

ASSIGNMENT 6:
Use Cisco Packet Tracer software to do the
following experiments.

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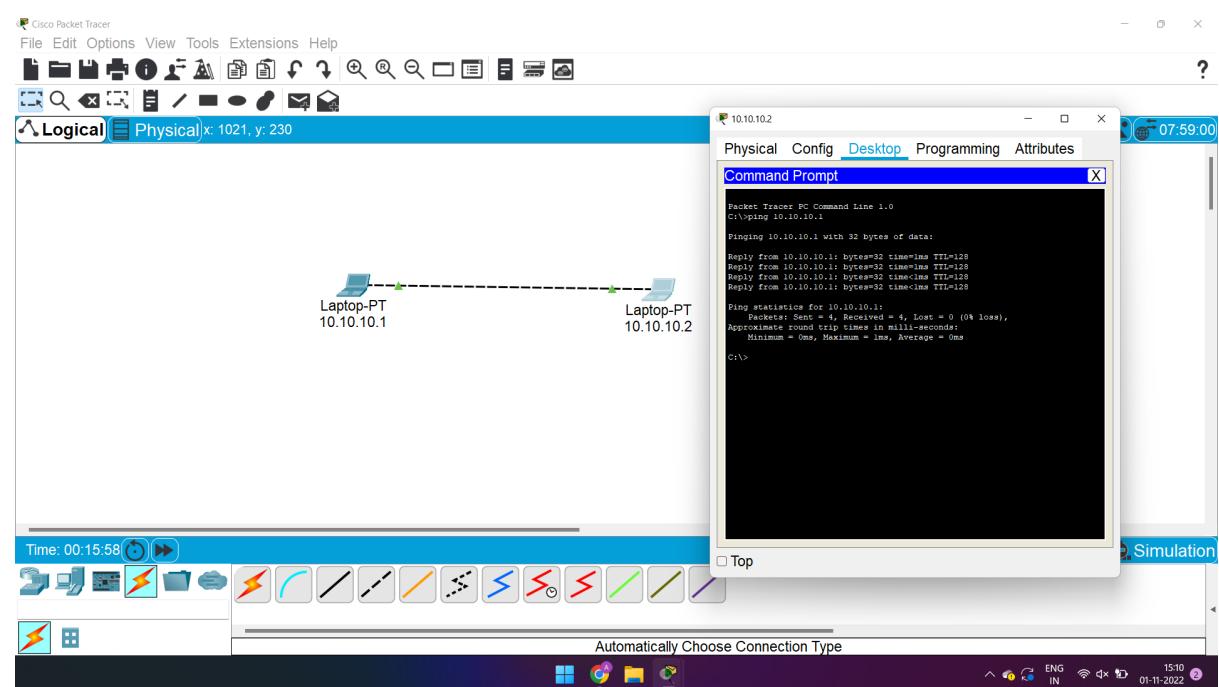
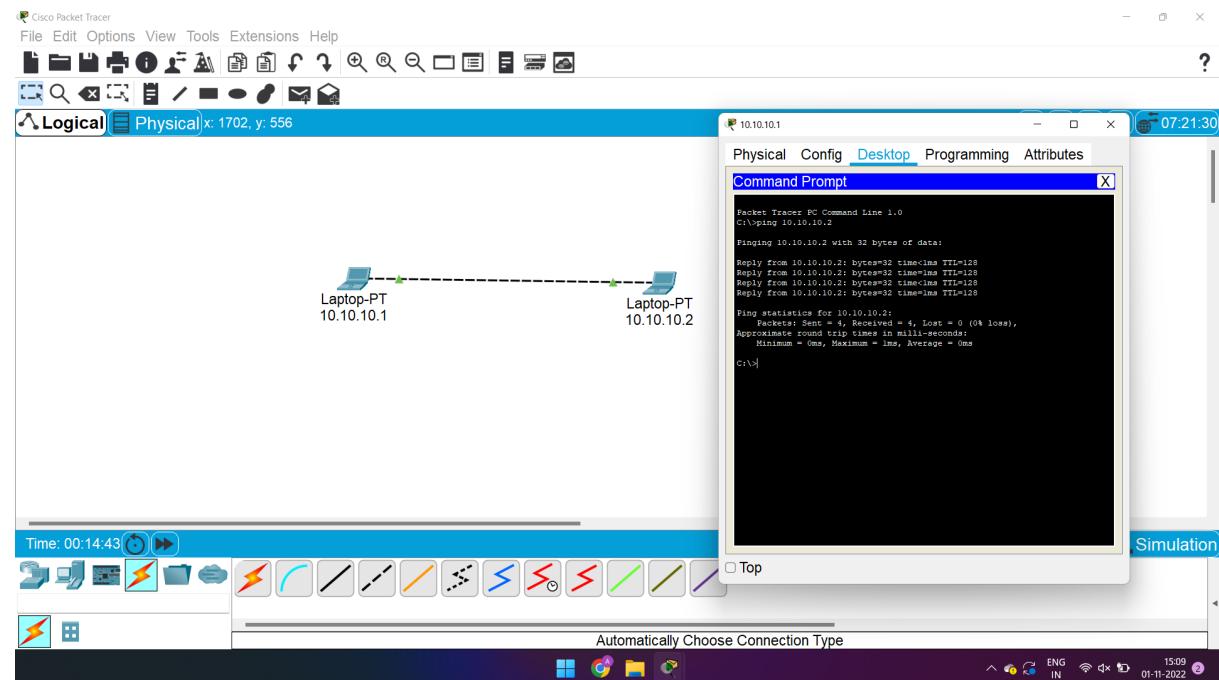
CLASS : BCSE III

