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Kelas : B

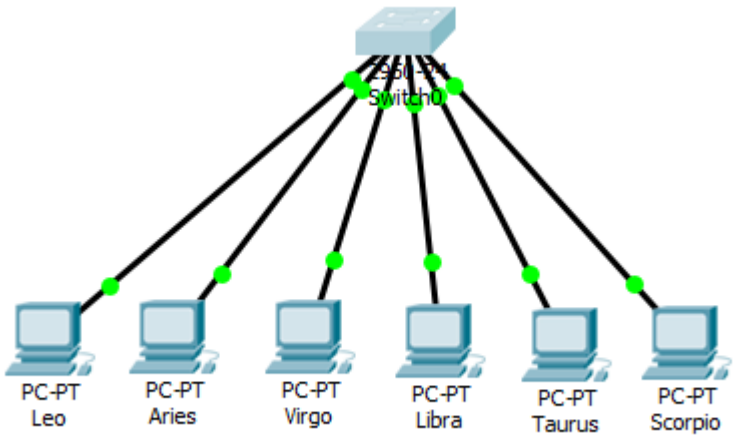
MODUL 4

VIRTUAL LAN DAN TRUNKING

C. Kegiatan Prktikum

Kegiatan 1. Topologi 1

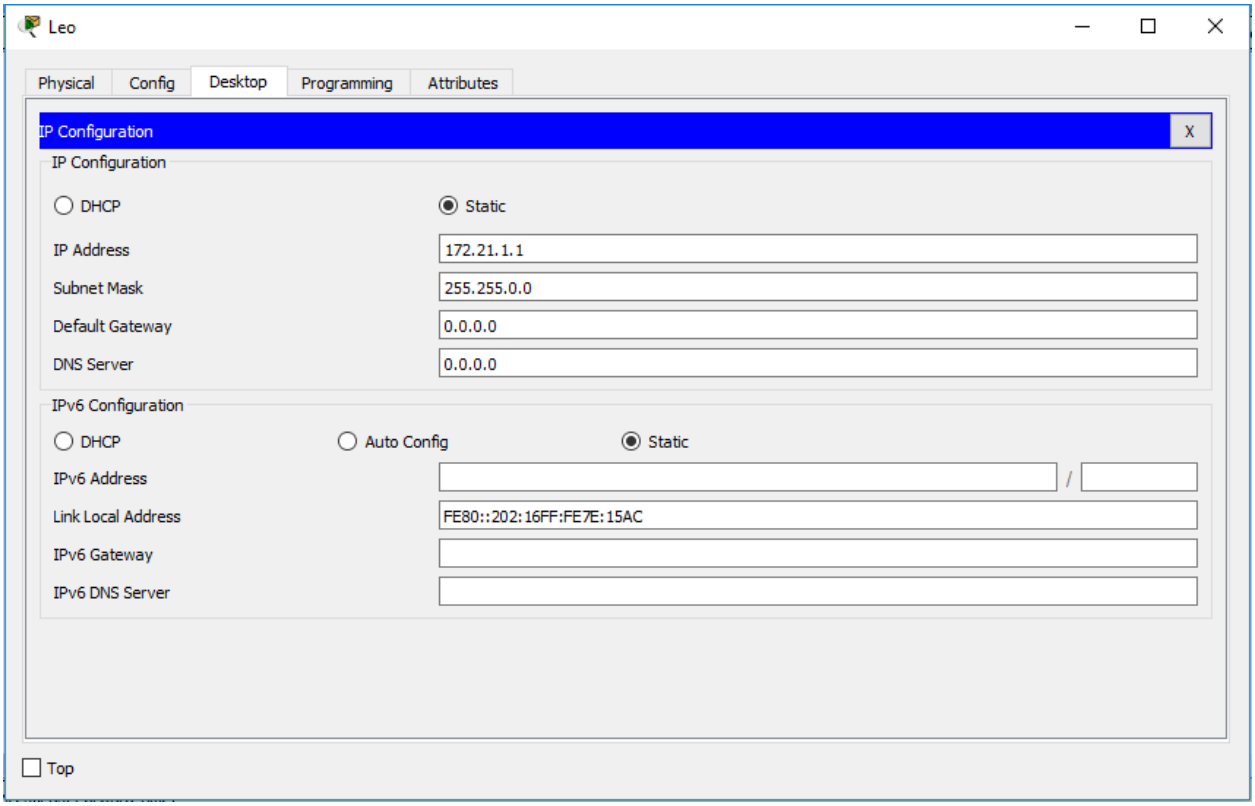
Buat desain pada packet tracer dengan 1 SWITCH dan 6 PC. Dan beri masing masing nama Leo, Aries, Virgo, Libra, Taurus & Scorpio



