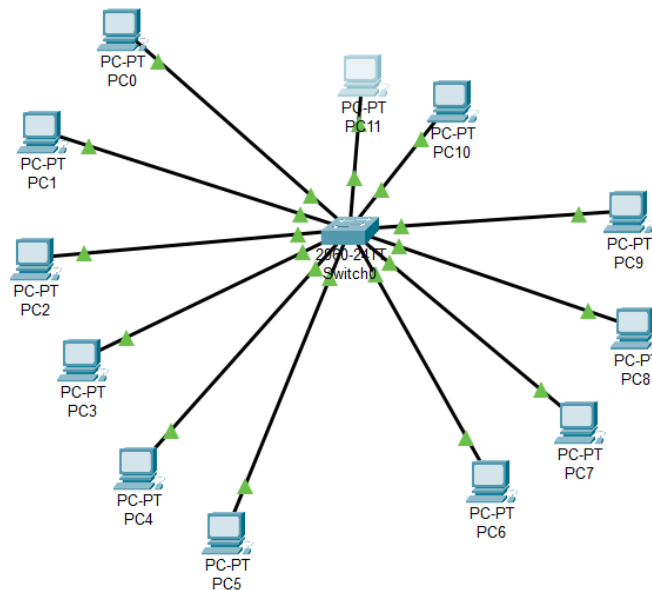
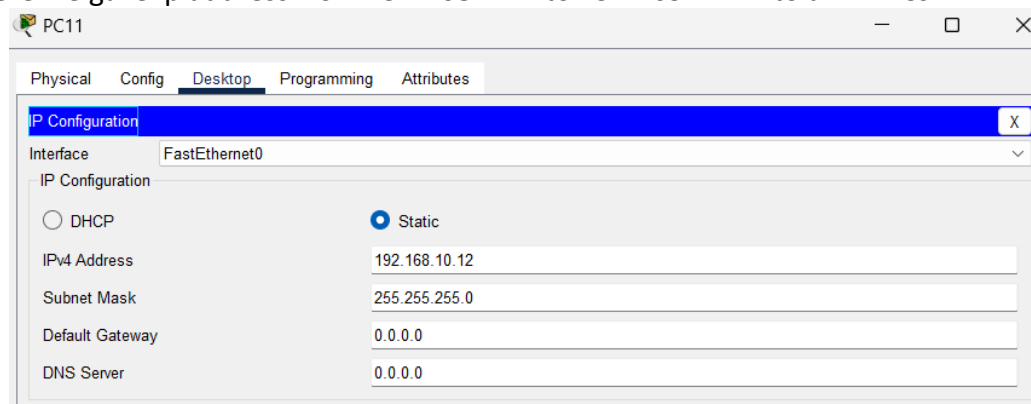
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<b>Subject: Computer Networks (01CT0503)</b>	<b>Aim: Simulate VLAN and verify the VLAN concepts the results..</b>	
<b>Experiment No: 10</b>	<b>Date: 12-09-2024</b>	<b>Enrolment No: 92200133021</b>


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

Step – 1: Place switch and different PCs and give them a IP address having only one network in by subnet masking.



Step-2: Here we gave ip address from 192.168.11.1 to 192.169.11.12 to all 12 PCs.



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Step-3: Open CLI command prompt of Switch and enter “sh vlan br”, which will show the current VLAN available on Switch. Here we can see that all ports are currently on default VLAN.

```
Switch>
Switch>sh 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	

Step-4: To create new VLAN enter to Global configuration mode and enter “vlan <VLAN no.>”. To give Name to new VLAN enter “name <VLAN name>” in next command line.


```
Switch>en
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name students
```

Step-5: To check the new VLAN network enter “sh vlan br” again. And then we can see the new Students named VLAN network.

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

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

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Step - 6: In global configuration mode enter “int f0/1”, then enter “switchport mode access” in next command line, then enter “switchport access vlan 2”. Add which will select the ethernet port 1 and add this to students VLAN network.

```
Switch(config)#int f0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#do sh vlan br
```

VLAN Name	Status	Ports
1 default	active	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
2 students	active	Fa0/1
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

```
Switch(config-if)#int f0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#do sh vlan br
```

VLAN Name	Status	Ports
1 default	active	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
2 students	active	Fa0/1, Fa0/2
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

Step - 7: To add multiple devices one VLAN in one command line use – to define range of ports or use , to add different port in any VLAN.

```
Switch(config-if)#int range f0/3-f0/6
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 2
Switch(config-if-range)#do sh vlan br
```

VLAN Name	Status	Ports
1 default	active	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
2 students	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

Step-8: Make a VLAN for Admin Staff and assign two ports to them.

**Subject: Computer Networks (01CT0503)**

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

**Experiment No: 10**

**Date: 12-09-2024**

**Enrolment No: 92200133021**

```
Switch>en
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 3
Switch(config-vlan)#name adminStaff
Switch(config-vlan)#do sh vlan br
```

VLAN	Name	Status	Ports
1	default	active	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
2	students	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6
3	adminStaff	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	


```
Switch(config)#int range f0/11,f0/12
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 3
Switch(config-if-range)#do sh vlan br
```

VLAN	Name	Status	Ports
1	default	active	Fa0/7, Fa0/8, Fa0/9, Fa0/10 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
2	students	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6
3	adminStaff	active	Fa0/11, Fa0/12
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

Step -9: Make remaining VLAN for Faculty staff

```
Switch(config-if-range)#exit
Switch(config)#vlan 4
Switch(config-vlan)#name facultyStaff
Switch(config-vlan)#do sh vlan br
```

VLAN	Name	Status	Ports
1	default	active	Fa0/7, Fa0/8, Fa0/9, Fa0/10 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
2	students	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6
3	adminStaff	active	Fa0/11, Fa0/12
4	facultyStaff	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

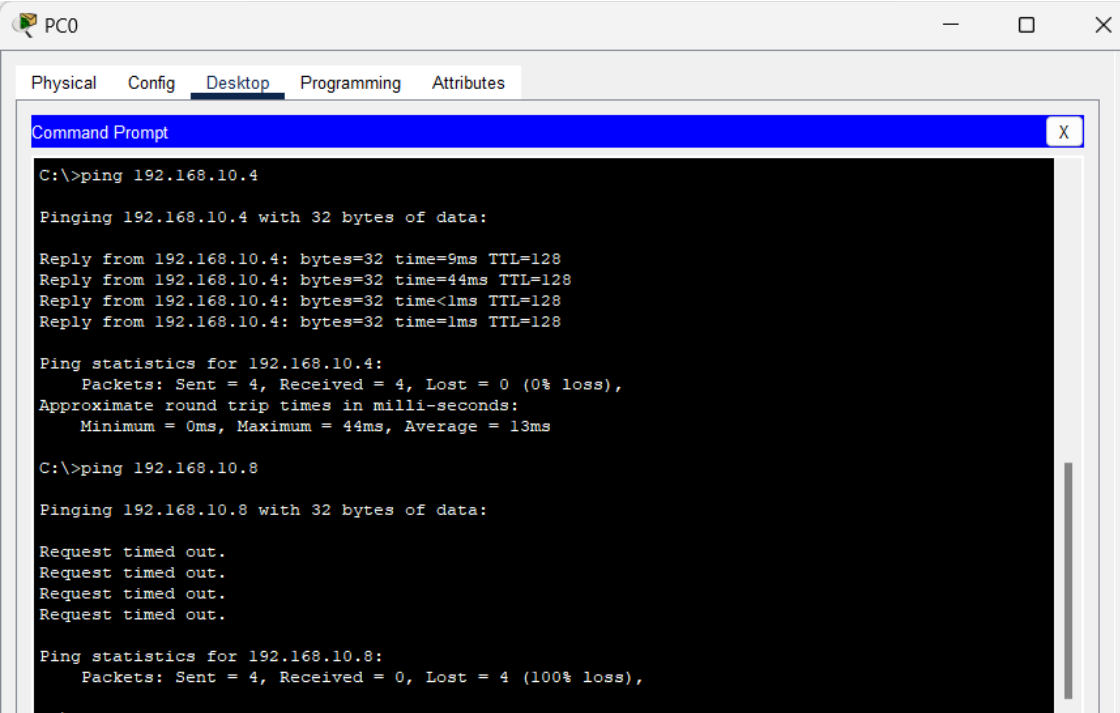
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```
Switch(config-vlan)#exit
Switch(config)#int range f0/7-f0/10
Switch(config-if-range)#switchport access vlan 4
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 4
Switch(config-if-range)#do sh vlan br
```

VLAN Name	Status	Ports
1 default	active	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
2 students	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6
3 adminStaff	active	Fa0/11, Fa0/12
4 facultyStaff	active	Fa0/7, Fa0/8, Fa0/9, Fa0/10
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

```
Switch(config-if-range)#
```

Step-10: Check connectivity from same VLAN and different VLAN



```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping 192.168.10.4

Pinging 192.168.10.4 with 32 bytes of data:

Reply from 192.168.10.4: bytes=32 time=9ms TTL=128
Reply from 192.168.10.4: bytes=32 time=44ms TTL=128
Reply from 192.168.10.4: bytes=32 time<1ms TTL=128
Reply from 192.168.10.4: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.10.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 44ms, Average = 13ms


C:\>ping 192.168.10.8

Pinging 192.168.10.8 with 32 bytes of data:

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

Ping statistics for 192.168.10.8:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

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**Conclusion:** In this experiment, I discovered how using access mode in VLAN allows me to limit the access of one PC to others on the network, effectively implementing a security protocol. This method not only enhances network security but also helps in managing traffic and isolating devices based on specific criteria.