GROUP : A1

Questions and Solutions :

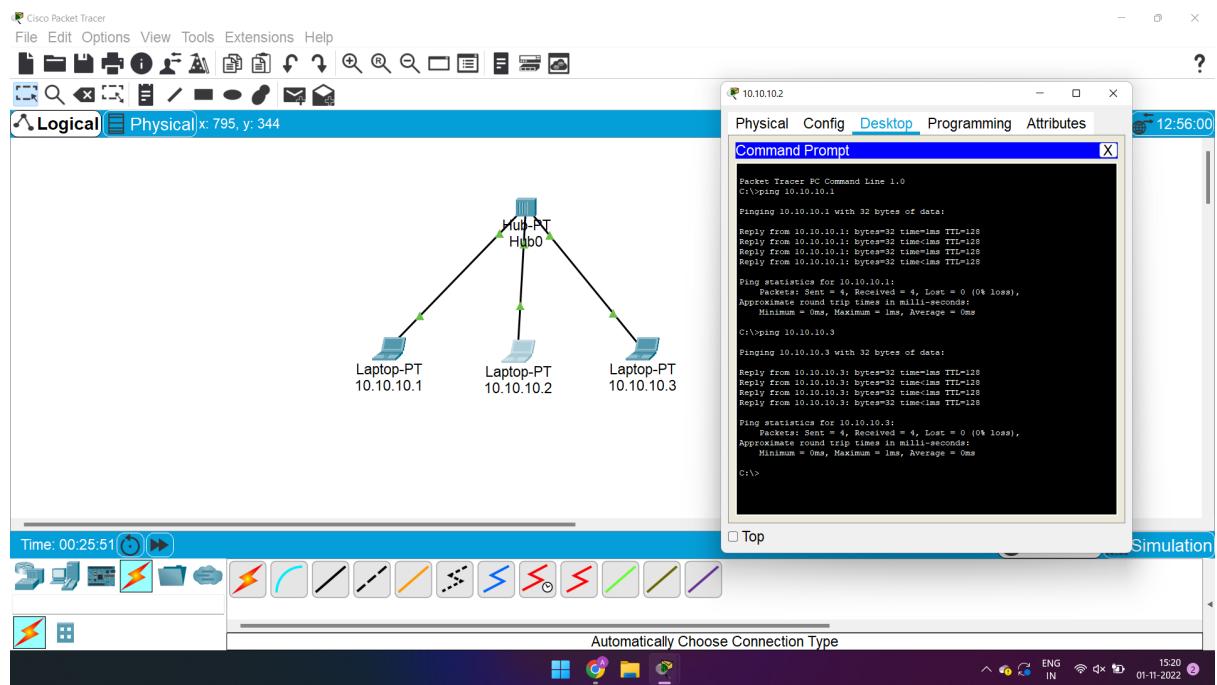
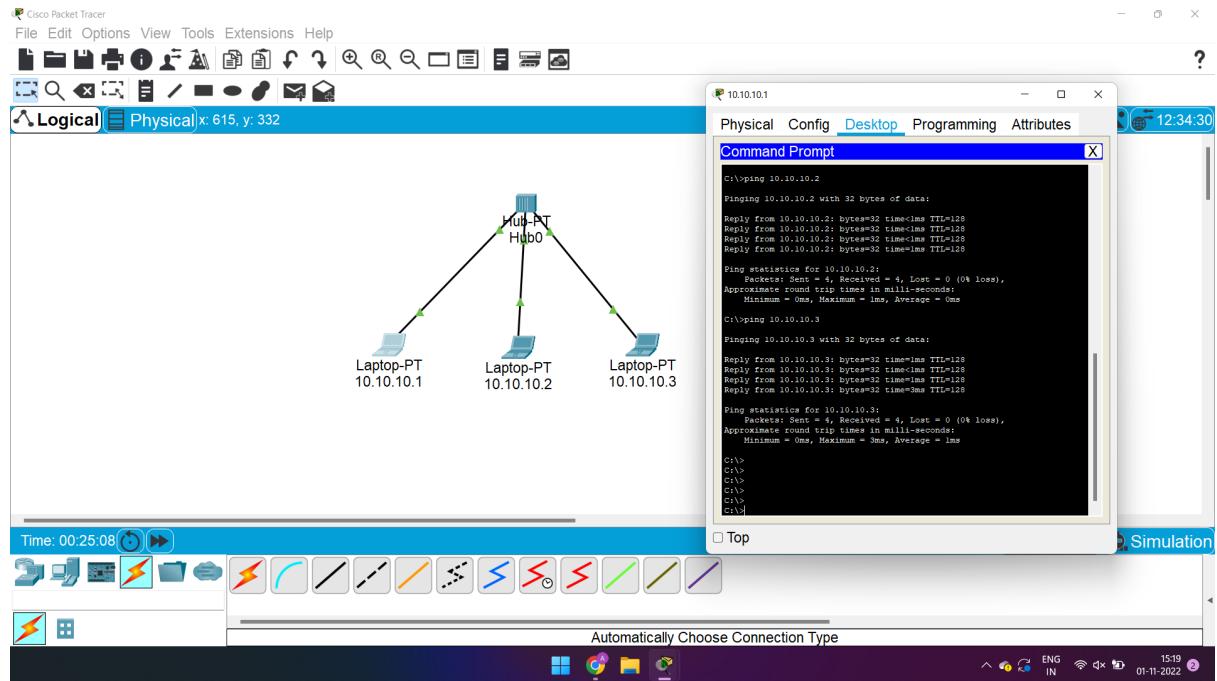
1. Connect two hosts back-to-back with a crossover cable. Assign IP addresses, and see whether they are able to ping each other.

