Lab 12

Switching Configuration

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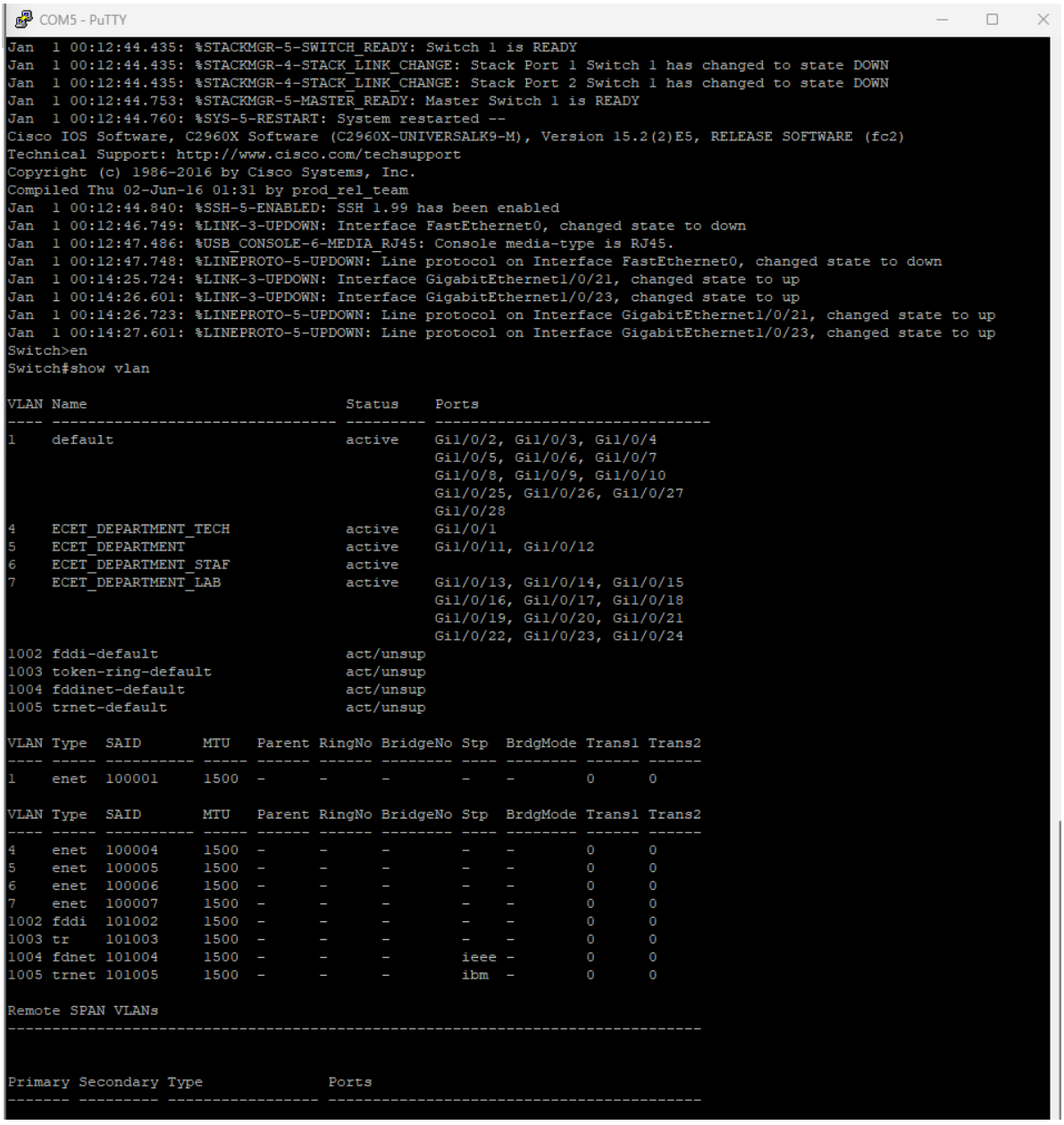
Using the **show vlan brief** command to observe current switch configurations.



