Name : Brijesh Rameshbhai Rohit
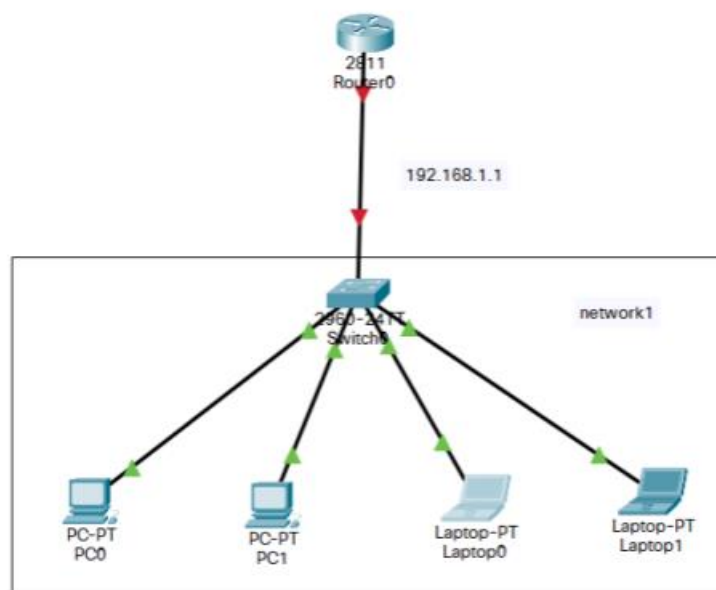
Admission number : U19CS009

CN-ASSIGNMENT-09

Create Manual to create two network topologies.
1. single network connected to one Router. Router should work as DHCP server and assign ip address.

=>

1. Layout

Plot a simple network connecting to a single router as shown

2. IP configuration of Router

Now set the IP of the Router connecting to the Network to 192.168.1.1 using GUI or CLI.