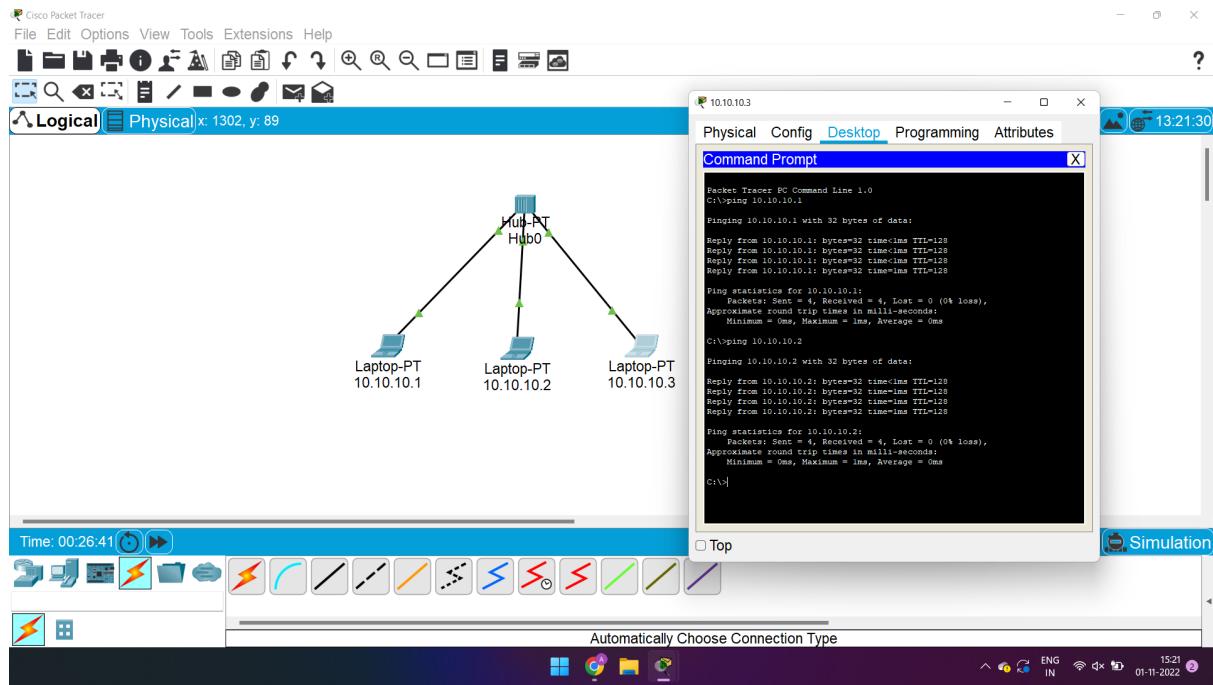
IP Address assigned : 10.10.10.1 and 10.10.10.2



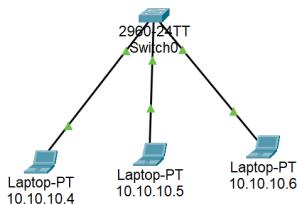
2. Create a LAN (named LAN-A) with 3 hosts using a hub. Ping each pair of nodes.

