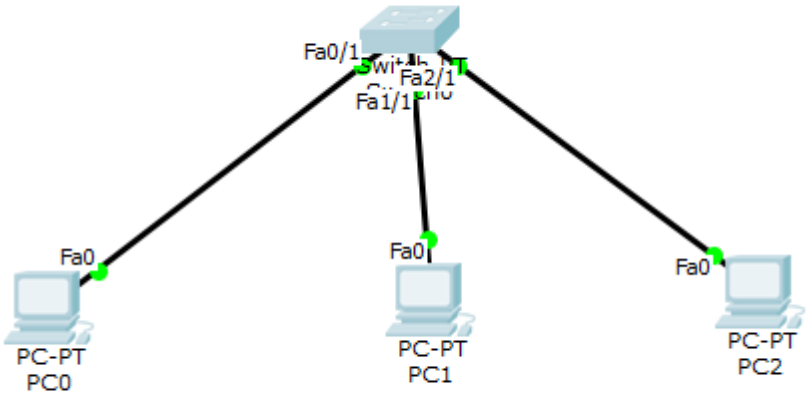
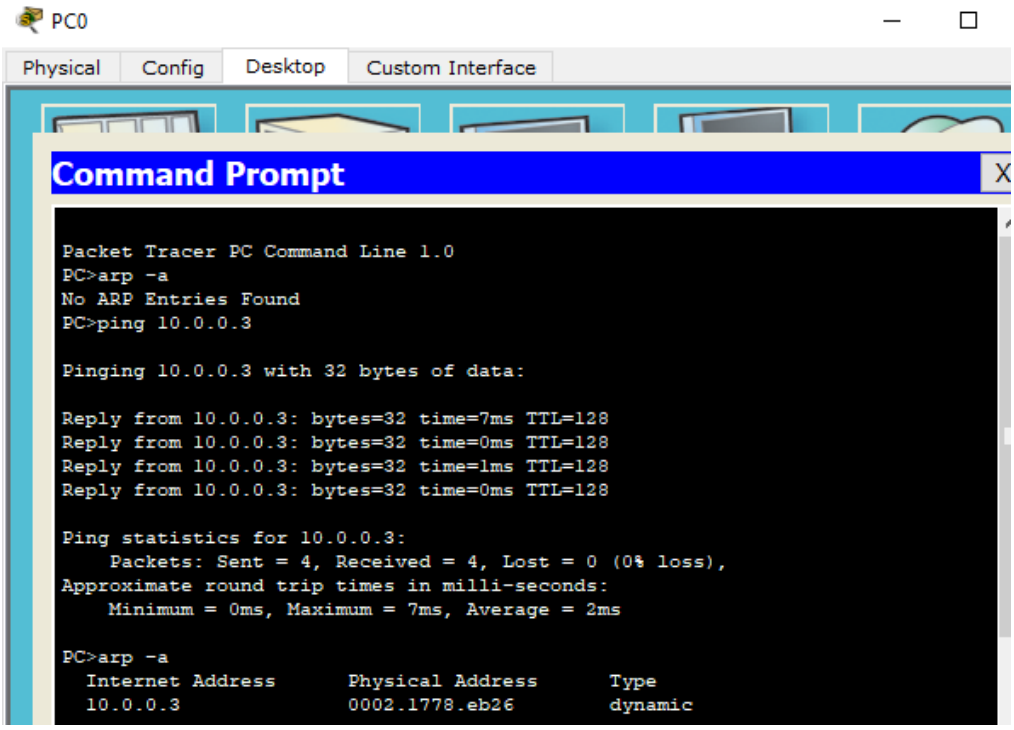
WEEK 7

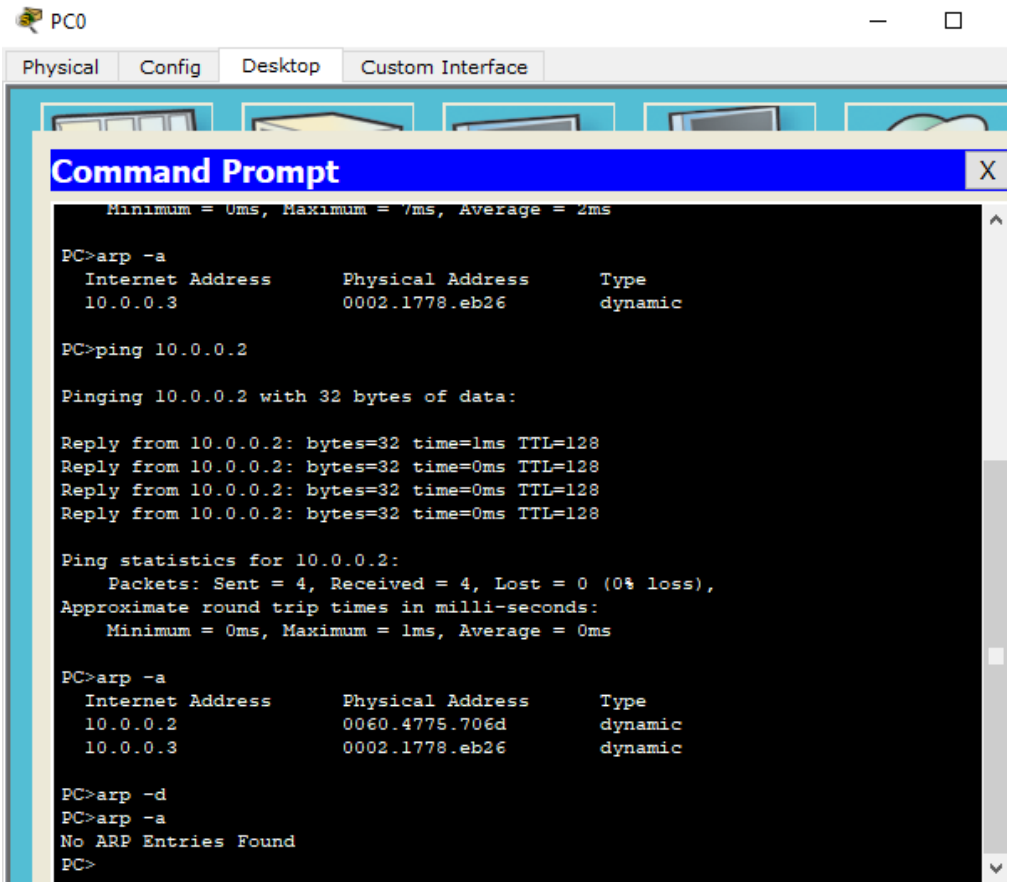
1. To construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP).

