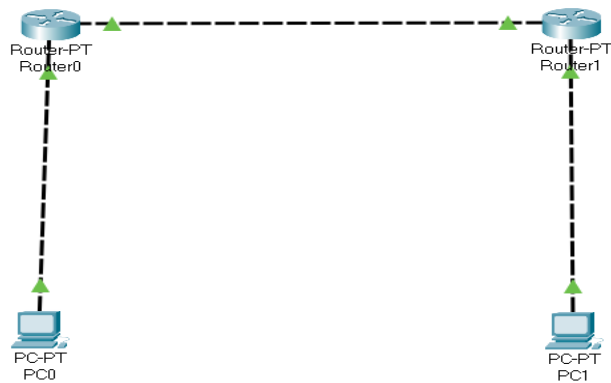


## Practical No. 1 Study of Networking

**Aim :-** To study the IP address.

**Circuit Diagram :-**



**Program :-**

Router 0 > cli :-

```
enable
configure terminal
interface fastethernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit
interface fastethernet 0/1
ip address 20.0.0.1 255.0.0.0
no shutdown
exit
```

Router 1 > cli :-

```
enable
configure terminal
interface fastethernet 0/0
ip address 40.0.0.1 255.0.0.0
no shutdown
exit
interface fastethernet 0/1
ip address 20.0.0.2 255.0.0.0
no shutdown
exit
```

Pc 0 > Desktop > Ip configuration :-

ipv4 : 10.0.0.2

subnet mask : 255.0.0.0

Default gateway: 10.0.0.1

Pc 1 > Desktop > Ip configuration :-

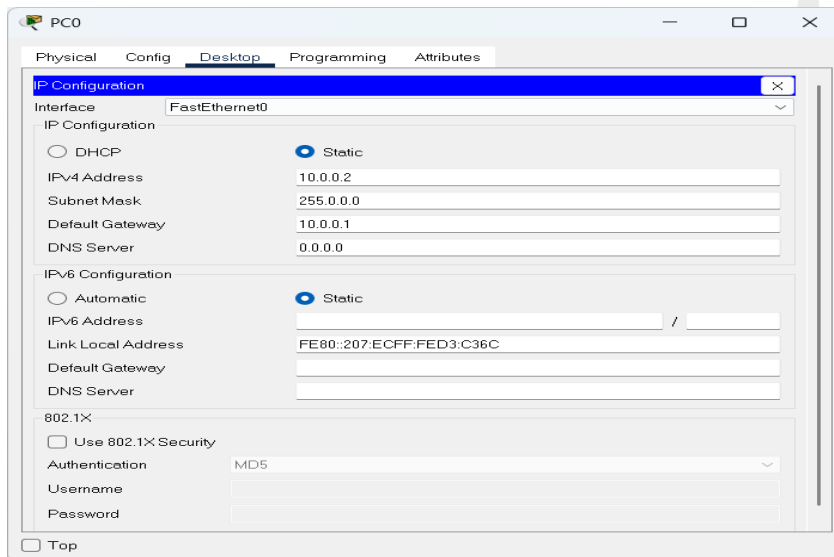
ipv4 : 40.0.0.2

subnet mask : 255.0.0.0

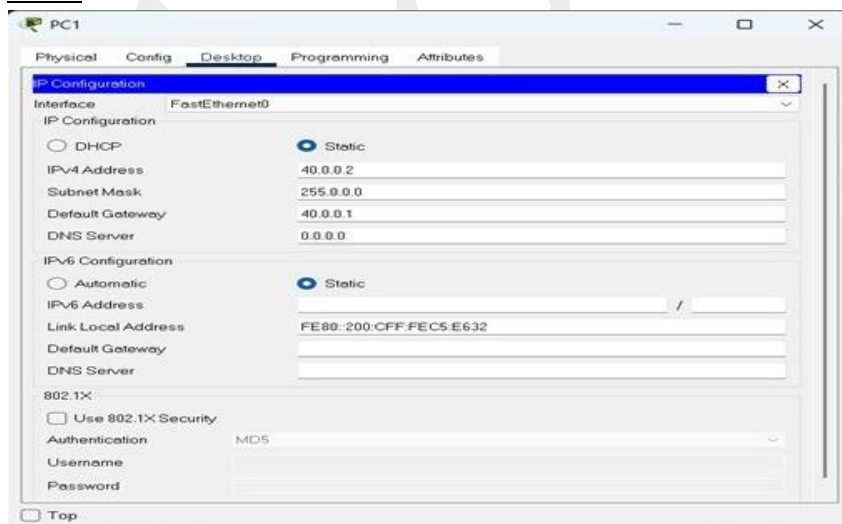
Default gateway: 40.0.0.1

## Output :-

### PC0 :-



### PC1:-



**Conclusion :-** The program was executed successfully

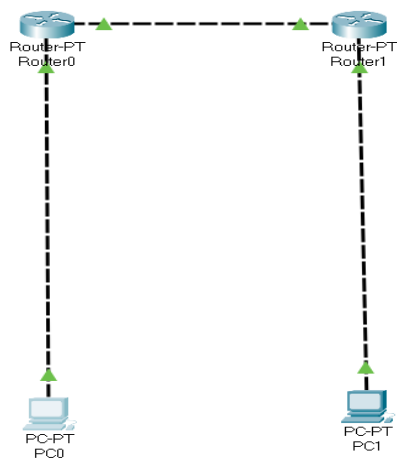
## Practical No. 2

### Study of Network Layer

#### a) Static Routing

**Aim :-** To study Static routing.

**Circuit Diagram :-**



**Program :-**

**Router 0 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit
interface fastethernet 0/1
ip address 20.0.0.1 255.0.0.0
no shutdown
exit
ip route 40.0.0.0 255.0.0.0 20.0.0.2
```

**Router 1 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 40.0.0.1 255.0.0.0
no shutdown
exit
```

```
interface fastethernet 0/1
ip address 20.0.0.2 255.0.0.0
no shutdown
exit
ip route 10.0.0.0 255.0.0.0 20.0.0.1
```