IP Address assigned : 10.10.10.1, 10.10.10.2 and 10.10.10.3





3. Create a LAN (named LAN-B) with 3 hosts using a switch. Record contents of the ARP Table of end hosts and the MAC Forwarding Table of the switch. Ping each pair of nodes. Now record the contents of the ARP Table of end hosts and the MAC Forwarding Table of the switch again.



Before Pinging No entries were there in the MAC Forwarding table and the ARP tables were also empty.

```
SWITCH#show mac-address-table
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show mac-address-table
  Mac Address Table
  -----
  Vlan      Mac Address          Type      Ports
  ----      -----                -----    -----
Switch#
```

Ctrl+F6 to exit CLI focus

Physical Config Desktop F

Command Prompt

```
Packet Tracer PC Command Line 1.0  
C:\>arp -a  
No ARP Entries Found  
C:\>
```

After Pinging every node pairwise :

ARP Table for 10.10.10.4

```
C:\>arp -a  
Internet Address      Physical Address      Type  
10.10.10.5            0060.7084.5d4d      dynamic  
10.10.10.6            0001.6345.acab      dynamic
```

ARP Table for 10.10.10.5

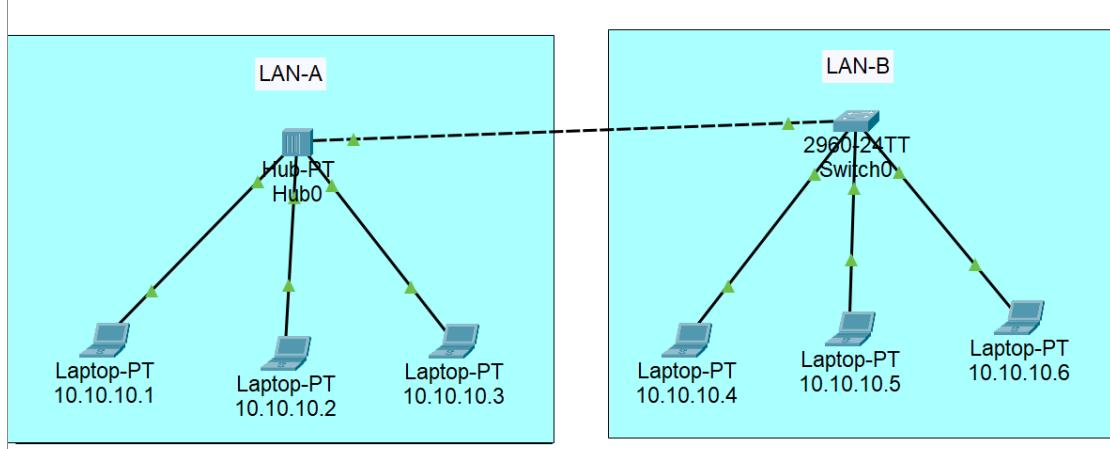
```
C:\>arp -a  
Internet Address      Physical Address      Type  
10.10.10.4            0006.2a18.6175      dynamic  
10.10.10.6            0001.6345.acab      dynamic
```

ARP Table for 10.10.10.6

```
C:\>arp -a  
Internet Address      Physical Address      Type  
10.10.10.4            0006.2a18.6175      dynamic  
10.10.10.5            0060.7084.5d4d      dynamic
```

Vlan	Mac Address	Type	Ports
1	0001.6345.acab	DYNAMIC	Fa0/3
1	0006.2a18.6175	DYNAMIC	Fa0/1
1	0060.7084.5d4d	DYNAMIC	Fa0/2

4. Connect LAN-A and LAN-B by connecting the hub and switch using a crossover cable. Ping between each pair of hosts of LAN-A and LAN-B. Now record the contents of the ARP Table of end hosts and the MAC Forwarding Table of the switch again.



