COMPUTER NETWORK PRACTICE
MODULE 4 : VIRTUAL LAN AND TRUNKING
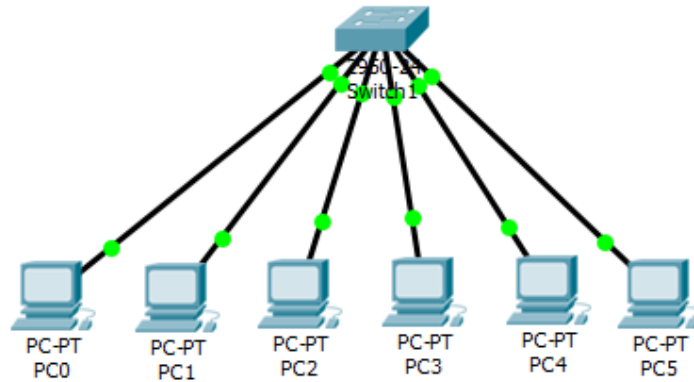

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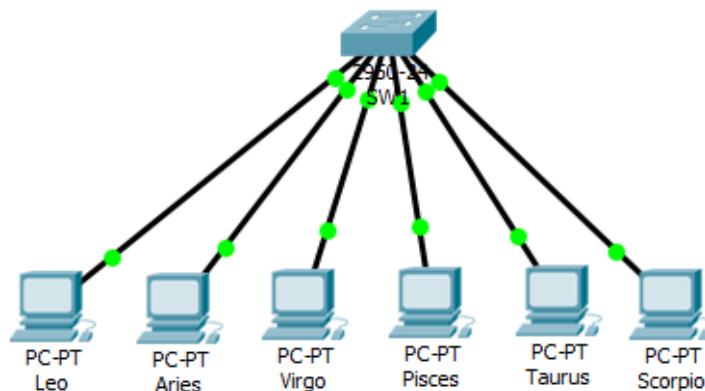UNIVERSITY OF MUHAMMADIYAH SURAKARTA

2020

Activity 1.

1. Use packet tracer for the following topology using a switch
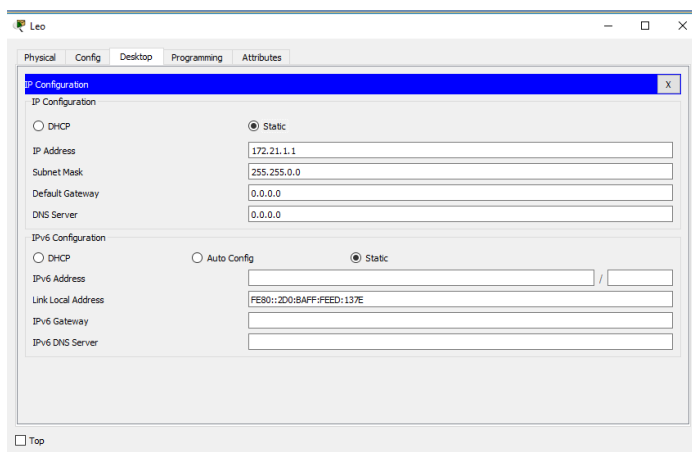

2. Name each device with SW1 (switch), Leo (PC0), Aries (PC1), Virgo (PC2), Pisces (PC3), Taurus (PC4), and Scorpio (PC5)