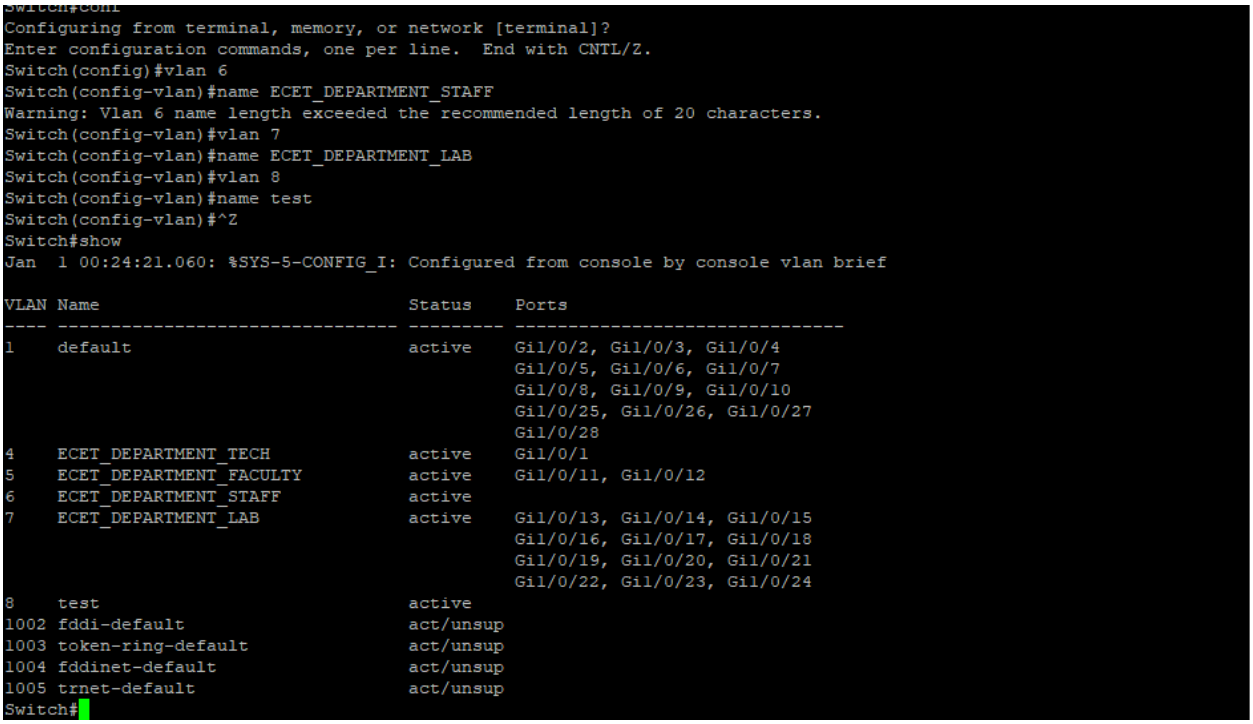
Deleting the VLAN data file using the **delete flash:vlan.dat** command and reloading the switch.

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

Switch#delete flash:vlan.dat
Delete filename [vlan.dat]?
Delete flash:/vlan.dat? [confirm]
Switch#reload
Proceed with reload? [confirm]

Jan  1 00:16:59.784: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload command.
CPU rev: B
Image passed digital signature verification
Board rev: 33
Testing DataBus...
Testing AddressBus...
Testing Memory from 0x00000000 to 0x1fffffff.../
```

Creating VLANs 4,5,6,7 and 8 with their respective names and checking changes.



```
Switch#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 6
Switch(config-vlan)#name ECET_DEPARTMENT_STAFF
Warning: Vlan 6 name length exceeded the recommended length of 20 characters.
Switch(config-vlan)#vlan 7
Switch(config-vlan)#name ECET_DEPARTMENT_LAB
Switch(config-vlan)#vlan 8
Switch(config-vlan)#name test
Switch(config-vlan)#^Z
Switch#show
Jan  1 00:24:21.060: %SYS-5-CONFIG_I: Configured from console by console vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi1/0/2, Gi1/0/3, Gi1/0/4
                                                Gi1/0/5, Gi1/0/6, Gi1/0/7
                                                Gi1/0/8, Gi1/0/9, Gi1/0/10
                                                Gi1/0/25, Gi1/0/26, Gi1/0/27
                                                Gi1/0/28
4    ECET_DEPARTMENT_TECH             active    Gi1/0/1
5    ECET_DEPARTMENT_FACULTY          active    Gi1/0/11, Gi1/0/12
6    ECET_DEPARTMENT_STAFF            active
7    ECET_DEPARTMENT_LAB              active    Gi1/0/13, Gi1/0/14, Gi1/0/15
                                                Gi1/0/16, Gi1/0/17, Gi1/0/18
                                                Gi1/0/19, Gi1/0/20, Gi1/0/21
                                                Gi1/0/22, Gi1/0/23, Gi1/0/24
8    test                             active
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup
Switch#
```

Removing VLAN 8 and checking output with the **show vlan brief** command.

```
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#no vlan 8
Switch(config)#^Z
Switch#
Switch#sh
Jan  1 00:26:20.419: %SYS-5-CONFIG_I: Configured from console by consolevlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi1/0/2, Gi1/0/3, Gi1/0/4
                                                Gi1/0/5, Gi1/0/6, Gi1/0/7
                                                Gi1/0/8, Gi1/0/9, Gi1/0/10
                                                Gi1/0/25, Gi1/0/26, Gi1/0/27
                                                Gi1/0/28
4    ECET_DEPARTMENT_TECH             active    Gi1/0/1
5    ECET_DEPARTMENT_FACULTY          active    Gi1/0/11, Gi1/0/12
6    ECET_DEPARTMENT_STAFF            active
7    ECET_DEPARTMENT_LAB              active    Gi1/0/13, Gi1/0/14, Gi1/0/15
                                                Gi1/0/16, Gi1/0/17, Gi1/0/18
                                                Gi1/0/19, Gi1/0/20, Gi1/0/21
                                                Gi1/0/22, Gi1/0/23, Gi1/0/24
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup
Switch#
```

Verifying VLAN changes.

```
% Type "show ?" for a list of subcommands
Switch#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi1/0/1, Gi1/0/2, Gi1/0/3
                                                Gi1/0/4, Gi1/0/5, Gi1/0/6
                                                Gi1/0/7, Gi1/0/8, Gi1/0/9
                                                Gi1/0/25, Gi1/0/26, Gi1/0/27
                                                Gi1/0/28
4    ECET_DEPARTMENT_TECH             active    Gi1/0/10
5    ECET_DEPARTMENT_FACULTY          active    Gi1/0/11, Gi1/0/12
6    ECET_DEPARTMENT_STAFF            active
7    ECET_DEPARTMENT_LAB              active    Gi1/0/13, Gi1/0/14, Gi1/0/15
                                                Gi1/0/16, Gi1/0/17, Gi1/0/18
                                                Gi1/0/19, Gi1/0/20, Gi1/0/21
                                                Gi1/0/22, Gi1/0/23, Gi1/0/24
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup
Switch#
```

Assigning an SVI to VLAN 1 with an IP address of 10.0.0.2

```
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int vlan 1
Switch(config-if)#ip address 10.0.0.2 255.0.0.0
Switch(config-if)#exit
```

Verifying changes

```
Switch#show run int vlan 1
Building configuration...

Current configuration : 54 bytes
!
interface Vlan1
 ip address 10.0.0.2 255.0.0.0
end
```

Configuring **default gateway**, **domain name**, **duplex mode** and **speed** interface

```
Switch#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#ip default-gateway 10.0.0.1
Switch(config)#ip domain-name T24
Switch(config)#ip domain-name T24
Switch(config)#int gl/0/1
Switch(config-if)#speed 100
Switch(config-if)#duplex full
Switch(config-if)#^Z
Switch#show
Jan  1 00:39:12.881: %SYS-5-CONFIG_I: Configured from console by consoleint status