**Pc 0 > Desktop > Ip configuration :-**

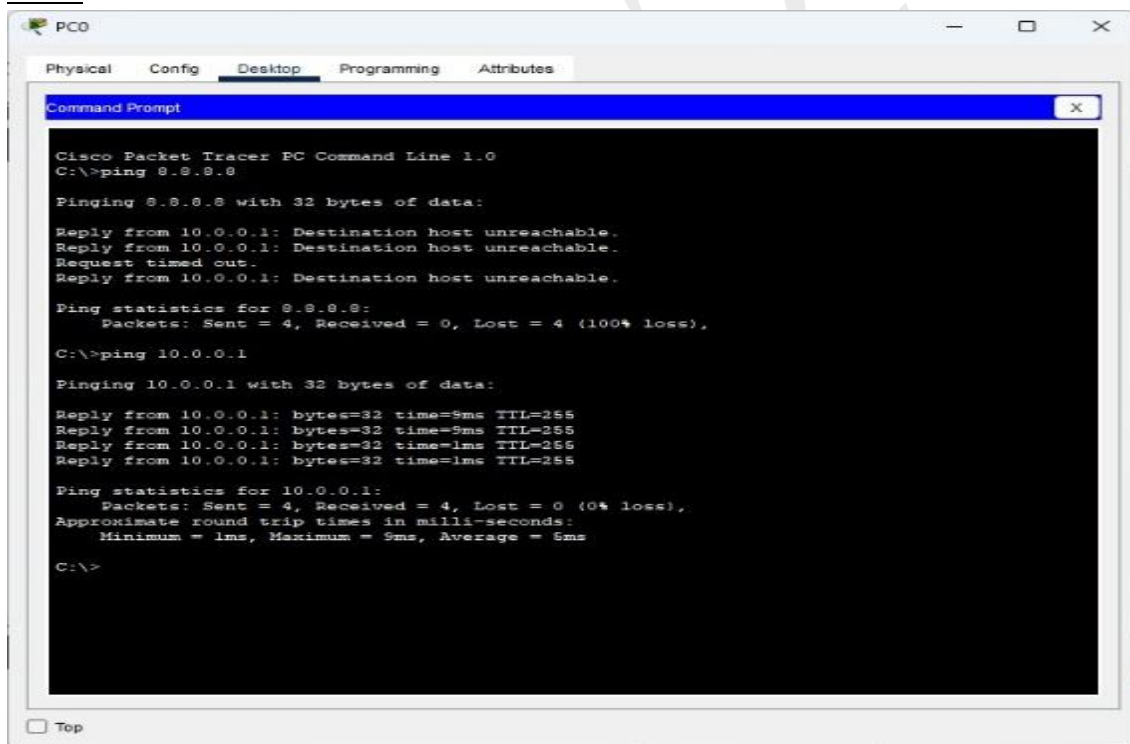
ipv4 : 10.0.0.2  
subnet mask : 255.0.0.0  
Default gateway: 10.0.0.1

**Pc 1 > Desktop > Ip configuration :-**

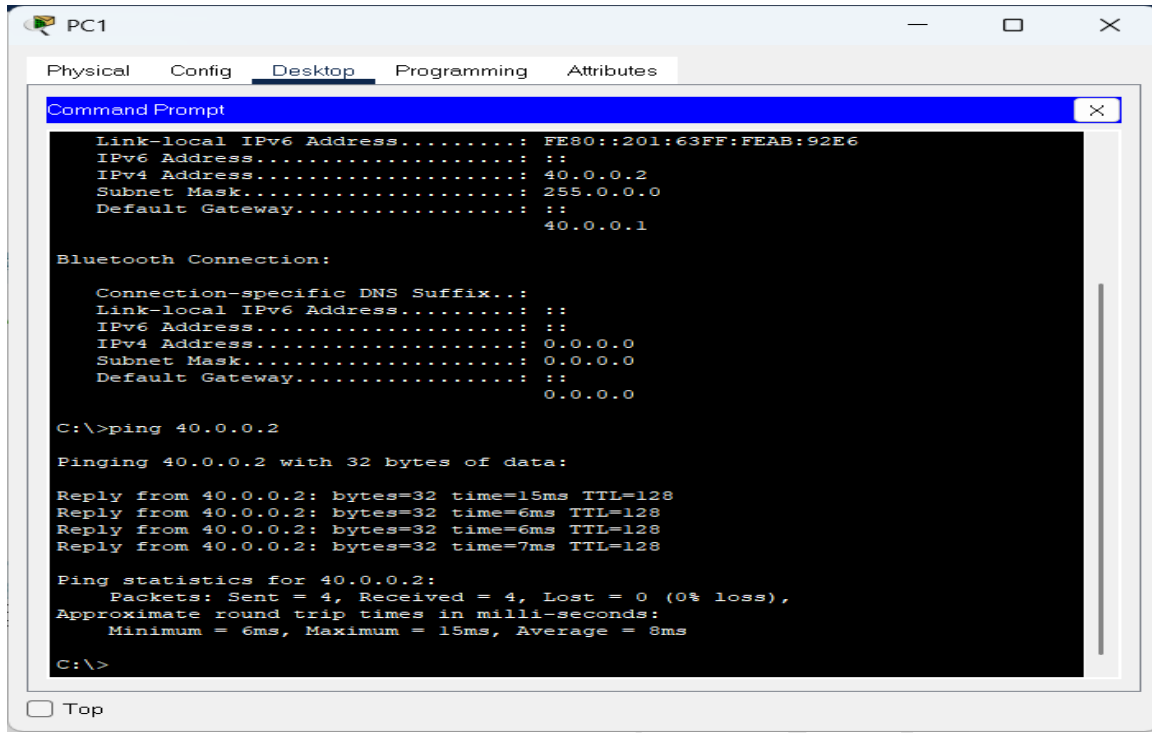
ipv4 : 40.0.0.2  
subnet mask : 255.0.0.0  
Default gateway: 40.0.0.1

Output :-

PC0 :-



PC1 :-



The screenshot shows a window titled 'PC1' with tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the following network configuration:

```
Link-local IPv6 Address.....: FE80::201:63FF:FEAB:92E6
IPv6 Address.....: ::
IPv4 Address.....: 40.0.0.2
Subnet Mask.....: 255.0.0.0
Default Gateway.....: ::
                        40.0.0.1
```

Below the network configuration, it shows a 'Bluetooth Connection:' section with the following details:

```
Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
                        0.0.0.0
```

The Command Prompt then shows the execution of the command 'C:\>ping 40.0.0.2'. The output indicates that the ping was successful, showing four replies from 40.0.0.2 with varying times and TTL values. The ping statistics show 4 packets sent, 4 received, and 0% loss, with a minimum round trip time of 6ms, a maximum of 15ms, and an average of 8ms.

```
C:\>ping 40.0.0.2

Pinging 40.0.0.2 with 32 bytes of data:

Reply from 40.0.0.2: bytes=32 time=15ms TTL=128
Reply from 40.0.0.2: bytes=32 time=6ms TTL=128
Reply from 40.0.0.2: bytes=32 time=6ms TTL=128
Reply from 40.0.0.2: bytes=32 time=7ms TTL=128

Ping statistics for 40.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 15ms, Average = 8ms

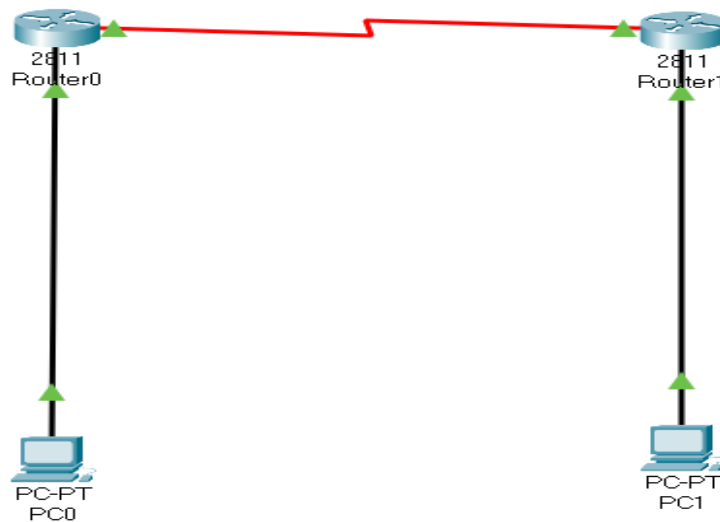
C:\>
```