Konfigurasi IP pada masing masing PC dengan nama dan alamat IP berikut ini :

- **Leo** : 171.21.1.1
- **Aries** : 171.21.1.2
- **Virgo** : 171.21.1.3
- **Libra** : 171.21.1.4
- **Taurus** : 171.21.1.5
- **Scorpio** : 171.21.1.6

❖ Memberi nama dan IP pada masing-masing PC.



❖ Membuat tiga VLAN (Virtual LAN), dengan nama zodiak1, zodiak2, dan 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
Switch(config)#
```

Pada gambar di atas merupakan konfigurasi pada switch dengan mode user atau mode privileged & dan perintah pengoperasiannya

lalu konfigurasi tiap port switch kedalam vlan zodiac 1,2 dan 3. Pada intinya di langkah ini merupakan pengelompokan pc kedalam tiap zodiac dengan ketentuan :

a. Zodiak1 = leo dan libra

b. Zodiak2 = aries dan Taurus

c. Zodiak3 = virgo dan scorpio

```
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
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
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 access vlan 20
Switch(config-if)#exit
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)#switchport access vlan 30
Switch(config-if)#exit
Switch(config)#
```

Pada gambar di atas adalah cara konfigurasi pengelompokan pc kedalam vlan. Cara mudahnya adalah cari tahu terlebih dahulu tiap pc terhubung ke port berapa baru kita kelompokan kebetulan leo di port fa0/1, libra di port fa 0/4.

❖ Mengkonfigurasi port-port pada switch ke dalam VLAN.

```
Switch(config)#interface FastEthernet0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#interface Fastethernet0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
```

```
Switch(config)#interface fastethernet0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#interface Fastethernet0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#exit
```

```
Switch(config)#interface Fastethernet0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#interface Fastethernet0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#exit
```

❖ Melihat konfigurasi VLAN.

```
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
```

```
Switch#show vlan id 10

VLAN Name                              Status    Ports
---- --------------------------------- ---------
-------------------------------
10   zodiak1                           active    Fa0/1, Fa0/4

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode
Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- --------
------ ------
10   enet  100010     1500  -      -      -        -    -
0      0
```

```
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
Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- --------
------ ------
20   enet  100020     1500  -      -      -        -    -
0      0
```