Port      Name               Status       Vlan       Duplex  Speed Type
Gil/0/1                      notconnect   1            full    100 10/100/1000BaseTX
Gil/0/2                      notconnect   1            auto   auto 10/100/1000BaseTX
Gil/0/3                      notconnect   1            auto   auto 10/100/1000BaseTX
Gil/0/4                      notconnect   1            auto   auto 10/100/1000BaseTX
Gil/0/5                      notconnect   1            auto   auto 10/100/1000BaseTX
Gil/0/6                      notconnect   1            auto   auto 10/100/1000BaseTX
Gil/0/7                      notconnect   1            auto   auto 10/100/1000BaseTX
Gil/0/8                      notconnect   1            auto   auto 10/100/1000BaseTX
Gil/0/9                      notconnect   1            auto   auto 10/100/1000BaseTX
Gil/0/10                     notconnect   4            auto   auto 10/100/1000BaseTX
Gil/0/11                     notconnect   5            auto   auto 10/100/1000BaseTX

Switch#show int gl/0/1 status

Port      Name               Status       Vlan       Duplex  Speed Type
Gil/0/1                      notconnect   1            full    100 10/100/1000BaseTX
Switch#
```

Does the switch reflect the configured changes? Yes.

MAC address of Ryaaz's workstation: **00-25-AB-94-88-58**

Applying port-security commands on the **G1/0/2** interface

```
Switch#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int gl/0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport port-security mac-address 00-25-AB-94-88-58
Switch(config-if)#switchport port-security maximum 1
Switch(config-if)#^Z
```

Verifying switchport port-security configuration.

```
Switch#show port-security address
              Secure Mac Address Table
------------------------------------------------------------------------
Vlan    Mac Address       Type                          Ports   Remaining Age
                                                                    (mins)
----    -----------       ----                          -----   -------------
   1    0025.ab94.8858    SecureConfigured              Gi1/0/2       -
------------------------------------------------------------------------
Total Addresses in System (excluding one mac per port)     : 0
Max Addresses limit in System (excluding one mac per port) : 16384
Switch#show port-security interface g1/0/2
Port Security              : Disabled
Port Status                : Secure-down
Violation Mode             : Shutdown
Aging Time                 : 0 mins
Aging Type                 : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses      : 1
Total MAC Addresses        : 1
Configured MAC Addresses   : 1
Sticky MAC Addresses       : 0
Last Source Address:Vlan   : 0000.0000.0000:0
Security Violation Count   : 0