**Conclusion :-** The program was executed successfully.

## b) RIP Routing

**Aim :-** To study RIP routing.

**Circuit Diagram :-**



**Program :-**

**Router 0 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit
interface fastethernet 0/1
ip address 20.0.0.1 255.0.0.0
no shutdown
exit
router rip
version 2
network 10.0.0.0
network 20.0.0.0
exit
```

**Router 1 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 40.0.0.1 255.0.0.0
no shutdown
exit
interface fastethernet 0/1
ip address 20.0.0.2 255.0.0.0
no shutdown
exit
router rip
version 2
network 40.0.0.0
network 20.0.0.0
exit
```

**Pc 0 > Desktop > Ip configuration :-**

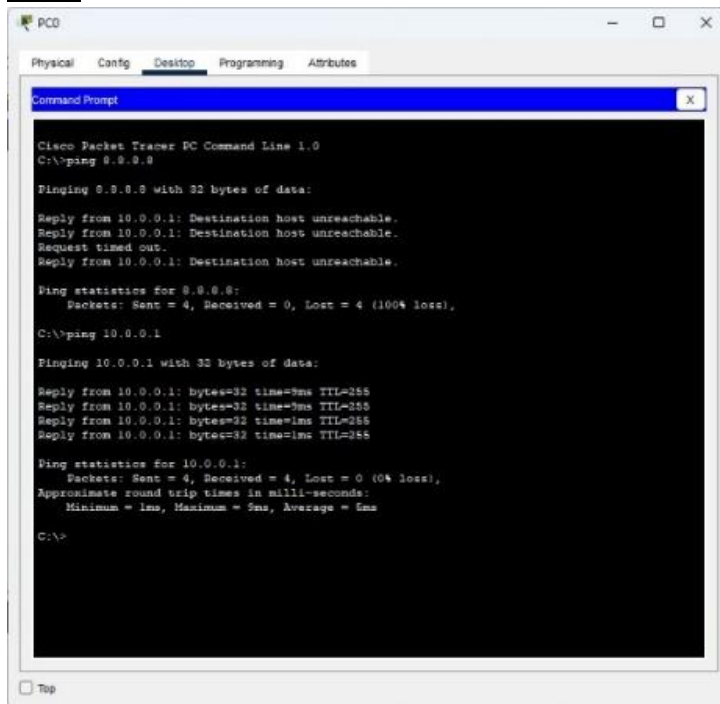
```
ipv4 : 10.0.0.2
subnet mask : 255.0.0.0
Default gateway: 10.0.0.1
```

**Pc 1 > Desktop > Ip configuration :-**

```
ipv4 : 40.0.0.2
subnet mask : 255.0.0.0
Default gateway: 40.0.0.1
```

**Output :-**

**PC0:-**



```

PC0
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 10.0.0.1: Destination host unreachable.
Reply from 10.0.0.1: Destination host unreachable.
Request timed out.
Reply from 10.0.0.1: Destination host unreachable.

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

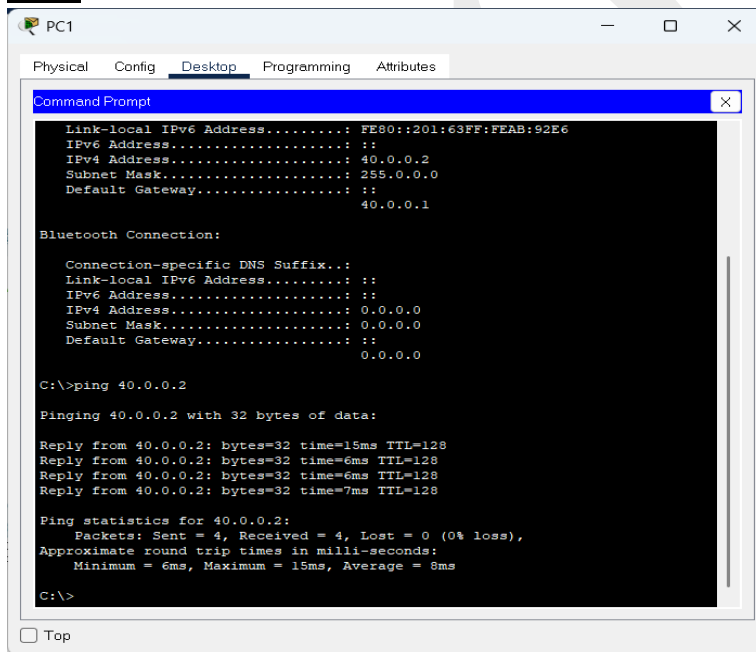
Reply from 10.0.0.1: bytes=32 time=3ms TTL=255
Reply from 10.0.0.1: bytes=32 time=3ms TTL=255
Reply from 10.0.0.1: bytes=32 time=1ms TTL=255
Reply from 10.0.0.1: bytes=32 time=1ms TTL=255

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 2ms

C:\>

```

**PC1:-**



```

PC1
Physical Config Desktop Programming Attributes
Command Prompt
Link-local IPv6 Address.....: FE80::201:63FF:FEAB:92E6
IPv6 Address.....: ::
IPv4 Address.....: 40.0.0.2
Subnet Mask.....: 255.0.0.0
Default Gateway.....: ::
                        40.0.0.1

Bluetooth Connection:
Connection-specific DNS Suffix.:
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
                        0.0.0.0

C:\>ping 40.0.0.2

Pinging 40.0.0.2 with 32 bytes of data:

Reply from 40.0.0.2: bytes=32 time=15ms TTL=128
Reply from 40.0.0.2: bytes=32 time=6ms TTL=128
Reply from 40.0.0.2: bytes=32 time=6ms TTL=128
Reply from 40.0.0.2: bytes=32 time=7ms TTL=128

Ping statistics for 40.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 15ms, Average = 8ms

C:\>

```

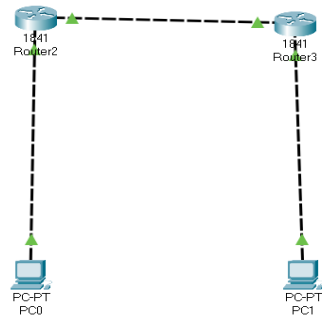
**Conclusion :-** The program was executed successfully.