```
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
```

❖ **Tugas 6A : Capture masing-masing tampilan informasi VLAN dan isi tabel berikut.**

- Zodiak1

No	Variable	Nilai
1	Nomor VLAN	10
2	Nama VLAN	Zodiak1
3	Port	Fa 0/1, Fa 0/4
4	Status	Active

- Zodiak2

No	Variable	Nilai
1	Nomor VLAN	20
2	Nama VLAN	Zodiak2
3	Port	Fa 0/2, Fa 0/5
4	Status	Active

- Zodiak3

No	Variable	Nilai

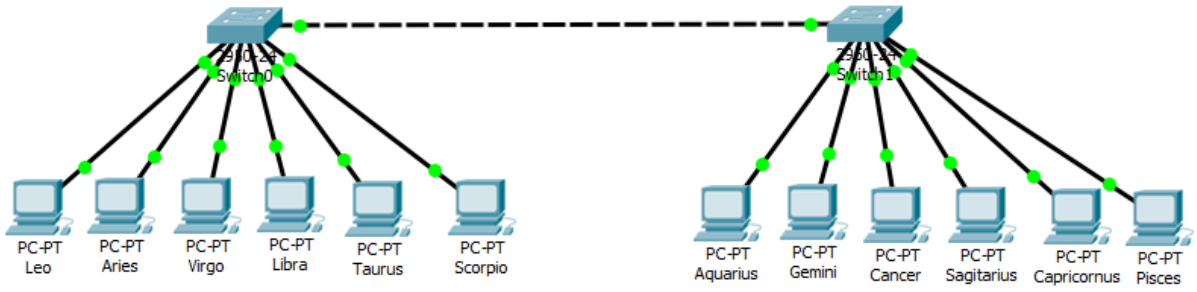
1	Nomor VLAN	30
2	Nama VLAN	Zodiak3
3	Port	Fa 0/3, Fa 0/6
4	Status	Active

Tugas 6B: Jelaskan Secara Singkat hasil yang anda peroleh dari tugas 6A

"Hasil dari table diatas terdapat informasi di 6 computer tersebut dibagi menjadi 3 VLAN yang berbeda, zodiak1, zodiak2, dan zodiak3. Dimana nomor dari Vlan 10, 20, dan 30, dimana Vlan 10 terdapat port Fa 0/1 (Leo) dan Fa 0/4 (Libra), Vlan 20 terdapat port Fa 0/2 (Aries) dan Fa 0/5 (Taurus), dan Vlan 30 terdapat port Fa 0/3 (Virgo) dan Fa 0/6 (Scorpio), dan kesemua Vlan tersebut dalam kondisi aktif"

