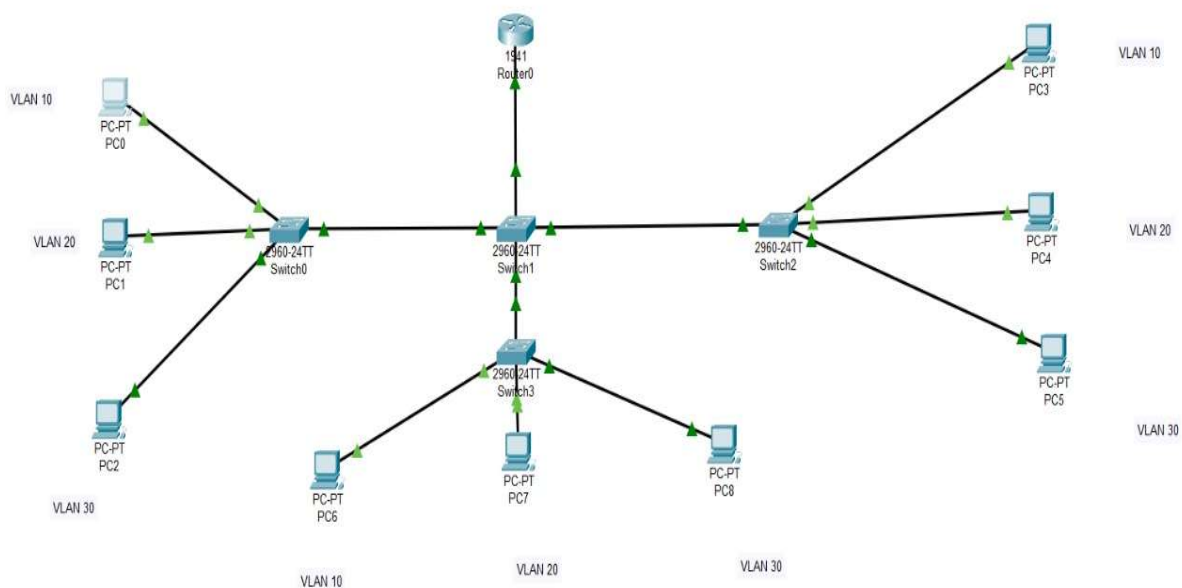4.Use Cisco packet tracer for the below

➢ Set up trunk ports between switches and try ping between different VLANS

5.Change the native VLAN on a trunk port. Test for VLAN mismatches and troubleshoot

Topology:





```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#vlan 20
Switch(config-vlan)#vlan 30
Switch(config-vlan)#exit
Switch(config)#exit
Switch#
```

## Switch2

Physical    Config    CLI    Attributes

```
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/1
Switch(config-if)#
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)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/2
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/2
Switch(config-if)#
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)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    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   VLAN0010                         active    Fa0/1
20   VLAN0020                         active    Fa0/2
30   VLAN0030                         active    Fa0/3
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```

```
Switch#show interfaces trunk
Port        Mode          Encapsulation  Status        Native vlan
Gig0/1      auto          n-802.1q       trunking      1

Port        Vlans allowed on trunk
Gig0/1      1-1005

Port        Vlans allowed and active in management domain
Gig0/1      1,10,20,30

Port        Vlans in spanning tree forwarding state and not pruned
Gig0/1      1,10,20,30

Switch#
```

## Switch0

Physical    Config    CLI    Attributes

```
Switch#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    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   VLAN0010                         active    Fa0/1
20   VLAN0020                         active    Fa0/2
30   VLAN0030                         active    Fa0/3
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
Switch#
```

## Switch0

Physical    Config    **CLI**    Attributes

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed

Switch>Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show interfaces trunk
Port            Mode            Encapsulation   Status          Native vlan
Gig0/1          auto            n-802.1q        trunking        1

Port            Vlans allowed on trunk
Gig0/1          1-1005

Port            Vlans allowed and active in management domain
Gig0/1          1,10,20,30

Port            Vlans in spanning tree forwarding state and not pruned
Gig0/1          1,10,20,30

Switch#
```

