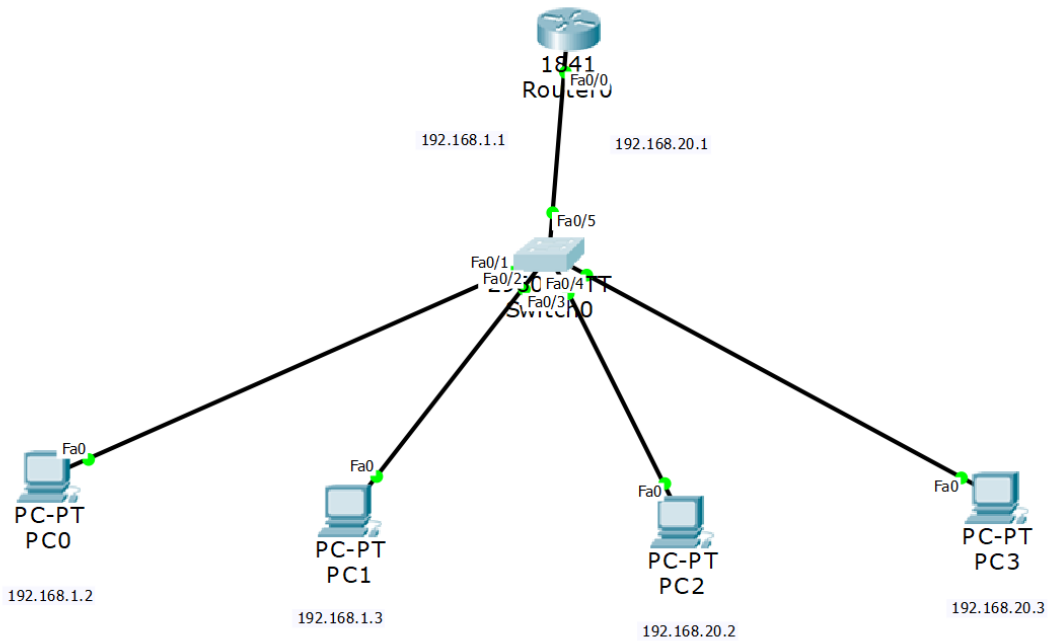
LAB 9:

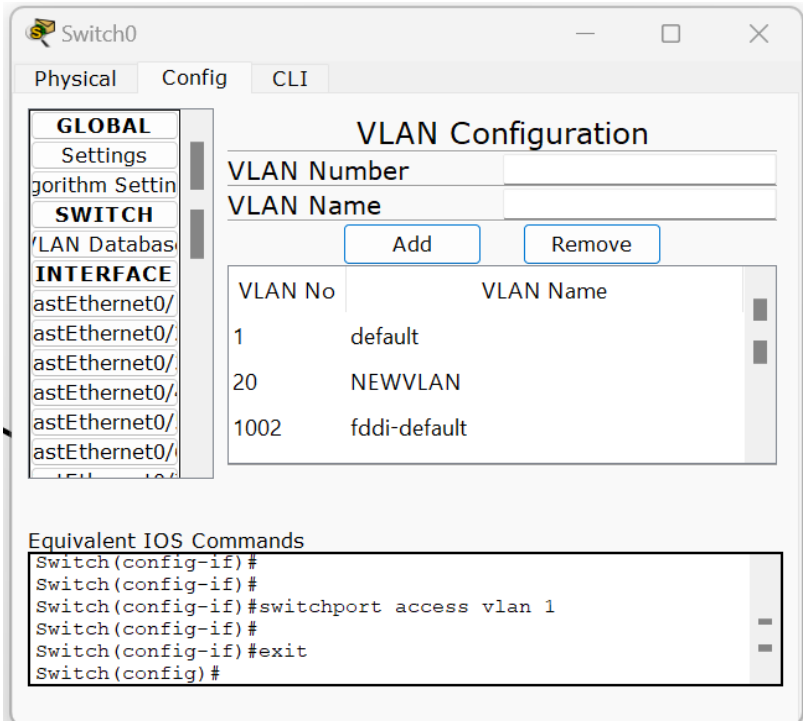
Aim : To construct a VLAN and make the PC's communicate among a VLAN

