COMPUTER NETWORKS
PRACTICUM 4

By :

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INFORMATION TECHNOLOGY

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Activity 2. Topologi 2

1. Make the following topology using packet tracer
2. Give the name of each device

a. Switch1 : SW1   h. Switch2 : SW2
b. Pc0   : Leo   i. Pc6   : Aquarius
c. Pc1   : Aries   j. Pc7   : Gemini
d. Pc2   : Virgo   k. Pc8   : Cancer
e. Pc3   : Libra   l. Pc9   : Sagitarius
f. Pc4   : Taurus   m. Pc10   : Capricornus   :
g. Pc5   : Scorpio   n. Pc11   : Pisces
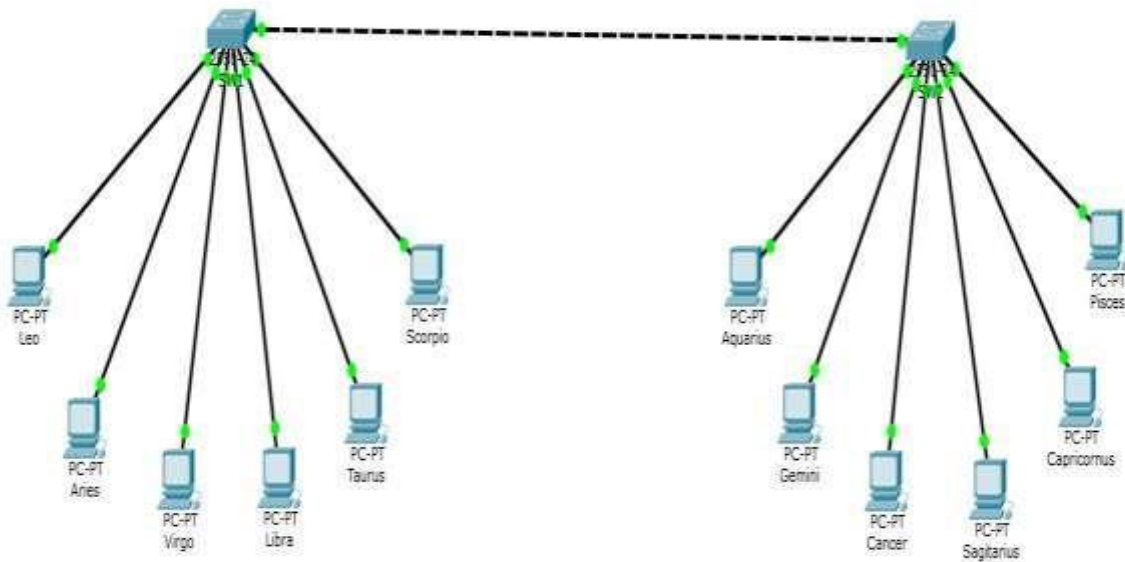
3. Change the configuration of each PC

a. Leo : 172.21.1.1/24
b. Aries : 172.21.1.2/24
c. Virgo : 172.21.2.1/24
d. Libra : 172.21.2.2/24
e. Taurus : 172.21.3.1/24
f. Scorpio : 172.21.3.2/24
g. Aquarius : 172.21.1.3/24
h. Gemini : 172.21.1.4/24
i. Cancer : 172.21.2.3/24
j Sagitarius : 172.21.2.4/24
k Capricornus : 172.21.3.3/24
l Pisces : 172.21.3.4/24

