Step 1. Create VLANs on switch S1.

Perform Basic Switch Configurations

```
Switch>
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname s3
s3(config)#hostname S3
S3(config)#no ip domain-lookup
S3(config)#enable secret class
S3(config)#line console 0
S3(config-line)#password cisco
S3(config-line)#login
S3(config-line)#exit
S3(config)#line vty 0 15
S3(config-line)#password cisco
S3(config-line)#login
S3(config-line)#exit
S3(config)#exit
S3#
%SYS-5-CONFIG_I: Configured from console by console

S3#show running-config
Building configuration...

Current configuration : 1200 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname S3
!
enable secret 5 $1$mERr$9cTjUIEqNGurQiFU.ZeCi1
!
!
!
no ip domain-lookup
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!

S3#
```

```
Switch>
Switch>enable
Switch#conf
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
Switch(config)#hostname S2
S2(config)#no ip domain-lookup
S2(config)#enable secret class
S2(config)#line console 0
S2(config-line)#password cisco
S2(config-line)#login
S2(config-line)#exit
S2(config)#line vty 0 15
S2(config-line)#password cisco
S2(config-line)#login
S2(config-line)#exit
S2(config)#exit
S2#
%SYS-5-CONFIG_I: Configured from console by console
show running config
                ^
% Invalid input detected at '^' marker.

S2#show running-config
Building configuration...

Current configuration : 1200 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname S2
!
enable secret 5 $1$mERr$9cTjUIEqNGurQiFU.ZeCi1
!
!
!
no ip domain-lookup
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!

S2#
```

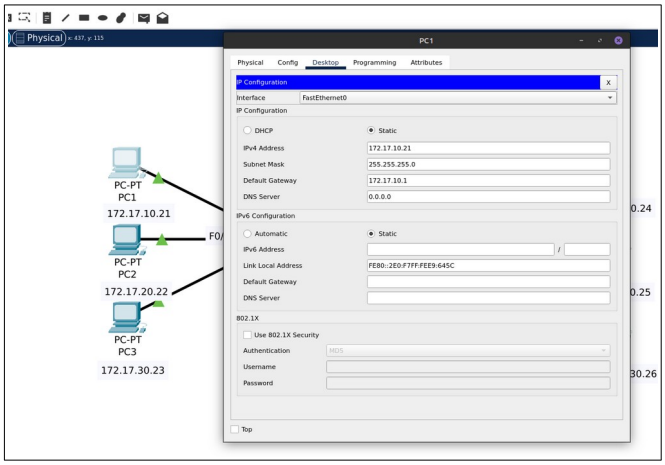
```
Switch>
Switch>enable
Switch#conf
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname S1
S1(config)#no ip domain-lookup
S1(config)#enable secret class
S1(config)#line console 0
S1(config-line)#password cisco
S1(config-line)#login
S1(config-line)#exit
S1(config)#line vty 0 15
S1(config-line)#password cisco
S1(config-line)#login
S1(config-line)#exit
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console
s
% Ambiguous command: "s"
S1#show running-config
Building configuration...

Current configuration : 1200 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname S1
!
enable secret 5 $1$mERr$9cTjUIEqNGurQiFU.ZeCi1
!
!
!
no ip domain-lookup
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!

S1#
```

Step 2. Verify that the VLANs have been created on S1.

This is the addressing table of the exercise, so, we have to enter to each every single host (PC) an fill the ip config with these values

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
S1	VLAN 99	172.17.99.11	255.255.255.0	N/A
S2	VLAN 99	172.17.99.12	255.255.255.0	N/A
S3	VLAN 99	172.17.99.13	255.255.255.0	N/A
PC1	NIC	172.17.10.21	255.255.255.0	172.17.10.1
PC2	NIC	172.17.20.22	255.255.255.0	172.17.20.1
PC3	NIC	172.17.30.23	255.255.255.0	172.17.30.1
PC4	NIC	172.17.10.24	255.255.255.0	172.17.10.1
PC5	NIC	172.17.20.25	255.255.255.0	172.17.20.1
PC6	NIC	172.17.30.26	255.255.255.0	172.17.30.1