### c) OSPF Routing

**Aim :-** To study OSPF routing.

**Circuit Diagram :-**



**Program :-**

**Router 0 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit
interface fastethernet 0/1
ip address 20.0.0.1 255.0.0.0
no shutdown
exit
router ospf 1
network 10.0.0.0 0.255.255.255 area 0
network 20.0.0.0 0.255.255.255 area 0
exit
```

**Router 1 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 40.0.0.1 255.0.0.0
no shutdown
```

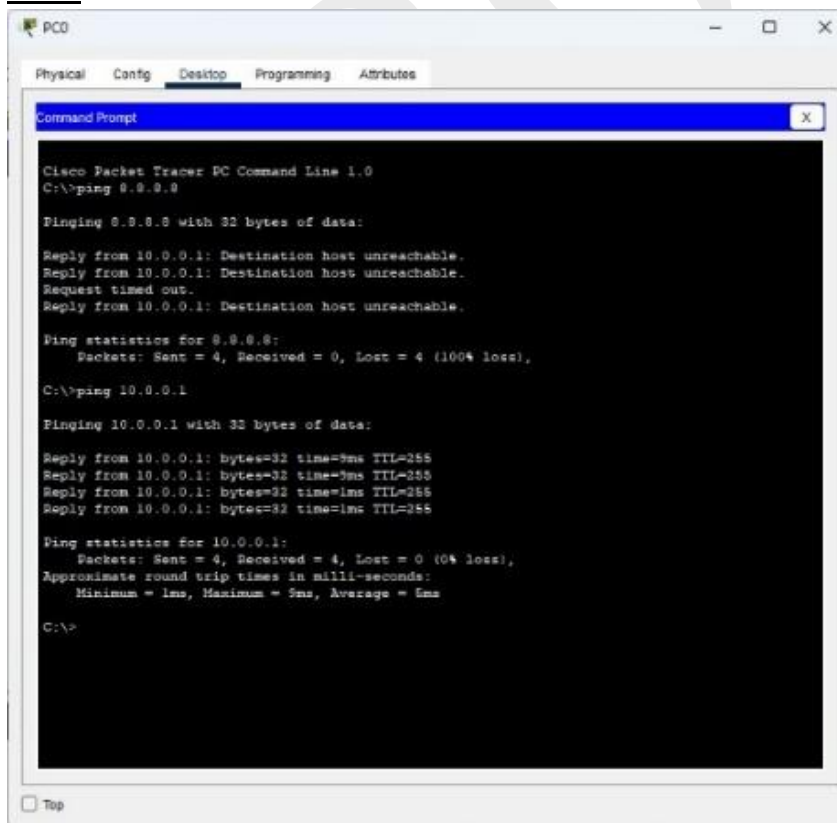
```
exit
interface fastethernet 0/1
ip address 20.0.0.2 255.0.0.0
no shutdown
exit
router ospf 2
network 40.0.0.0 0.255.255.255 area 0
network 20.0.0.0 0.255.255.255 area 0
exit
```

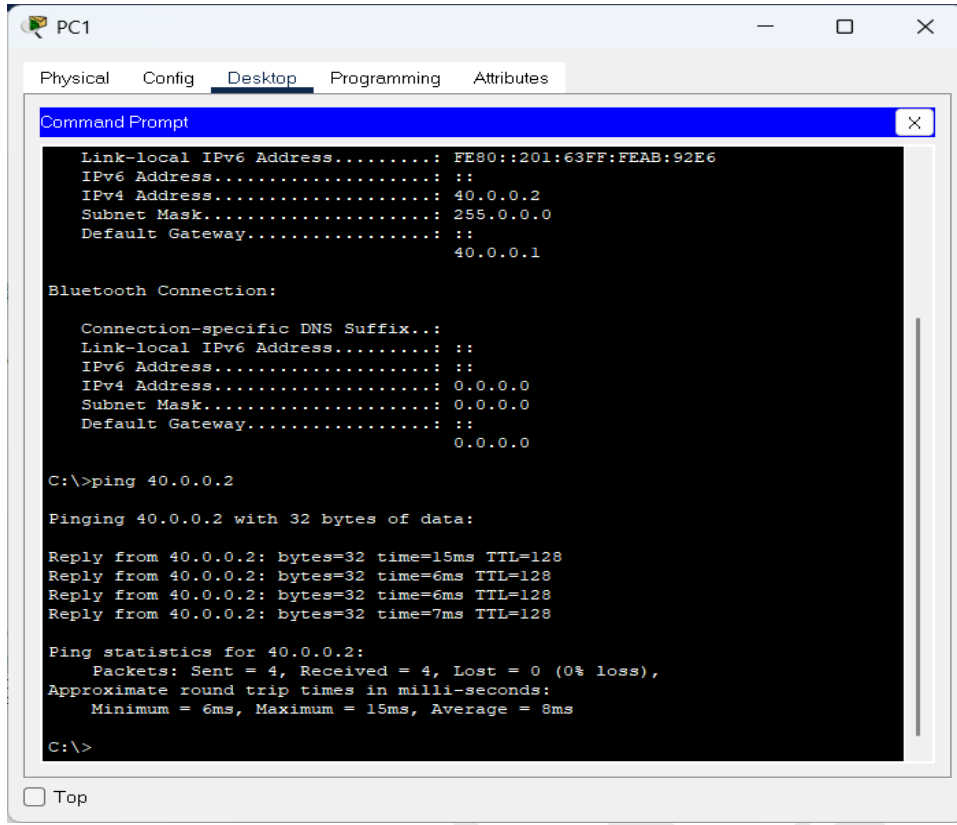
**Pc 0 > Desktop > Ip configuration :-**

```
ipv4 : 10.0.0.2
subnet mask : 255.0.0.0
Default gateway: 10.0.0.1
```

**Pc 1 > Desktop > Ip configuration :-**

```
ipv4 : 40.0.0.2
subnet mask : 255.0.0.0
Default gateway: 40.0.0.1
```

**Output :-****PC0:-**

**PC1:-**

The screenshot shows a window titled 'PC1' with tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the following output:

```
Link-local IPv6 Address.....: FE80::201:63FF:FEAB:92E6
IPv6 Address.....: ::
IPv4 Address.....: 40.0.0.2
Subnet Mask.....: 255.0.0.0
Default Gateway.....: ::
                        40.0.0.1

Bluetooth Connection:

Connection-specific DNS Suffix.:
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
                        0.0.0.0

C:\>ping 40.0.0.2

Pinging 40.0.0.2 with 32 bytes of data:

Reply from 40.0.0.2: bytes=32 time=15ms TTL=128
Reply from 40.0.0.2: bytes=32 time=6ms TTL=128
Reply from 40.0.0.2: bytes=32 time=6ms TTL=128
Reply from 40.0.0.2: bytes=32 time=7ms TTL=128

Ping statistics for 40.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 15ms, Average = 8ms

C:\>
```

At the bottom of the Command Prompt window, there is a 'Top' button with a checkbox.