/24 maksudnya adalah masuk kelas c
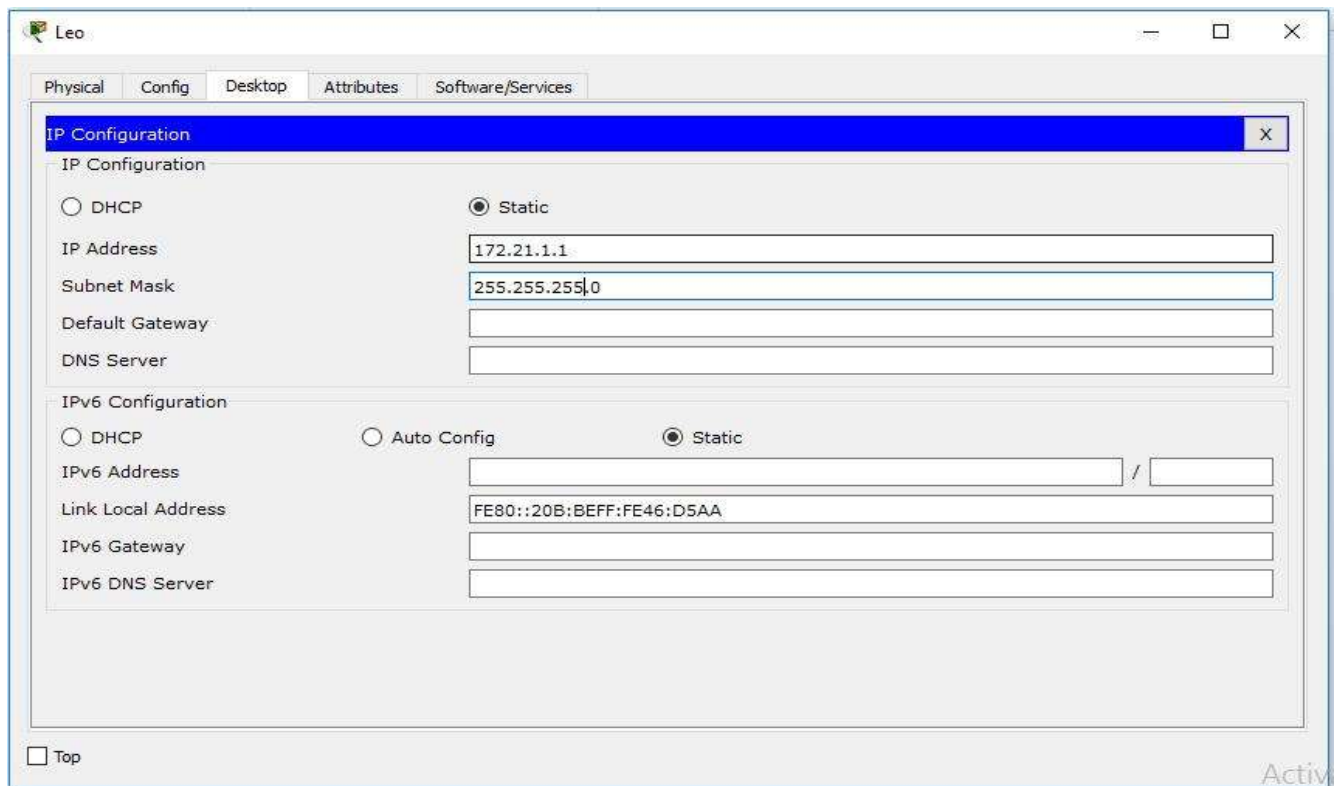
Aries