After pinging each node of other LAN

ARP Table for 10.10.10.1

C:\>arp -a	Internet Address	Physical Address	Type
	10.10.10.2	0002.1648.12db	dynamic
	10.10.10.3	0001.c787.5a6b	dynamic
	10.10.10.4	0006.2a18.6175	dynamic
	10.10.10.5	0060.7084.5d4d	dynamic
	10.10.10.6	0001.6345.acab	dynamic

ARP Table for 10.10.10.2

C:\>arp -a	Internet Address	Physical Address	Type
	10.10.10.1	0001.64a7.1c7e	dynamic
	10.10.10.3	0001.c787.5a6b	dynamic
	10.10.10.4	0006.2a18.6175	dynamic
	10.10.10.5	0060.7084.5d4d	dynamic
	10.10.10.6	0001.6345.acab	dynamic

ARP Table for 10.10.10.3

```
C:\>arp -a
   Internet Address      Physical Address      Type
   10.10.10.1            0001.64a7.1c7e    dynamic
   10.10.10.2            0002.1648.12db    dynamic
   10.10.10.4            0006.2a18.6175    dynamic
   10.10.10.5            0060.7084.5d4d    dynamic
   10.10.10.6            0001.6345.acab    dynamic
```

C:\>

ARP Table for 10.10.10.4

```
C:\>arp -a
   Internet Address      Physical Address      Type
   10.10.10.1            0001.64a7.1c7e    dynamic
   10.10.10.2            0002.1648.12db    dynamic
   10.10.10.3            0001.c787.5a6b    dynamic
   10.10.10.5            0060.7084.5d4d    dynamic
   10.10.10.6            0001.6345.acab    dynamic
```

C:\>

ARP Table for 10.10.10.5

```
C:\>arp -a
   Internet Address      Physical Address      Type
   10.10.10.1            0001.64a7.1c7e    dynamic
   10.10.10.2            0002.1648.12db    dynamic
   10.10.10.3            0001.c787.5a6b    dynamic
   10.10.10.4            0006.2a18.6175    dynamic
   10.10.10.6            0001.6345.acab    dynamic
```

C:\>

ARP Table for 10.10.10.6

```
C:\>arp -a
   Internet Address      Physical Address      Type
   10.10.10.1            0001.64a7.1c7e    dynamic
   10.10.10.2            0002.1648.12db    dynamic
   10.10.10.3            0001.c787.5a6b    dynamic
   10.10.10.4            0006.2a18.6175    dynamic
   10.10.10.5            0060.7084.5d4d    dynamic
```