**Conclusion :-** The program was executed successfully.

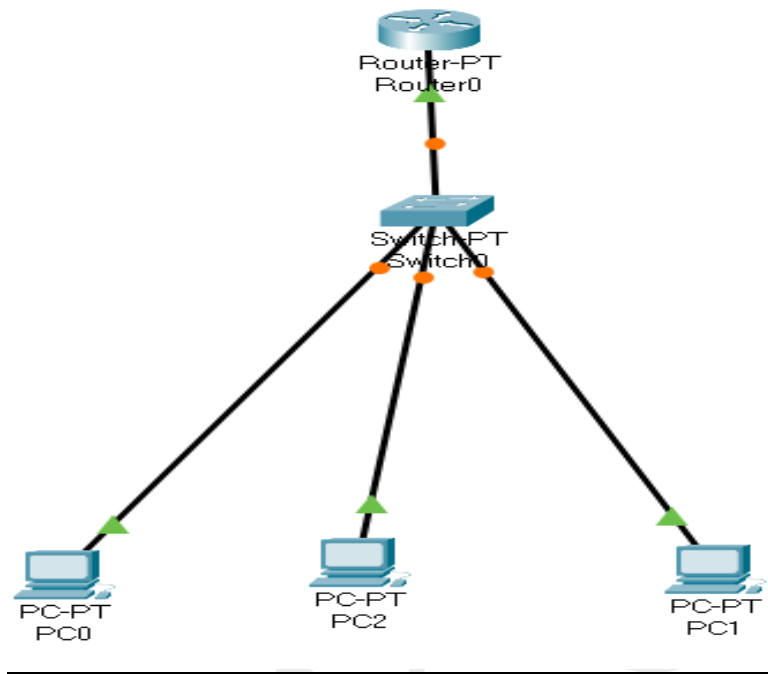
### Practical No. 3

#### Study of Application Layer

##### a) DHCP

**Aim :-** To study DHCP.

**Circuit Diagram :-**



**Program :-**

**Router 0 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit
ip dhcp pool syt
network 10.0.0.0 255.0.0.0
default-router 10.0.0.1
ip dhcp excluded-address 10.0.0.2 10.0.0.1
ip dhcp pool syt
network 10.0.0.0 255.0.0.0
default-router 10.0.0.1
ip dhcp excluded-address 10.0.0.2 10.0.0.13
exit
```

**Output:-**

**Pc0**

The screenshot shows the configuration window for PC0, specifically the 'Desktop' tab. The 'IP Configuration' section is active, showing settings for the 'FastEthernet0' interface. The 'DHCP' option is selected under 'IP Configuration'. The 'IPv4 Address' is set to 10.0.0.2, 'Subnet Mask' is 255.0.0.0, 'Default Gateway' is 10.0.0.1, and 'DNS Server' is 0.0.0.0. The 'IPv6 Configuration' section shows 'Static' selected, with 'IPv6 Address' and 'Link Local Address' (FE80::2D0:BAFF:FE26:8EAE) fields. The '802.1X' section shows 'Use 802.1X Security' unchecked, 'Authentication' set to 'MD5', and empty fields for 'Username' and 'Password'. A 'Top' button is at the bottom left.

Interface	FastEthernet0
<b>IP Configuration</b>	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	10.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	10.0.0.1
DNS Server	0.0.0.0
<b>IPv6 Configuration</b>	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::2D0:BAFF:FE26:8EAE
Default Gateway	
DNS Server	
<b>802.1X</b>	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

☐ Top

**Pc1**

The screenshot shows the configuration window for PC1, specifically the 'Desktop' tab. The 'IP Configuration' section is active, showing settings for the 'FastEthernet0' interface. The 'DHCP' option is selected under 'IP Configuration'. The 'IPv4 Address' is set to 10.0.0.15, 'Subnet Mask' is 255.0.0.0, 'Default Gateway' is 10.0.0.1, and 'DNS Server' is 0.0.0.0. The 'IPv6 Configuration' section shows 'Static' selected, with 'IPv6 Address' and 'Link Local Address' (FE80::260:70FF:FE7C:150C) fields. The '802.1X' section shows 'Use 802.1X Security' unchecked, 'Authentication' set to 'MD5', and empty fields for 'Username' and 'Password'. A 'Top' button is at the bottom left.

Interface	FastEthernet0
<b>IP Configuration</b>	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	10.0.0.15
Subnet Mask	255.0.0.0
Default Gateway	10.0.0.1
DNS Server	0.0.0.0
<b>IPv6 Configuration</b>	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::260:70FF:FE7C:150C
Default Gateway	
DNS Server	
<b>802.1X</b>	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

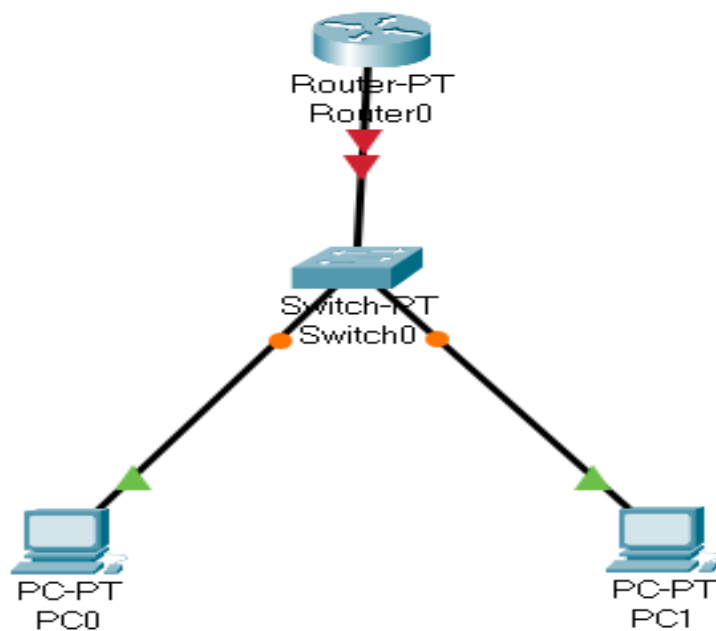
☐ Top

**Conclusion :-** The program was executed successfully.

## b) DNS

**Aim :-** To study DNS.

**Circuit Diagram :-**



**Program :-**

**Router 0 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit
ip dhcp pool syit
network 10.0.0.0 255.0.0.0
default-router 10.0.0.1
dns-server 8.8.8.8
exit
ip host www.syit.com 10.0.0.1
exit
```