Physical | Config | Desktop | Attributes | Software/Services

IP Configuration

IP Configuration

○ DHCP   ● Static

IP Address   172.21.1.2

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

○ DHCP   ○ Auto Config   ● Static

IPv6 Address   /

Link Local Address   FE80::2D0:FFFF:FEA3:4D36

IPv6 Gateway

IPv6 DNS Server

☐ Top

Virgo

Physical | Config | Desktop | Attributes | Software/Services

IP Configuration

IP Configuration

○ DHCP   ● Static

IP Address   172.21.2.1

Subnet Mask   255.255.255.0

Default Gateway

DNS Server   0.0.0.0

IPv6 Configuration

○ DHCP   ○ Auto Config   ● Static

IPv6 Address   /

Link Local Address   FE80::201:63FF:FE52:668A

IPv6 Gateway

IPv6 DNS Server

☐ Top

Libra — □ ✕

Physical | Config | **Desktop** | Attributes | Software/Services

IP Configuration ✕

IP Configuration

○ DHCP   ⊙ Static

IP Address   172.21.2.2

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

○ DHCP   ○ Auto Config   ⊙ Static

IPv6 Address   /

Link Local Address   FE80::20A:41FF:FEB0:8070

IPv6 Gateway

IPv6 DNS Server

☐ Top

Activ

Taurus — □ ✕

Physical | Config | **Desktop** | Attributes | Software/Services

IP Configuration ✕

IP Configuration

○ DHCP   ⊙ Static

IP Address   172.21.3.1

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

○ DHCP   ○ Auto Config   ⊙ Static

IPv6 Address   /

Link Local Address   FE80::2D0:58FF:FE0A:5735

IPv6 Gateway

IPv6 DNS Server

☐ Top

Activ

Scorpio

Physical | **Config** | **Desktop** | **Attributes** | **Software/Services**

IP Configuration

IP Configuration

○ DHCP   ● Static

IP Address   172.21.3.2

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

○ DHCP   ○ Auto Config   ● Static

IPv6 Address   /

Link Local Address   FE80::2E0:F9FF:FE68:83E9

IPv6 Gateway

IPv6 DNS Server

☐ Top

Aquarius

Physical | **Config** | **Desktop** | **Attributes** | **Software/Services**

IP Configuration

IP Configuration

○ DHCP   ● Static

IP Address   172.21.1.3

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

○ DHCP   ○ Auto Config   ● Static

IPv6 Address   /

Link Local Address   FE80::2D0:BAFF:FE34:39EA

IPv6 Gateway

IPv6 DNS Server

☐ Top

Gemini — □ ✕

Physical Config **Desktop** Attributes Software/Services

IP Configuration ✕

IP Configuration

○ DHCP   ● Static

IP Address   172.21.1.4

Subnet Mask   255.255.255.0

Default Gateway

DNS Server   0.0.0.0

IPv6 Configuration

○ DHCP   ○ Auto Config   ● Static

IPv6 Address   /

Link Local Address   FE80::250:FFF:FEDE:7891

IPv6 Gateway

IPv6 DNS Server

☐ Top   Activ

Cancer — □ ✕

Physical Config **Desktop** Attributes Software/Services

IP Configuration ✕

IP Configuration

○ DHCP   ● Static

IP Address   172.21.2.3

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

○ DHCP   ○ Auto Config   ● Static

IPv6 Address   /

Link Local Address   FE80::201:63FF:FE39:B33E

IPv6 Gateway

IPv6 DNS Server

☐ Top   Activ

Sagitarius

Physical | Config | Desktop | Attributes | Software/Services

IP Configuration

IP Configuration

○ DHCP   ◉ Static

IP Address   172.21.2.4

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

○ DHCP   ○ Auto Config   ◉ Static

IPv6 Address   /

Link Local Address   FE80::260:70FF:FE63:6222

IPv6 Gateway

IPv6 DNS Server

☐ Top

Capricornus

Physical | Config | Desktop | Attributes | Software/Services

IP Configuration

IP Configuration

○ DHCP   ◉ Static

IP Address   172.21.3.3

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

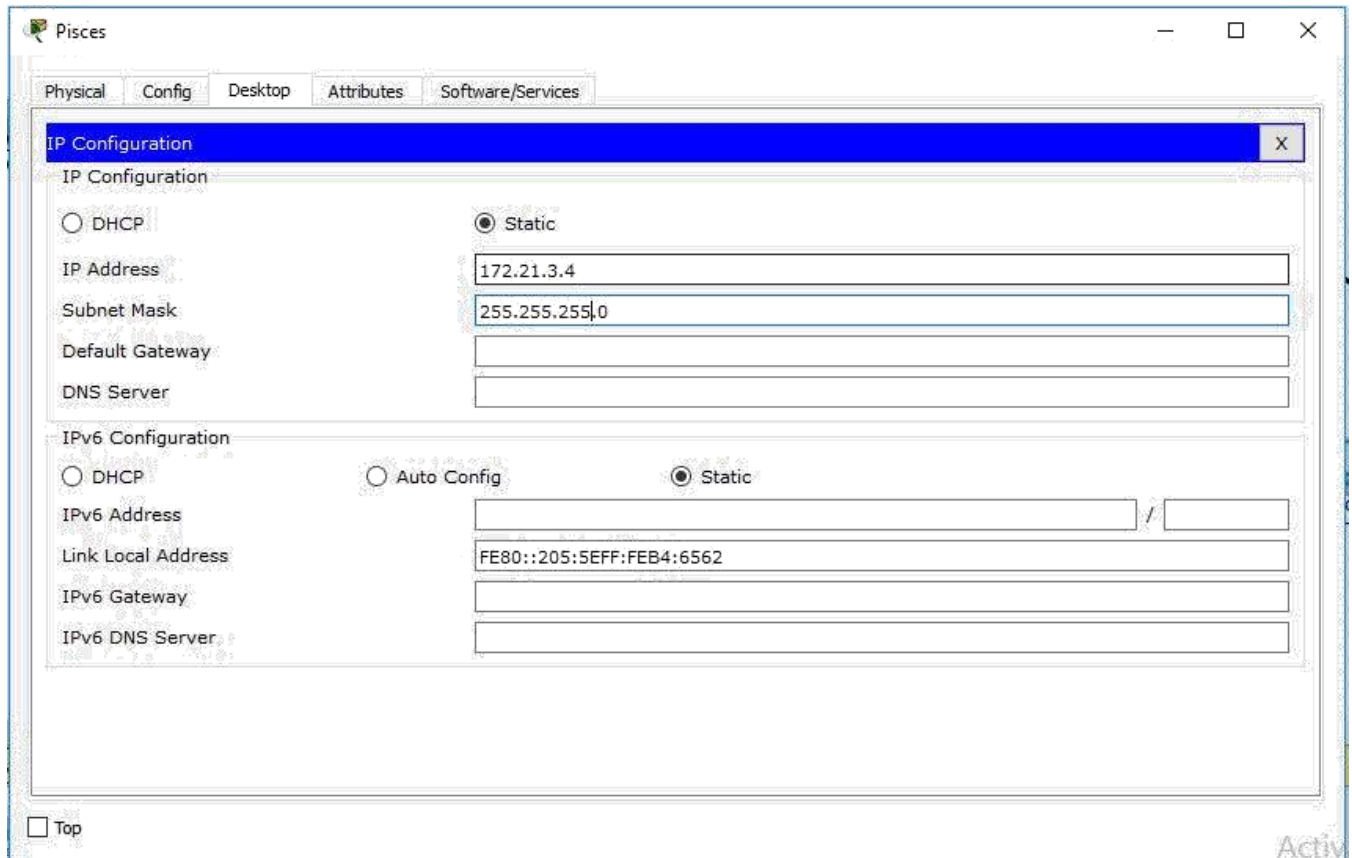IPv6 Configuration

○ DHCP   ○ Auto Config   ◉ Static

IPv6 Address   /

Link Local Address   FE80::230:F2FF:FE61:1250

IPv6 Gateway

IPv6 DNS Server

☐ Top

Pisces — □ ✕

Physical | Config | Desktop | Attributes | Software/Services

IP Configuration ✕

IP Configuration

○ DHCP   ◉ Static

IP Address   172.21.3.4

Subnet Mask   255.255.255.0

Default Gateway

DNS Server

IPv6 Configuration

○ DHCP   ○ Auto Config   ◉ Static

IPv6 Address   /

Link Local Address   FE80::205:5EFF:FEB4:6562

IPv6 Gateway

IPv6 DNS Server

☐ Top   Activ

4. Make 3 pieces of Vlan with the names zodiac1, zodiac2, and zodiac3
5. Then in configuration mode, group the switch ports into the Zodiac1, zodiac2, and zodiac3 VLANs. The setting is :