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
state to up
```

This would change the red marking on the connection between switch and router to green indicating that the connection is successful.

3. DHCP configuration

Now use the following command to create a DHCP pool with the network 192.168.1.1 and subnet mask 255.255.255.0
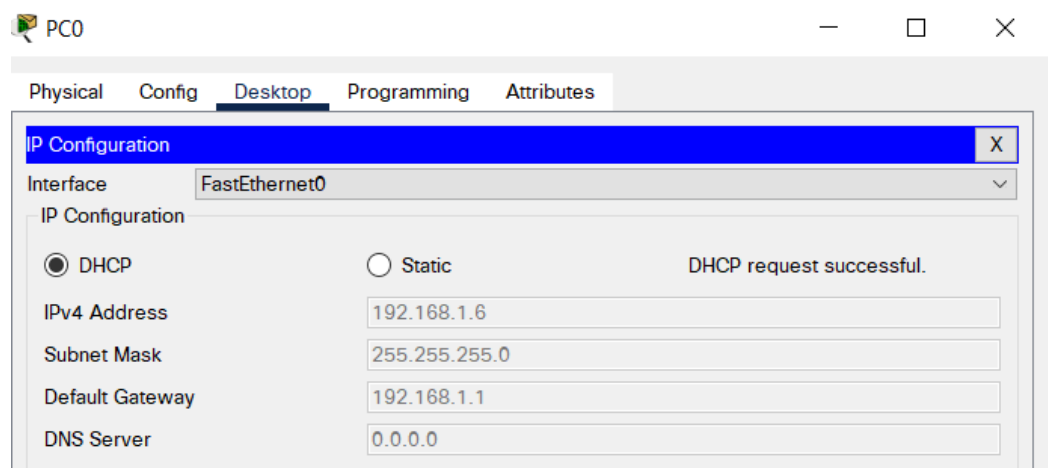
```
Router(config-if)#exit
Router(config)#ip dhcp pool net
Router(dhcp-config)#network 192.168.1.1 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#exit
Router(config)#
```

Once this is completed, we must change the property of end devices from static to DHCP.
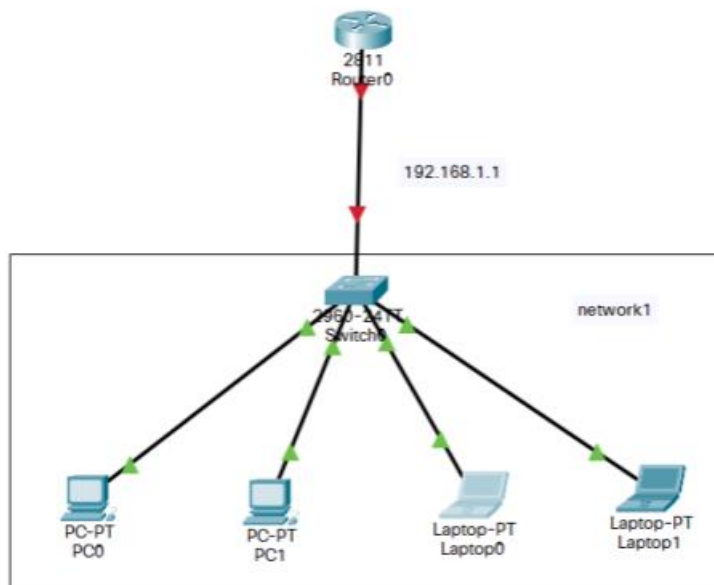*REQUESTING IP*
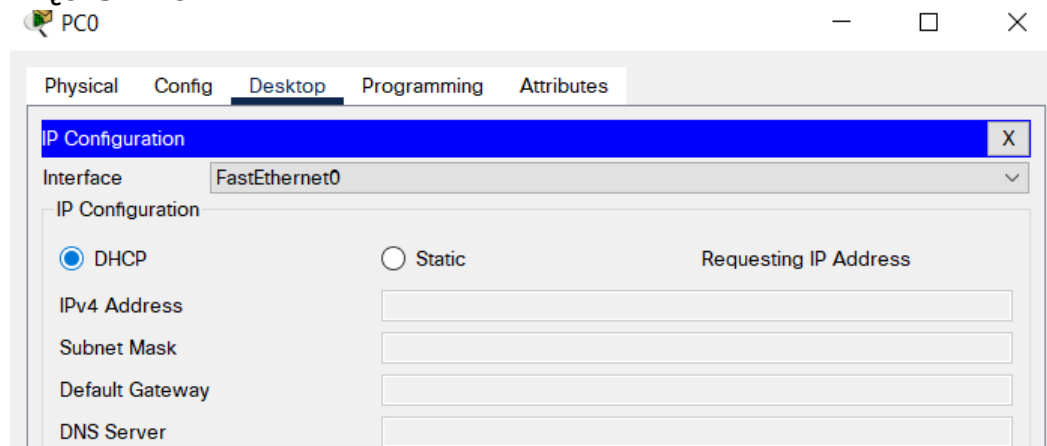
SUCCESSFUL REQUEST

This will allow any new device which is being added to the network to get its own unique IP address automatically.

4. Simulation

Pinging Laptop1 from PC0

PC0

Physical | Config | **Desktop** | Programming | Attributes

Command Prompt [X]

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.1.5: bytes=32 time<1ms TTL=128
Reply from 192.168.1.5: bytes=32 time<1ms TTL=128
Reply from 192.168.1.5: bytes=32 time<1ms TTL=128
Reply from 192.168.1.5: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.1.5: bytes=32 time=4ms TTL=128
Reply from 192.168.1.5: bytes=32 time=4ms TTL=128
Reply from 192.168.1.5: bytes=32 time=4ms TTL=128
Reply from 192.168.1.5: bytes=32 time=4ms TTL=128

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 4ms, Average = 4ms

C:\>
```
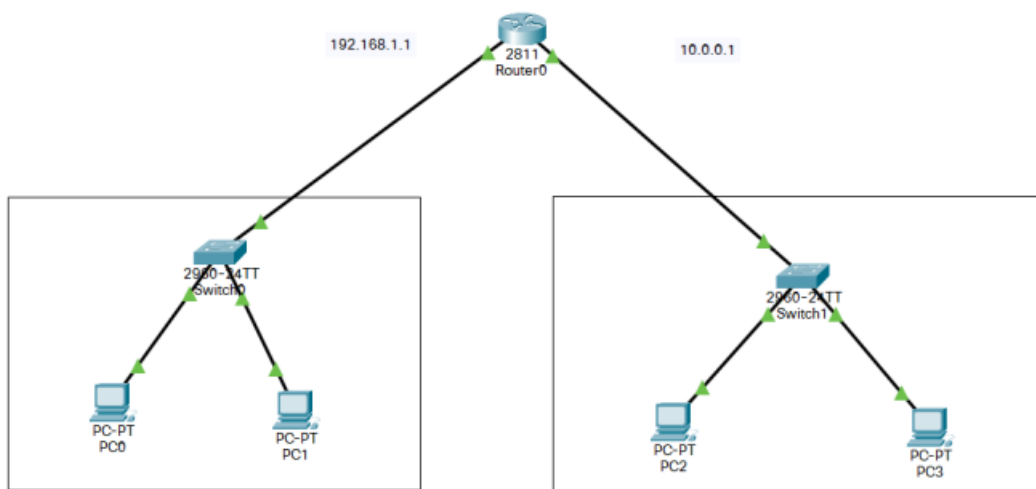
[ ] Top