Kegiatan 2. Topologi 2

Design Jaringan pada packet tracer, menggunakan dua switch 2950 dan masing masing switch mempunyai 6 PC serta namai dengan nama-nama zodiac.

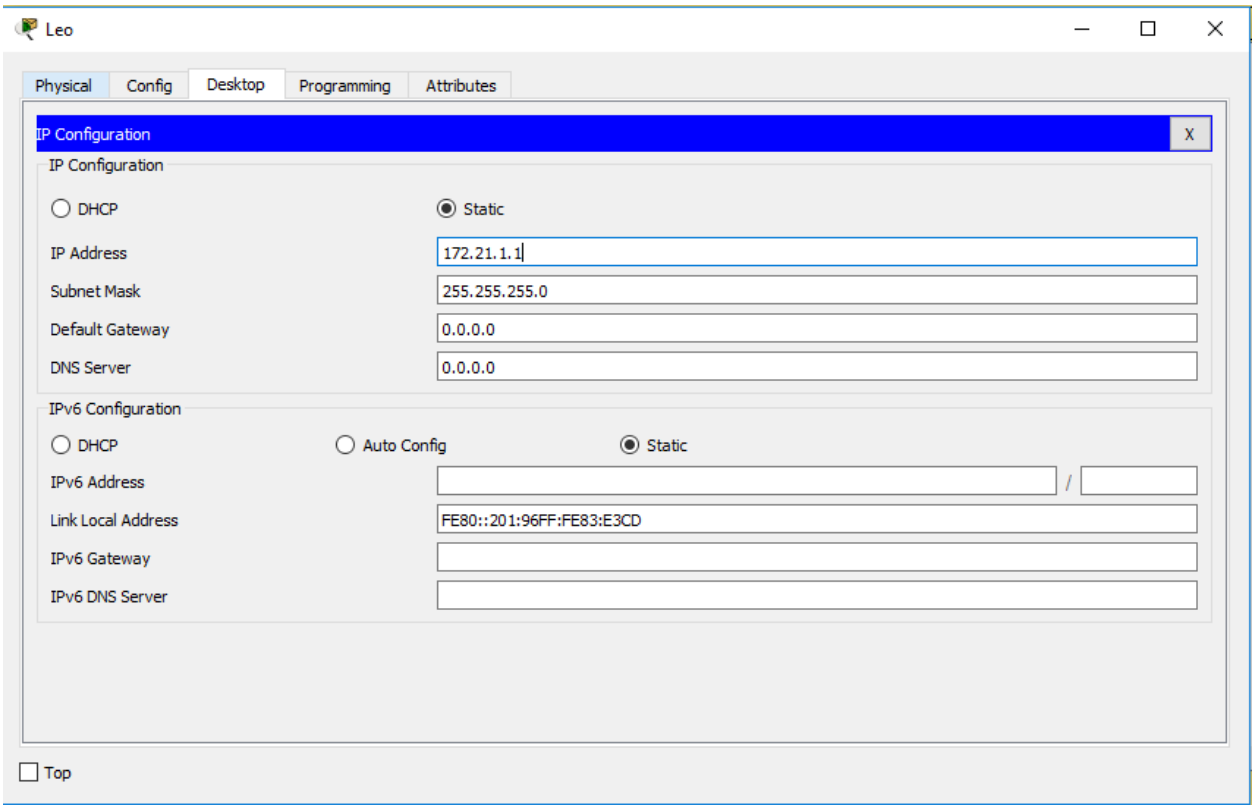


Konfigurasi IP pada tiap PC dengan dengan nama dan alamat IP berikut ini :

- **Leo** : 172.21.1.1/24
- **Aries** : 172.21.1.2/24
- **Virgo** : 172.21.2.1/24
- **Libra** : 172.21.2.2/24
- **Taurus** : 172.21.3.1/24
- **Scorpio** : 172.21.3.2/24

- **Aquarius** : 172.21.1.3/24
- **Gemini** : 172.21.1.4/24
- **Cancer** : 172.21.2.3/24
- **Sagitarius** : 172.21.2.4//24
- **Capricornus**: 172.21.3.3/24
- **Pisces** : 172.21.3.4/24

❖ Memberi nama dan IP pada masing-masing PC



❖ Membuat VLAN dan mengkonfigurasi port-port pada switch ke VLAN