- Zodiak1   : leo and libra
- Zodiak2   : aries and Taurus
- Zodiak3   : virgo dan scorpio

```
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)#int fa 0/1
Switch(config-if)#sw mode access
Switch(config-if)#sw access vlan 10
Switch(config-if)#int fa 0/4
Switch(config-if)#sw mode access
Switch(config-if)#sw access vlan 10
Switch(config-if)#int fa 0/2
Switch(config-if)#sw mode access
Switch(config-if)#sw access vlan 20
Switch(config-if)#int fa 0/3
Switch(config-if)#sw mode access
Switch(config-if)#sw access vlan 30
Switch(config-if)#int fa 0/5
Switch(config-if)#sw mode access
Switch(config-if)#sw access vlan 20
Switch(config-if)#sw mode access
Switch(config-if)#sw access vlan 30
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

6. Configuring VLAN trunking on the switch
   1. Rare operation as shown below:

```
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface fa 0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#exit
Switch(config)#
```

7. Configuring the trunking made privileged mode. Operation steps to see the configuration as shown below :

```
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface fa 0/24
Switch(config-if)#witchport mode trunk
                  -
% Invalid input detected at '-' marker.

Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up

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

Switch#show interface fastethernet 0/24 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
```

```
Switch#show interface trunk
Port        Mode         Encapsulation   Status        Native vlan
Fa0/24      on           802.1q          trunking      1

Port        Vlans allowed on trunk
Fa0/24      1-1005

Port        Vlans allowed and active in management domain
Fa0/24      1,10,20,30

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/24      1,10,20,30

Switch#show vlan

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
10   zodiak1                          active    Fa0/1, Fa0/4
20   zodiak2                          active    Fa0/2
30   zodiak3                          active    Fa0/3, Fa0/5
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
```

```
Switch#show vlan

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

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


Primary Secondary Type              Ports
------- --------- ----------------- ------------------------------------------
Switch#
```

8. Ping from PC Leo to Pisces :

```
Command Prompt

C:\>ping 172.21.1.1

Pinging 172.21.1.1 with 32 bytes of data:

Reply from 172.21.1.1: bytes=32 time=22ms TTL=128
Reply from 172.21.1.1: bytes=32 time=18ms TTL=128
Reply from 172.21.1.1: bytes=32 time=18ms TTL=128
Reply from 172.21.1.1: bytes=32 time=10ms TTL=128

Ping statistics for 172.21.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 22ms, Average = 17ms

C:\>
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),

C:\>ping 172.21.2.1

Pinging 172.21.2.1 with 32 bytes of data:

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

Ping statistics for 172.21.2.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.21.2.2
```

Command Prompt

```
C:\>ping 172.21.2.2

Pinging 172.21.2.2 with 32 bytes of data:

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

Ping statistics for 172.21.2.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.21.3.1

Pinging 172.21.3.1 with 32 bytes of data:

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

Ping statistics for 172.21.3.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.21.3.2

Pinging 172.21.3.2 with 32 bytes of data:

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

Ping statistics for 172.21.3.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.21.1.3

Pinging 172.21.1.3 with 32 bytes of data:

Request timed out.
```

Command Prompt

```
Request timed out.

Ping statistics for 172.21.1.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

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:\>ping 172.21.2.4

Pinging 172.21.2.4 with 32 bytes of data:

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

Ping statistics for 172.21.2.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.21.3.3

Pinging 172.21.3.3 with 32 bytes of data:

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

Ping statistics for 172.21.3.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

9. Configure VLAN trunking on the switch 2 :

IOS Command Line Interface

```
Switch>enable
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface fa 0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#ex
Switch(config)#ex
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan

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
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
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

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

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

10. Change privileged mode:

IOS Command Line Interface

```
Switch>enable
Switch#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface fa 0/24
Switch(config-if)#switchport mode trunk
Switch(config-if)#ex
Switch(config)#ex
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan

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
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
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

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

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

11. In Configures mode, configure switch ports into zodiac1, zodiac2, and zodiac3 VLANs with the following members :
    - Zodiak1 = aquarius and Gemini
    - Zosiak2 = cancer and sagitarius
    - Zodiak3 = capricornus and pisces

12. Ping from PC Leo to PC Aries, PC Leo to PC Aquarius, PC Leo to PC Pisces, PC Libra to PC Cancer, and PC Libra to 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=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
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 = 1ms, Average = 0ms
```

```
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:\>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),
```

```
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:\>
```