**Pc 0 > Desktop > Ip configuration :-**

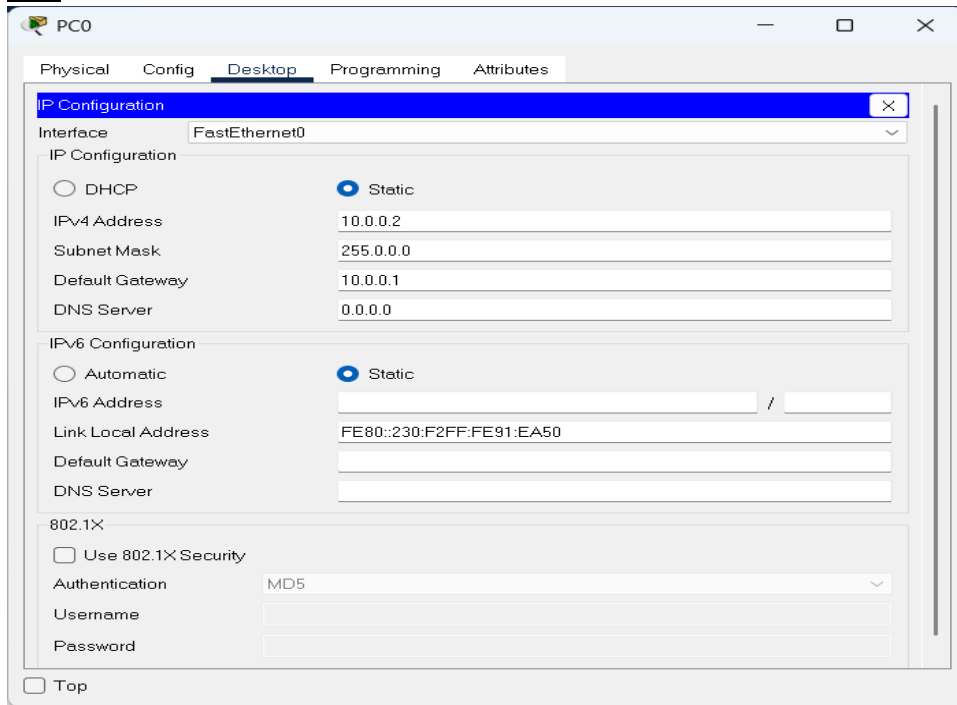
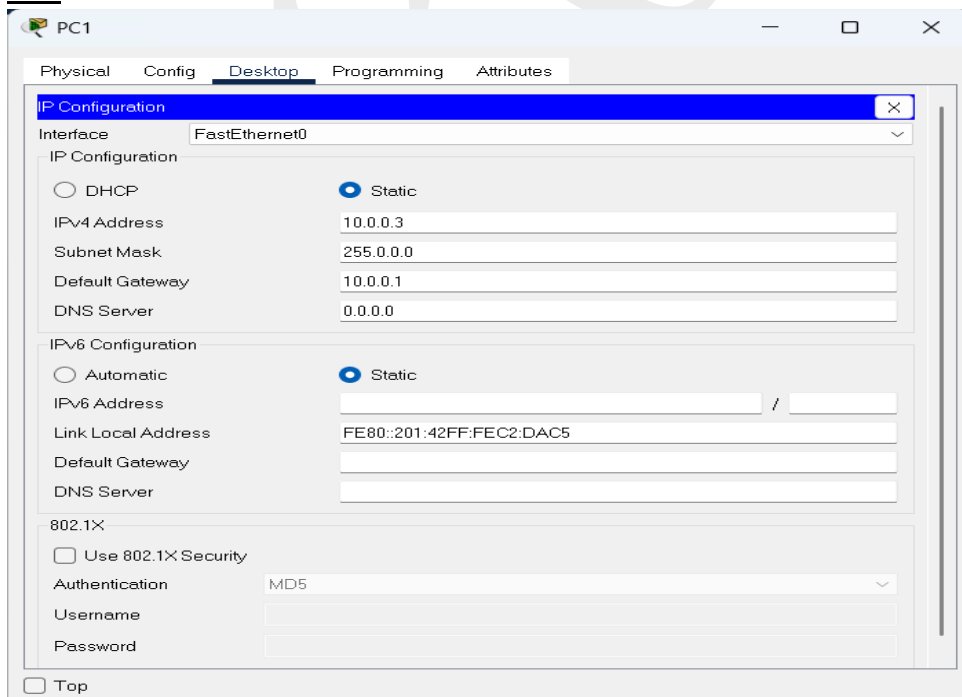
```
ipv4 : 10.0.0.2
subnet mask : 255.0.0.0
Default gateway: 10.0.0.1
```

**Pc 1 > Desktop > Ip configuration :-**

ipv4 : 10.0.0.3

subnet mask : 255.0.0.0

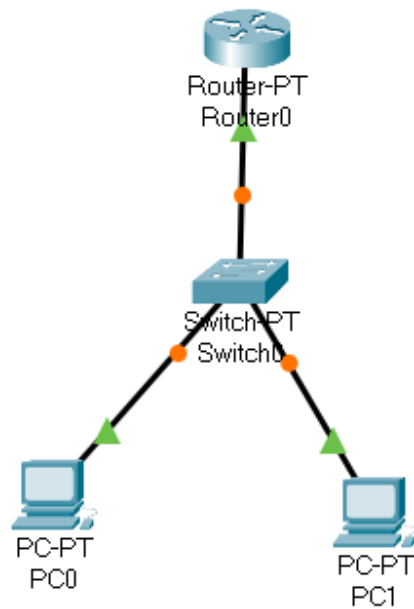
Default gateway: 10.0.0.1

**Output:-****PC0****PC1****Conclusion:-The program executed Successfully**

### c) FTP

**Aim :-** To study FTP.

**Diagram:**



**Program :-**

**Router 0 > cli :-**

```

enable
configure terminal
interface fastethernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit
ip ftp username bscit
ip ftp password syit
ip ftp server enable
exit
  