```
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
Switch(config)#
```

```
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface Fastethernet0/1
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 10
Switch(config-if)#interface Fastethernet0/4
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 10
Switch(config-if)#
```

```
Switch(config)#interface Fastethernet0/2
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 20
Switch(config-if)#interface Fastethernet0/5
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 20
Switch(config-if)#exit
Switch(config)#
```

```
Switch(config)#interface Fastethernet0/3
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 30
Switch(config-if)#interface Fastethernet0/6
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 30
Switch(config-if)#exit
Switch(config)#
```

❖ Melakukan konfigurasi VLAN Trunking pada switch pertama (switch 0)

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface fa0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan all
Switch(config-if)#exit
Switch(config)#
```

❖ Melihat konfigurasi Trunking VLAN

```
Switch#show interface fastethernet0/24 switchport
Name: Fa0/24
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: trunk
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: dot1q
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: dot1q
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
```

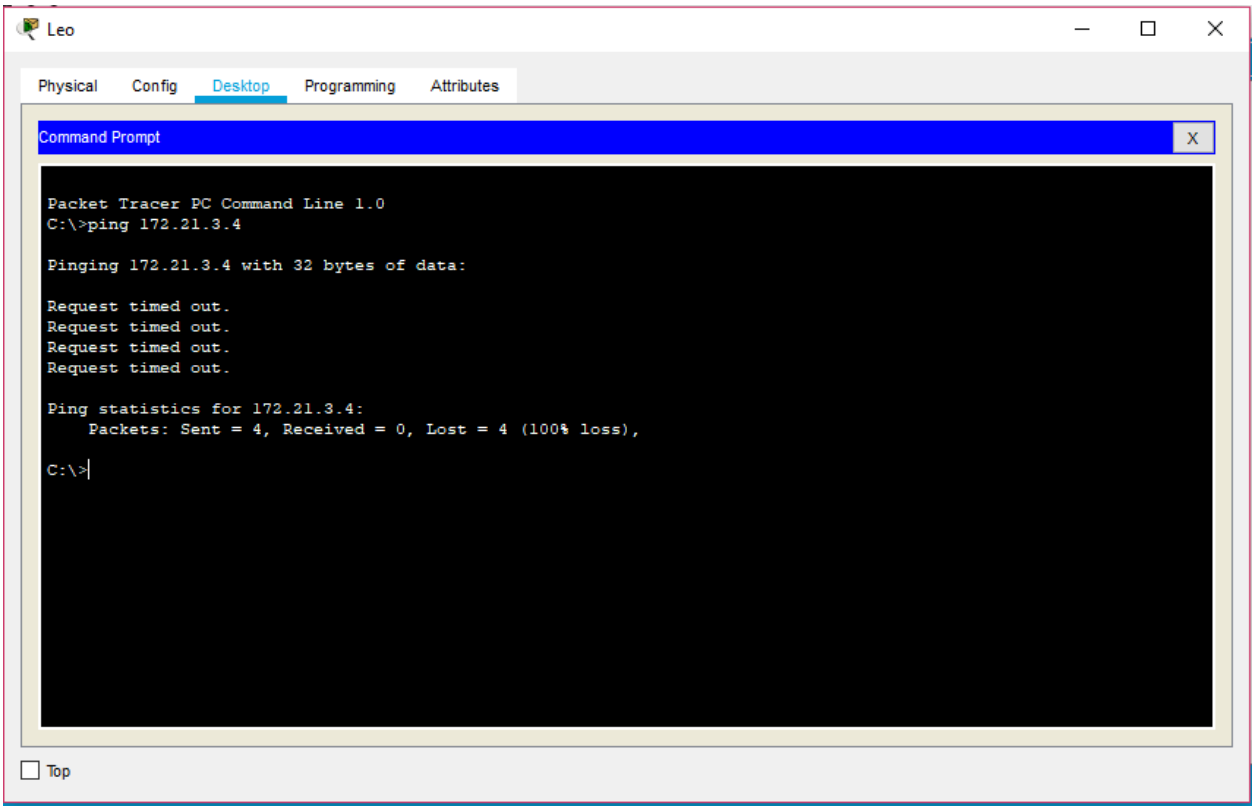
```
Switch#show interface fastethernet0/24
FastEthernet0/24 is up, line protocol is up (connected)
  Hardware is Lance, address is 00d0.bc7b.ea18 (bia 00d0.bc7b.ea18)
 BW 100000 Kbit, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full-duplex, 100Mb/s
  input flow-control is off, output flow-control is off
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:08, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue :0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     956 packets input, 193351 bytes, 0 no buffer
     Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 0 multicast, 0 pause input
     0 input packets with dribble condition detected
     2357 packets output, 263570 bytes, 0 underruns
     0 output errors, 0 collisions, 10 interface resets
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
```

```
Switch#show vlan

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
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 Trans1 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 Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

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

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

Tugas 7A: Jelaskan secara singkat hasil yang anda peroleh dari langkah 7.

“Pada hasil yang tertera di atas menunjukkan bahwa, Vlan pada port 0/1 sampai 0/6 sudah terkonfigurasi dan telah di Trunking pada port 0/24”

❖ Melakukan Ping pada PC Leo ke PC Pisces



Tugas 8A: Jelaskan secara singkat mengapa hasil yang anda peroleh dari langkah 8 mendapatkan status "reply"?

❖ Membuat VLAN Trunking pada switch kedua (switch 1)

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface fa0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan all
Switch(config-if)#exit
Switch(config)#
```