Topology:

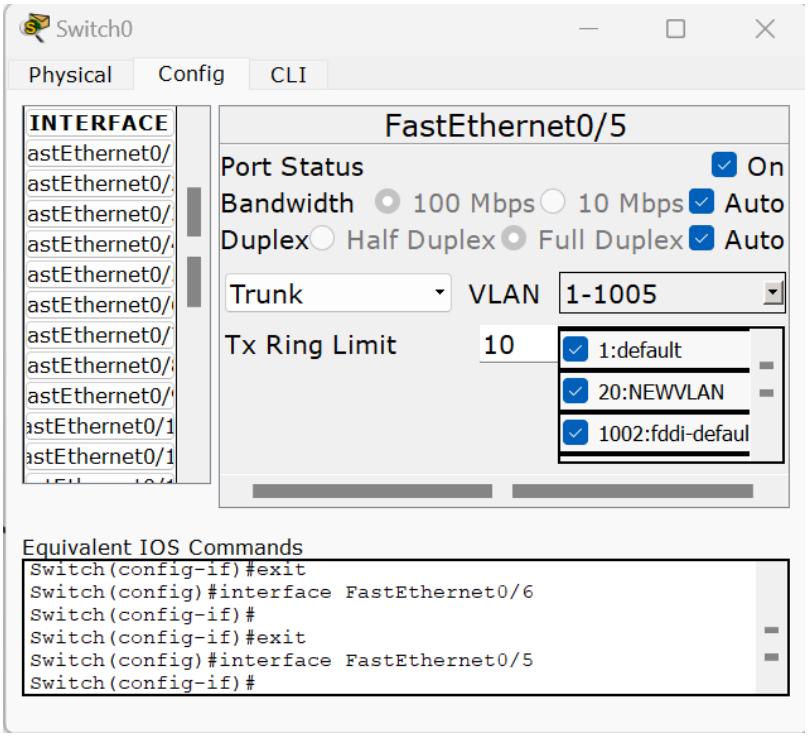


Configurations:

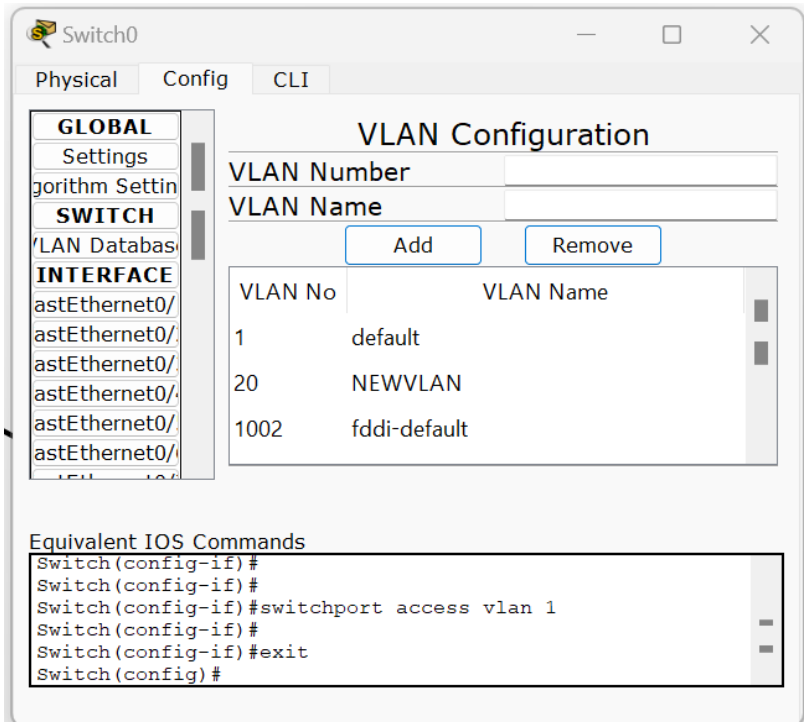
Switch VLAN Database:



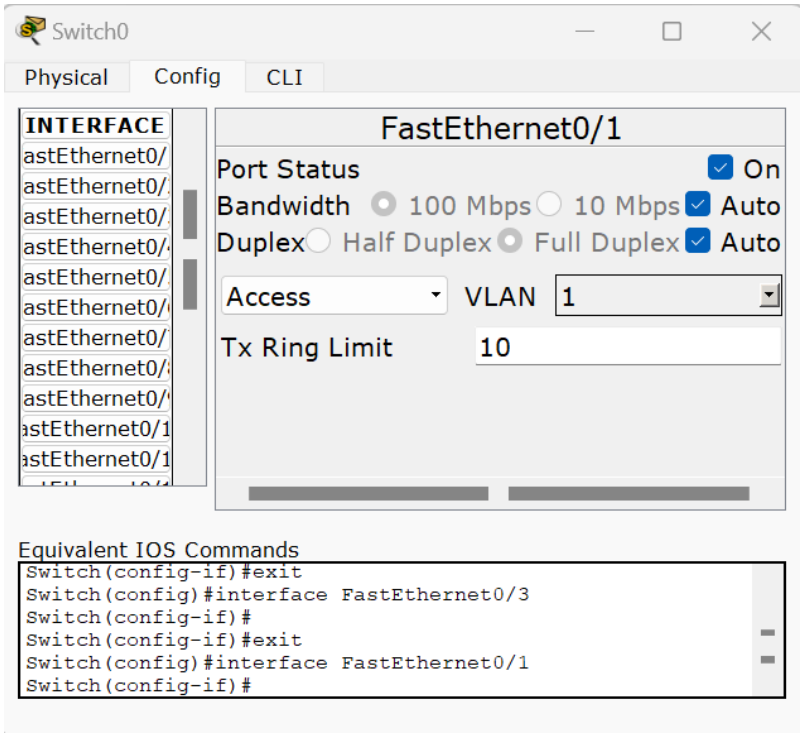
Switch FastEthernet0/5



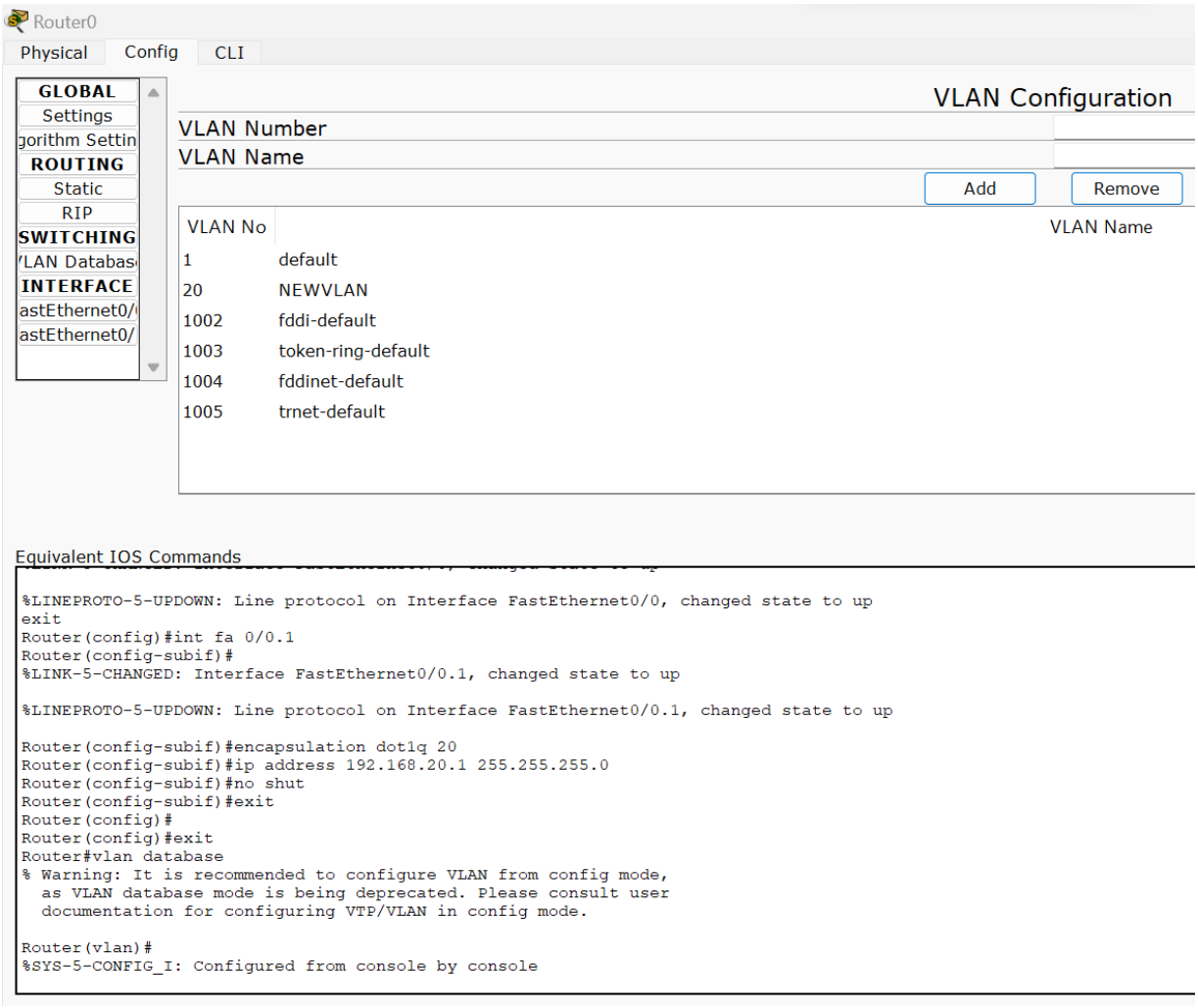
Switch FastEthernet0/3 and FastEthernet0/4



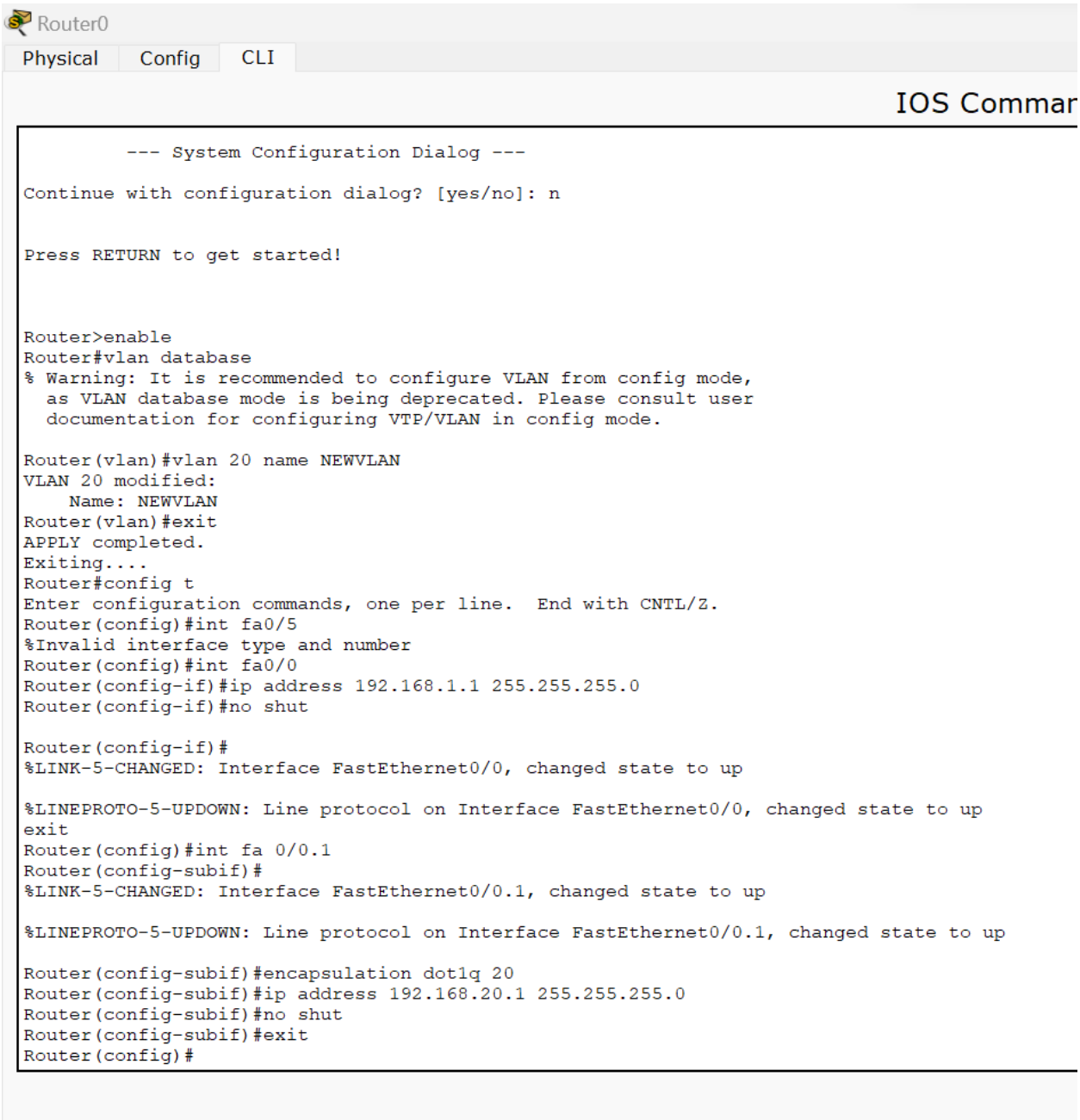
Switch FastEthernet0/1 and FastEthernet0/2



Router 0 :
VLAN DataBase:



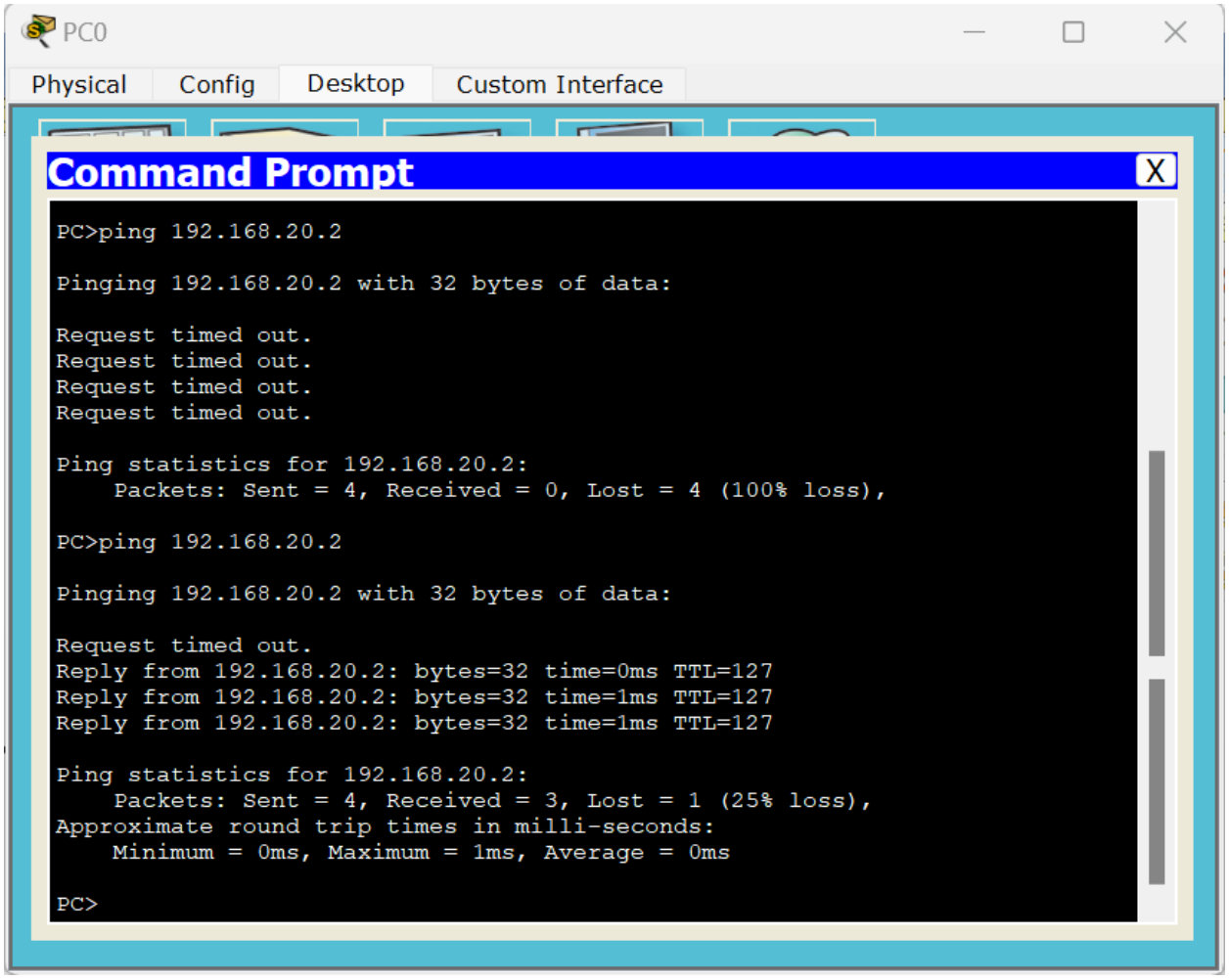
Router 0 :
CLI:


Router0
Physical
Config
CLI
IOS Commar
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: n
Press RETURN to get started!
Router>enable
Router#vlan database
% Warning: It is recommended to configure VLAN from config mode,
as VLAN database mode is being deprecated. Please consult user
documentation for configuring VTP/VLAN in config mode.
Router(vlan)#vlan 20 name NEWVLAN
VLAN 20 modified:
Name: NEWVLAN
Router(vlan)#exit
APPLY completed.
Exiting....
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/5
%Invalid interface type and number
Router(config)#int fa0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shut
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
exit
Router(config)#int fa 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 shut
Router(config-subif)#exit
Router(config)#

Command Prompt:

P0:

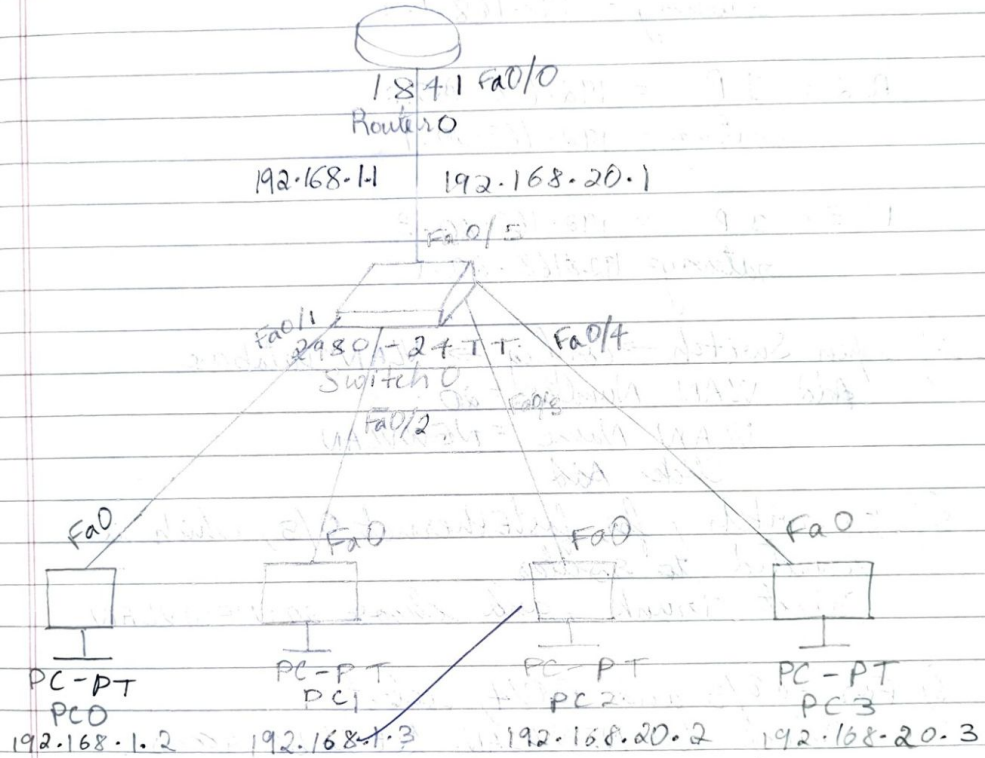
Before and after VLAN configuration was successful.



Lab 9

Aim: To construct a VLAN and make the PC's communicate among a VLAN

Topology:



Procedure:

1) Create the topology as shown using 1841 Router and 2980 Switch. Connect 4 PCs to them as shown using copper straight through cable.

2) We use class C addressing here.

3) Set IP addresses and Gateways for PCs.

PC0 : IP = 192.168.1.2
Gateway = 192.168.1.1

PC1 : IP = 192.168.1.3
Gateway = 192.168.1.1

PC2 : IP = 192.168.20.2
Gateway = 192.168.20.1

PC3 : IP = 192.168.20.3
Gateway = 192.168.20.1

4) Open Switch → Config → VLAN Database
Add VLAN Number = 20
VLAN Name = NEWVLAN
Click Add

5) In Switch, for fastEthernet 0/5, which is connected to router,
Select Trunk, and choose 20:NEWVLAN

6) For Fa0/3 and Fa0/4, select
Select 20:NEWVLAN. Let it be Access.
For Fa0/1 and Fa0/2, leave it as it is.

7) Open Router → Config → VLAN Database
Add VLAN Number : 20
VLAN Name : NEWVLAN

8) In Router0 CLI :

Router>en
Router#(vlan)#exit
Router#config t

Router(config)#int fa0/0
Router(config)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#exit

Router(config)#int fa 0/0.1
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#no shut
Router(config-subif)#exit
Router(config)#exit

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Ping Output :-

PC > ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data :

Request timed out.
Reply from 192.168.20.2 : bytes = 32 time = 0ms TTL = 127
Reply from 192.168.20.2 : bytes = 32 time = 1ms TTL = 127
Reply from 192.168.20.2 : bytes = 32 time = 1ms TTL = 127

Ping statistics for 192.168.20.2 :
    Packets : Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds :
    Minimum = 0ms, Maximum = 1ms, Average = 0ms.

Observation :-

- We can observe that ~~before~~ after VLAN is configured we can succesfully ping PC2 (192.168.20.2) from PC0 (192.168.1.2).
- PC2 and PC3 are grouped together and communication among them is done via VLAN.
- 192.168.20.1 is a subgo interface of the Router.