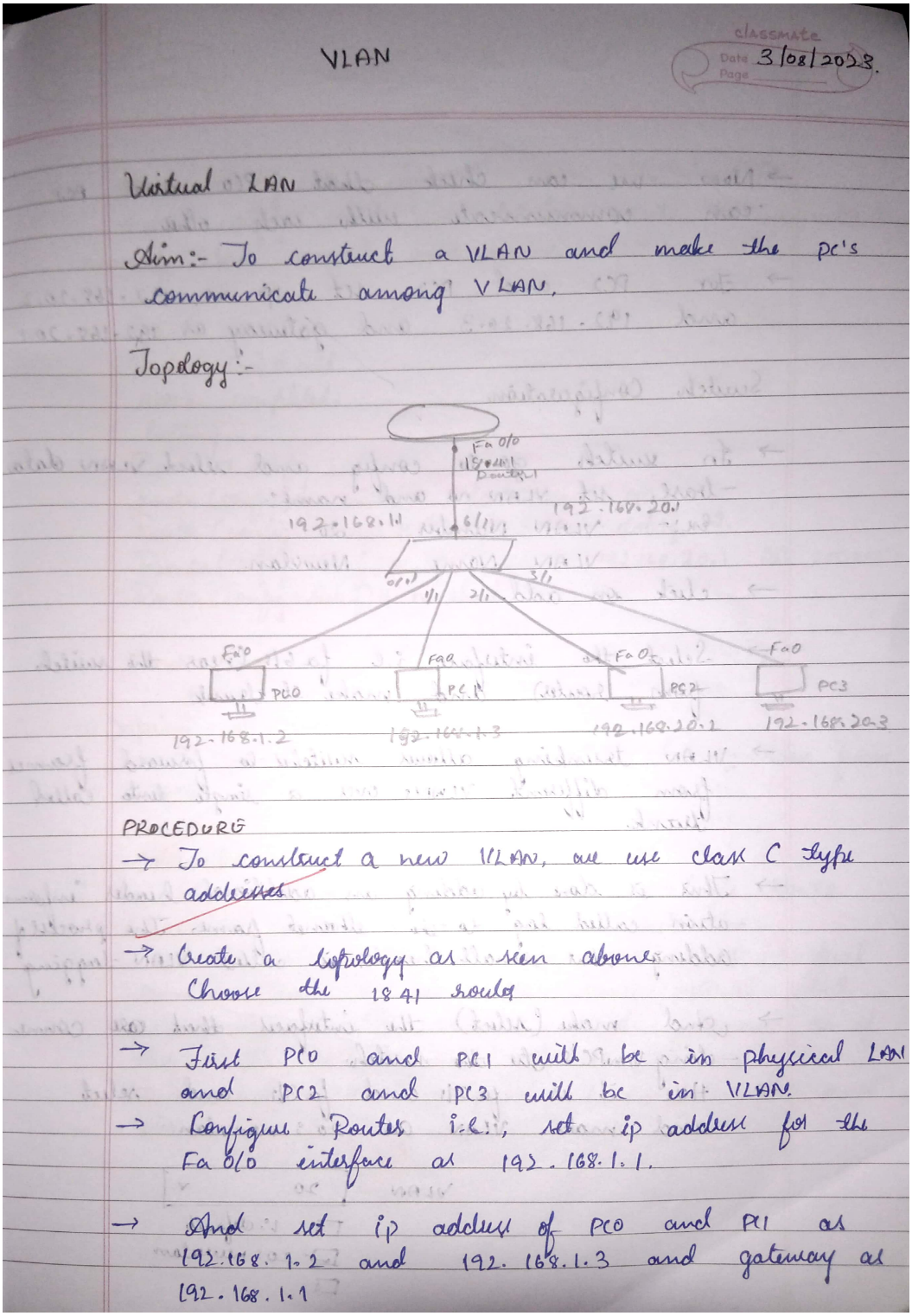
WEEK 9

To construct a VLAN and make a pc communicate among VLAN.

OBSERVATION:



→ Now we can check that PC0 and PC1 can communicate with each other

→ For PC2 and PC3 set IP as 192.168.20.2 and 192.168.20.3 and gateway as 192.168.20.

Switch Configuration

→ In switch go to config and select VLAN data -base. set VLAN no and name:-
Ex:- VLAN Number 20
VLAN Name Newvlan

→ click on add.

→ Select the interface i.e fa 6/1 (near the switch from router) and make it trunk.

→ VLAN trunking allows switches to forward frames from different VLANs over a single link called trunk

→ This is done by adding an additional header information called tag to the ethernet frame. The process of adding this small header is called VLAN tagging

→ And make (select) the interfaces that are connecting VLAN PC's to the switch.

→ Here it is fa 2/1 and fa 3/1 and select and make VLAN as 20 : newvlan.

VLAN [20]
☐ 1: default
☑ 20: newvlan
☐

Router configuration:

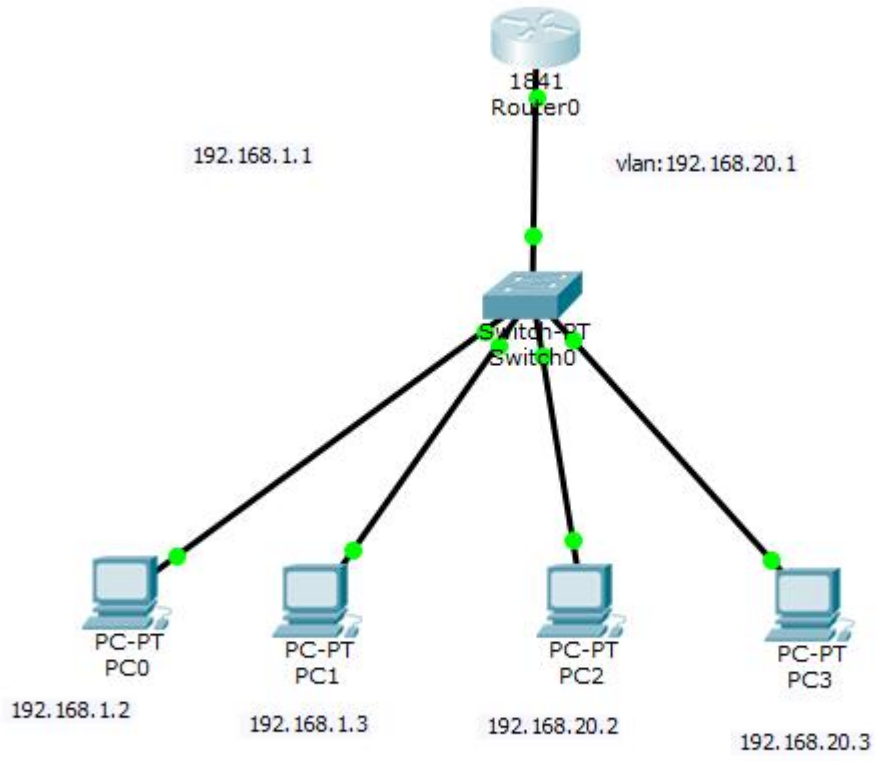
→ open config select VLAN database enter the number & name of vlan created ~~and name~~

Go to CLI
Router(vlan)# exit
APPLY completed.
Exiting....
Router# config t.
Router(config)# interface fastethernet 0/0.1
Router(config-subif)# encapsulation dot1q 2.
Router(config-subif)# ip address 192.168.20.1 255.255.255.0
Router(config-subif)# no shut

Now ping.
from pc0 to pc3.
> ping 192.168.20.3
You will get a succesful transmission from pc0 to pc3.

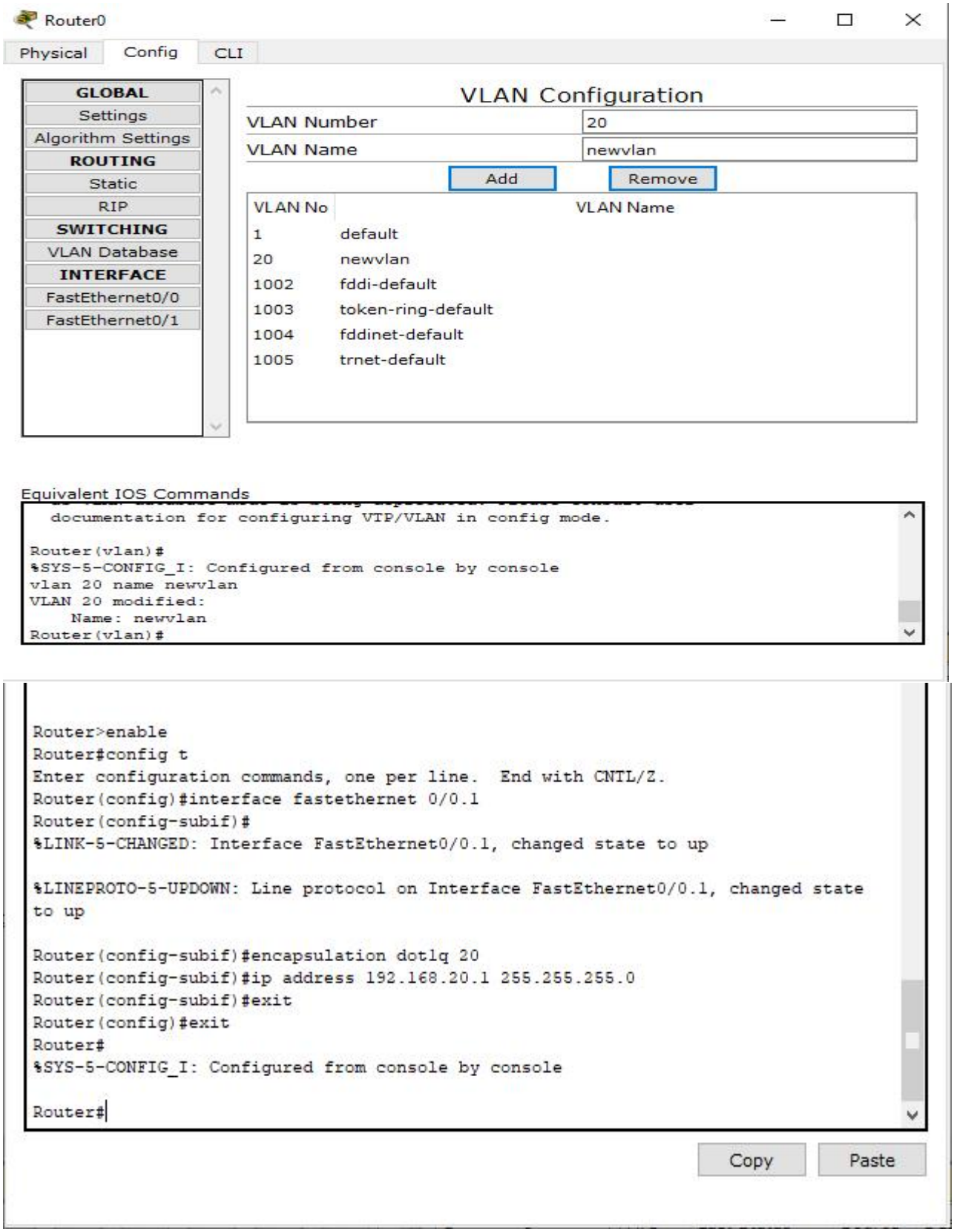
Observation :-
Even though we are using a single router. We can use multiple different networks.
And those networks will works as virtual networks. They are in the same network but has different Network IP addresses and gateway as if they are in different network. And we can communicate from physical LAN to VLAN and vice versa.

TOPOLOGY

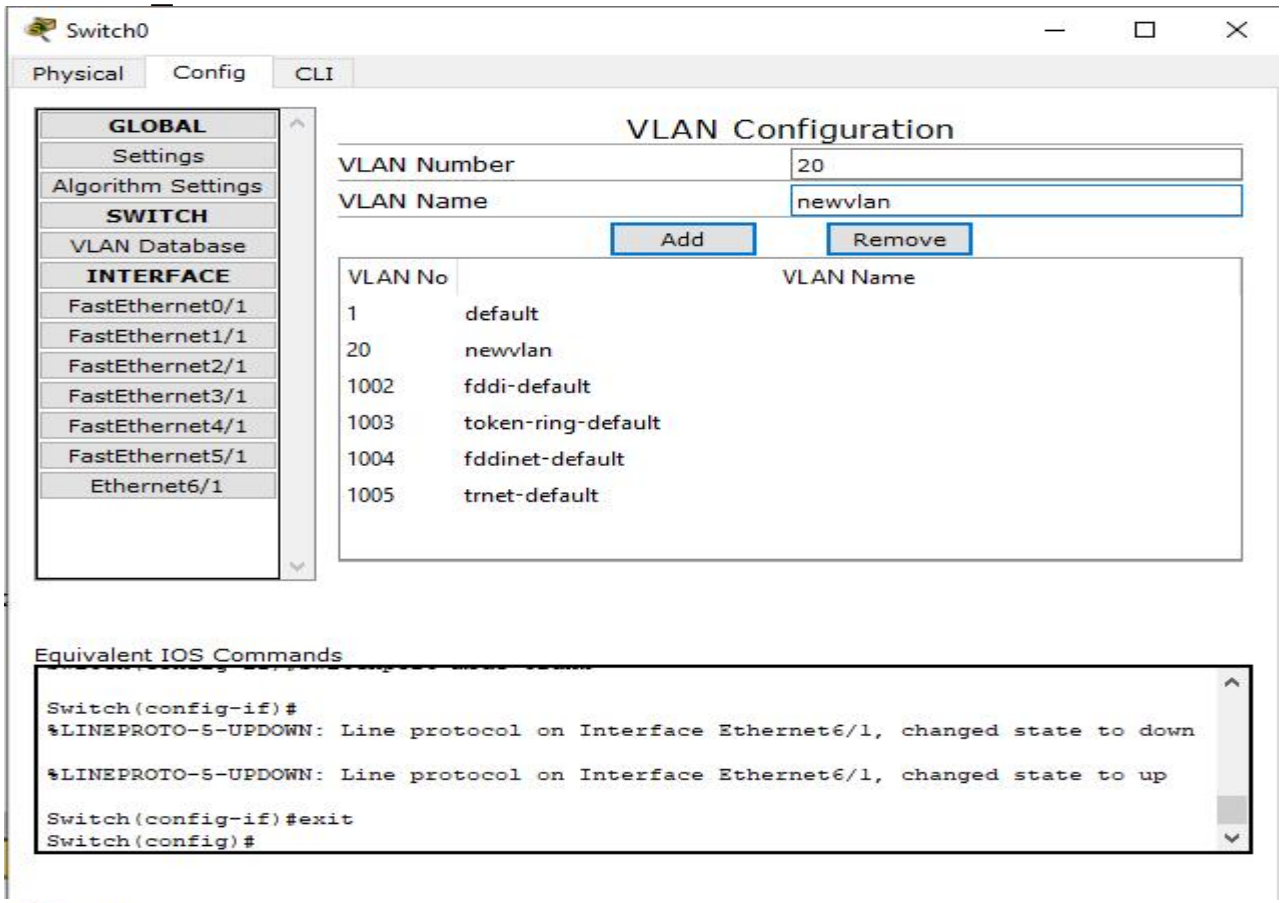


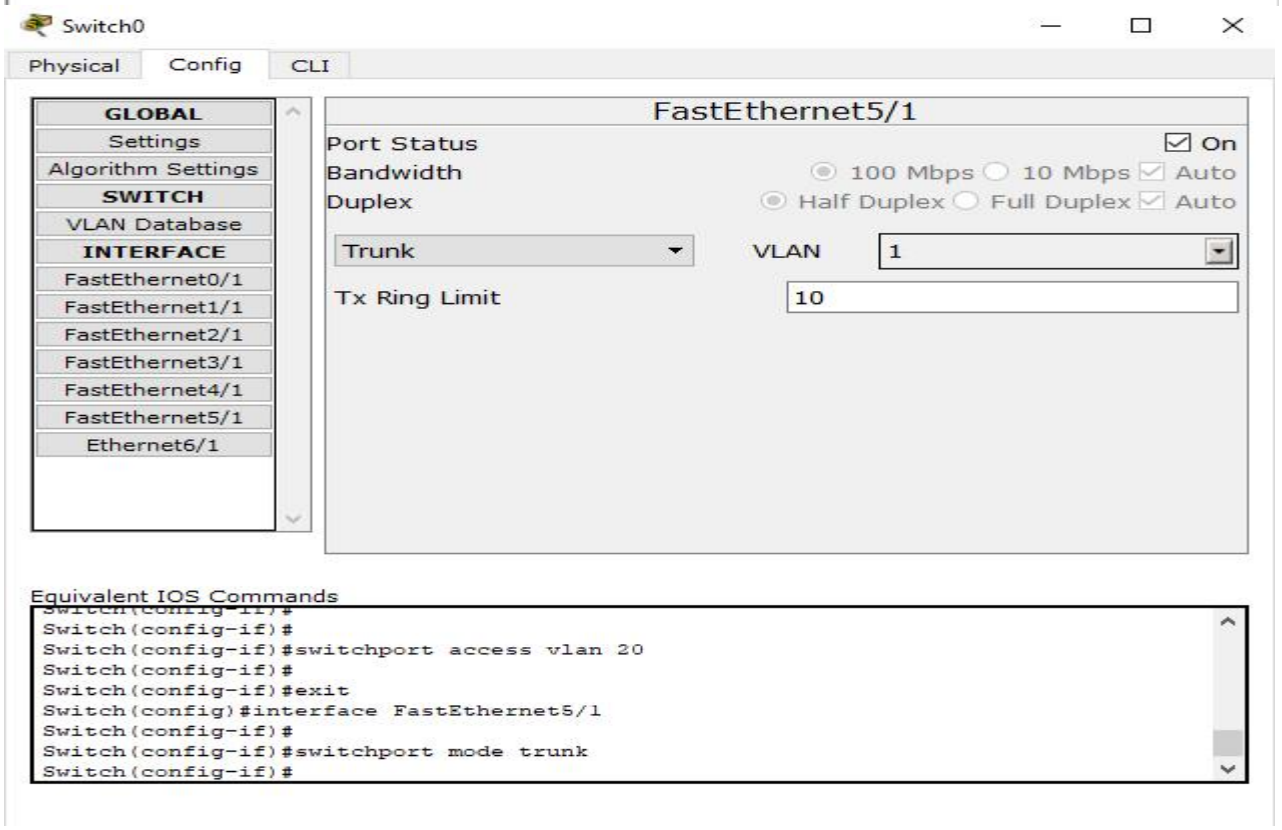
OUTPUT:

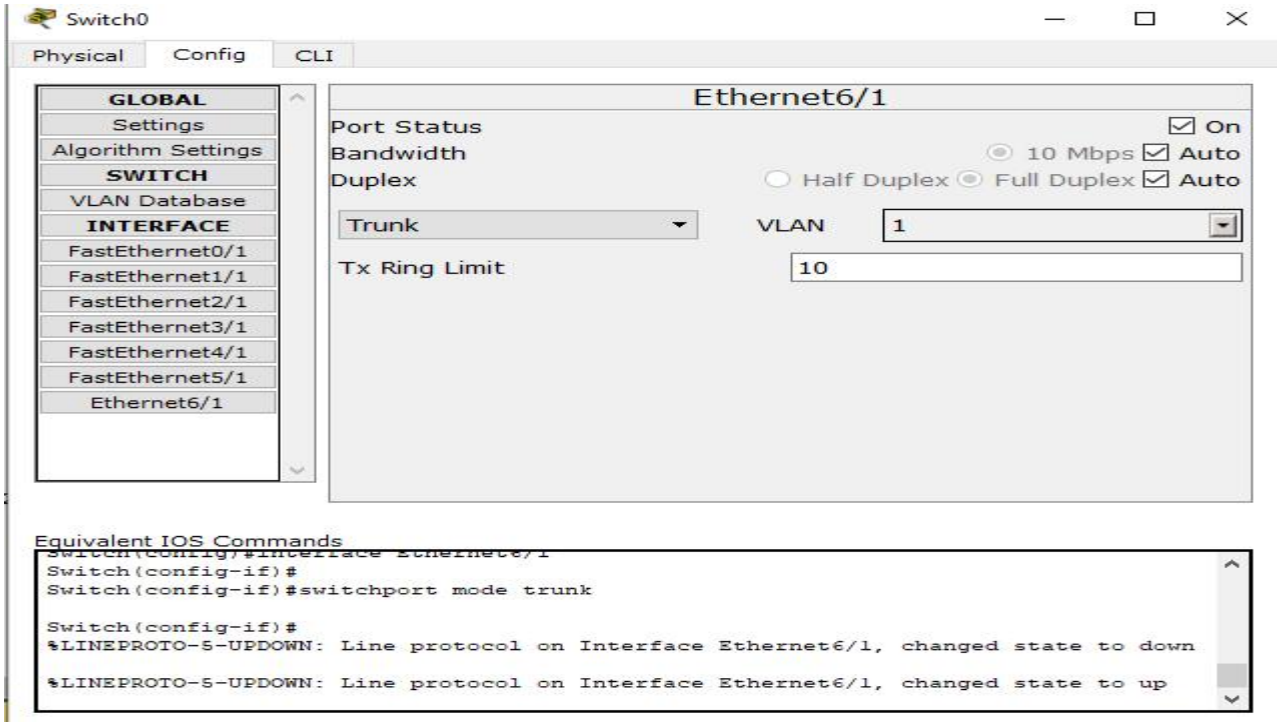
ROUTER CONFIGURATION:

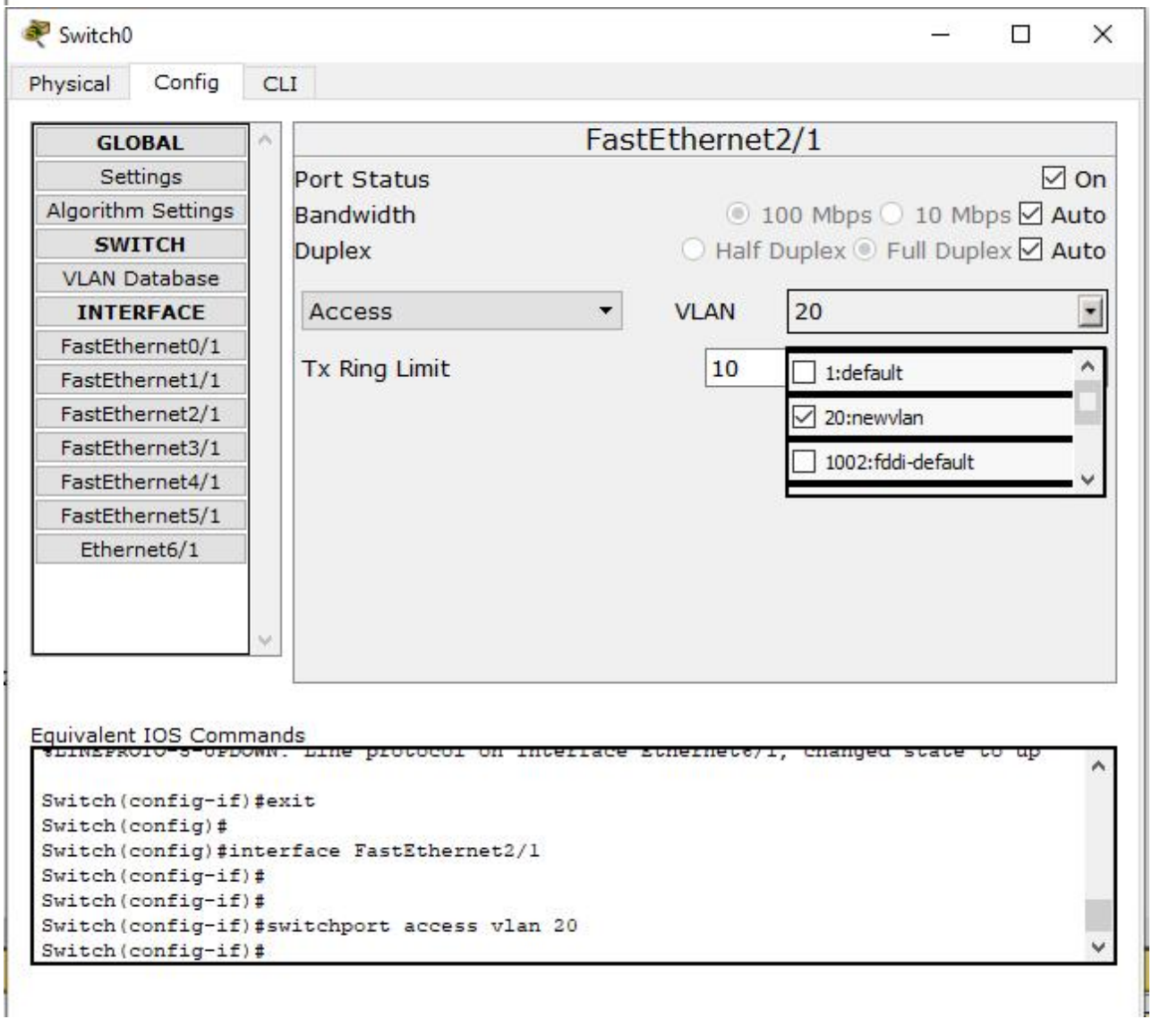

Router0
Physical
Config
CLI
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
VLAN Configuration
VLAN Number
20
VLAN Name
newvlan
Add
Remove
VLAN No
VLAN Name
1 default
20 newvlan
1002 fddi-default
1003 token-ring-default
1004 fddinet-default
1005 trnet-default
Equivalent IOS Commands
documentation for configuring VTP/VLAN in config mode.
Router(vlan)#
%SYS-5-CONFIG_I: Configured from console by console
vlan 20 name newvlan
VLAN 20 modified:
Name: newvlan
Router(vlan)#
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
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)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
Copy
Paste

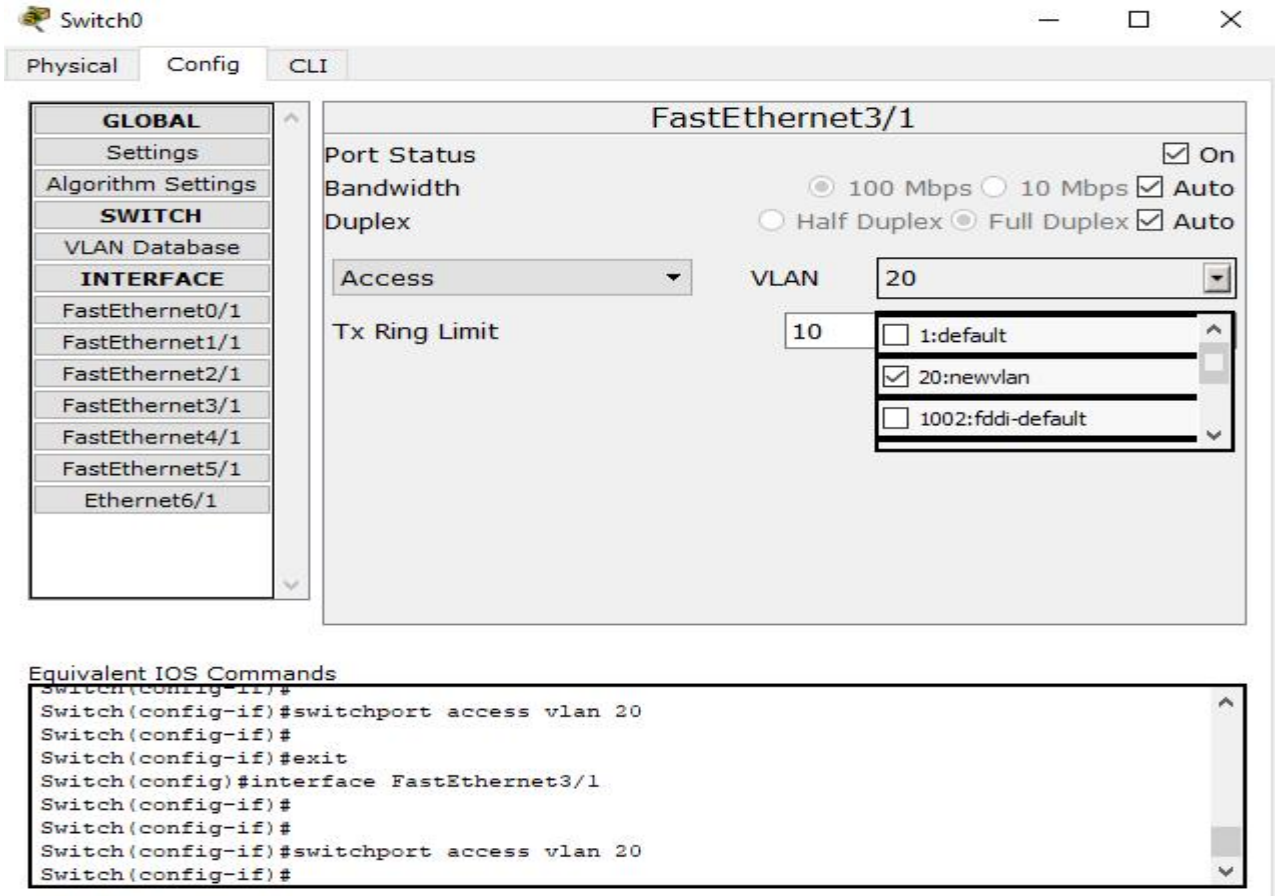
SWITCH_CONFIGURATION:

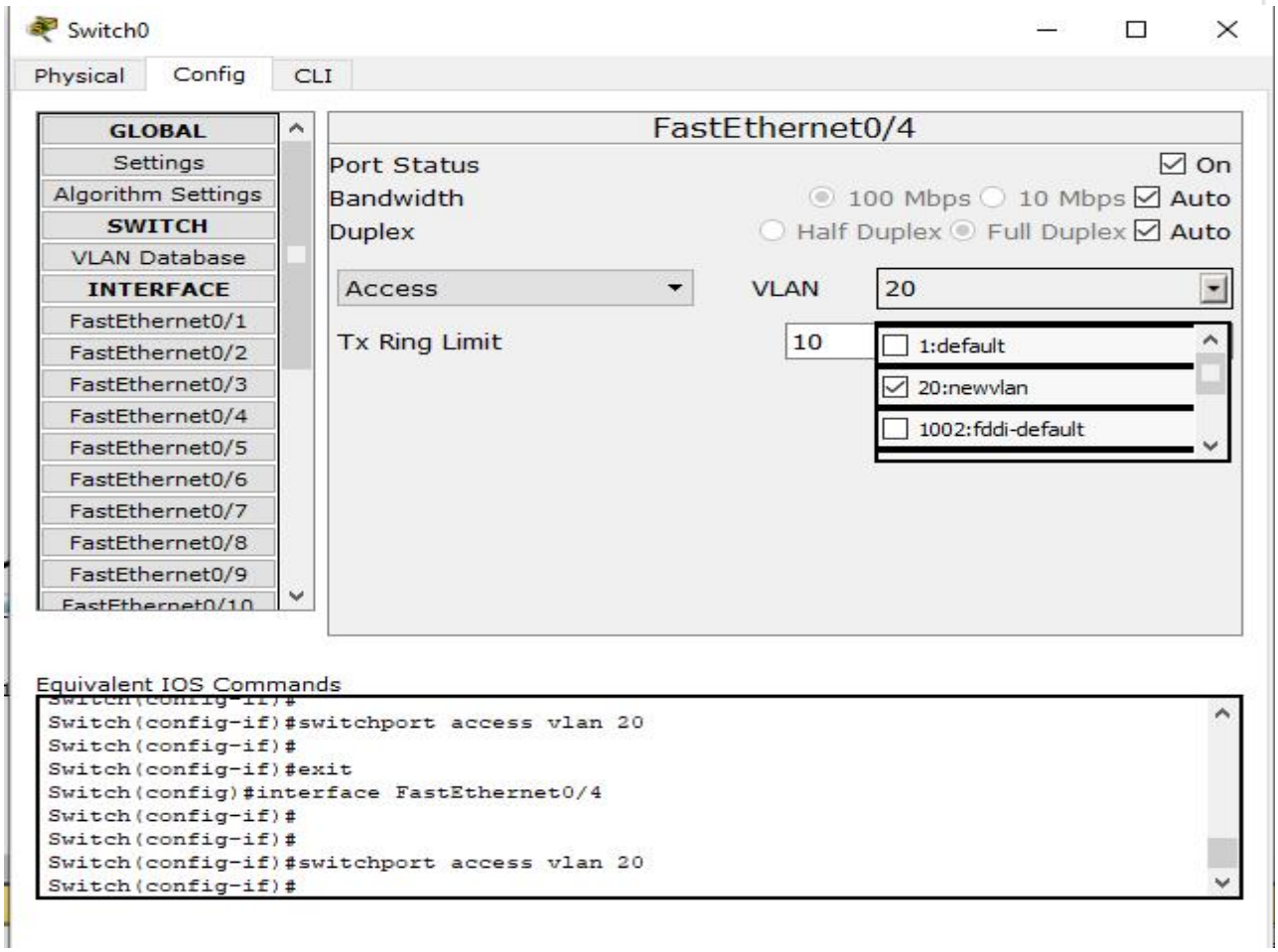


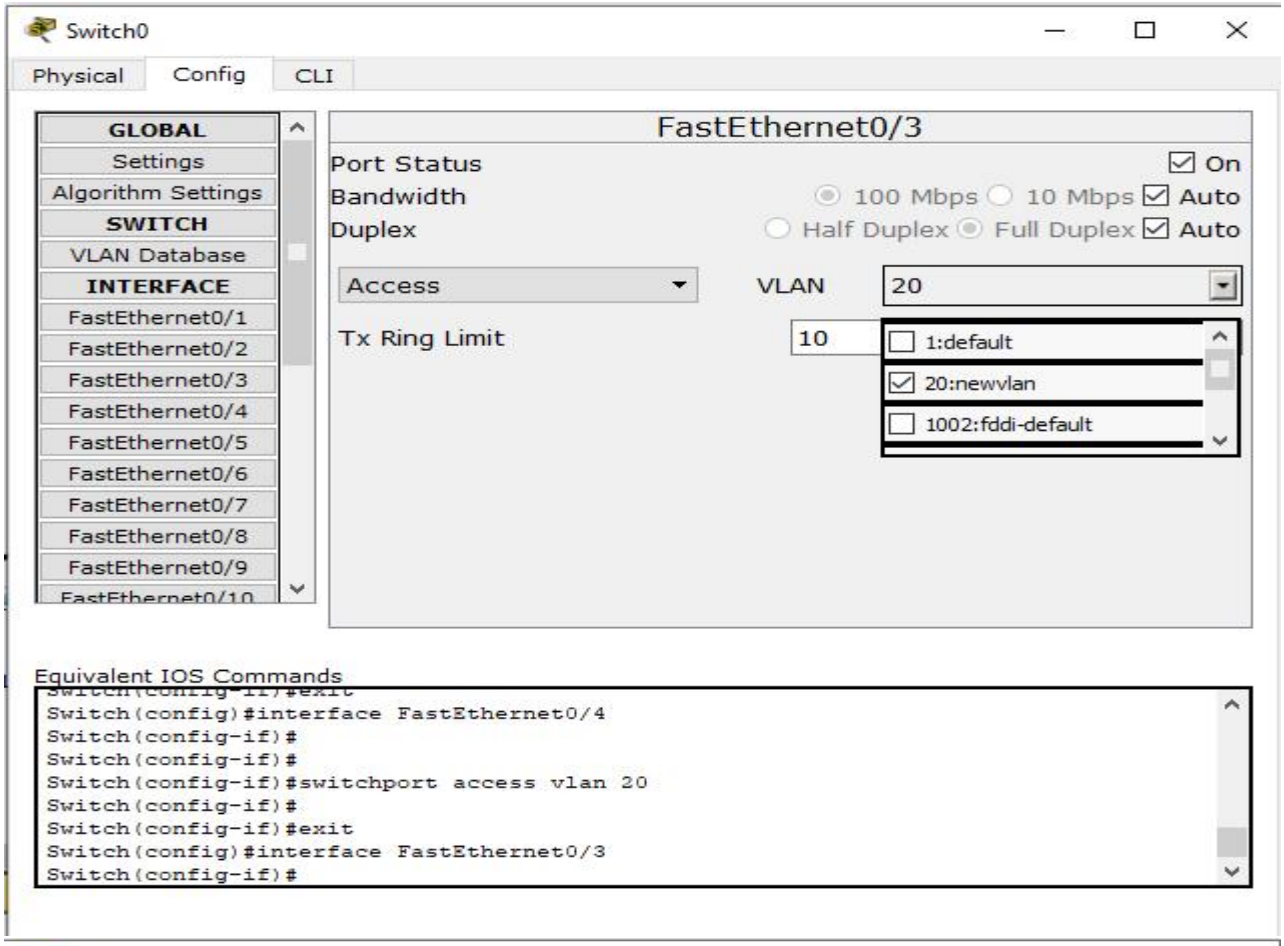


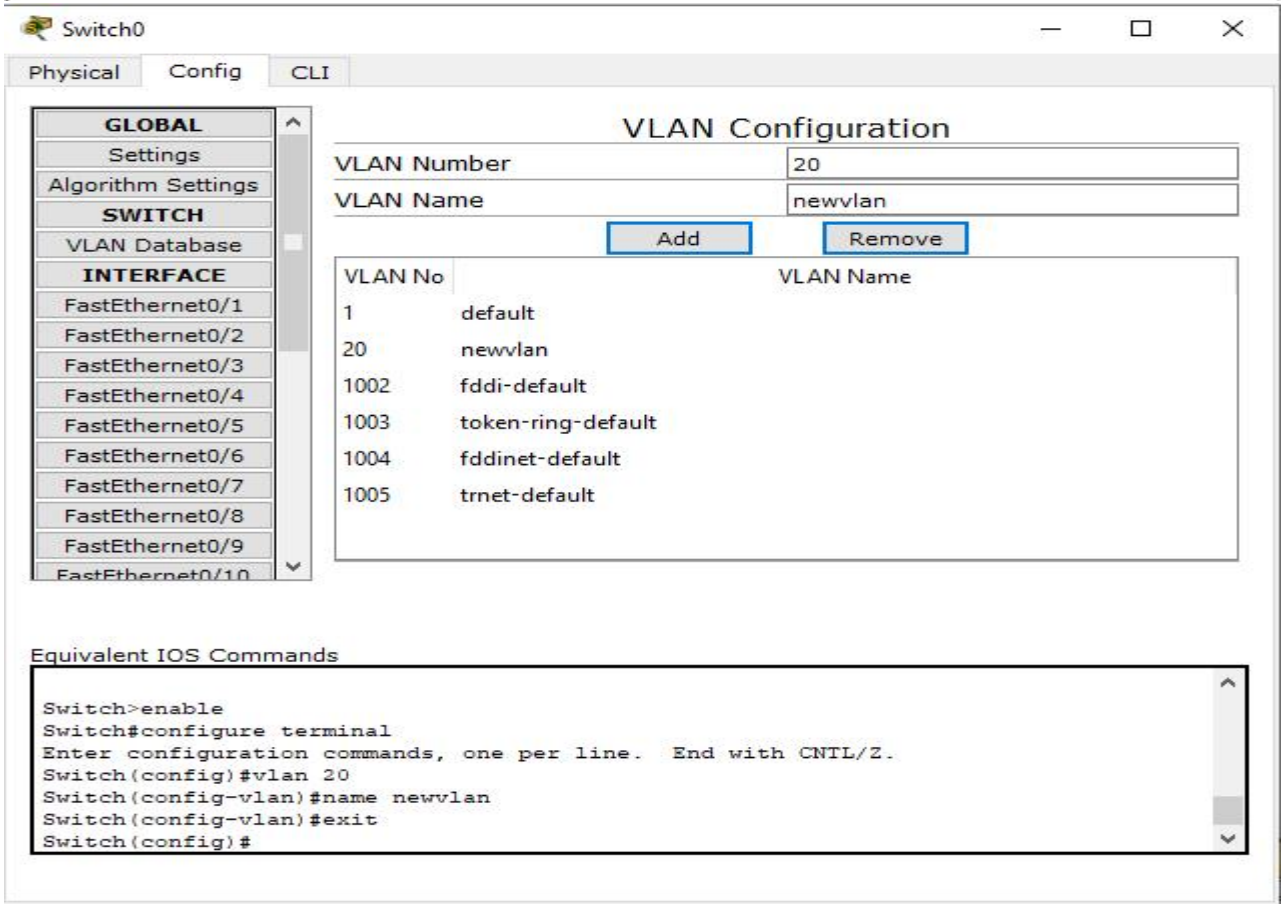

Switch0
Physical
Config
CLI
GLOBAL
Settings
Algorithm Settings
SWITCH
VLAN Database
INTERFACE
FastEthernet0/1
FastEthernet1/1
FastEthernet2/1
FastEthernet3/1
FastEthernet4/1
FastEthernet5/1
Ethernet6/1
Ethernet6/1
Port Status
On
Bandwidth
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
Trunk
VLAN
1
Tx Ring Limit
10
Equivalent IOS Commands
Switch(config-if)#
Switch(config-if)#switchport mode trunk
Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet6/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet6/1, changed state to up

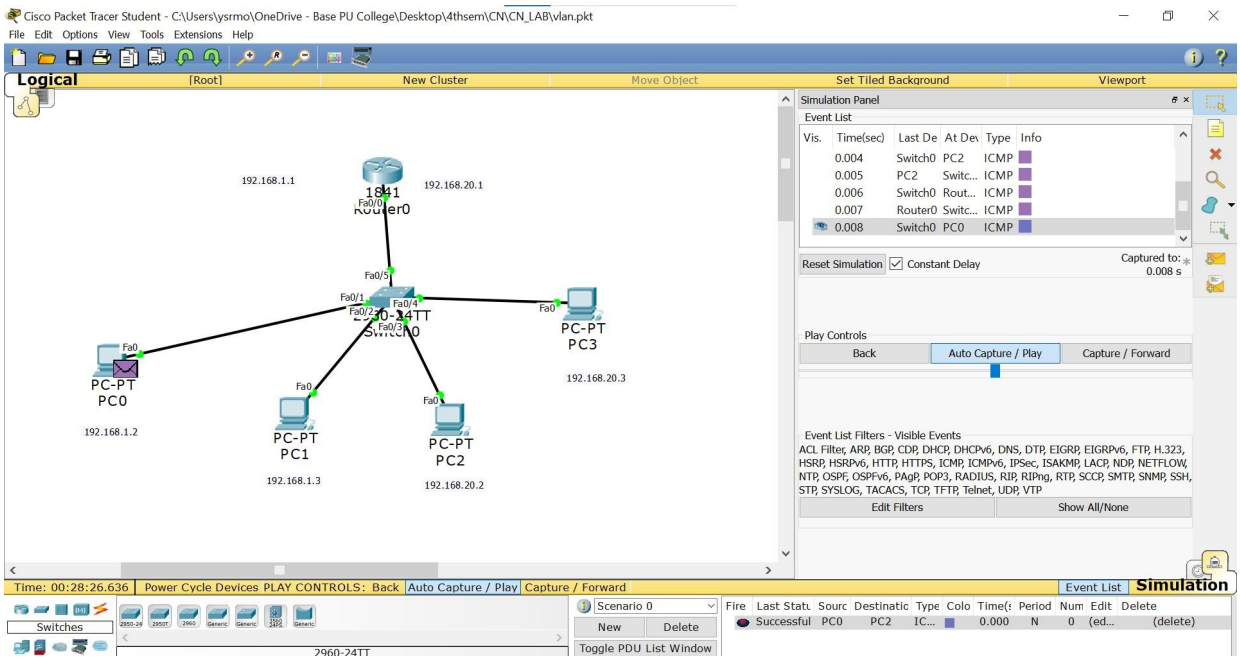

Switch0
Physical
Config
CLI
GLOBAL
Settings
Algorithm Settings
SWITCH
VLAN Database
INTERFACE
FastEthernet0/1
FastEthernet1/1
FastEthernet2/1
FastEthernet3/1
FastEthernet4/1
FastEthernet5/1
Ethernet6/1
FastEthernet2/1
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
Access
VLAN
20
Tx Ring Limit
10
1:default
20:newvlan
1002:fddi-default
Equivalent IOS Commands
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet6/1, changed state to up
Switch(config-if)#exit
Switch(config)#
Switch(config)#interface FastEthernet2/1
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#switchport access vlan 20
Switch(config-if)#


Switch0
Physical
Config
CLI
GLOBAL
Settings
Algorithm Settings
SWITCH
VLAN Database
INTERFACE
FastEthernet0/1
FastEthernet1/1
FastEthernet2/1
FastEthernet3/1
FastEthernet4/1
FastEthernet5/1
Ethernet6/1
FastEthernet3/1
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
Access
VLAN
20
Tx Ring Limit
10
1:default
20:newvlan
1002:fddi-default
Equivalent IOS Commands
Switch(config-if)#switchport access vlan 20
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet3/1
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#switchport access vlan 20
Switch(config-if)#

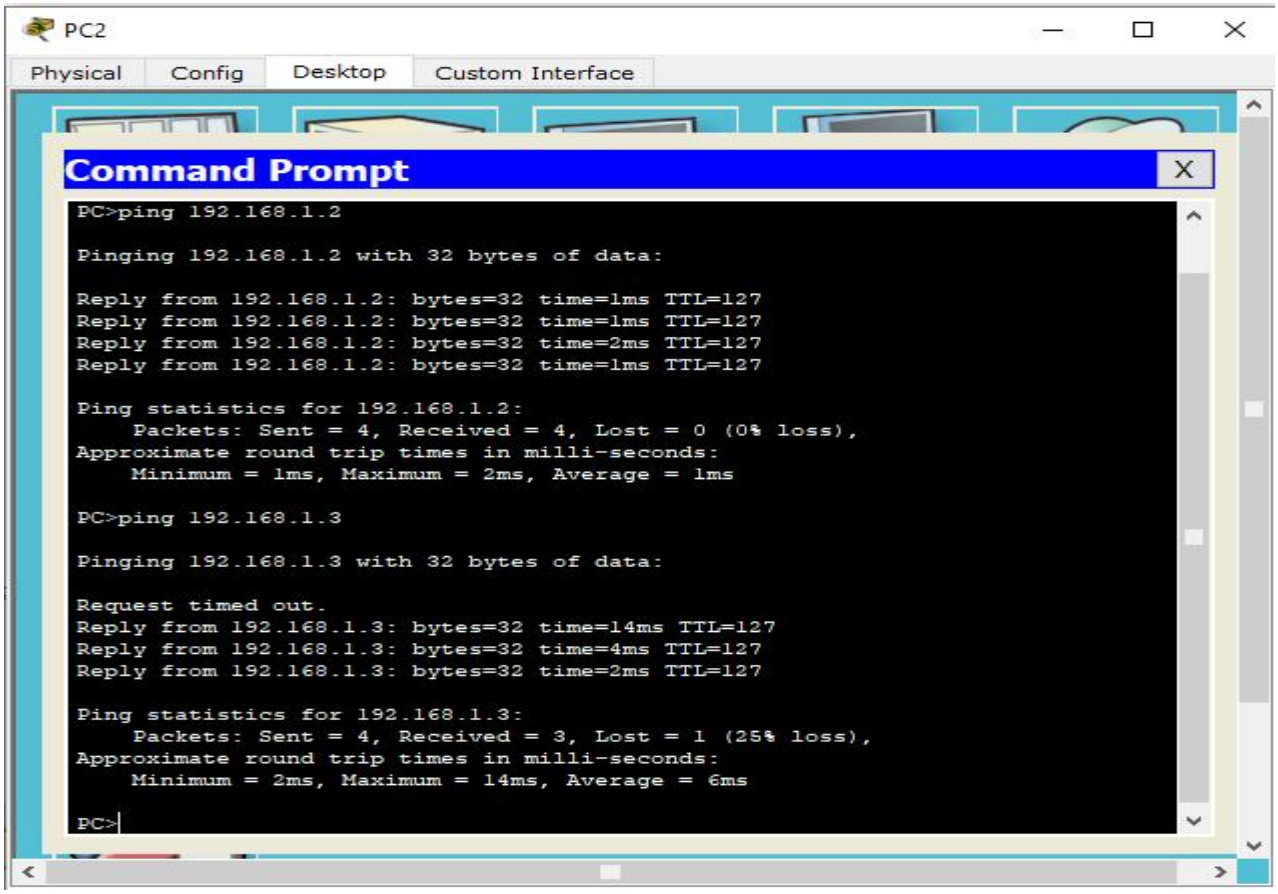

Switch0
Physical
Config
CLI
GLOBAL
Settings
Algorithm Settings
SWITCH
VLAN Database
INTERFACE
FastEthernet0/1
FastEthernet0/2
FastEthernet0/3
FastEthernet0/4
FastEthernet0/5
FastEthernet0/6
FastEthernet0/7
FastEthernet0/8
FastEthernet0/9
FastEthernet0/10
FastEthernet0/4
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
Access
VLAN
20
Tx Ring Limit
10
1:default
20:newvlan
1002:fddi-default
Equivalent IOS Commands
Switch(config-if)#switchport access vlan 20
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/4
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#switchport access vlan 20
Switch(config-if)#

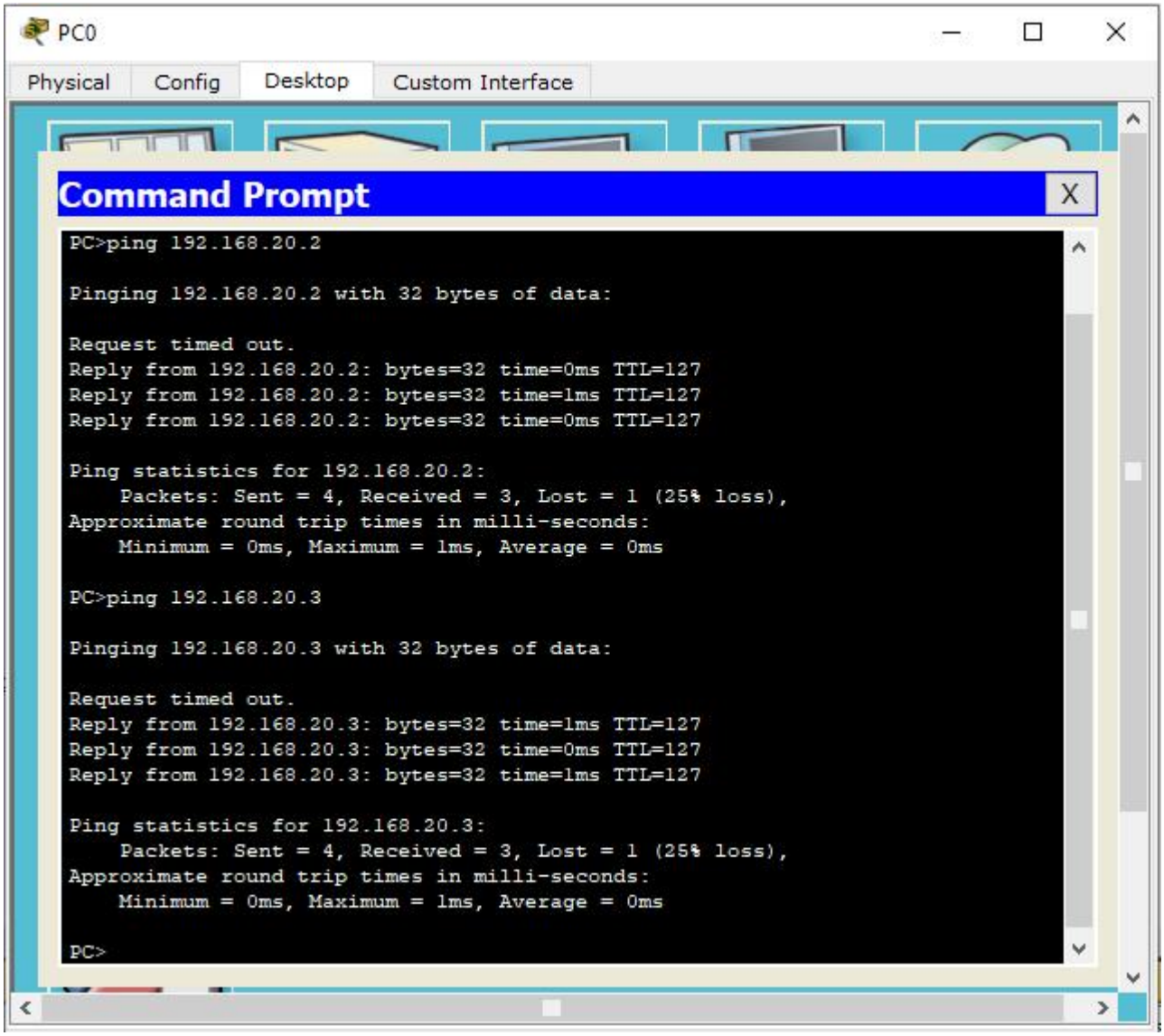

Switch0
Physical
Config
CLI
GLOBAL
Settings
Algorithm Settings
SWITCH
VLAN Database
INTERFACE
FastEthernet0/1
FastEthernet0/2
FastEthernet0/3
FastEthernet0/4
FastEthernet0/5
FastEthernet0/6
FastEthernet0/7
FastEthernet0/8
FastEthernet0/9
FastEthernet0/10
FastEthernet0/3
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
Access
VLAN
20
Tx Ring Limit
10
1:default
20:newvlan
1002:fddi-default
Equivalent IOS Commands
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/4
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#switchport access vlan 20
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/3
Switch(config-if)#


Switch0
Physical
Config
CLI
GLOBAL
Settings
Algorithm Settings
SWITCH
VLAN Database
INTERFACE
FastEthernet0/1
FastEthernet0/2
FastEthernet0/3
FastEthernet0/4
FastEthernet0/5
FastEthernet0/6
FastEthernet0/7
FastEthernet0/8
FastEthernet0/9
FastEthernet0/10
VLAN Configuration
VLAN Number
20
VLAN Name
newvlan
Add
Remove
VLAN No
VLAN Name
1
default
20
newvlan
1002
fddi-default
1003
token-ring-default
1004
fddinet-default
1005
trnet-default
Equivalent IOS Commands
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 20
Switch(config-vlan)#name newvlan
Switch(config-vlan)#exit
Switch(config)#


Cisco Packet Tracer Student - C:\Users\ysrmo\OneDrive - Base PU College\Desktop\4thsem\CN\CN_LAB\vlan.pkt
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
192.168.1.1
192.168.20.1
Router0
Fa0/5
Fa0/1
Fa0/4
Fa0/2
Fa0/3
Fa0
PC-PT PC0
192.168.1.2
PC-PT PC1
192.168.1.3
PC-PT PC2
192.168.20.2
PC-PT PC3
192.168.20.3
Simulation Panel
Event List
Vis. Time(sec) Last De At De Type Info
0.004 Switch0 PC2 ICMP
0.005 PC2 Switc... ICMP
0.006 Switch0 Rout... ICMP
0.007 Router0 Switc... ICMP
0.008 Switch0 PC0 ICMP
Reset Simulation
Constant Delay
Captured to: 0.008 s
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters - Visible Events
ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP
Edit Filters
Show All/None
Time: 00:28:26.636
Power Cycle Devices PLAY CONTROLS: Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Switches
Scenario 0
New
Delete
Toggle PDU List Window
Fire Last Statu Sourc Destinatic Type Colo Time(Period Num Edit Delete
Successful PC0 PC2 IC... 0.000 N 0 (ed... (delete)

PING OUTPUT:


PC2
Physical
Config
Desktop
Custom Interface
Command Prompt
PC>ping 192.168.1.2
Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time=1ms TTL=127
Reply from 192.168.1.2: bytes=32 time=1ms TTL=127
Reply from 192.168.1.2: bytes=32 time=2ms TTL=127
Reply from 192.168.1.2: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.1.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 2ms, Average = 1ms
PC>ping 192.168.1.3
Pinging 192.168.1.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.1.3: bytes=32 time=14ms TTL=127
Reply from 192.168.1.3: bytes=32 time=4ms TTL=127
Reply from 192.168.1.3: bytes=32 time=2ms TTL=127
Ping statistics for 192.168.1.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 14ms, Average = 6ms
PC>


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
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=0ms 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
PC>ping 192.168.20.3
Pinging 192.168.20.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.20.3: bytes=32 time=1ms TTL=127
Reply from 192.168.20.3: bytes=32 time=0ms TTL=127
Reply from 192.168.20.3: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.20.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>