❖ Melihat konfigurasi Trunking VLAN (switch 1)

```
Switch#show vlan

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
10   zodiak1                           active    Fa0/1, Fa0/2
20   zodiak2                           active    Fa0/3, Fa0/4
30   zodiak3                           active    Fa0/5, 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 Trans1 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 Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

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

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

Tugas 10A: Jelaskan secara singkat hasil yang anda peroleh dari langkah 10.

“Pada hasil yang tertera di atas menunjukkan bahwa, Vlan pada port 0/1 sampai 0/6 sudah terkonvigurasi dan telah di Trunking pada port 0/24”

❖ Membuat VLAN dan mengkonfigurasi port-port pada switch ke VLAN (switch 1)

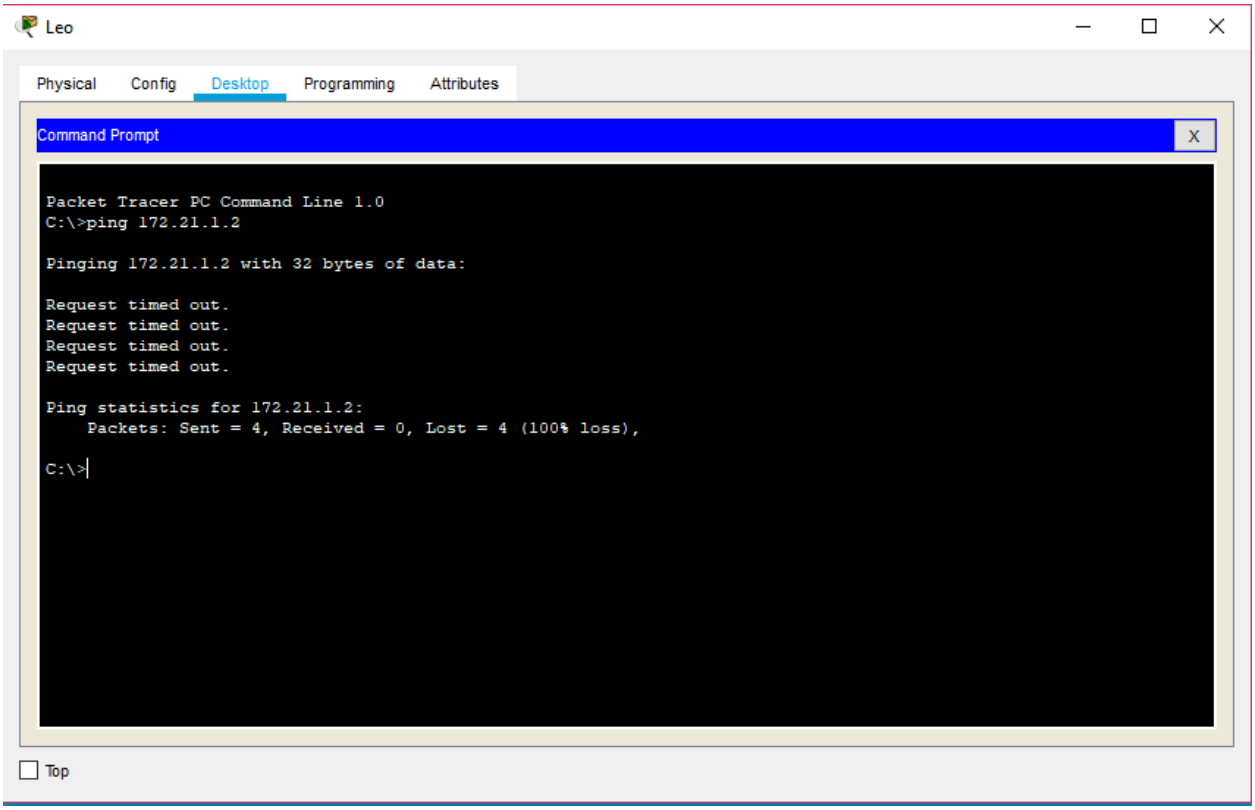
```
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name zodiak1
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name zodiak2
Switch(config-vlan)#exit
Switch(config)#vlan 30
Switch(config-vlan)#name zodiak3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

```
Switch(config)#interface Fastethernet0/2
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 10
Switch(config-if)#interface Fastethernet0/1
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 10
Switch(config-if)#exit
Switch(config)#
```