## Switch1

Physical    Config    **CLI**    Attributes

```
Switch#show interfaces trunk
Port            Mode        Encapsulation   Status        Native vlan
Fa0/1           on          802.1q          trunking      1
Fa0/2           on          802.1q          trunking      1
Fa0/3           on          802.1q          trunking      1
Gig0/1          on          802.1q          trunking      1

Port            Vlans allowed on trunk
Fa0/1           1-1005
Fa0/2           1-1005
Fa0/3           1-1005
Gig0/1          1-1005

Port            Vlans allowed and active in management domain
Fa0/1           1,10,20,30
Fa0/2           1,10,20,30
Fa0/3           1,10,20,30
Gig0/1          1,10,20,30

Port            Vlans in spanning tree forwarding state and not pruned
Fa0/1           1,10,20,30
Fa0/2           1,10,20,30
Fa0/3           1,10,20,30
 --More--
```

## Switch3

Physical    Config    **CLI**    Attributes

IOS Comm

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

Switch#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    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   VLAN0010                         active    Fa0/1
20   VLAN0020                         active    Fa0/2
30   VLAN0030                         active    Fa0/3
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
Switch#%SPANTREE-2-RECV_PVID_ERR: Received 802.1Q BPDU on non trunk GigabitEthernet0/1 VLAN1.

%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking GigabitEthernet0/1 on VLAN0001. Inconsistent port type.

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Switch#show interfaces trunk
Port            Mode        Encapsulation   Status      Native vlan
Gig0/1          auto        n-802.1q        trunking    1

Port            Vlans allowed on trunk
Gig0/1          1-1005

Port            Vlans allowed and active in management domain
Gig0/1          1,10,20,30

Port            Vlans in spanning tree forwarding state and not pruned
Gig0/1          1,10,20,30

Switch#
```

Router0

Physical    Config    CLI    Attributes

IOS Comm

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface gigabitEthernet 0/0.10
Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 192.168.10.1 255.255.255.0
Router(config-subif)#interface gigabitEthernet 0/0.20
Router(config-subif)#encapsulation dot1Q 10

%Configuration of multiple subinterfaces of the same main
interface with the same VID (10) is not permitted.
This VID is already configured on GigabitEthernet0/0.10.

Router(config-subif)#exit
Router(config)#interface gigabitEthernet 0/0.10
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)#interface gigabitEthernet 0/0.20
Router(config-subif)#encapsulation dot1Q 10

%Configuration of multiple subinterfaces of the same main
interface with the same VID (10) is not permitted.
This VID is already configured on GigabitEthernet0/0.10.

Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#interface gigabitEthernet 0/0.20
Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#exit
Router(config)#interface gigabitEthernet 0/0.30
Router(config-subif)#encapsulation dot1Q 30
Router(config-subif)#ip address 192.168.30.1 255.255.255.0
Router(config-subif)#^Z
Router#
```

Router0

Physical    Config    CLI    Attributes

IOS C

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.20, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/0.30, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.30, changed state to up