```

**Pc 0 > Desktop > Ip configuration :-**

```

ipv4 : 10.0.0.2
subnet mask : 255.0.0.0
Default gateway: 10.0.0.1
  
```



**Pc 1 > Desktop > Ip configuration :-**

ipv4 : 10.0.0.3

subnet mask : 255.0.0.0

Default gateway: 10.0.0.1

**Pc 0 > Desktop > Text Editor :-**

This is from PC0

**Pc 0 > Desktop > Command Prompt :-**

ftp 10.0.0.1

username : bscit

password : syit

put testfile.txt

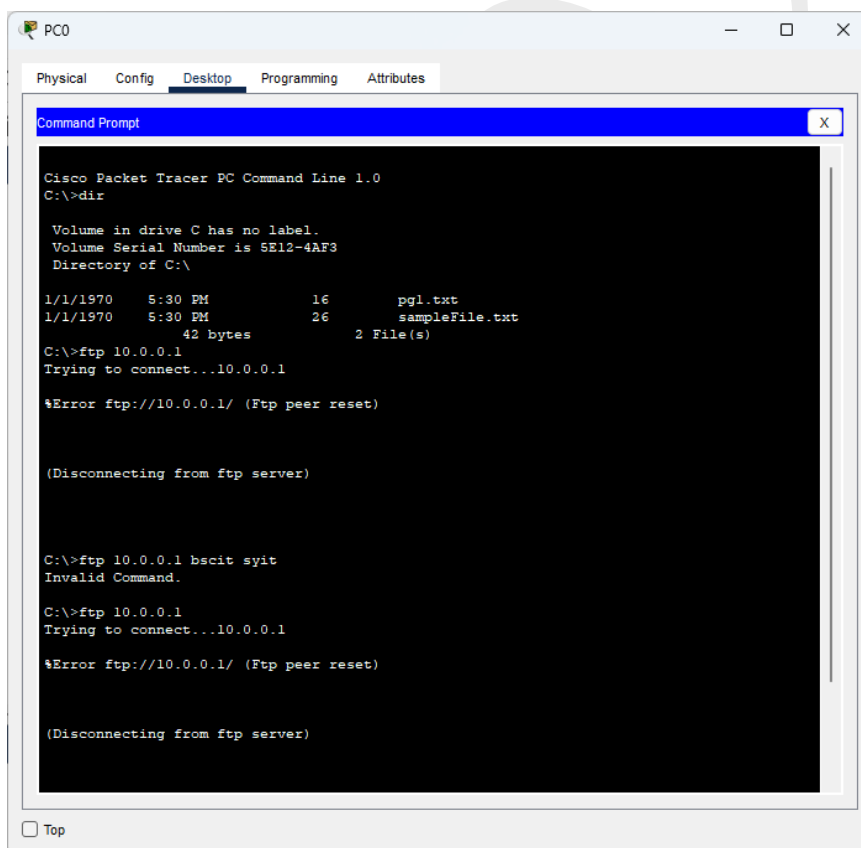
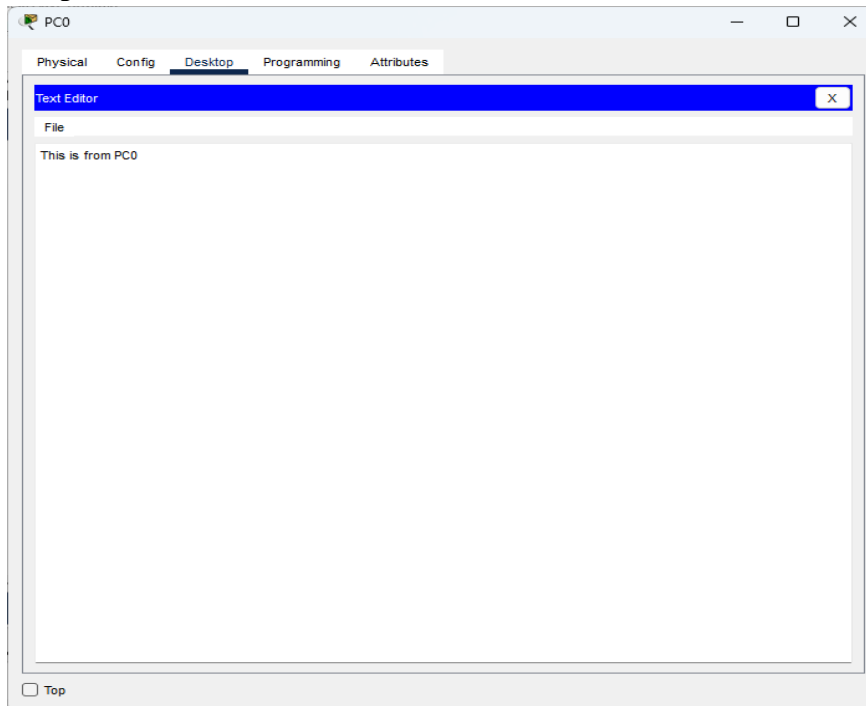
**Pc 1 > Desktop > Command Prompt :-**

ftp 10.0.0.1

username : bscit

password : syit

get testfile.txt

**Output:-****Conclusion:-The program executed Successfully**

#### d) HTTP

**Aim :-** To study HTTP.

**Circuit Diagram:-**



**Program :-**

**Server 0 > Desktop > Ip configuration :-**

ipv4 : 10.0.0.2

subnet mask : 255.0.0.0

Default gateway: 0.0.0.0

**Server 0 > Services > HTTP :-**

HTTP : on

HTTPS : on

**Server 0 > Services > TFTP :-**

service: off

**Server 0 > Services > HTTP > index.html > Edit :-**

```
<html>
<head>
<title>SYIT</title>
</head>
<body>
<h1>I am SYIT</h1>
</body>
</html>
```

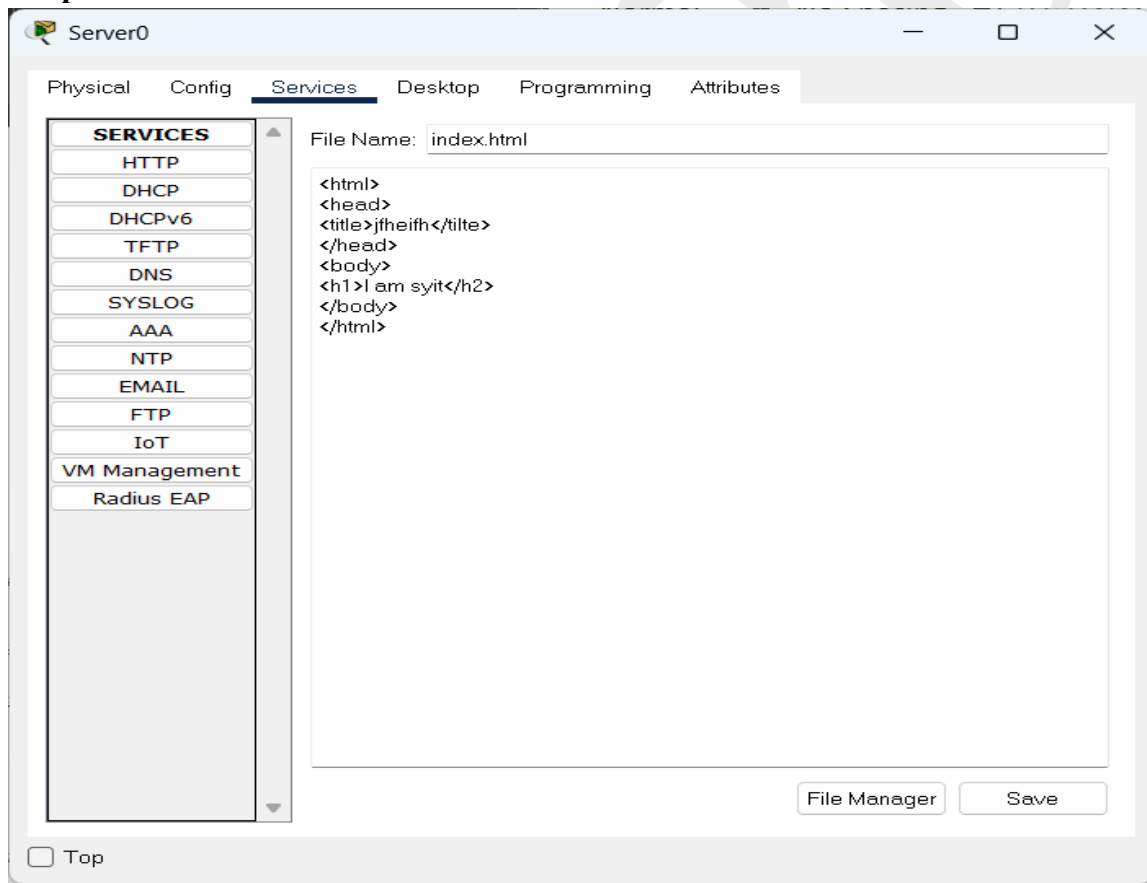
**Pc 0 > Desktop > Ip Configuration :-**