Switch#
```

1 = Port Numbers in G1/0/*

2 = VLAN

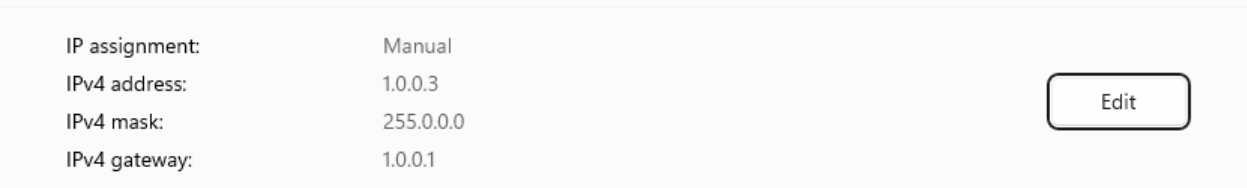
1.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

1.	21	22	23	24
2.	7	7	7	7

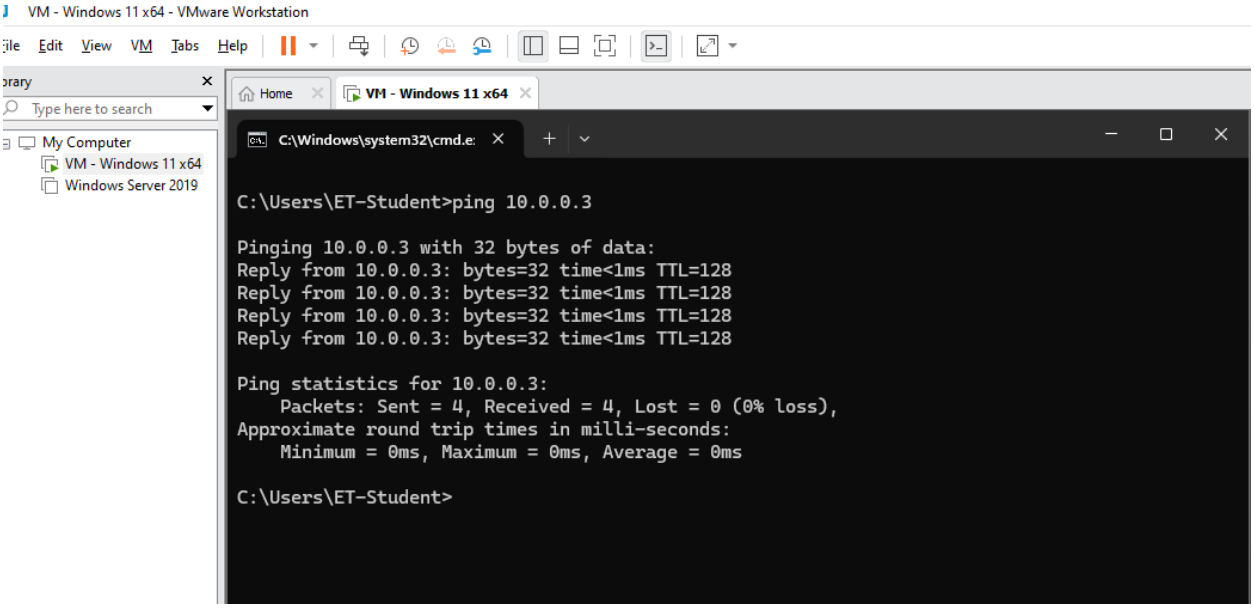
Output view of the current VLAN configuration on the switch.

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Gi1/0/1, Gi1/0/2, Gi1/0/3
                                                 Gi1/0/4, Gi1/0/5, Gi1/0/6
                                                 Gi1/0/7, Gi1/0/8, Gi1/0/9
                                                 Gi1/0/10
4    ECET_DEPARTMENT_TECH              active
5    ECET_DEPARTMENT_FACULTY           active    Gi1/0/11, Gi1/0/12
6    ECET_DEPARTMENT_STAFF             active
7    ECET_DEPARTMENT_LAB               active    Gi1/0/13, Gi1/0/14, Gi1/0/15
                                                 Gi1/0/16, Gi1/0/17, Gi1/0/18
                                                 Gi1/0/19, Gi1/0/20, Gi1/0/21
                                                 Gi1/0/22, Gi1/0/23, Gi1/0/24
                                                 Gi1/0/25, Gi1/0/26, Gi1/0/27
                                                 Gi1/0/28
1002 fddi-default                      act/unsup
1003 token-ring-default                act/unsup
1004 fddinet-default                   act/unsup
1005 trnet-default                     act/unsup
Switch#
```