Step 3. Configure and name VLANs on switches S2 and S3.

```
S1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S1(config)#vlan 99
S1(config-vlan)#name Management&Native
S1(config-vlan)#exit
S1(config)#valn 10
          ^
% Invalid input detected at '^' marker.

S1(config)#vlan 10
S1(config-vlan)#name Faculty/Staff
S1(config-vlan)#exit
S1(config)#vlan 20
S1(config-vlan)#name Students
S1(config-vlan)#exit
S1(config)#vlan 30
S1(config-vlan)#name Guest(Default)
S1(config-vlan)#exit
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console
```

```
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   Faculty/Staff                     active
20   Students                          active
30   Guest(Default)                    active
99   Management&Native                 active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
S1>
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Top
```

```
S2>enable
Password:
S2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S2(config)#vlan 99
S2(config-vlan)#name Management&Native
S2(config-vlan)#exit
S2(config)#vlan 10
S2(config-vlan)#name Faculty/Staff
S2(config-vlan)#exit
S2(config)#vlan 20
S2(config-vlan)#name Students
S2(config-vlan)#exit
S2(config)#vlan 30
S2(config-vlan)#name Guest(Default)
S2(config-vlan)#exit
S2(config)#
```

```
S2#show vlan brief

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   Faculty/Staff                     active
20   Students                          active
30   Guest(Default)                    active
99   Management&Native                 active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
S2#
```

```
S3>enable
Password:
S3#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S3(config)#vlan 99
S3(config-vlan)#name Management&Native
S3(config-vlan)#exit
S3(config)#vlan 10
S3(config-vlan)#name Faculty/Staff
S3(config-vlan)#exit
S3(config)#vlan 30
S3(config-vlan)#name Guest(Default)
S3(config-vlan)#exit
S3(config)#vlan 20
S3(config-vlan)#name Students
S3(config-vlan)#exit
S3(config)#exit
S3#
%SYS-5-CONFIG_I: Configured from console by console
```

```
S3#show vlan brief

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   Faculty/Staff                     active
20   Students                          active
30   Guest(Default)                    active
99   Management&Native                 active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
S3#
```

Step 4. Assign switch ports to VLANs on S2 and S3.

```
S3#
S3#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S3(config)#interface fastEthernet0/6
S3(config-if)#switchport mode access
S3(config-if)#switchport access vlan 30
S3(config-if)#switchport access vlan 30
S3(config-if)#interface fastEthernet0/11
S3(config-if)#switchport mode access
S3(config-if)#switchport access vlan 10
S3(config-if)#interface fastEthernet0/18
S3(config-if)#switchport mode access
S3(config-if)#switchport access vlan 20
S3(config-if)#end
S3#
%SYS-5-CONFIG_I: Configured from console by console

S3#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
S3#
```

```
S2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S2(config)#interface fastEthernet0/6
S2(config-if)#switchport mode access
S2(config-if)#switchport access vlan 30
S2(config-if)#interface fastEthernet0/11
S2(config-if)#switchport mode access
S2(config-if)#switchport access vlan 10
S2(config-if)#interface fastEthernet0/18
S2(config-if)#switchport mode access
S2(config-if)#switchport access vlan 20
S2(config-if)#end
S2#
%SYS-5-CONFIG_I: Configured from console by console

S2#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

Step 5. Determine which ports have been added.

```
S2#show vlan name 10
VLAN 10 not found in current VLAN database
S2#show vlan id 10

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
10   Faculty/Staff                    active    Fa0/11

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

Step 6. Assign the management VLAN.

```
S1>enable
Password:
S1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S1(config)#interface vlan 99
S1(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

S1(config-if)#ip address 172.17.99.11 255.255.255.0
S1(config-if)#no shutdown
S1(config-if)#
```

```
S2#
S2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S2(config)#interface vlan 99
S2(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

S2(config-if)#ip address 172.17.99.12 255.255.255.0
S2(config-if)#no shutdown
S2(config-if)#
```

```
User Access Verification

Password:

S3>enable
Password:
S3#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S3(config)#interface vlan 99
S3(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

S3(config-if)#ip address 172.17.99.13 255.255.255.0
S3(config-if)#no shutdown
S3(config-if)#
```