ipv4 : 10.0.0.3

subnet mask : 255.0.0.0

Default gateway: 10.0.0.2

**Output:-**

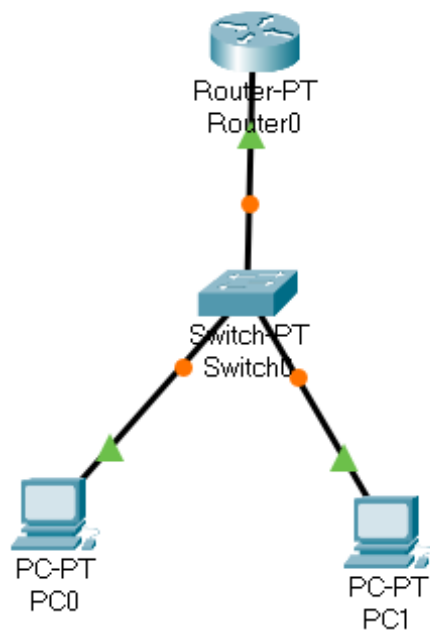


**Conclusion:-The program executed Successfully.**

### e) TELNET

**Aim :-** To study TELNET.

**Circuit diagram:-**



**Program :-**

**Router 0 > cli :-**

```
enable
configure terminal
interface fastethernet 0/0
ip address 10.0.0.1 255.0.0.0
no shutdown
exit
line vty 0 10
password syit
login
transport input telnet
exit
exit
```

**Pc 0 > Desktop > Ip configuration :-**

ipv4 : 10.0.0.2

subnet mask : 255.0.0.0

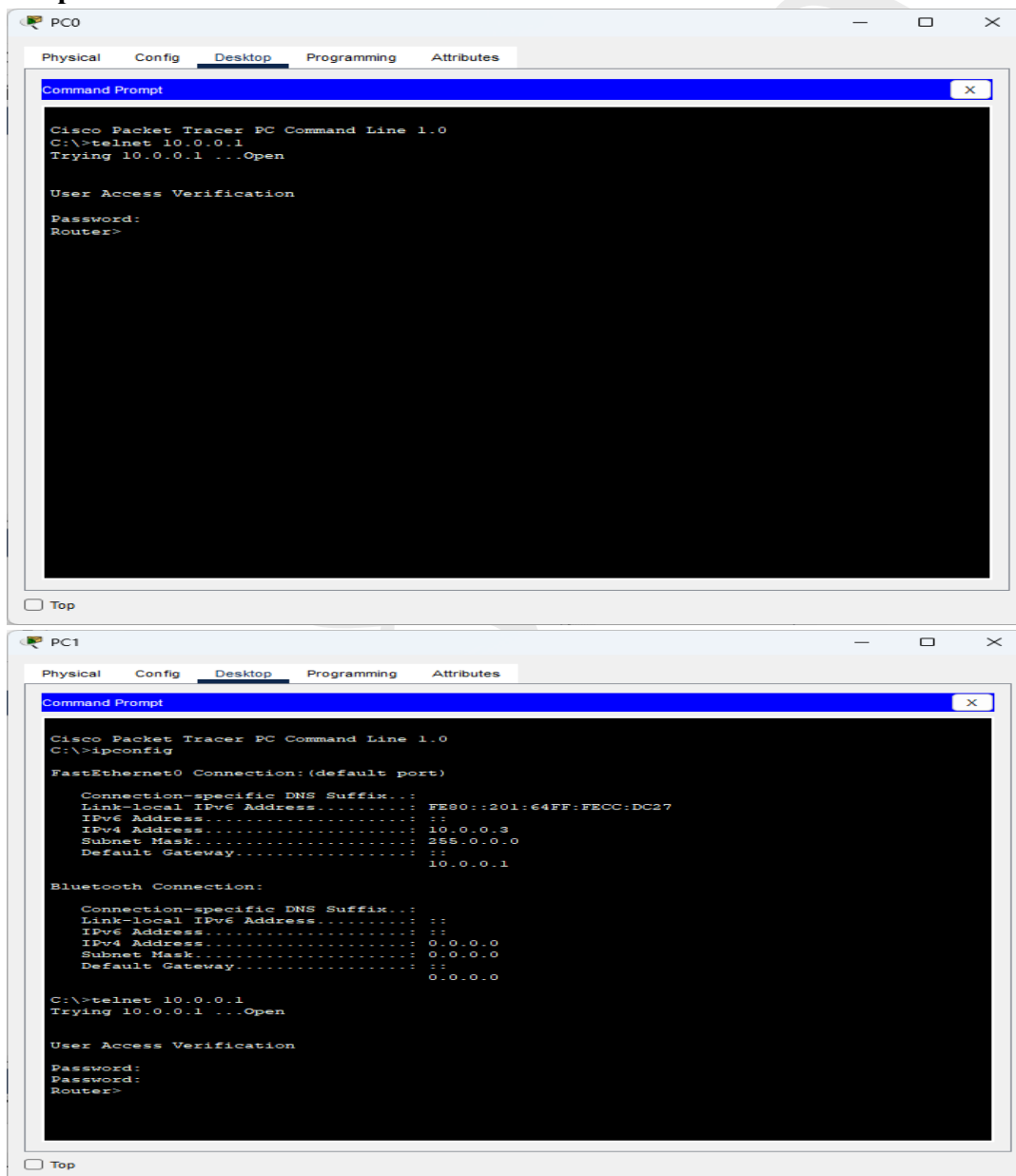
Default gateway: 10.0.0.1

**Pc 1 > Desktop > Ip configuration :-**

ipv4 : 10.0.0.3

subnet mask : 255.0.0.0

Default gateway: 10.0.0.1

**Output:-****Conclusion:-The program executed Successfully.**