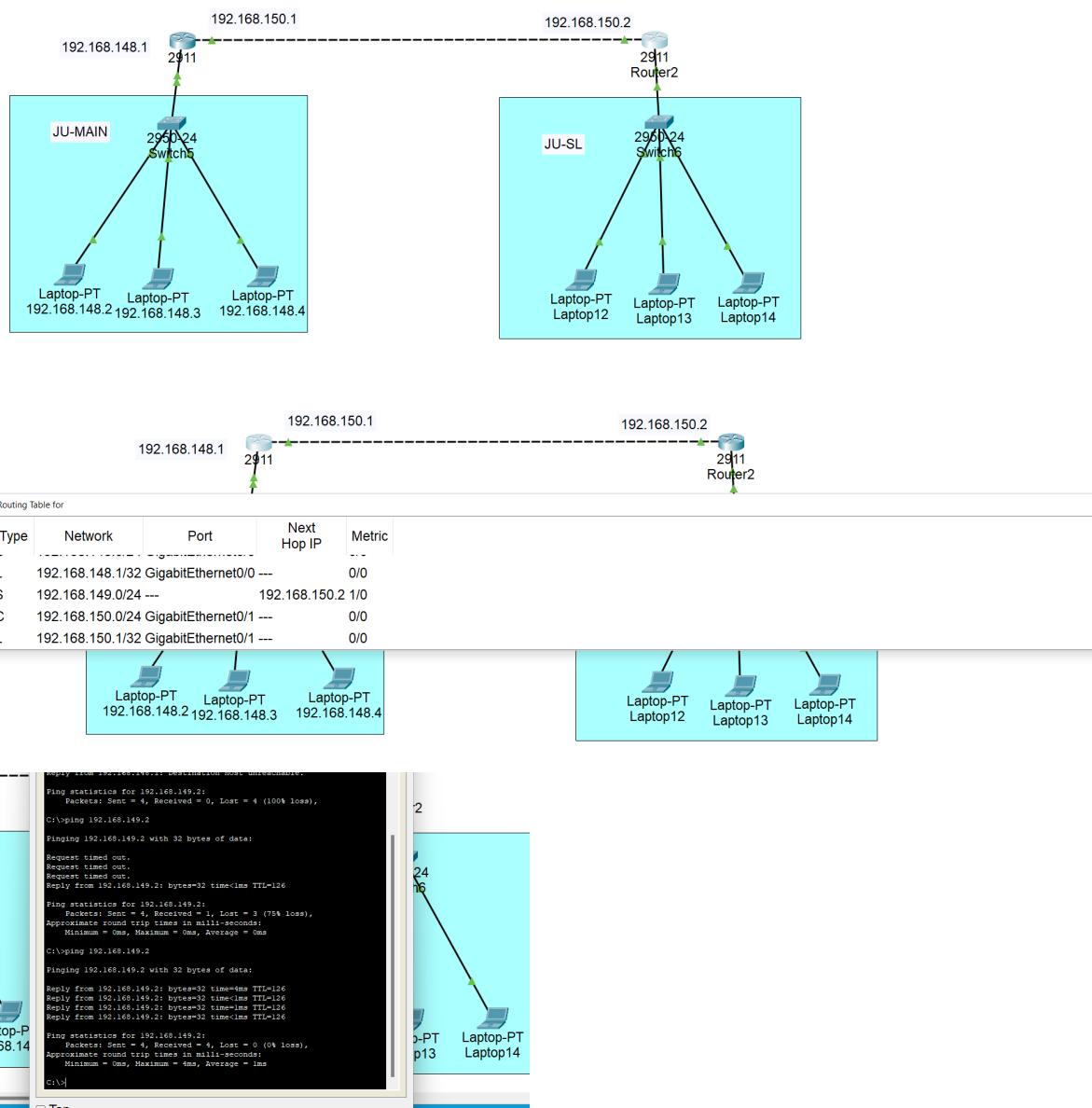
C:\>

MAC Forwarding table of the switch

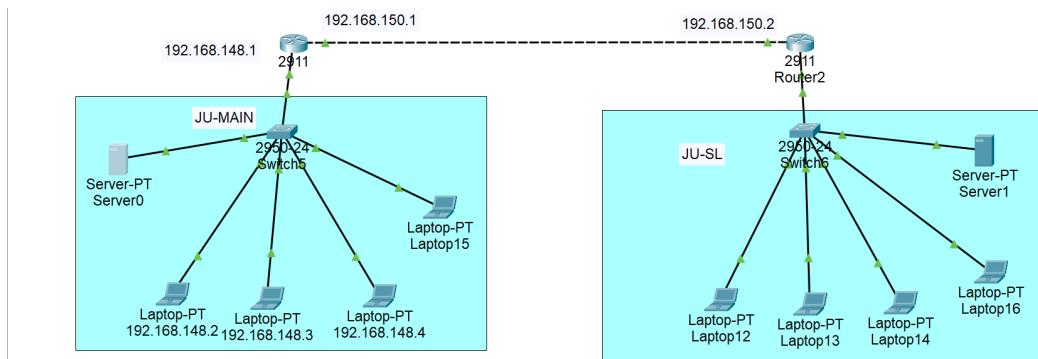
Vlan	Mac Address	Type	Ports
---	-----	-----	-----
1	0001.6345.acab	DYNAMIC	Fa0/3
1	0001.64a7.1c7e	DYNAMIC	Fa0/4
1	0001.c787.5a6b	DYNAMIC	Fa0/4
1	0002.1648.12db	DYNAMIC	Fa0/4
1	0006.2a18.6175	DYNAMIC	Fa0/1
1	0060.7084.5d4d	DYNAMIC	Fa0/2

Switch>

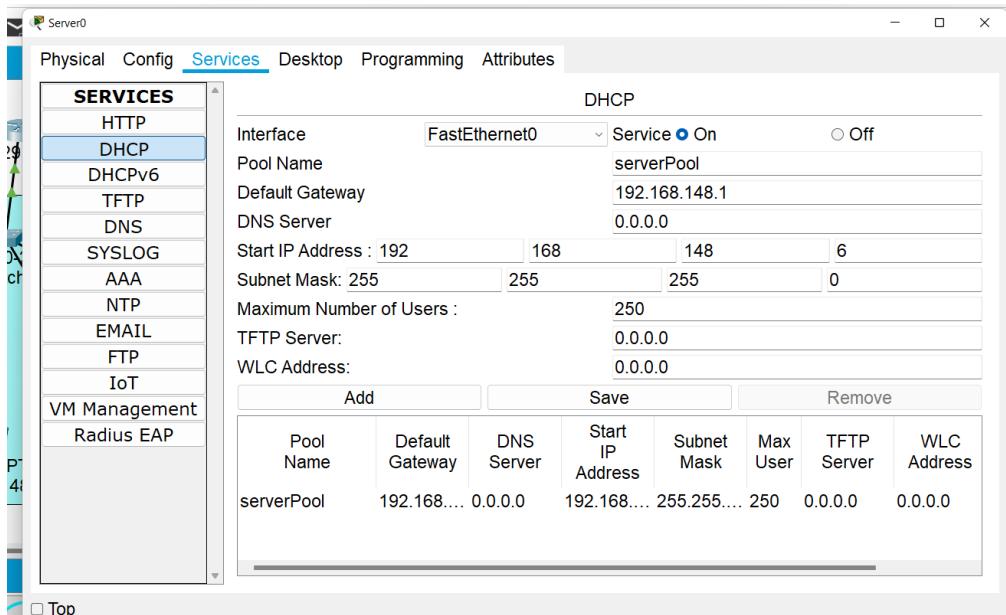
5. Create a LAN (named JU-Main) with three hosts connected via a layer-2 switch (Cisco 2950 switch PC-LAB1-Switch). Connect the switch to a router (Cisco 1818). Assign IP addresses to all the hosts and the router interface connected to this LAN from network 192.168.148.0/24. Configure the default gateway of each host as the IP address of the interface of the router which is connected to the LAN. Create another LAN (named JU-SL) with three hosts connected via a layer-2 switch (Cisco 2950 switch PC-LAB2-Switch). Connect this switch to another router (Cisco 1818). Assign IP addresses to all the hosts and the router interface connected to this LAN from network 192.168.149.0/24. Configure default gateway of each host as the IP address of the interface of the router which is connected to the LAN. Connect the two routers through appropriate WAN interfaces. Assign IP addresses to the WAN interfaces from network 192.168.150.0/24. Add static route in both of the routers to route packets between two LANs.