Topology:



1. Configure IP addresses
2. Go to command prompt of PC0

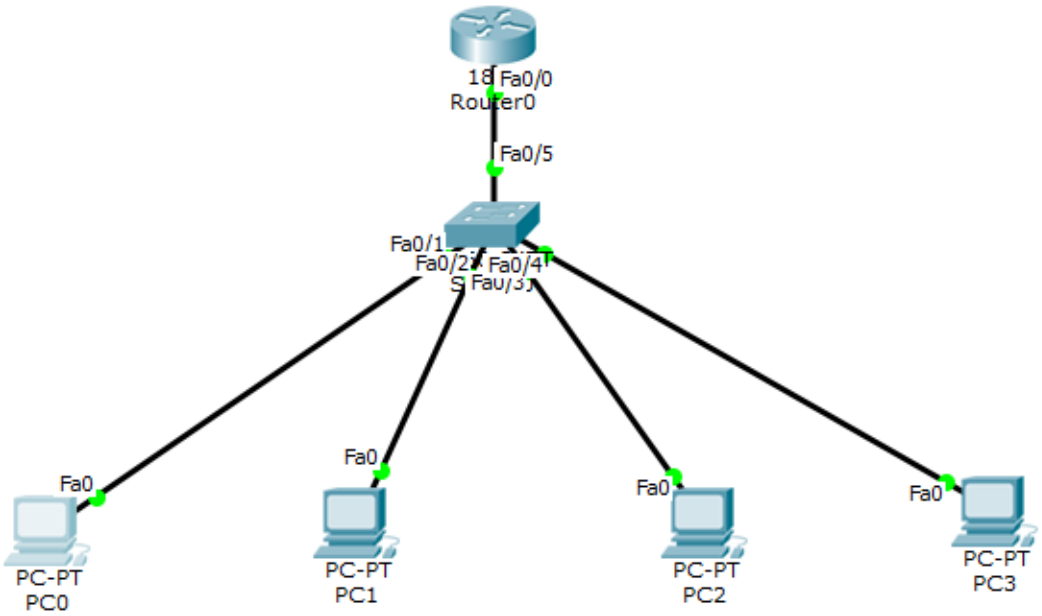



PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Minimum = 0ms, Maximum = 7ms, Average = 2ms
PC>arp -a
Internet Address Physical Address Type
10.0.0.3 0002.1778.eb26 dynamic
PC>ping 10.0.0.2
Pinging 10.0.0.2 with 32 bytes of data:
Reply from 10.0.0.2: bytes=32 time=1ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Ping statistics for 10.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>arp -a
Internet Address Physical Address Type
10.0.0.2 0060.4775.706d dynamic
10.0.0.3 0002.1778.eb26 dynamic
PC>arp -d
PC>arp -a
No ARP Entries Found
PC>

2. To construct a VLAN and make the PC's communicate among a VLAN (Virtual LAN).

Procedure:

1. Construct the topology as shown, with switch -2960, router 1841



2. Configure the IP addresses and gateway of PCs.
3. In router configure the left side network (fa 0/0)- 192.168.1.1
4. Go to switch -> config -> VLAN-database -> set VLAN name (lab1) and number (20) -> click on Add

Vlan name can be anything, vlan number is based on the right side network (192.168.20.2) vlan number is 20.

5. Click on Switch->config>fast ethernet 5->trunk(dropdown menu)
6. (For right side systems)
   Click on Switch ->config->fast ethernet 3->vlan 20
   Click on Switch->fast ethernet 4-> vlan 20

7. Go to Router CLI and type the following commands.

```
Router(config)#interface fastEthernet 0/0.1
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.1, changed state
to up

Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#no shutdown
Router(config-subif)#exit
Router(config)#exit
```

8. Ping the PC.

```
PC>ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data:

Reply from 192.168.20.2: bytes=32 time=0ms TTL=127
Reply from 192.168.20.2: bytes=32 time=0ms TTL=127
Reply from 192.168.20.2: bytes=32 time=0ms TTL=127
Reply from 192.168.20.2: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

3. To understand the operation of TELNET by accessing the router in server room from a PC.

Topology: