COMUTER NETWORK

ASSINMENT 5

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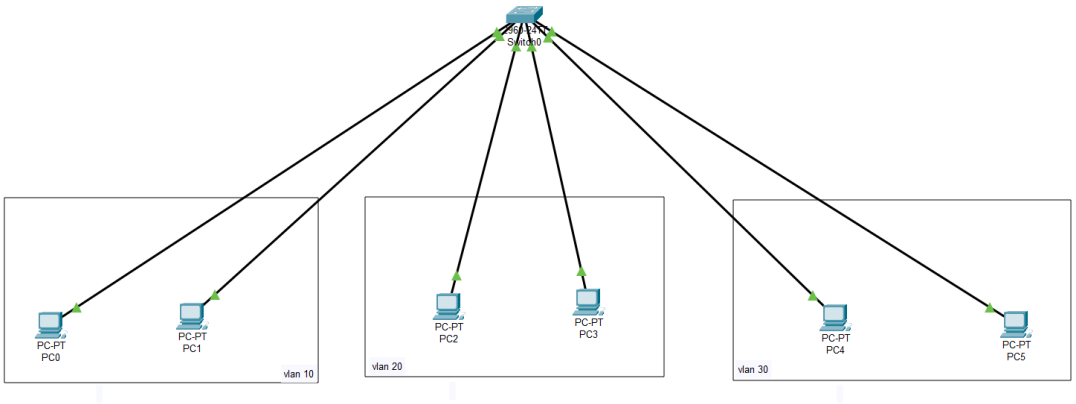
1- Router

Link device to the switch and divide them into three vlan



Vlan 10: IP 192.168.10.0 255.255.255.0
Vlan 30: IP 192.168.20.0 255.255.255.0
Vlan 30: IP 192.168.30.0 255.255.255.0

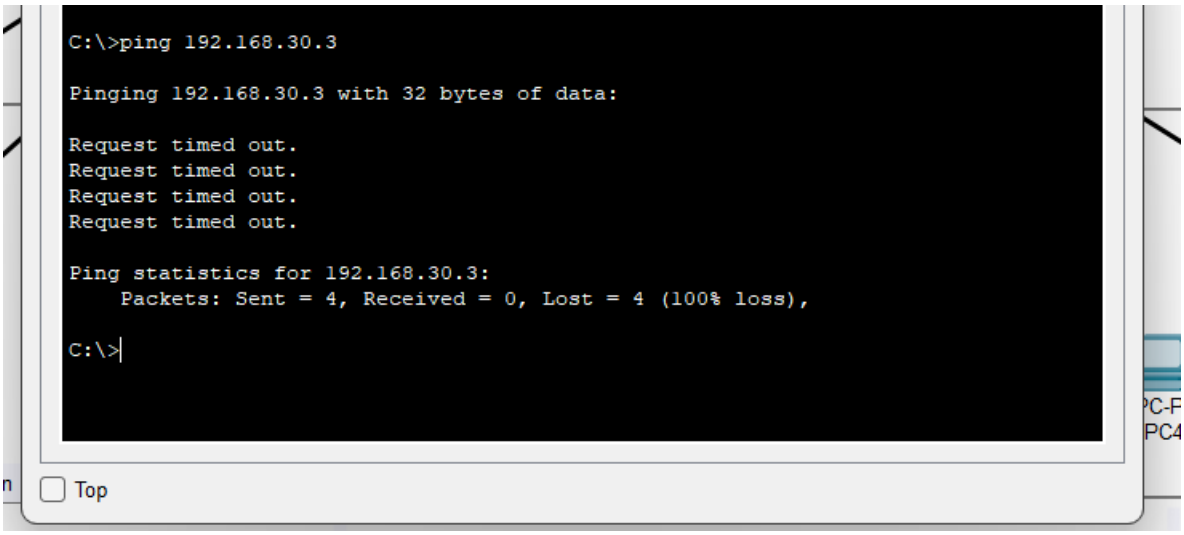
Switch configuration to divided the vlan :

```
Switch(config)#int rang fa0/1-8
Switch(config-if-range)#sw
Switch(config-if-range)#switchport acs
Switch(config-if-range)#switchport ac
Switch(config-if-range)#switchport access vl
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#s
Switch(config-if-range)#sw
Switch(config-if-range)#switchport mod
Switch(config-if-range)#switchport mode ac
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#int rang fa0/9-16
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#int rang fa0/17-24
Switch(config-if-range)#switchport access vlan 30
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#exit
```

Switch vlans:

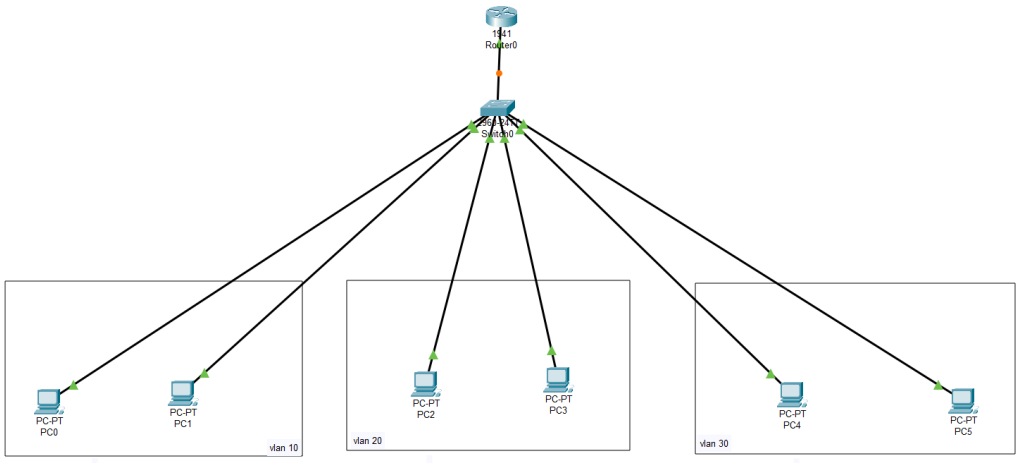
```
Switch#sh valn br
          ^
% Invalid input detected at '^' marker.

Switch#sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Gig0/2
10   it                                active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                 Fa0/5, Fa0/6, Fa0/7, Fa0/8
20   20                                active    Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14, Fa0/15,
Fa0/16
30   30                                active    Fa0/17, Fa0/18, Fa0/19,
Fa0/20
                                                 Fa0/21, Fa0/22, Fa0/23,
Fa0/24
99   manage                            active    Gig0/1
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
Switch#
```

Now the tree vlan can’t contact with each other:



To connect with each other we used trunk mode on vlan:

Frist we need router to make them connect:



Then create on switch a vlan 99 to management to access trunk mode on it:

```
Switch>
Switch>
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with
CNTL/Z.
Switch(config)#vlan 99
Switch(config-vlan)#name management
Switch(config-vlan)#exit
```

Then access trunk mode on the port of g0/1 and allow the vlans that access to the management vlan:

```
Switch>
Switch>
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 99
Switch(config-vlan)#name management
Switch(config-vlan)#exit
Switch(config)#interface g0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk native vlan 99
Switch(config-if)#switchport trunk allowed vlan 10,20,30
Switch(config-if)#exit
Switch(config)#
```

Then go to router configuration:
We will divide the port of g0/0 to three supports
To send message from device to other the massage will encapsulation and we will use the dot1Q type of the encapsulation:

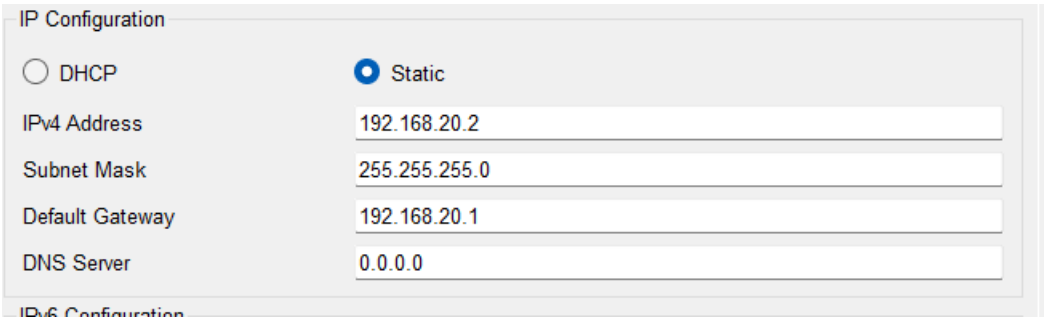
```
Router>
Router>en
Router#conf t
Enter configuration commands, one per line.  End with
CNTL/Z.
Router(config)#interface g0/0.10
Router(config-subif)#enca
Router(config-subif)#encapsulation d
Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 192.168.10.1 255.255.255.0
Router(config-subif)#exit
Router(config)#int g0/0.20
Router(config-subif)#enca
Router(config-subif)#encapsulation do
Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#
```

```
Router(config)#
Router(config)#int g0/0.30
Router(config-subif)#enca
Router(config-subif)#encapsulation do
Router(config-subif)#encapsulation dot1Q 30
Router(config-subif)#ip address 192.168.30.1 255.255.255.0
Router(config-subif)#exit
Router(config)#
Router(config)#
Router(config)#
Router(config)#
```

Then we need to make no shutdown on the port of g0/0 :

```
Router(config)#int g0/0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed
state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/0.10, changed
state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0.10, changed state to up
```

Now make default gateway

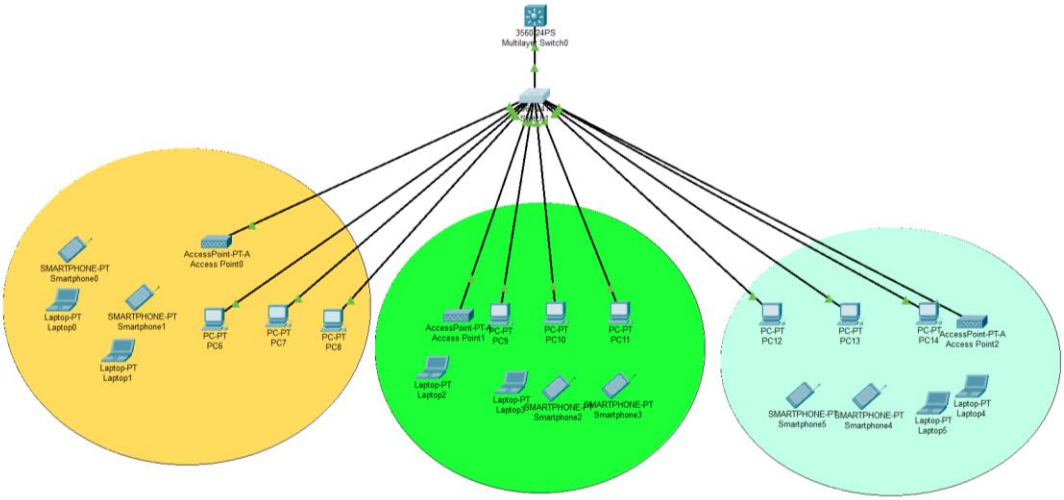


Now the device will contact with each other

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.3

Pinging 192.168.30.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.30.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

2- Multilayer switch

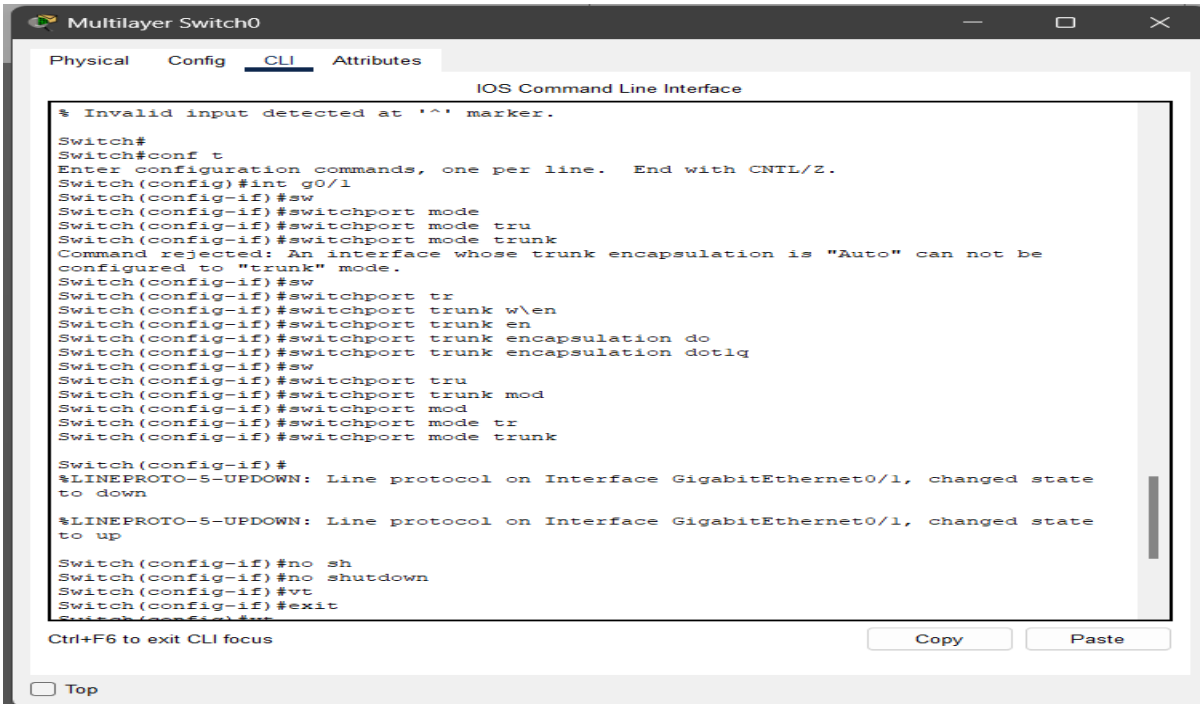
1- Connect the devices to the switch