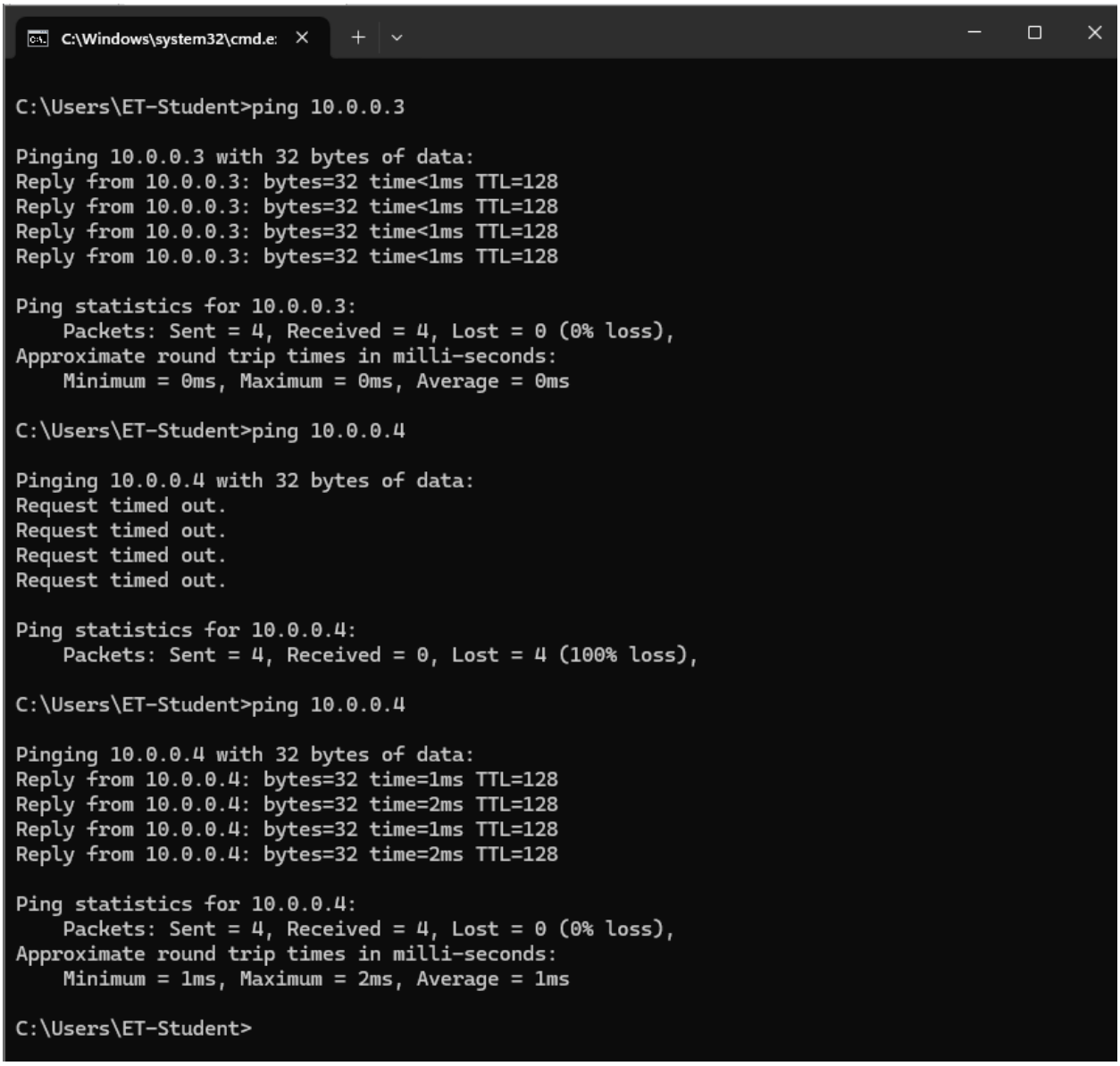
Manually assigning a class A IP address to workstation 1.



Verifying IP addressing configuration on workstation 1.



Pinging the **management VLAN** from workstation 1 successfully and workstation 2 which is in the same VLAN.



Connect the workstation to any ports between 1 through 9. Verify connectivity to VLAN 1. Can both workstations ping the management IP address?

Answer: Yes, both workstations can ping the management IP 10.0.0.2

Ping from workstation 1 to workstation 2 and in reverse. Was the ping successful and why?
Answer: Yes, both workstations can ping each other because they are in the same VLAN.

Attach workstation 2 to port number 10. Using workstation 1, verify there is connectivity with workstation 2 using the PING command. Do this in reverse to check connectivity between Engineering Technology Queensborough Community College 9 workstation 2 and 1. Was it successfully? Explain?
Answer: Yes, the ping was successful because port 10 is still part of VLAN 1

Questions 1) What are the benefits of using VLANs?

Answer: The benefits of VLANs include flexibility, security and segmentation to

2) Which is the default VLAN of the switch?

Answer: The default VLAN of the switch is VLAN 1

3) When is used IEEE 802.11q?

Answer: IEEE 802.11q is used for inter-VLAN routing in trunk links

4) Which IOS command is used to grant access to a switch port based on MAC address?

Answer: The command to accomplish this function is switchport port-security mac-address [MAC]

5) Define Inter-Vlan and Intra-Vlan routing. How can Switch Virtual Interfaces (SVI) be used to route traffic in a network

Answer: Inter-vlan routing is the ability of vlans to communicate with different VLANs and intra-vlan routing means communication within a VLAN. For example, if devices in VLAN A are able to communicate with devices in VLAN B, then this is considered inter-VLAN routing. On the other hand, the ability of devices in either VLAN A or B to communicate with other devices from their same VLAN, then that is considered intra-VLAN routing