2. more than 1 network are connected to one router. Router should work as DHCP server and assign ip address.
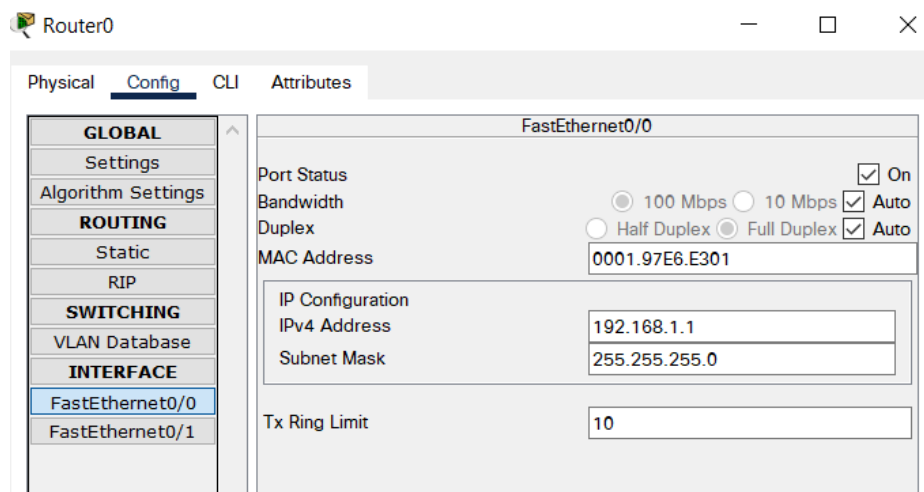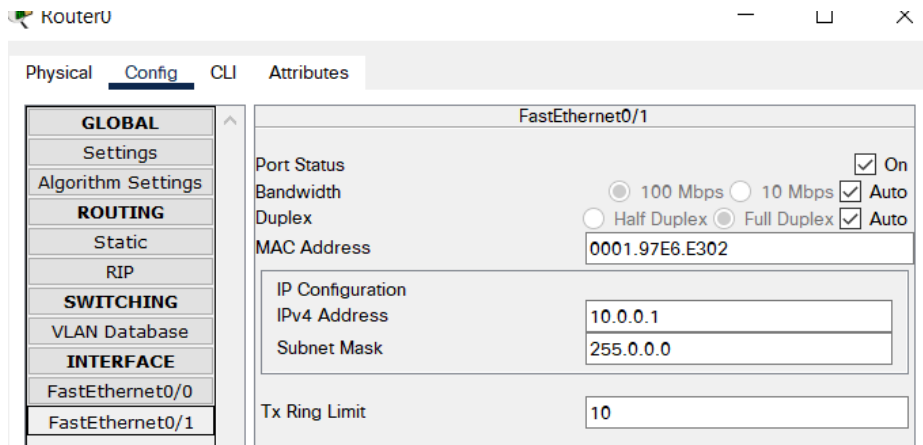
=>

1. Layout
   Create a 2 (or more)network and connect them to router (if more than 2 networks are there use appropriate modules to connect them)

2. IP configuration of Router

Set IP of each port to respective default gateway.
Here we would take "192.168.1.1" and "10.0.0.1"