Router(config-if)#exit
Router(config)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip interface brief
Interface              IP-Address      OK? Method Status                 Protocol
GigabitEthernet0/0     unassigned      YES unset  up                     up
GigabitEthernet0/0.10  192.168.10.1    YES manual up                     up
GigabitEthernet0/0.20  192.168.20.1    YES manual up                     up
GigabitEthernet0/0.30  192.168.30.1    YES manual up                     up
GigabitEthernet0/1     unassigned      YES unset  administratively down  down
Vlan1                  unassigned      YES unset  administratively down  down
Router#
```

## PC0

Physical | Config | Desktop | Programming | Attributes

**Command Prompt**

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.11

Pinging 192.168.20.11 with 32 bytes of data:

Request timed out.
Reply from 192.168.20.11: bytes=32 time<1ms TTL=127
Reply from 192.168.20.11: bytes=32 time<1ms TTL=127
Reply from 192.168.20.11: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.20.11:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.20.11

Pinging 192.168.20.11 with 32 bytes of data:

Reply from 192.168.20.11: bytes=32 time<1ms TTL=127
Reply from 192.168.20.11: bytes=32 time<1ms TTL=127
Reply from 192.168.20.11: bytes=32 time<1ms TTL=127
Reply from 192.168.20.11: bytes=32 time=27ms TTL=127

Ping statistics for 192.168.20.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 27ms, Average = 6ms

C:\>ping 192.168.30.12

Pinging 192.168.30.12 with 32 bytes of data:

Request timed out.
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.30.12:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.30.12

Pinging 192.168.30.12 with 32 bytes of data:

Reply from 192.168.30.12: bytes=32 time=18ms TTL=127
Reply from 192.168.30.12: bytes=32 time=1ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127
```

## PC0

Physical | Config | Desktop | Programming | Attributes

**Command Prompt**

```
Reply from 192.168.20.11: bytes=32 time<1ms TTL=127
Reply from 192.168.20.11: bytes=32 time<1ms TTL=127
Reply from 192.168.20.11: bytes=32 time<1ms TTL=127
Reply from 192.168.20.11: bytes=32 time=27ms TTL=127

Ping statistics for 192.168.20.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 27ms, Average = 6ms

C:\>ping 192.168.30.12

Pinging 192.168.30.12 with 32 bytes of data:

Request timed out.
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.30.12:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.30.12

Pinging 192.168.30.12 with 32 bytes of data:

Reply from 192.168.30.12: bytes=32 time=18ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127
Reply from 192.168.30.12: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.30.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 18ms, Average = 4ms

C:\>ping 192.168.10.12

Pinging 192.168.10.12 with 32 bytes of data:

Reply from 192.168.10.12: bytes=32 time<1ms TTL=128
Reply from 192.168.10.12: bytes=32 time<1ms TTL=128
Reply from 192.168.10.12: bytes=32 time<1ms TTL=128
Reply from 192.168.10.12: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Change the native VLAN on a trunk port. Test for VLAN mismatches and troubleshoot

1.When Native VLAN is changed on a trunk Port Native VLAN mismatch error occurs



Switch0 — Physical Config CLI Attributes

IOS Command Line Interface

```
Switch#enable
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 99
Switch(config-vlan)#name Native_VLAN
Switch(config-vlan)#exit
Switch(config)#interface Gig0/1
Switch(config-if)#switchport trunk native vlan 99
Switch(config-if)#exit
Switch(config)#exit
Switch#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Gig0/1      auto         n-802.1q       trunking      99

Port        Vlans allowed on trunk
Gig0/1      1-98,100-1005

Port        Vlans allowed and active in management domain
Gig0/1      1,10,20,30

Port        Vlans in spanning tree forwarding state and not pruned
Gig0/1      1,10,20,30

Switch#show vlan brief

VLAN Name                         Status    Ports
---- -------------------------    --------- ------------------------------
1    default                      active    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, Gig0/2
10   VLAN0010                     active    Fa0/1
20   VLAN0020                     active    Fa0/2
30   VLAN0030                     active    Fa0/3
99   Native_VLAN                  active
1002 fddi-default                 active
1003 token-ring-default           active
1004 fddinet-default              active
1005 trnet-default                active
Switch#show running-config interface Gig 0/1
```

```
Switch#show interface trunk
Port        Mode         Encapsulation  Status        Native vlan
Gig0/1      auto         n-802.1q       trunking      99

Port        Vlans allowed on trunk
Gig0/1      1-98,100-1005

Port        Vlans allowed and active in management domain
Gig0/1      1,10,20,30

Port        Vlans in spanning tree forwarding state and not pruned
Gig0/1      10,20,30

Switch#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on GigabitEthernet0/1 (99), with
Switch FastEthernet0/1 (1).
```

Troubleshooting and applying no VLAN 99:



After trouble shooting: