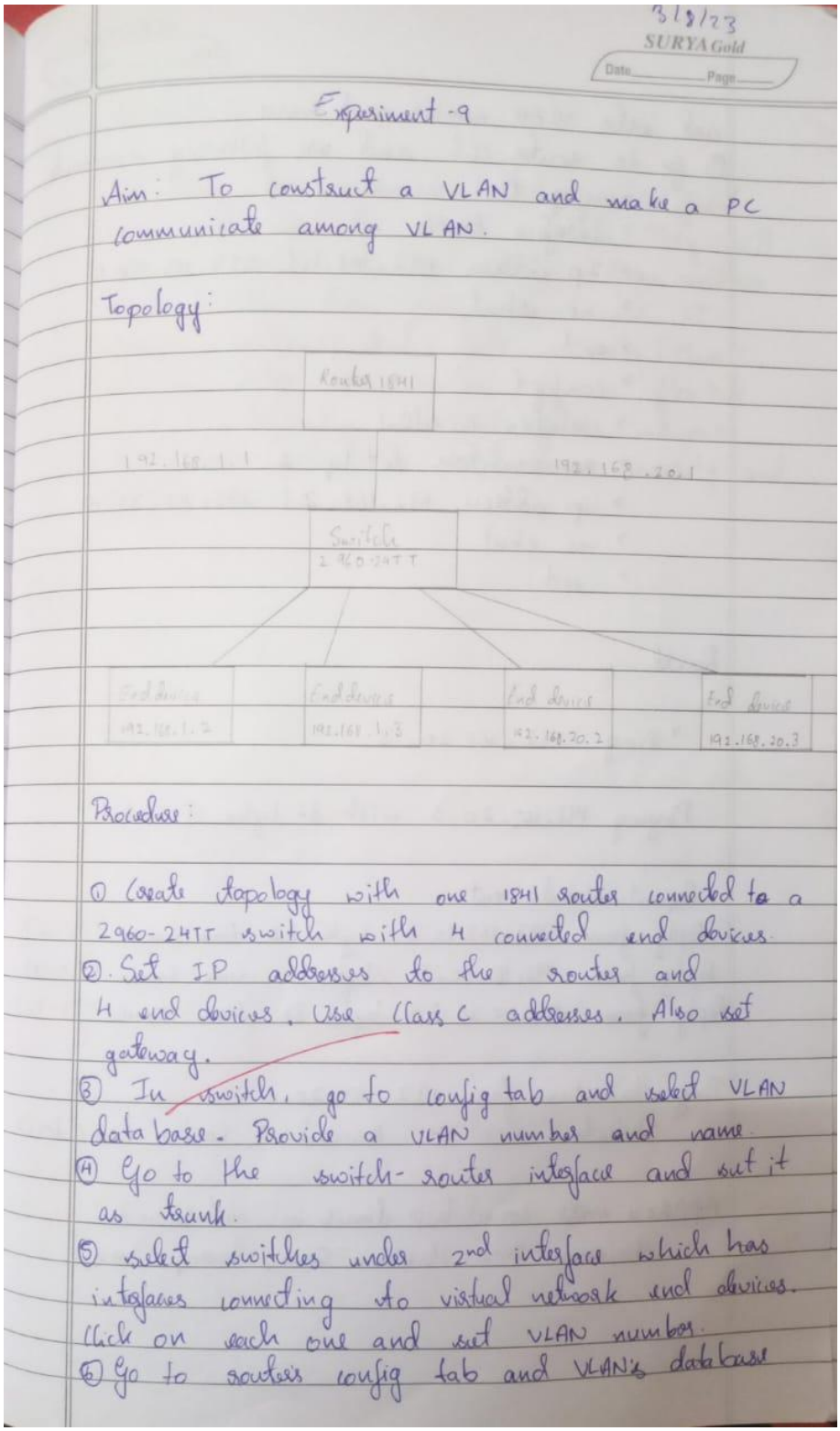
EXPERIMENT-9

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



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Experiment -9

Aim: To construct a VLAN and make a PC communicate among VLAN.

Topology:

Router 1841

192.168.1.1

192.168.20.1

Switch 2960-24TT

End device 192.168.1.2

End device 192.168.1.3

End device 192.168.20.2

End device 192.168.20.3

Procedure:

① Create topology with one 1841 router connected to a 2960-24TT switch with 4 connected end devices.

② Set IP addresses to the router and 4 end devices. Use Class C addresses. Also set gateway.

③ In switch, go to config tab and select VLAN database. Provide a VLAN number and name.

④ Go to the switch-router interface and set it as trunk.

⑤ Select switches under 2nd interface which has interfaces connecting to virtual network and devices. Click on each one and set VLAN number.

⑥ Go to routers config tab and VLAN's database

and enter VLAN number and name.

① Go to router CLI and use following commands

> config t
> interface Fa 0/0
> Ip address 192.168.1.1 255.255.255.0
> no shut
> exit
> config t
> interface Fa 0/0.1
> encapsulation dot1q 2
> ip address 192.168.20.1 255.255.255.0
> no shut
> exit

Result:

> 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=0ms TTL=127
Reply from 192.168.20.3: bytes=32 time=5ms TTL=127
Reply from 192.168.20.3: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.20.3:
Packets: sent=4 Recieved=3, Lost=1 (25% loss)

Approximate round trip times in milliseconds:
Minimum=0ms, Maximum=5ms, Average=1ms

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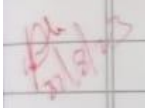
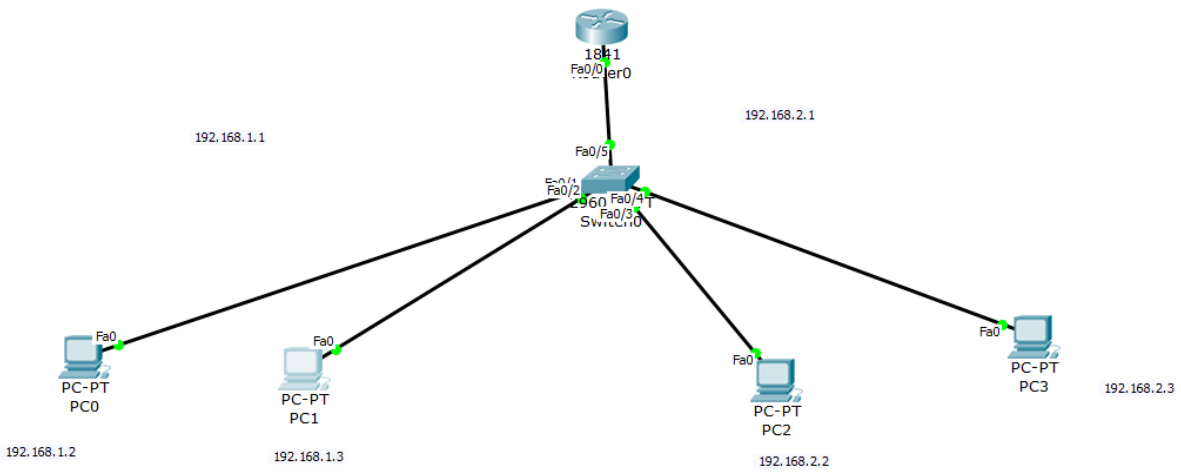
Observation

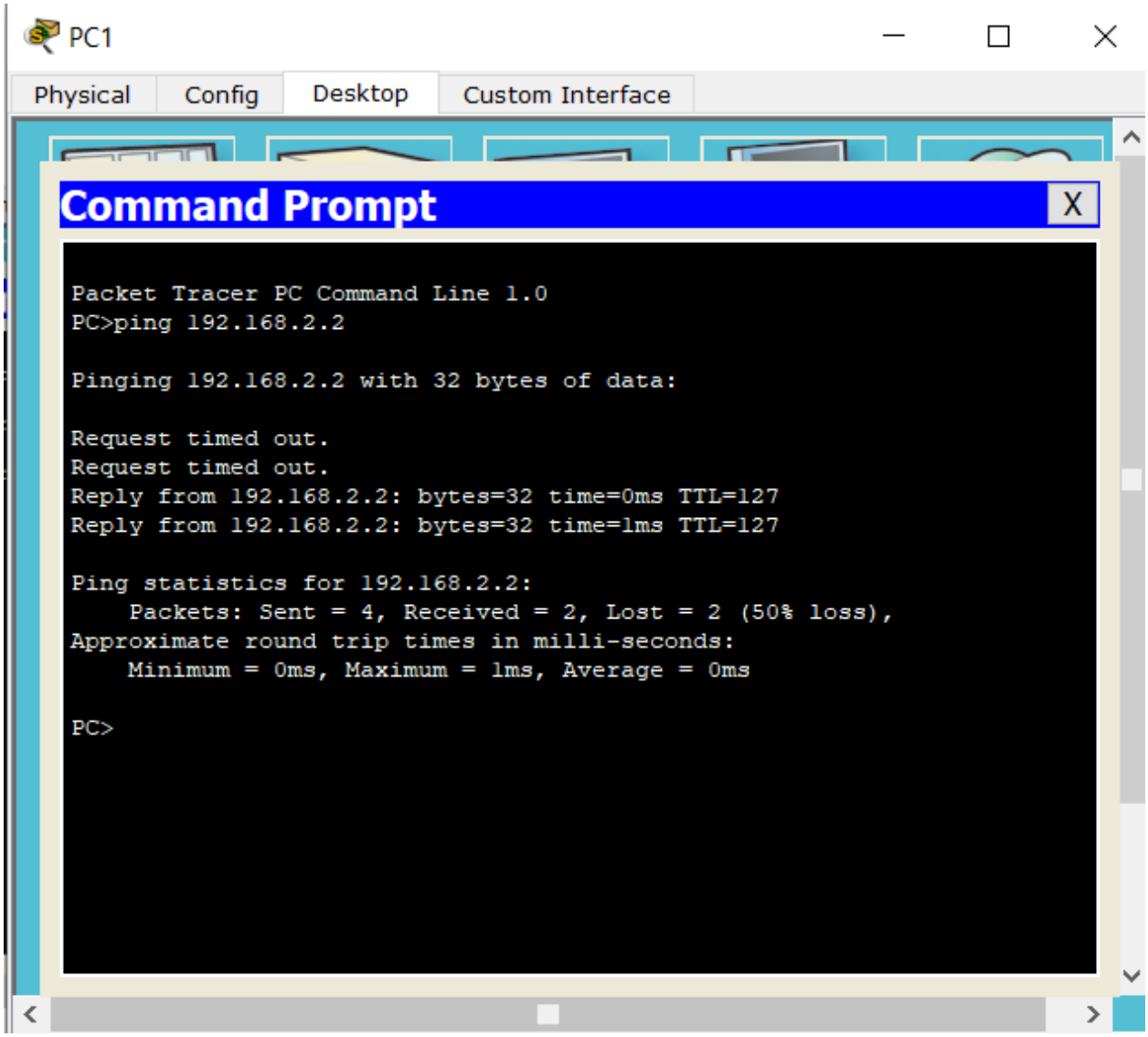
We have two devices, each on a different VLAN but on the same switch. They will only hear other broadcast traffic from within their VLANs. Here, VLANs don't use IP addresses, instead deal with subnets / Class C addresses. Inter-VLAN routing gives a flexible tool to logically subdivide their networks that has potential to enhance security and performance.



Topology:


1841
Fa0/0
192.168.1.1
192.168.2.1
Fa0/5
Fa0/2
Fa0/4
Fa0/3
2960
Switch0
Fa0
PC-PT
PC0
192.168.1.2
Fa0
PC-PT
PC1
192.168.1.3
Fa0
PC-PT
PC2
192.168.2.2
Fa0
PC-PT
PC3
192.168.2.3

Result:


PC1
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 192.168.2.2
Pinging 192.168.2.2 with 32 bytes of data:
Request timed out.
Request timed out.
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=1ms TTL=127
Ping statistics for 192.168.2.2:
Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
PC>