Step 7. Configure trunking and the native VLAN for the trunking ports on all switches.

```
Password:

S1>enable
Password:
S1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S1(config)#interface fa0/1
S1(config-if)#switchport mode trunk

S1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed state to up

S1(config-if)#switchport mode trunk
S1(config-if)#switchport trunk native vlan 99
S1(config-if)#interface fa0/2
S1(config-if)#switchport mode trunk

S1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

S1(config-if)#%SPANTREE-2-RECV_PVID_ERR: Received BPDU with inconsistent peer vlan id 1 on
FastEthernet0/1 VLAN99.

%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking FastEthernet0/1 on VLAN0099. Inconsistent local vlan.


%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/1 (99), with S2
FastEthernet0/1 (1).

S1(config-if)#interface fa0/2
S1(config-if)#end
S1#
%SYS-5-CONFIG_I: Configured from console by console

S1#
```

```
S2(config)#interface fa0/1
S2(config-if)#switchport mode trunk
S2(config-if)#switchport trunk native vlan 99
S2(config-if)#%SPANTREE-2-UNBLOCK_CONSIST_PORT: Unblocking FastEthernet0/1 on VLAN0099. Port
consistency restored.

%SPANTREE-2-UNBLOCK_CONSIST_PORT: Unblocking FastEthernet0/1 on VLAN0001. Port consistency
restored.


S2(config-if)#
S2(config-if)#end
S2#
%SYS-5-CONFIG_I: Configured from console by console

S2#
```

```
S3(config-if)#
S3(config-if)#exit
S3(config)#interface fa0/1
S3(config-if)#switchport mode trunk
S3(config-if)#switchport trunk native vlan 99
S3(config-if)#end
S3#
%SYS-5-CONFIG_I: Configured from console by console

S3#
```

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```
S1#show interface trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       on           802.1q         trunking      99
Fa0/2       on           802.1q         trunking      1

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

Port        Vlans allowed and active in management domain
Fa0/1       1,10,20,30,99
Fa0/2       1,10,20,30,99

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/1       1,10,20,30,99
Fa0/2       1,10,20,30,99

S1#
```

Step 8. Verify that the switches can communicate.

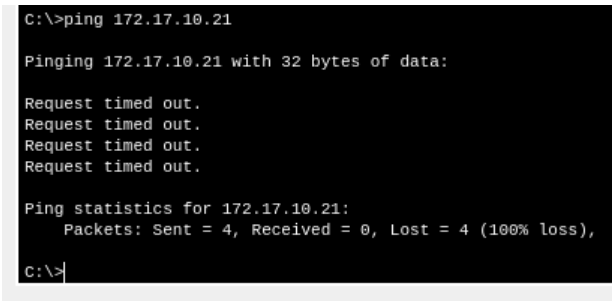
```
S1#ping 172.17.99.13

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.17.99.13, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

S1#ping 172.17.99.12

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.17.99.12, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

S1#
```

Step 9. Ping several hosts from PC2.

```
Ping statistics for 172.17.10.21:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>show ip config brief
Invalid Command.

C:\>ping 172.17.99.12

Pinging 172.17.99.12 with 32 bytes of data:

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

Ping statistics for 172.17.99.12:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.17.20.25

Pinging 172.17.20.25 with 32 bytes of data:

Reply from 172.17.20.25: bytes=32 time<1ms TTL=128
Reply from 172.17.20.25: bytes=32 time=12ms TTL=128
Reply from 172.17.20.25: bytes=32 time<1ms TTL=128
Reply from 172.17.20.25: bytes=32 time<1ms TTL=128

Ping statistics for 172.17.20.25:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 12ms, Average = 3ms

C:\>
```

Top

Step 10. Move PC1 into the same VLAN as PC2.



Step 11. Change the IP address and network on PC1.