3. DHCP Configuration

Create two DHCP pool since there are 2 different networks connected via router.

```
Router(config-if)#exit
Router(config)#ip dhcp pool net1
Router(dhcp-config)#network 192.168.1.1 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp 10.0.0.1 255.0.0.0
                        ^
% Invalid input detected at '^' marker.

Router(config)#ip dhcp pool net2
Router(dhcp-config)#network 10.0.0.1 255.0.0.0
Router(dhcp-config)#default-router 10.0.0.1
Router(dhcp-config)#exit
Router(config)#%DHCPD-4-PING_CONFLICT: DHCP address conflict:  server pinged
192.168.1.1.
```
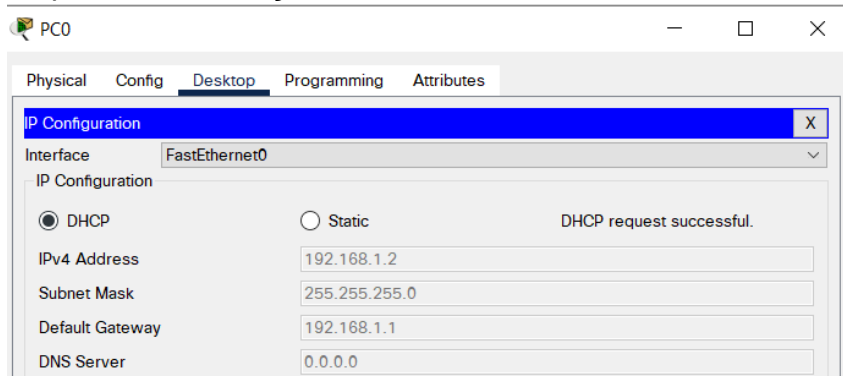
Once this is completed, all left is changing the IP config of devices from static to DHCP.
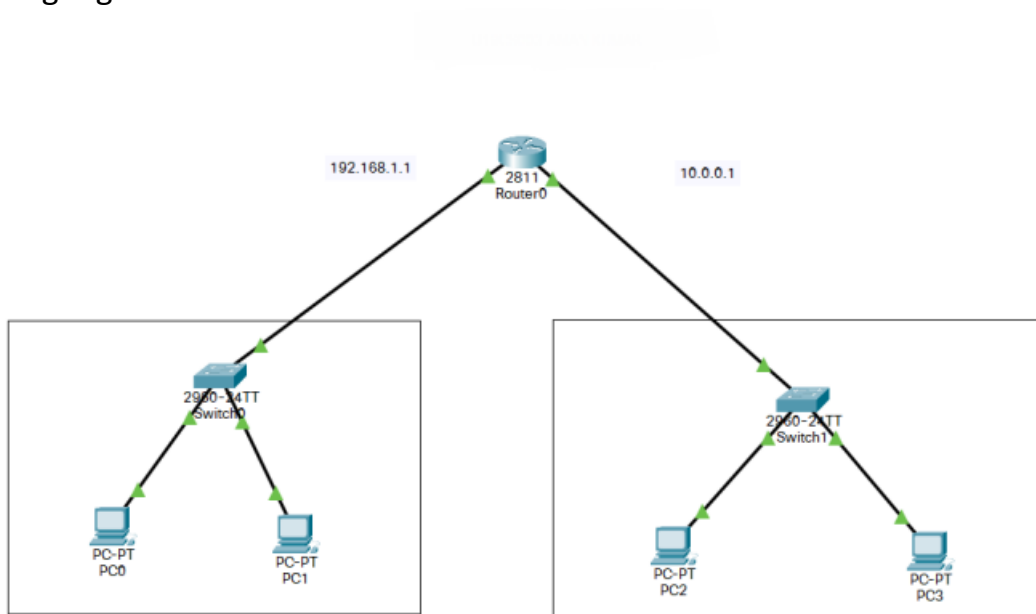
Requesting IP Address:
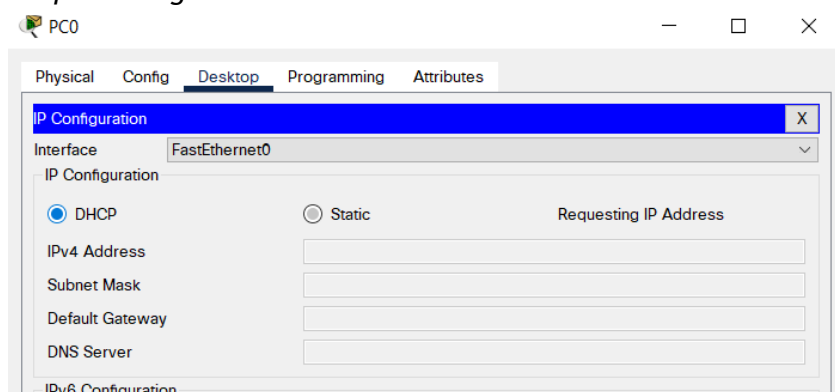
Request Successful:

4. Simulation

Pinging PC2 from PC0.


```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=8ms TTL=127
Reply from 10.0.0.2: bytes=32 time=8ms TTL=127
Reply from 10.0.0.2: bytes=32 time=8ms TTL=127
Reply from 10.0.0.2: bytes=32 time=8ms TTL=127

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 8ms, Average = 8ms

C:\>
```