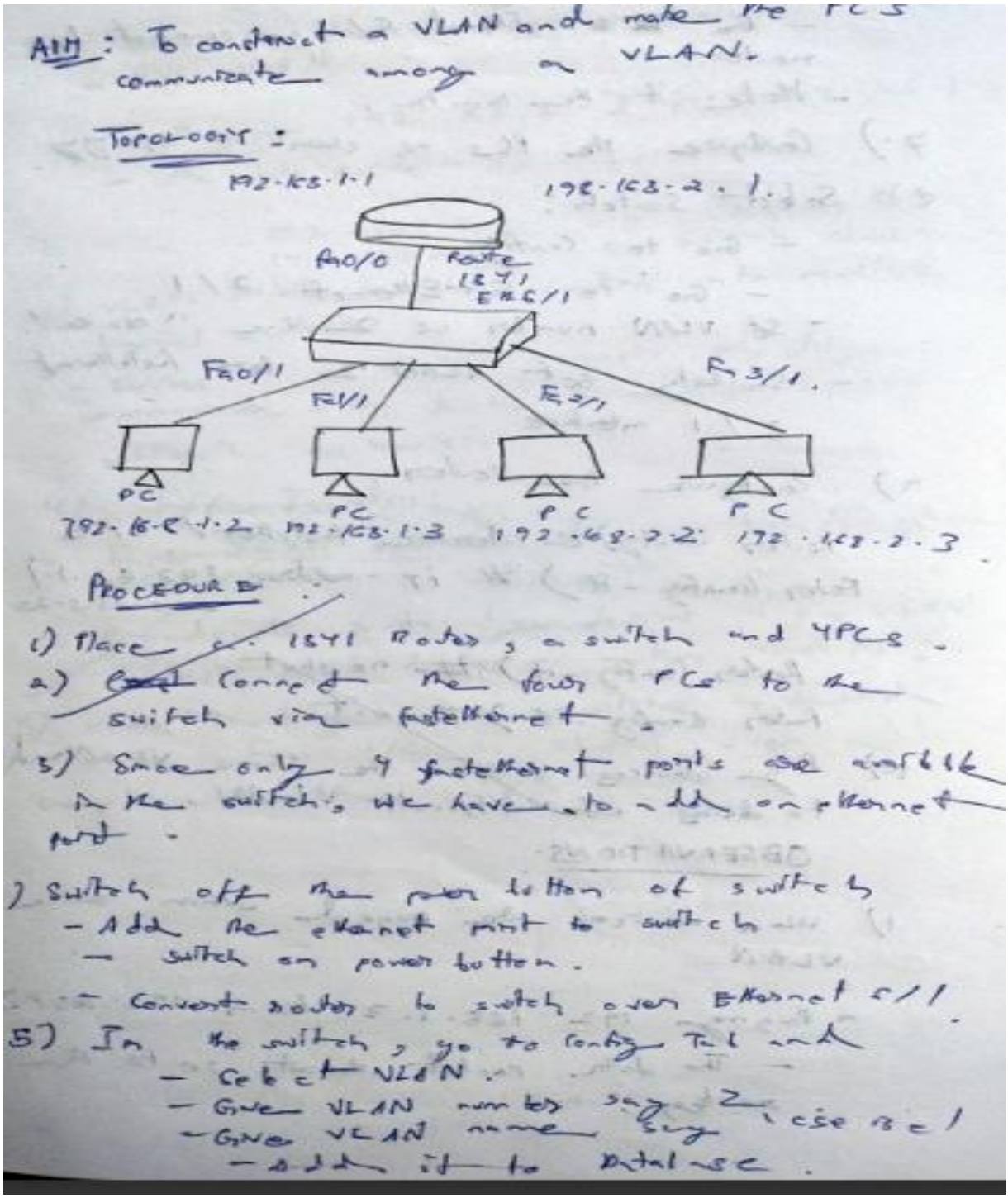
Program 12

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

Topology , Procedure and Observation:



6) Select the switch.
- Go to Config
- Go to Ethernet c/1 i.e connect to router.
- Make it trunk.

7.) Configure the PCs as shown in topology.

8) Select switch:
- Go to Config
- Go to FastEthernet 2/1
- Set VLAN number as 2 i.e "access"
- Similarly set VLAN 2 Port FastEthernet 3/1 interface.

9) Configure the Router.

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

10) Ping devices with the same VLAN and to during the difficult VLAN.

OBSERVATIONS.

1) Vlan devices are pinged within same VLAN.
- Pinging 192.168.1.3 from 192.168.1.2
- The data packet doesn't go to the router.

- The switch forwards the packet without the need of the router.

2) When a device pings a device of another VLAN.

- Pinging 192.168.2.3 from 192.168.1.2
- The data packet is as follows:

192.168.1.2 -> Switch -> Router
192.168.2.3 <- Switch <-

3) VLANs divide a single switch into multiple logical switches.

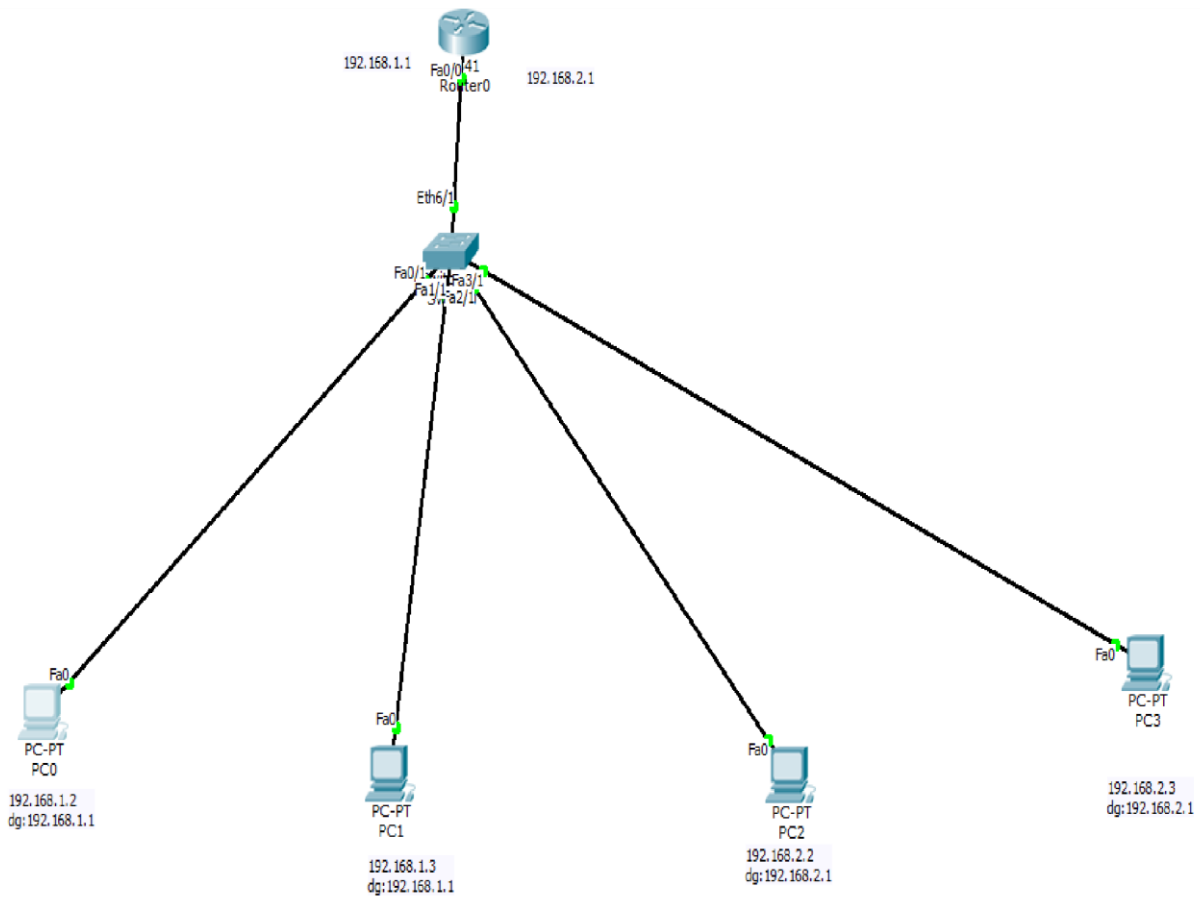
- Devices on VLAN cannot directly communicate with devices on another VLAN without a router.

4) Traffic Isolation:

- Each VLAN maintains its own broadcast domain.
- Broadcasts sent by devices in one VLAN do not reach devices in another VLAN.

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

Screen Shots:



Command Prompt

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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.
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=4ms TTL=127

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms

PC>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=2ms TTL=127
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms

PC>ping 192.168.2.3

Pinging 192.168.2.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.3: bytes=32 time=3ms TTL=127
Reply from 192.168.2.3: bytes=32 time=2ms TTL=127
Reply from 192.168.2.3: bytes=32 time=1ms TTL=127

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 2ms

PC>ping 192.168.2.3

Pinging 192.168.2.3 with 32 bytes of data:

Reply from 192.168.2.3: bytes=32 time=0ms TTL=127
Reply from 192.168.2.3: bytes=32 time=0ms TTL=127
Reply from 192.168.2.3: bytes=32 time=2ms TTL=127
Reply from 192.168.2.3: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms

PC>
```