



Subject: Computer Networks (01CT0503)

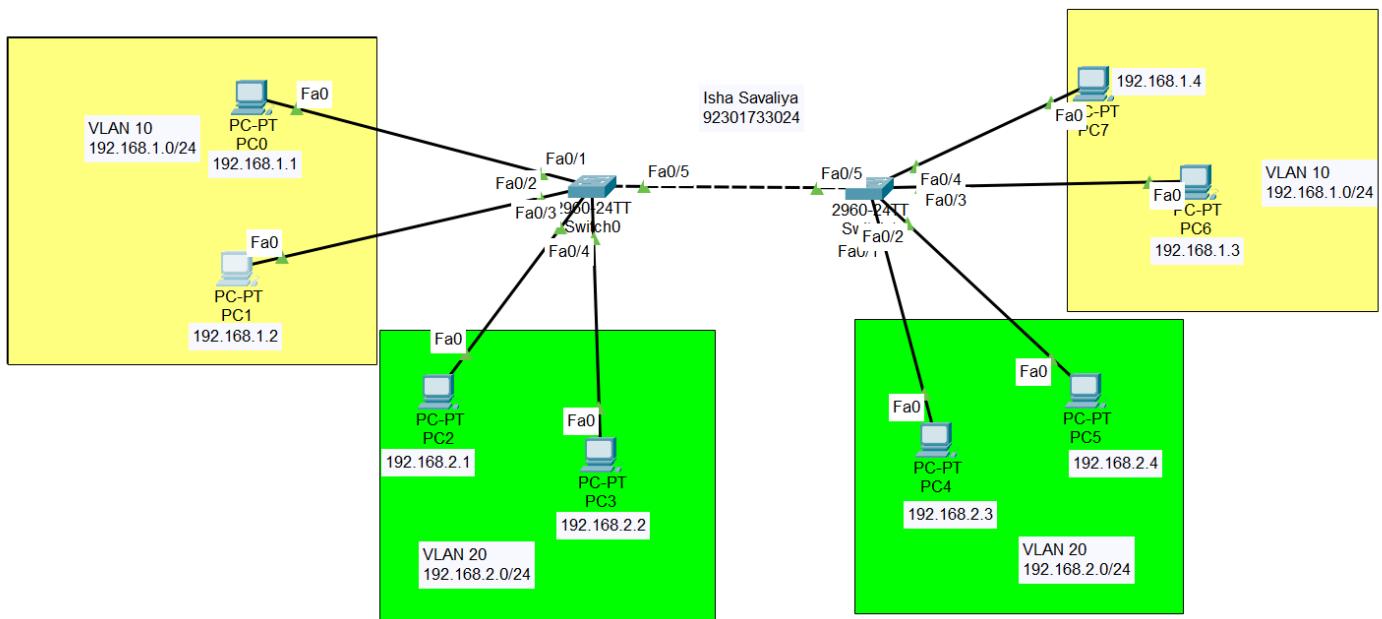
Aim: Simulate VLAN and verify the VLAN concepts the results.

Experiment No: 10

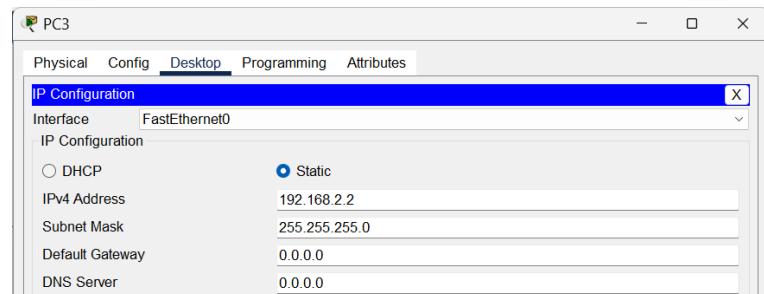
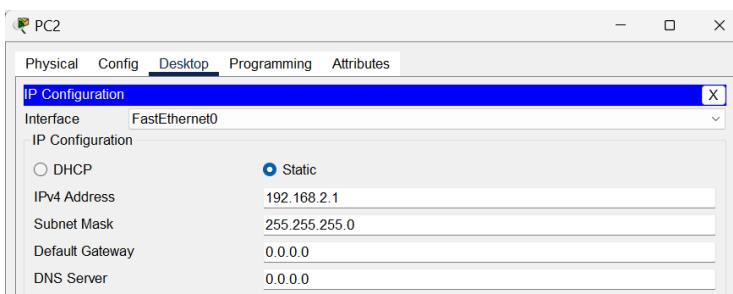
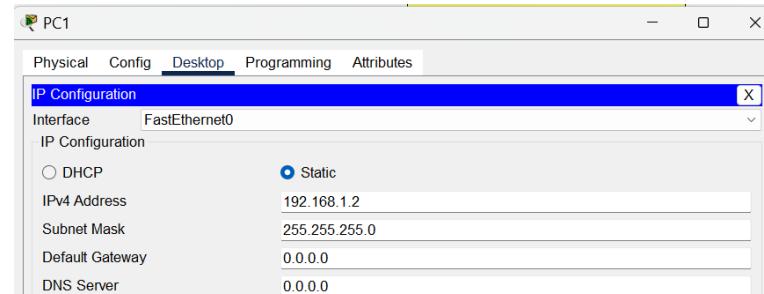
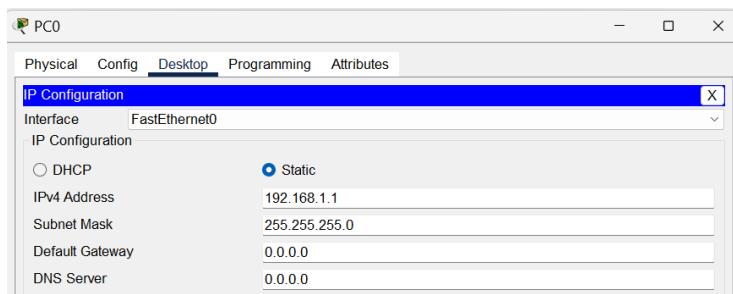
Date: 08-11-2025

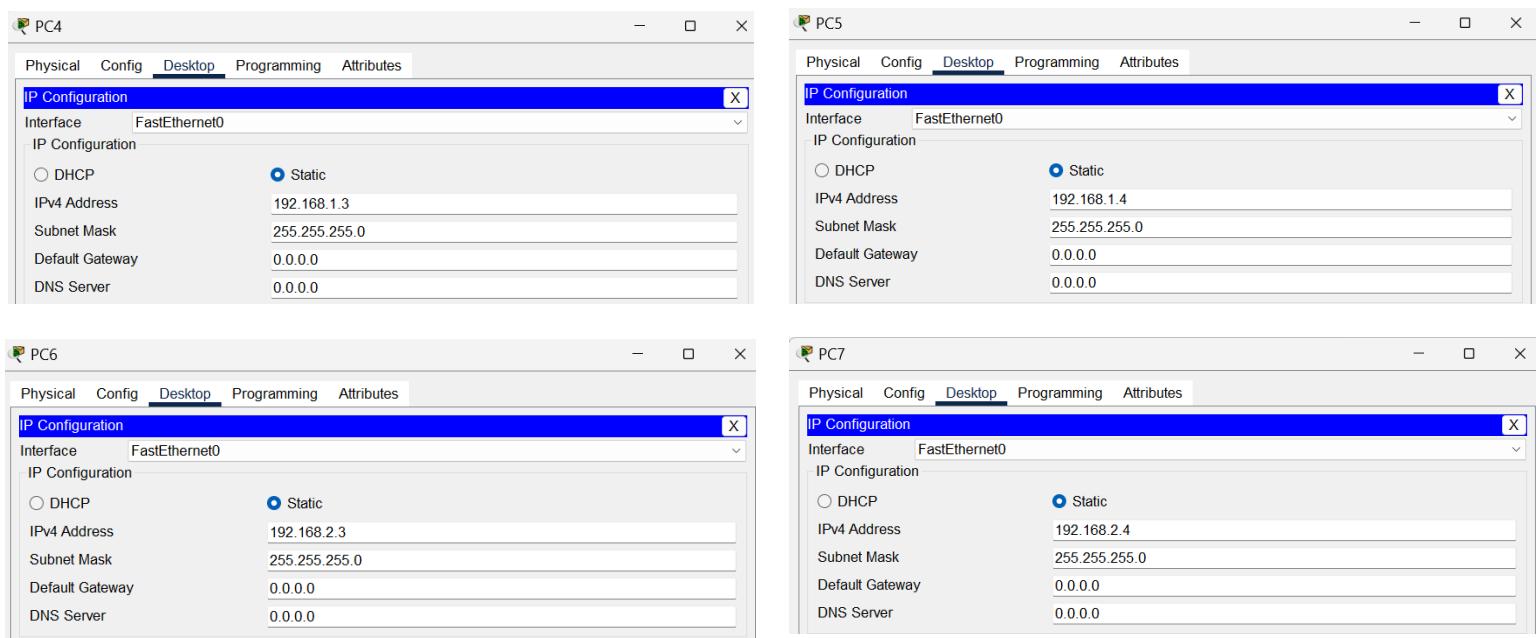
Enrolment No: 92301733024

Step – 1:- Open Cisco Packet Tracer and take 2 switches and 8 PCs. Connect all the PCs to the switches using copper straight-through cables, and connect the two switches using a copper cross-over cable.



Step – 2 :- Assign IP addresses to all the PCs.



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The figure consists of four NetworkMiner tool windows labeled PC4, PC5, PC6, and PC7. Each window shows the 'IP Configuration' tab for a host with 'FastEthernet0' interface. The configuration includes:

- PC4:** IP Address 192.168.1.3, Subnet Mask 255.255.255.0, Default Gateway 0.0.0.0.
- PC5:** IP Address 192.168.1.4, Subnet Mask 255.255.255.0, Default Gateway 0.0.0.0.
- PC6:** IP Address 192.168.2.3, Subnet Mask 255.255.255.0, Default Gateway 0.0.0.0.
- PC7:** IP Address 192.168.2.4, Subnet Mask 255.255.255.0, Default Gateway 0.0.0.0.

Step – 3 :- Click on switch0 and open the CLI to access the Command Line Interface of the switch.

```

Switch>en
Switch#show vlan br

VLAN Name          Status    Ports
---- --           -----
 1  default        active   Fa0/1, Fa0/2, Fa0/3, Fa0/4
                           Fa0/5, Fa0/6, Fa0/7, Fa0/8
                           Fa0/9, Fa0/10, Fa0/11, Fa0/12
                           Fa0/13, Fa0/14, Fa0/15, Fa0/16
                           Fa0/17, Fa0/18, Fa0/19, Fa0/20
                           Fa0/21, Fa0/22, Fa0/23, Fa0/24
                           Gig0/1, Gig0/2

 1002 fddi-default  active
 1003 token-ring-default  active
 1004 fddinet-default  active
 1005 trnet-default   active
Switch#

```

In Picture we can see that the by default one VLAN is there with name default, id 1 and access of all ports.



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Step – 4:- Now we will assign the Ports to VLAN for switch0.

```
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name VLAN 10
^
% Invalid input detected at '^' marker.

Switch(config-vlan)#name VLAN10
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name VLAN20
Switch(config-vlan)#exit
Switch(config)#int range Fa0/1-2
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#exit
Switch(config)#int range Fa0/3-4
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#exit
Switch(config)#interface Fa0/5
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to up

Switch(config-if)#exit
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#do show vlan br

VLAN Name          Status    Ports
---- -----
1    default        active    Fa0/6, Fa0/7, Fa0/8, Fa0/9
                           Fa0/10, Fa0/11, Fa0/12, Fa0/13
                           Fa0/14, Fa0/15, Fa0/16, Fa0/17
                           Fa0/18, Fa0/19, Fa0/20, Fa0/21
                           Fa0/22, Fa0/23, Fa0/24, Gig0/1
                           Gig0/2
10   VLAN10        active    Fa0/1, Fa0/2
20   VLAN20        active    Fa0/3, Fa0/4
1002 fddi-default  active
1003 token-ring-default  active
1004 fddinet-default  active
1005 trnet-default   active
Switch(config)#

```



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Step – 5:- Now we will assign the Ports to VLAN for switch1.

```
Switch>en
Switch#show vlan br

VLAN Name          Status    Ports
----- -----
1     default       active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                           Fa0/6, Fa0/7, Fa0/8, Fa0/9
                           Fa0/10, Fa0/11, Fa0/12, Fa0/13
                           Fa0/14, Fa0/15, Fa0/16, Fa0/17
                           Fa0/18, Fa0/19, Fa0/20, Fa0/21
                           Fa0/22, Fa0/23, Fa0/24, Gig0/1
                           Gig0/2
1002 fddi-default   active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default   active
Switch#
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name VLAN10
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name VLAN20
Switch(config-vlan)#exit
Switch(config)#int range Fa0/3-4
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#exit
Switch(config)#int range Fa0/1-2
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#exit
Switch(config)#interface Fa0/5
Switch(config-if)#switchport mode trunk
Switch(config-if)#exit
Switch(config)#do show vlan br

VLAN Name          Status    Ports
----- -----
1     default       active    Fa0/6, Fa0/7, Fa0/8, Fa0/9
                           Fa0/10, Fa0/11, Fa0/12, Fa0/13
                           Fa0/14, Fa0/15, Fa0/16, Fa0/17
                           Fa0/18, Fa0/19, Fa0/20, Fa0/21
                           Fa0/22, Fa0/23, Fa0/24, Gig0/1
                           Gig0/2
10    VLAN10        active    Fa0/3, Fa0/4
20    VLAN20        active    Fa0/1, Fa0/2
1002 fddi-default   active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default   active
Switch(config)#

```



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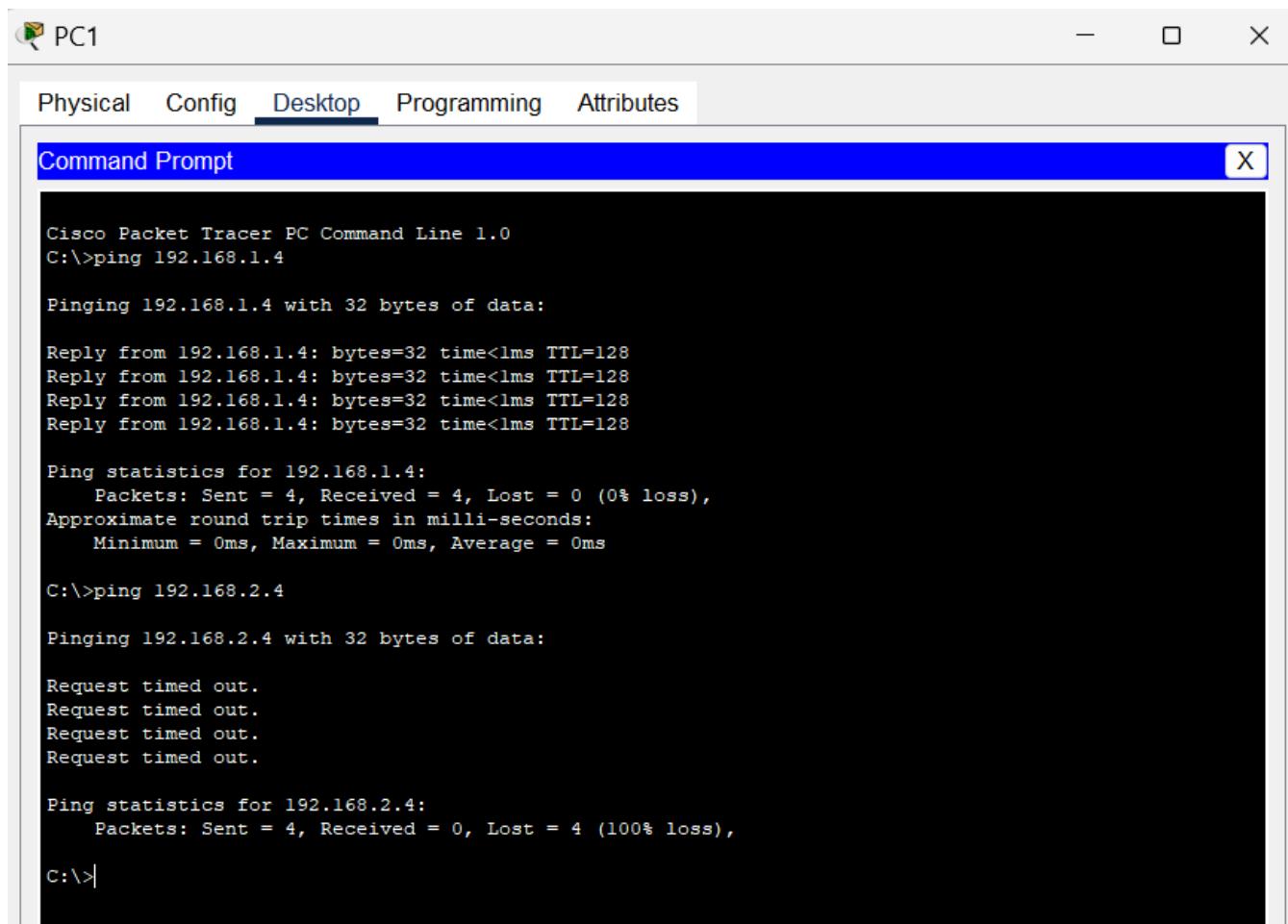
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Step – 6 :- Now we will check the connectivity between the two PC's in the same and different VLAN.



The screenshot shows a Cisco Packet Tracer Command Prompt window titled "Command Prompt". The window has tabs: Physical, Config, Desktop (which is selected), Programming, and Attributes. The command line shows the following output:

```
Cisco Packet Tracer PC Command Line 1.0
C:>ping 192.168.1.4

Pinging 192.168.1.4 with 32 bytes of data:

Reply from 192.168.1.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:>ping 192.168.2.4

Pinging 192.168.2.4 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.2.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:>
```

The packet is lost because the PC's are not in the same VLAN.

Conclusion:-

In this experiment, We saw that computers in the same VLAN can easily communicate with each other, but those in different VLANs cannot. This shows how VLANs help in dividing a network into smaller parts to make it more organized, secure, and efficient.