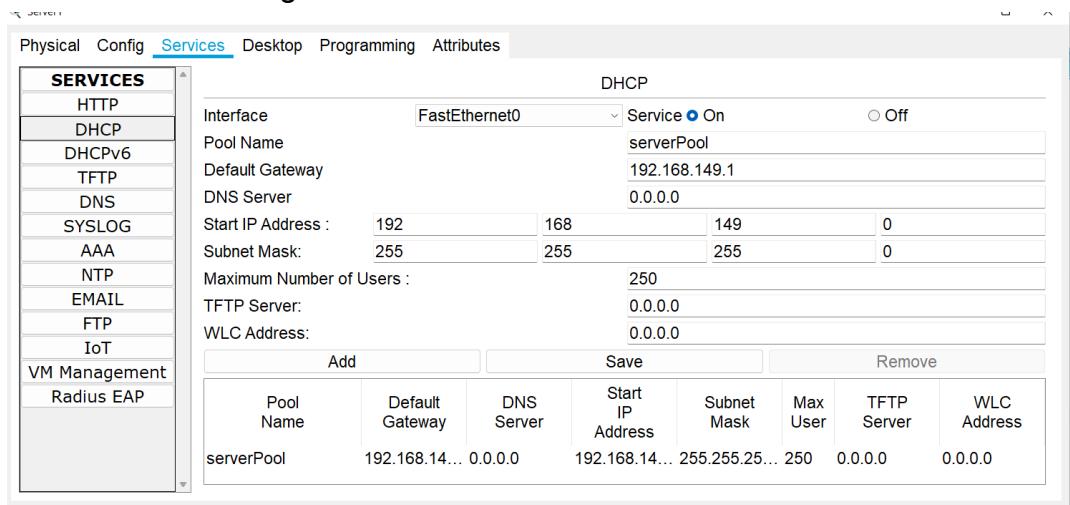
6. Add servers to the individual LANs (in problem 5) and configure them as a DHCP server. Configure the hosts in the individual LAN to obtain IP addresses and address of the default gateway via this DHCP server.