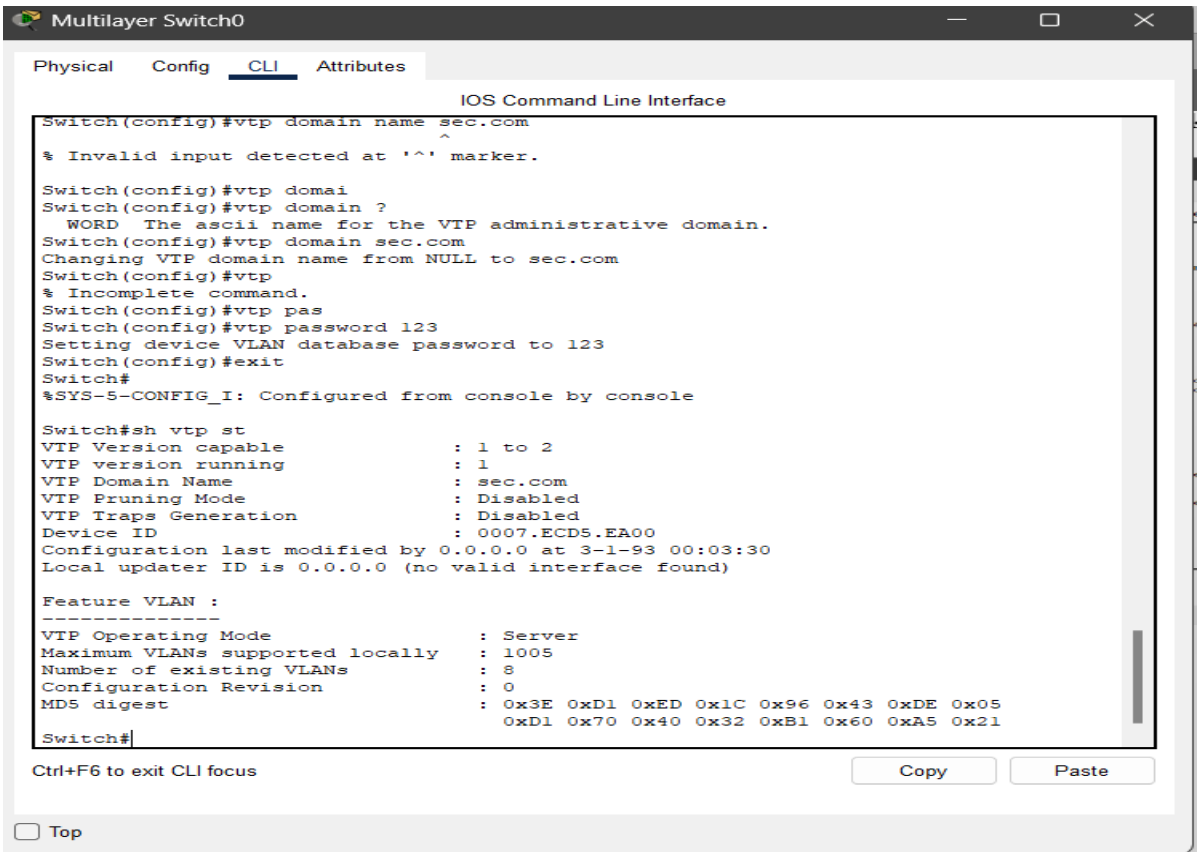


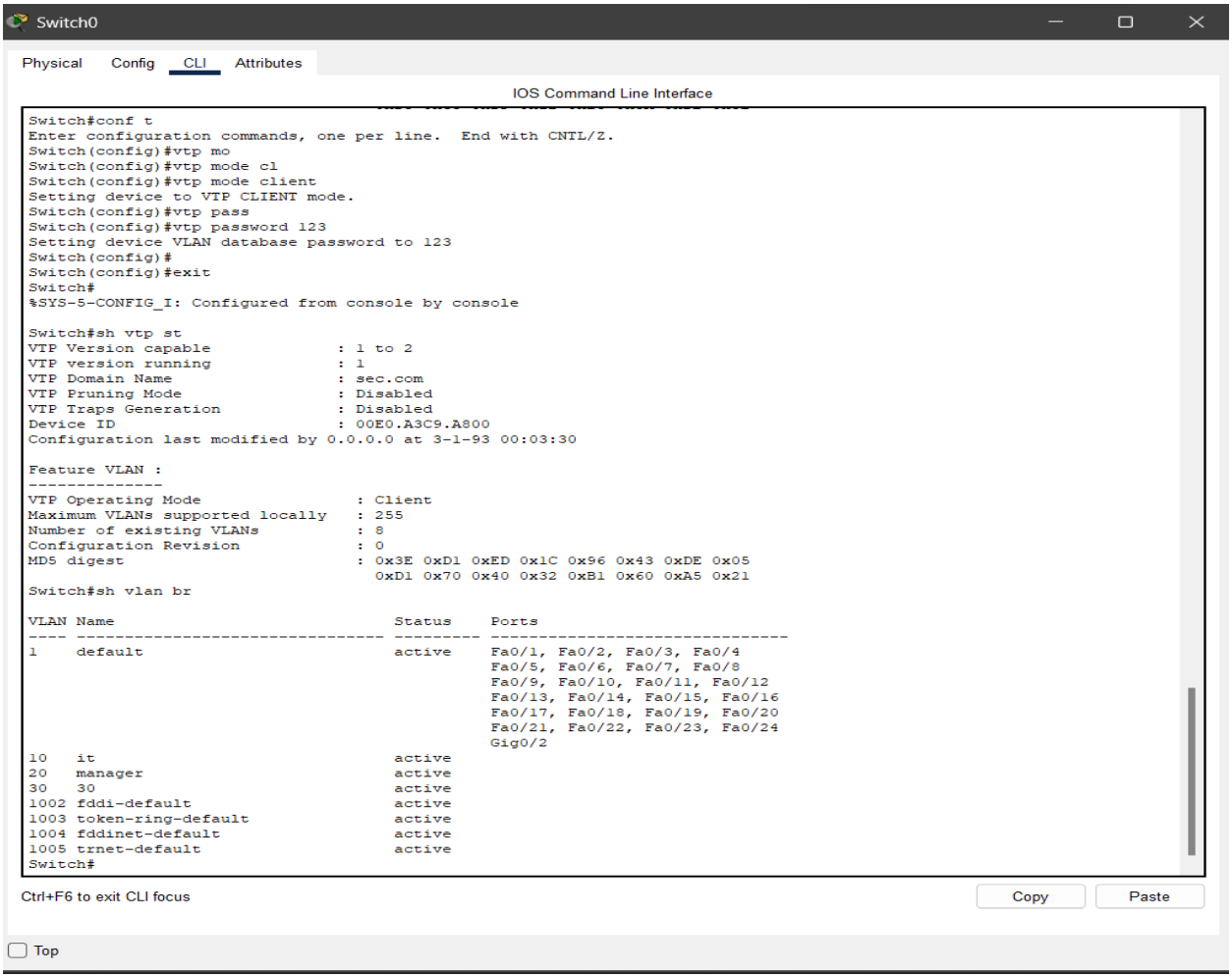
2- Divided the vlans on layer 3 switch:

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name it
Switch(config-vlan)#vlan 20
Switch(config-vlan)#name manager
Switch(config-vlan)#vlan 30
Switch(config-vlan)#name 30
Switch(config-vlan)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh vl 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
10   it                                active
20   manager                           active
30   30                                active
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)#sh vtp st
```

3- Make the connect between 2 switches trunk & make vlans go switch by VTP:







Divide port on vlans:

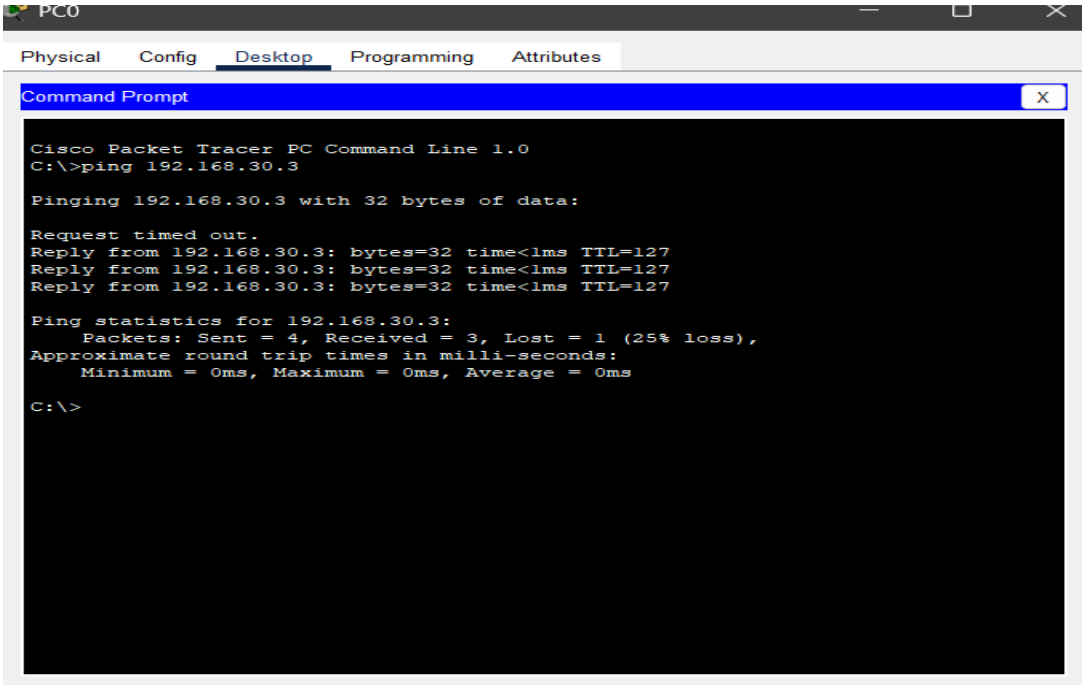
```
Switch(config)#int range fa0/1-8
Switch(config-if-range)#sw
Switch(config-if-range)#switchport mod
Switch(config-if-range)#switchport mode ac
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#sw
Switch(config-if-range)#switchport acc
Switch(config-if-range)#switchport access vl
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#int range fa0/9-16
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#int range fa0/17-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 30
Switch(config-if-range)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh vlav br
          ^
% Invalid input detected at '^' marker.

Switch#sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Gig0/2
10   it                                active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                 Fa0/5, Fa0/6, Fa0/7, Fa0/8
20   manager                           active    Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14, Fa0/15, Fa0/16
30   30                                active    Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                 Fa0/21, Fa0/22, Fa0/23, Fa0/24
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
Switch#
```

4- Enable IP routing in l3 switch:
Vlan 10 ➔ 192.168.10.1 255.255.255.0
Vlan 20 ➔ 192.168.20.1 255.255.255.0
Vlan 30 ➔ 192.168.30.1 255.255.255.0

IOS Command Line Interface

```
Switch(config)#ip routing
Switch(config)#int vl
Switch(config)#int vlan 10
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan10, changed state to up

Switch(config-if)#ip add 192.168.10.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#int 20
                  ^
% Invalid input detected at '^' marker.

Switch(config)#int vlan 20
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed state to up

Switch(config-if)#ip add 192.168.20.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#int vlan 30
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan30, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up

Switch(config-if)#ip add 192.168.30.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh ip rou
Switch#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    192.168.10.0/24 is directly connected, Vlan10
C    192.168.20.0/24 is directly connected, Vlan20
C    192.168.30.0/24 is directly connected, Vlan30

Switch#
```

5- Test connection: -


PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.3
Pinging 192.168.30.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.30.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>

packet on GitHub: link