3. Configure each PC with this name and IP address:
   - Leo = 172.21.1.1/24

- Aries = 172.21.1.2/24

- Virgo = 172.21.1.3/24

- Pisces = 172.21.1.4/24

- Taurus = 172.21.1.5/24

- Scorpio = 172.21.1.6/24

4. Configuration on the switch with user mode or privileged mode, create 3 VLANs with the names zodiac1, zodiac2, and zodiac3
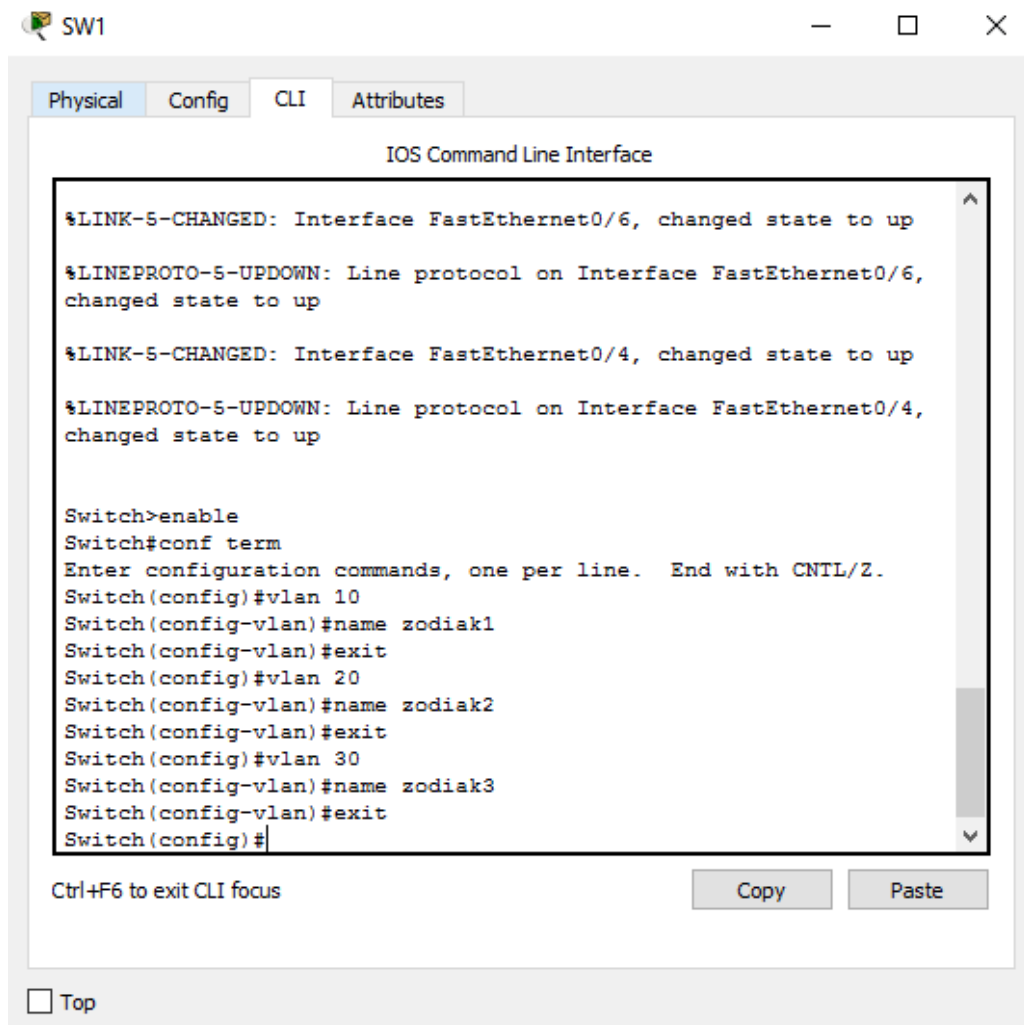
5. During configuration, configure switch ports into zodiac1, zodiac2, and zodiac3 with the following members:
   - zodiac1 = leo (port 0/1) and libra (port 0/4)
   - zodiac2 = aries (port 0/2) and taurus (port 0/5)
   - zodiac3 = virgo (port 0/3) and scorpio (port 0/6)

```
SW1                                            —   □   ×

Physical   Config   CLI   Attributes

                    IOS Command Line Interface

Switch(config)#vlan 30
Switch(config-vlan)#name zodiak3
Switch(config-vlan)#exit
Switch(config)#interface Fastethernet 0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#interface Fastethernet 0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
Switch(config)#interface Fastethernet 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#interface Fastethernet 0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#exit
Switch(config)#interface Fastethernet 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#interface Fastethernet 0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#exit
Switch(config)#

Ctrl+F6 to exit CLI focus              Copy        Paste

□ Top
```

6. In user mode or privileged period see the VLAN configuration that has been made
   a. View vlan information in a cloud

```
Switch#show vlan brief

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
10   zodiak1                          active    Fa0/1, Fa0/4
20   zodiak2                          active    Fa0/2, Fa0/5
30   zodiak3                          active    Fa0/3, Fa0/6
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```
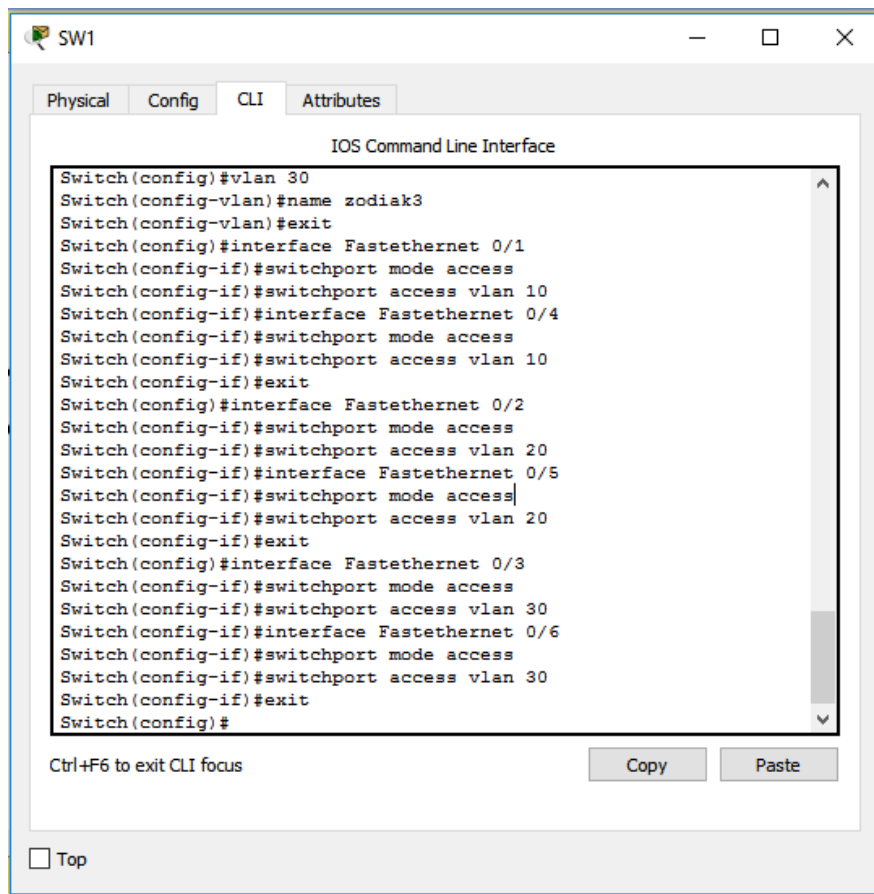
   b. See vlan id 10

```
Switch#show vlan id 20

VLAN Name                            Status    Ports
---- -------------------------------- --------- --------------------------------
20   zodiak2                          active    Fa0/2, Fa0/5

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Transl Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
20   enet  100020     1500  -      -      -        -    -        0      0
```

c. See vlan id 30

```
Switch#show vlan id 30

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
30   zodiak3                          active    Fa0/3, Fa0/6

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
30   enet  100030     1500  -      -      -        -    -        0      0
```

Task 6A: Capture each of the display vlan information and fill in the following table.

| No.	Variable	Value		
1	Vlan Number	10	20	30
2	Vlan Name	zodiak1	zodiak2	zodiak3
3	Port	0/1, 0/4	0/2, 0/5	0/3, 0/6
4	Status	Active	Active	Active

Task 6B: Briefly explain the results you get from task 6A.

Answer :

    a. In VLAN number 10 (zodiak1) there are 2 ports that have been configured, namely Fa0/1 and Fa0/4

    b. In VLAN number 20 (zodiak2) there are 2 ports that have been configured, namely Fa0/2 and Fa0/5

    c. In VLAN number 30 (zodiak3) there are 2 ports that have been configured, namely Fa0/3 and Fa0/6

Activity 2.

1. Use packet tracer for the following topology using a switch catalyst 2950
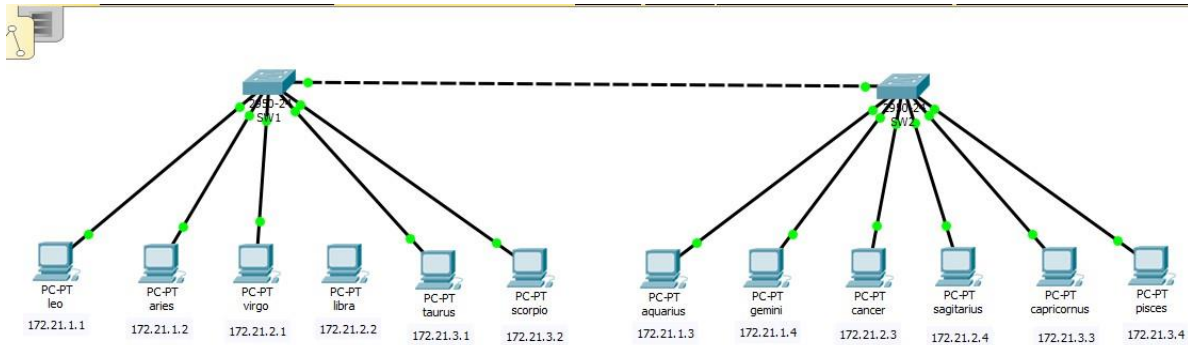
2. Make vlan with the names zodiak1, zodiak2, and zodiak3.

```
Switch>enable
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name zodiak1
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name zodiak2
Switch(config-vlan)#exit
Switch(config)#vlan 30
Switch(config-vlan)#name zodiak3
Switch(config-vlan)#exit
```

3. Configure the port for each PC to VLAN

   a. For zodiak1 = leo (port 0/1) and aries (port 0/4)

```
Switch(config)#int fa 0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#int fa 0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
```

   b. For zodiak2 = virgo (port 0/2) and libra (port 0/5)

```
Switch(config)#int fa 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#int fa 0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport acces vlan 20
Switch(config-if)#exit
```

   c. For zodiak3 = taurus (port 0/3) and scorpio (port 0/6)

```
Switch(config)#int fa 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#int fa 0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switch access vlan 30
Switch(config-if)#exit
```

4. Configure trunk on port 0/7

```
Switch(config)#int fa 0/7
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7,
changed state to up

Switch(config-if)#exit
```

5. The result

```
Switch#show int fa 0/7 switchport
Name: Fa0/7
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: trunk
Administrative Trunking Encapsulation: dotlq
Operational Trunking Encapsulation: dotlq
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk encapsulation: dotlq
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk private VLANs: none
Operational private-vlan: none
Trunking VLANs Enabled: All
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL
Protected: false
Appliance trust: none
```

```
Switch#show int trunk
Port            Mode            Encapsulation  Status          Native vlan
Fa0/7           on              802.1q         trunking        1

Port            Vlans allowed on trunk
Fa0/7           1-1005

Port            Vlans allowed and active in management domain
Fa0/7           1,10,20,30

Port            Vlans in spanning tree forwarding state and not
pruned
Fa0/7           1,10,20,30
```

```
Switch#show vlan

VLAN Name                             Status      Ports
---- -------------------------------- ---------   -------------------------------
1    default                          active      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
10   zodiak1                          active      Fa0/1, Fa0/4
20   zodiak2                          active      Fa0/2, Fa0/5
30   zodiak3                          active      Fa0/3, Fa0/6
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Transl Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
10   enet  100010     1500  -      -      -        -    -        0      0
20   enet  100020     1500  -      -      -        -    -        0      0
30   enet  100030     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Transl Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

Remote SPAN VLANs
-------------------------------------------------------------------------------

Primary Secondary Type             Ports
------- --------- ---------------- -------------------------------------------
```

Task 7A

Answer :

a. In VLAN number 10 (zodiak1) there are 2 ports that have been configured, namely Fa0/1 and Fa0/4

b. In VLAN number 20 (zodiak2) there are 2 ports that have been configured, namely Fa0/2 and Fa0/5

c. In VLAN number 30 (zodiak3) there are 2 ports that have been configured, namely Fa0/3 and Fa0/6

d. Fa 0/7 is configured in VLAN trunking

e. For port 0/7 on switch 0 it is set to trunk and works. So port 0/7 is not available for vlan.

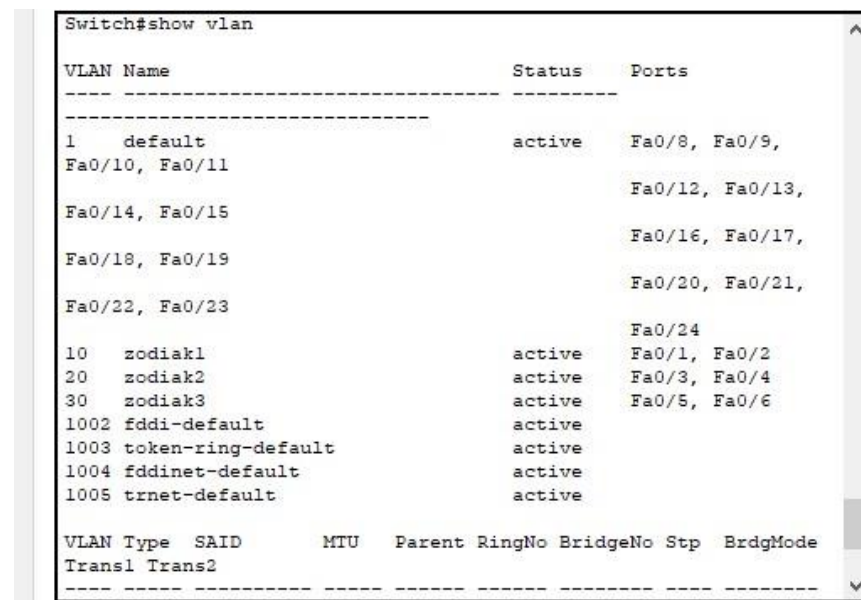6. Doing a ping from leo to pisces
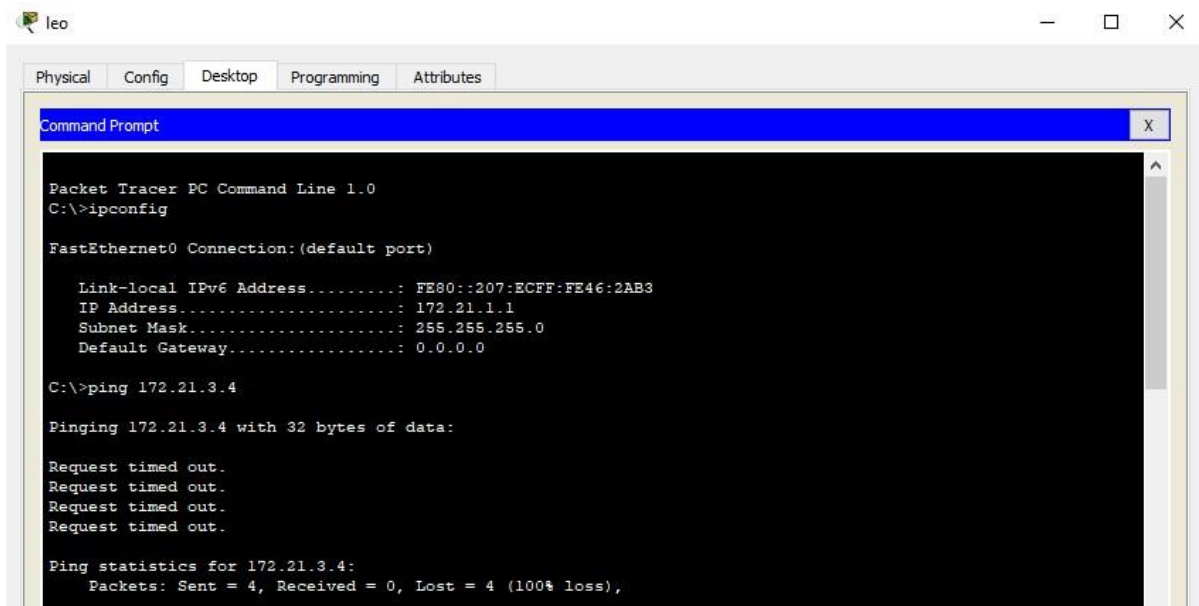
Task 8A

Answer : the result is RTO because it is on a different network, and on switch 1 the trunk has not been set up

7. Configuring trunk on switch 2

```
Switch(config)#int fa 0/7
Switch(config-if)#switchport mode trunk
Switch(config-if)#exit
```

Show vlan command

Tugas 10A

Answer : Fa 0/7 is configured in VLAN Trunking

8. VLAN configuration

```
Switch>enable
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name zodiak1
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name zodiak2
Switch(config-vlan)#exit
Switch(config)#vlan 30
Switch(config-vlan)#name zodiak3
Switch(config-vlan)#exit
```

a. zodiak1: aquarius (port 0/1) and gemini (port 0/2)

```
Switch(config)#int fa 0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#int fa 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
```

b. zodiak2: cancer (port 0/3) dan sagitarius (port 0/4)

```
Switch(config)#int fa 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#int fa 0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#exit
```

c. zodiak 1: capriconus (port 0/5) dan pisces (port 0/6)

```
Switch(config)#int fa 0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#int fa 0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#exit
```

9. Doing a ping

a. leo – aries

```
C:\>ping 172.21.1.2

Pinging 172.21.1.2 with 32 bytes of data:

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

Ping statistics for 172.21.1.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

b. leo – aquarius

```
C:\>ping 172.21.1.3

Pinging 172.21.1.3 with 32 bytes of data:

Reply from 172.21.1.3: bytes=32 time=192ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 172.21.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 192ms, Average = 48ms
```

c. leo – pisces

```
C:\>ping 172.21.3.4

Pinging 172.21.3.4 with 32 bytes of data:

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

Ping statistics for 172.21.3.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

d. libra – cancer

```
C:\>ping 172.21.2.3

Pinging 172.21.2.3 with 32 bytes of data:

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

Ping statistics for 172.21.2.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

e. libra – leo

```
C:\>ping 172.21.1.1

Pinging 172.21.1.1 with 32 bytes of data:

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

Ping statistics for 172.21.1.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Task 12A

Answer : From the results obtained, we will get a reply if the PC is on the same network and vlan. If only the same from one vlan or network, the   results will also be RTO.