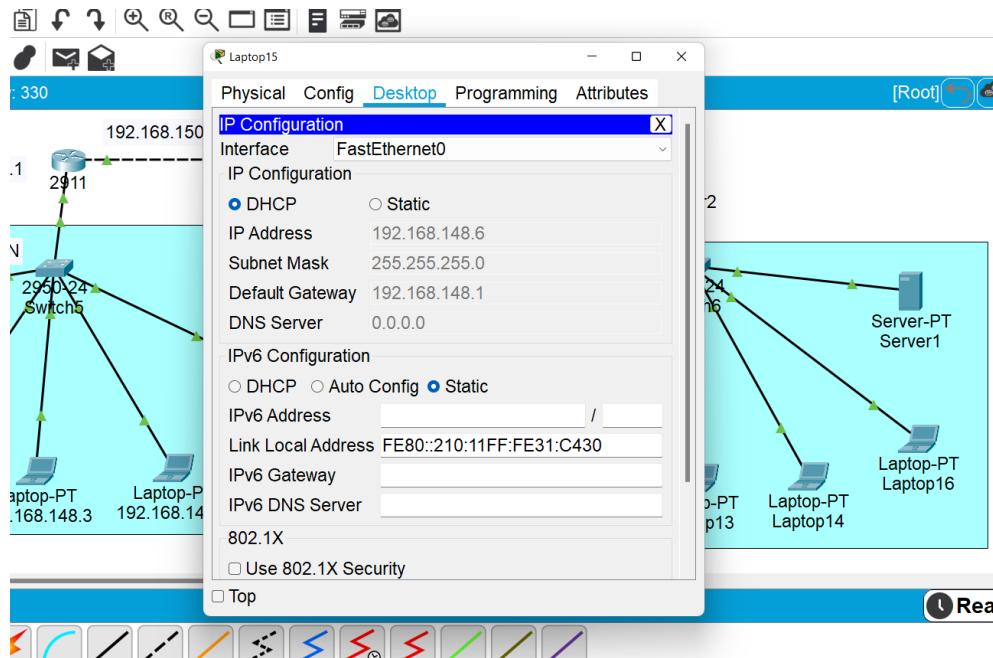
DHCP Server Config for JU-MAIN LAN



DHCP Server Config for JU-MAIN LAN

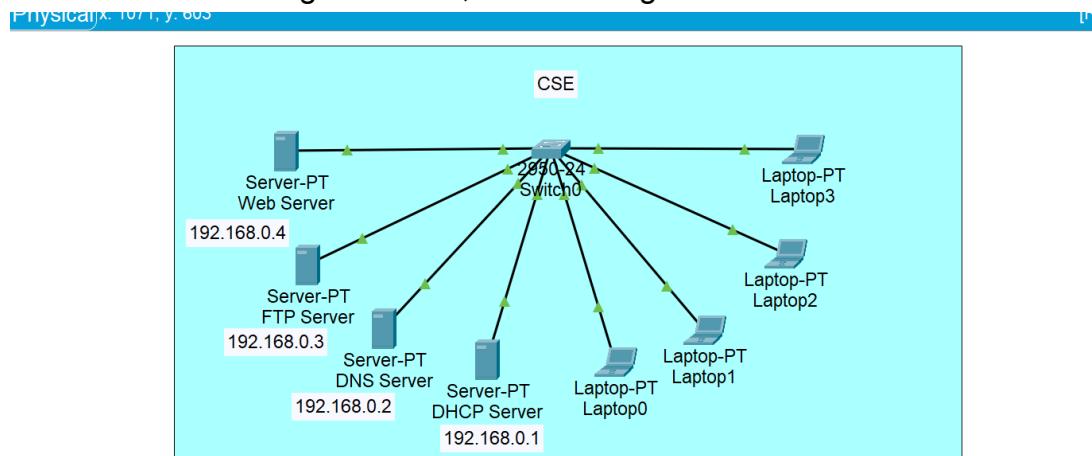


After adding a new host it automatically assigns the IP 192.168.148.6 to it

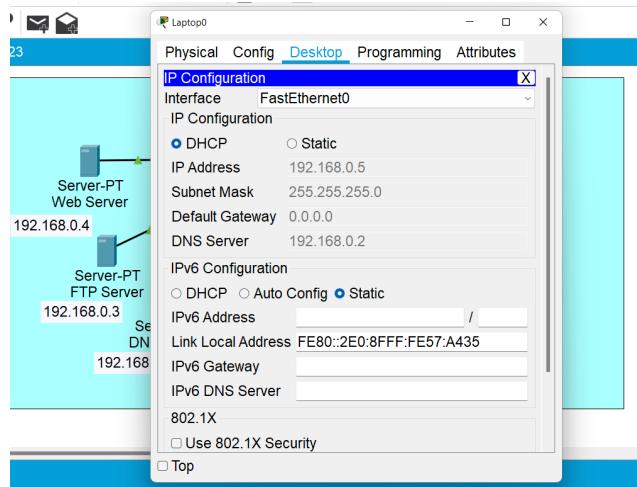


7. Create a LAN (CSE) with three hosts connected via a layer-2 switch (Cisco 2950 switch CSE-Switch). Also add a web server and a ftp server to this LAN. The hosts dynamically get their IP addresses from a local DHCP server. Servers are assigned fixed IP addresses. Configure the individual hosts to use the local DNS server for name resolution. Add a Domain Name Server (DNS) to this LAN. Create appropriate records in the DNS server for the individual servers in the LAN. The domain name of the LAN is cse.myuniv.edu. Configure the individual hosts to use the local DNS server for name resolution.

A LAN was created using a switch and three hosts. Four servers were also added to the switch as per the given question. One of them is the DHCP server which was configured so that the hosts added to the switch could generate their own IP address using the DHCP server. A WEB and a FTP server were also added. A DNS server was added and configured. Now, the following were obtained



Dynamic IP Address generation



Browser :

