tickall (✓)

Then, ADP

Now, it's a FTP server.

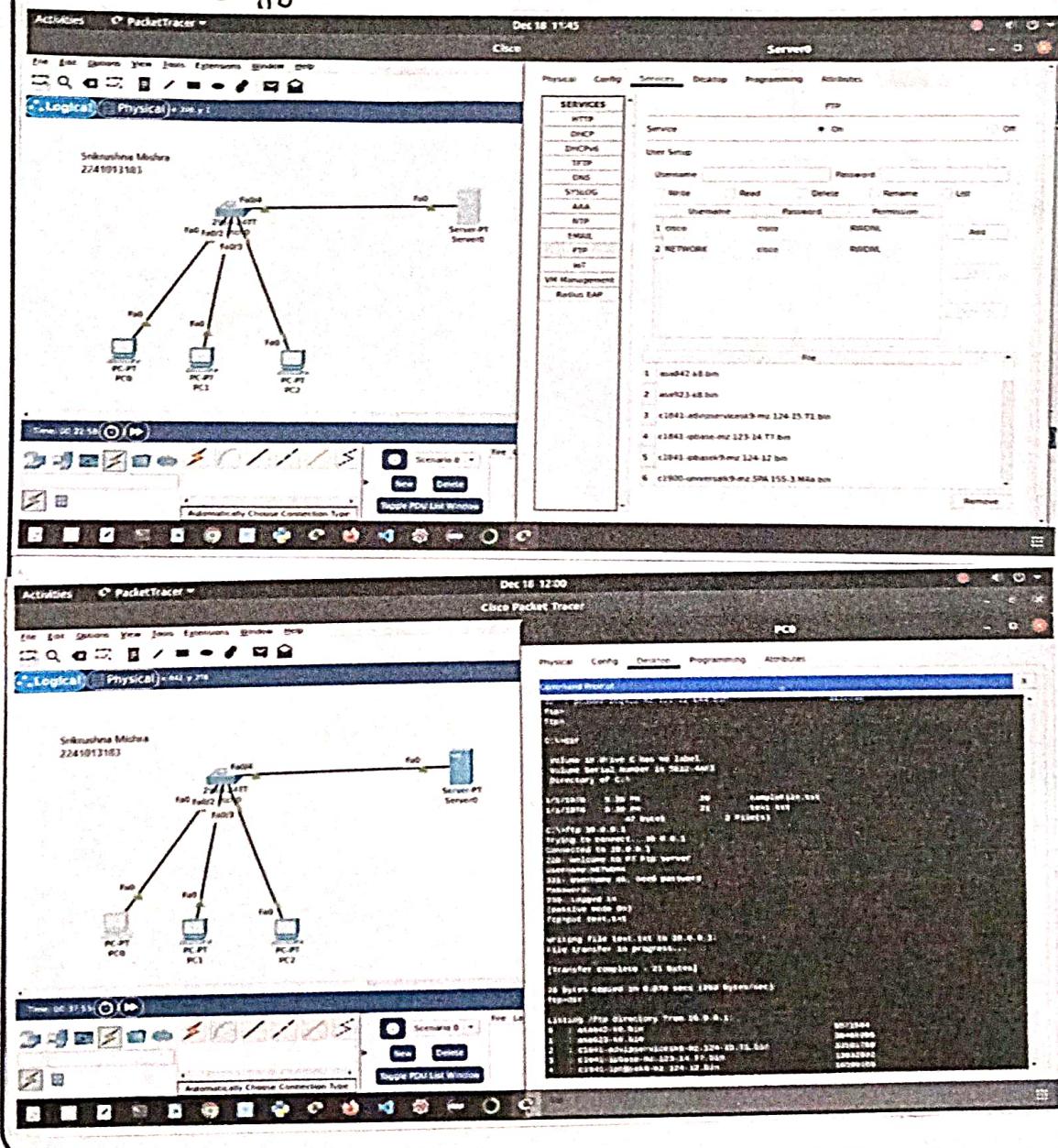
∴ PC0 → Command prompt ping 10.0.0.1

→ FTP 10.0.0.1

→ Username: NETWORK

Password: cisco

Logged in



Name: \_\_\_\_\_

[1] Regd. Number: \_\_\_\_\_

PC<sub>0</sub> → text editor

↓  
Hello Welcome to ITER

↓  
Save ⇒ (text.txt)  
<sup>name</sup>

Command Prompt:- {PC<sub>0</sub>}

→ C:\>dir

we can see the text.txt & will upload it server ftp 10.0.0.1  
logged in

ftp > put text.txt

↳ copied → Now text.txt

→ copied → No text.txt is in server.

Then; PC<sub>1</sub> will download it from server.

↓  
Command Prompt

C:\> ftp 10.0.0.1

Username: NETWORK

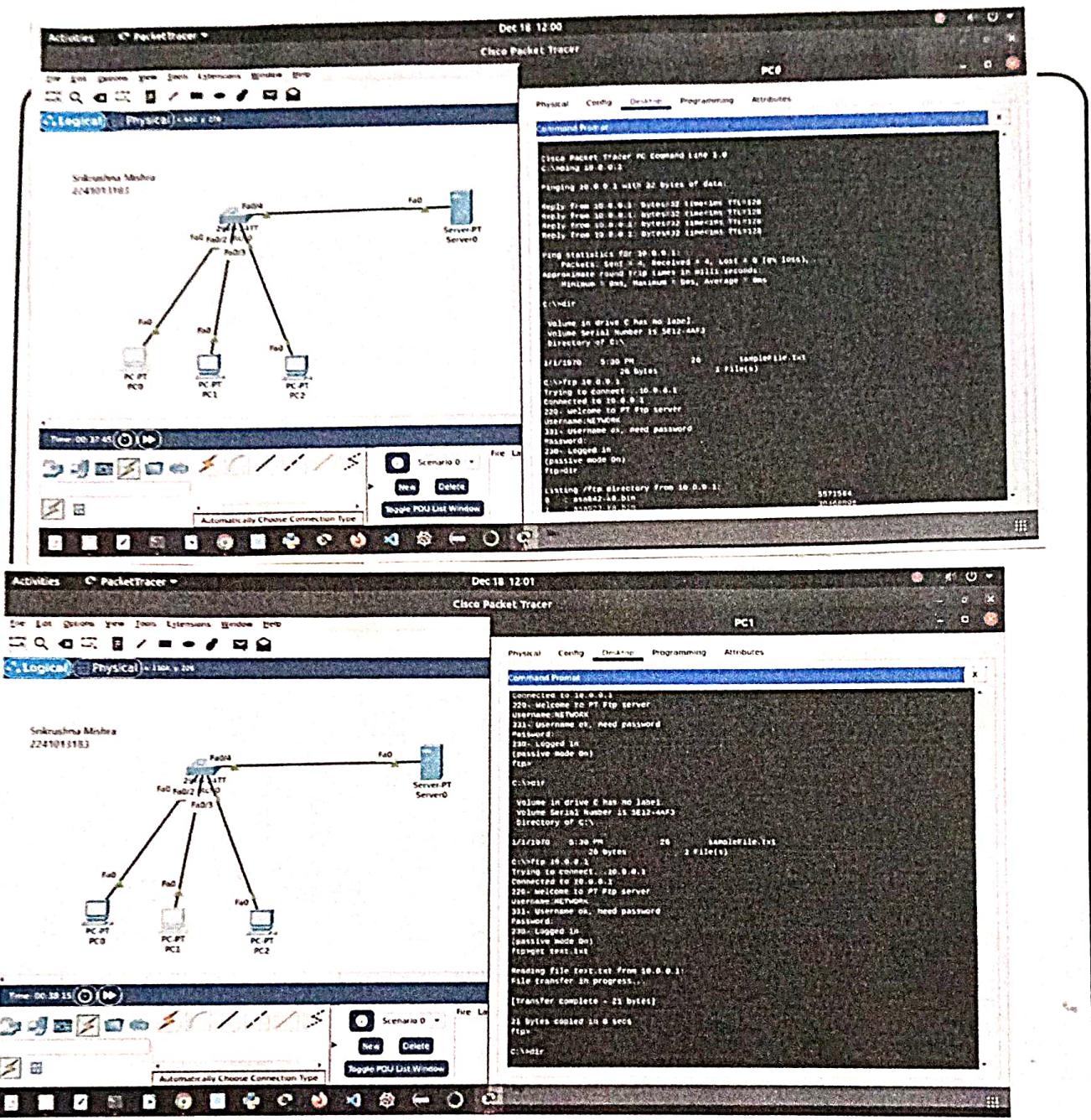
Password: cisco

→ get text.txt → copied

dir > :

↓  
2 files

check PC<sub>1</sub> → text editor → File Open → 2 files will be there



### CONCLUSION :-

DHCP automates IP address allocation, while APIPA ensures basic connectivity in the absence of a DHCP server. FTP enables efficient file transfer & TELNET facilitates remote device management. Packet analysis in CPT provides insights into communication process, making these protocols vital for effective n/w management and troubleshooting.

Exercises :-

Q) What is DHCP snooping? What are the main advantages of using DHCP in a network?

Ans:- DHCP snooping is a security feature used in networks to prevent unauthorized DHCP servers from assigning IP addresses. It acts as a filter, allowing only trusted DHCP servers.

Advantages

- 1) IP addressing is assigned automatically
- 2) It ensures efficient use of IP address
- 3) Scalability.

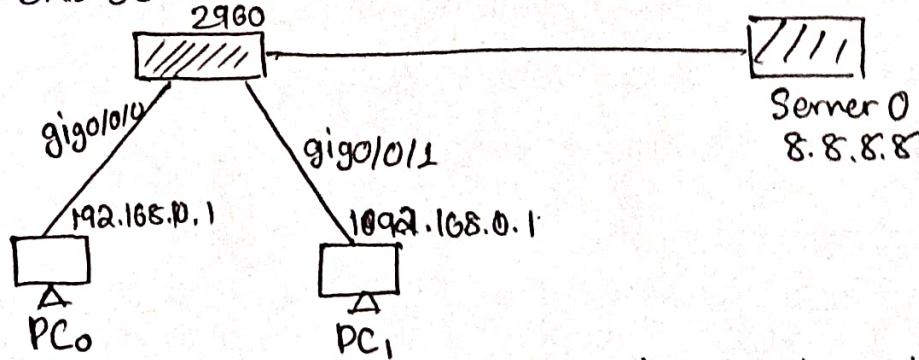
Q) Set up a network with a router & 2 PCs using Cisco Packet Tracer. Configure DHCP on the router with the following settings:

a) Network Address: 192.168.10.0/24

b) DHCP pool: Start IP: 192.168.10.10, End IP: 192.168.10.50

c) Default Gateway: 192.168.10.1

d) DNS Server: 8.8.8.8



Q) State the use of APIPA highlighting its advantages. What is the range of IP addresses for APIPA? Write the APIPA address generated for your device in this experiment.

Ans:- Use of APIPA

It is used when a device can't get an IP address from a DHCP server. It assigns an IP address automatically.

Advantages of APIPA

\* No need of manual configuration of IP address.

4) Compare FTP & TELNET protocols in terms of functionality & security.

(i) Connection Type:-

→ FTP uses port 21 & port 20.

→ TELNET using port 23

(ii) Data Transfer:-

→ FTP transfers files

→ TELNET transfers text based commands & outputs.

(iii) Usage:-

→ FTP is commonly used to upload & download files

→ Where TELNET used to remotely centre / manage n/w.

5) Mention True / False

a) FTP uses 2 TCP connections (True)

b) FTP sends exactly one file over the data connection (False)

c) FTP server is stateless (False)

d) Telnet is a general-purpose client-server program (True)

e) Telnet can be used for file transfer. (False)

f) Telnet is used to establish a connection to TCP port number 23. (True)