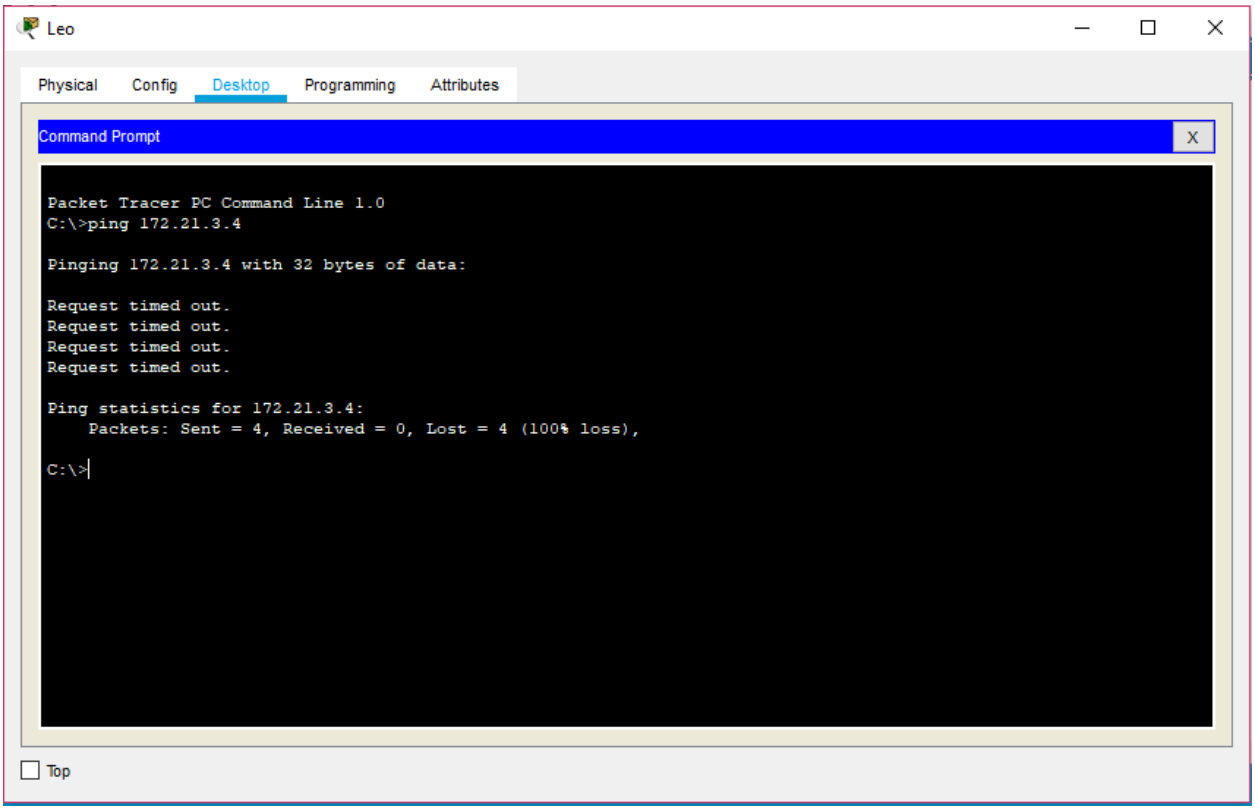
```
Switch(config)#interface Fastethernet0/3
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 20
Switch(config-if)#interface Fastethernet0/4
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 20
Switch(config-if)#exit
Switch(config)#
```

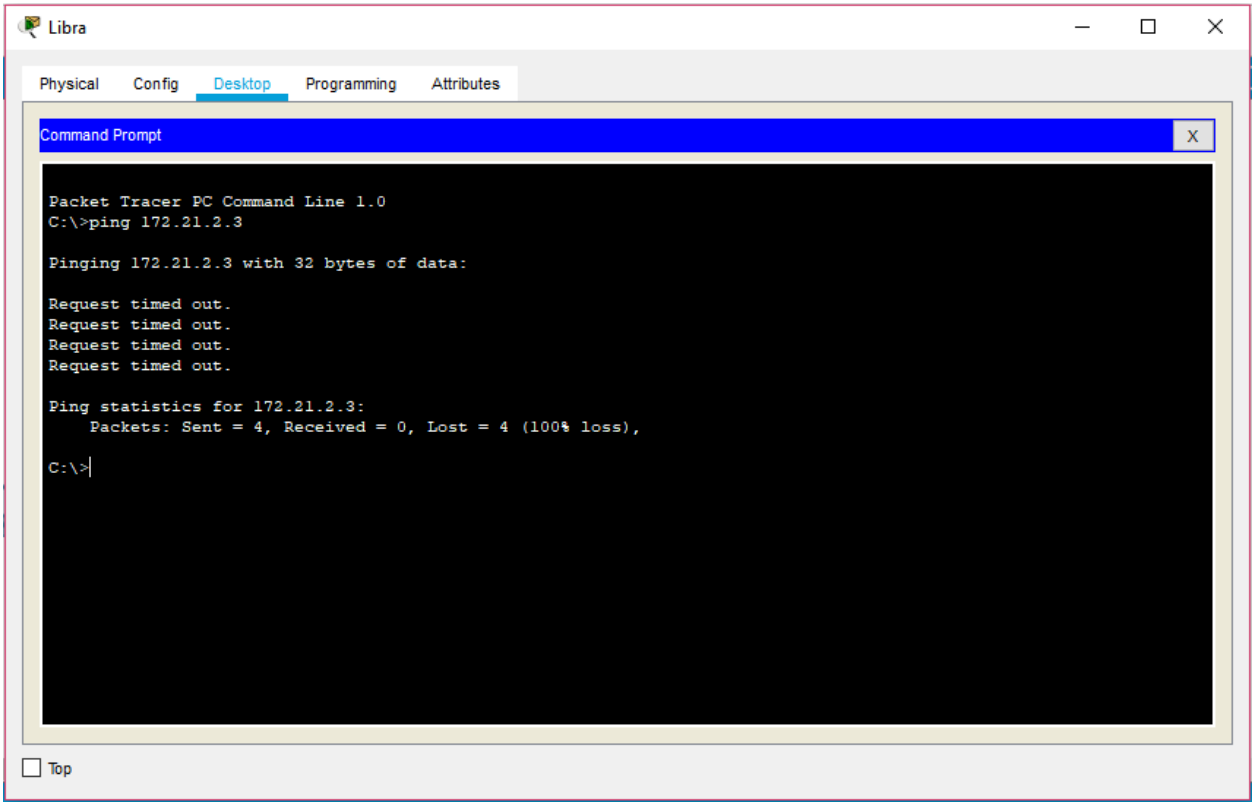
```
Switch(config)#interface Fastethernet0/5
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 30
Switch(config-if)#interface Fastethernet0/6
Switch(config-if)#switch mode access
Switch(config-if)#switch access vlan 30
Switch(config-if)#exit
Switch(config)#
```

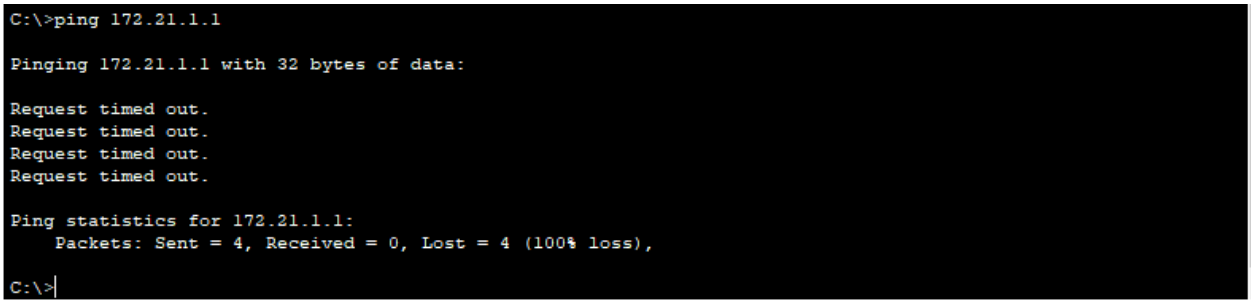
❖ Melakukan ping pada PC Leo ke PC Aries, PC leo ke PC Aquarius, PC Leo ke PC Pisces, PC Libra ke PC Cancer, PC Libra ke PC Leo




```
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=91ms 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 = 91ms, Average = 22ms

C:\>
```


Leo
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Packet Tracer PC Command Line 1.0
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),
C:\>
Top


Libra
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Packet Tracer PC Command Line 1.0
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),
C:\>
Top



Tugas 12A: Jelaskan secara singkat hasil yang anda peroleh dari langkah 8.

"Dari hasil yang didapat, dan percobaan yang telah dilakukan, didapat kesimpulan bahwa Ping dengan Vlan yang berbeda dan switch yang berbeda tidak memungkinkan, walaupun telah terbantu dengan Trunking, walaupun begitu memungkinkan untuk melakukan ping pada Vlan yang sama."