Assignment 4: VLANs

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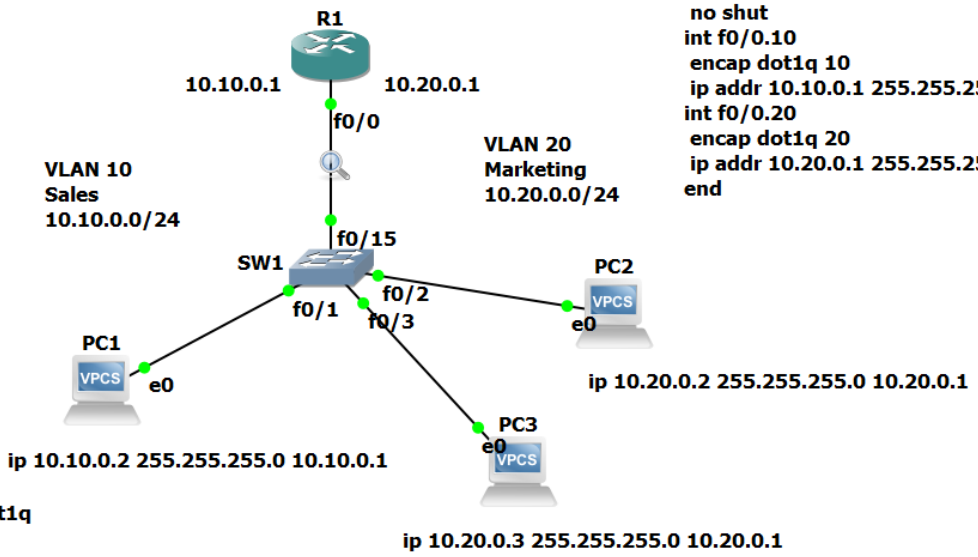
Class day/time:	2023-11-28

Instructions:

- **IMPORTANT:** The router hostname should be set to **Lastname-RouterX**. So if your last name is Smith and you are setting the hostname for Router2, the hostname should be **Smith-Router2**.
- Use this file to submit yours answers. Take screenshots as instructed below. Crop out any irrelevant parts of the screen (**10% penalty if I can't easily read the output in the screenshot**).
- Submit the file in SLATE before the deadline. **You should submit 2 files**; this Word document, and a ZIP file containing all the files in your GNS3 project.

```
vlan database
 vlan 10 name Sales
 vlan 20 name Marketing
exit

conf t
hostname Switch1
no ip routing

int f0/1
 switchport mode access
 switchport access vlan 10
int f0/2
 switchport mode access
 switchport access vlan 20
int f0/3
 switchport mode access
 switchport access vlan 20
int f0/15
 switchport mode trunk
 switchport trunk encapsulation dot1q
end
```




```
conf t
hostname Router1
int f0/0
 no shut
int f0/0.10
 encap dot1q 10
 ip addr 10.10.0.1 255.255.255.0
int f0/0.20
 encap dot1q 20
 ip addr 10.20.0.1 255.255.255.0
end
```

1. Answer the following questions:

Router1 has **1** physical interface(s).	1 physical
Router1 has **2** subinterface(s).	2 Subinterface

2. In Router1, show the output of the **show ip interface brief** command:

Output from Router1:

```
NOLKM-ROUTER1# show ip interface brief
Interface                  IP-Address      OK? Method Status                Protocol
FastEthernet0/0            unassigned      YES unset  up                    up
FastEthernet0/0.10         10.10.0.1       YES manual up                    up
FastEthernet0/0.20         10.20.0.1       YES manual up                    up
NOLKM-ROUTER1#
```

Output from Switch1:

```
NOLKM-SWITCH1# show ip interface brief
Interface                  IP-Address      OK? Method Status                Protocol
FastEthernet0/0            unassigned      YES unset  up                    down
FastEthernet0/1            unassigned      YES unset  up                    up
FastEthernet0/2            unassigned      YES unset  up                    up
FastEthernet0/3            unassigned      YES unset  up                    up
FastEthernet0/4            unassigned      YES unset  up                    down
FastEthernet0/5            unassigned      YES unset  up                    down
FastEthernet0/6            unassigned      YES unset  up                    down
FastEthernet0/7            unassigned      YES unset  up                    down
FastEthernet0/8            unassigned      YES unset  up                    down
FastEthernet0/9            unassigned      YES unset  up                    down
FastEthernet0/10           unassigned      YES unset  up                    down
FastEthernet0/11           unassigned      YES unset  up                    down
FastEthernet0/12           unassigned      YES unset  up                    down
FastEthernet0/13           unassigned      YES unset  up                    down
FastEthernet0/14           unassigned      YES unset  up                    down
FastEthernet0/15           unassigned      YES unset  up                    up
Vlan1                      unassigned      YES unset  up                    up
```

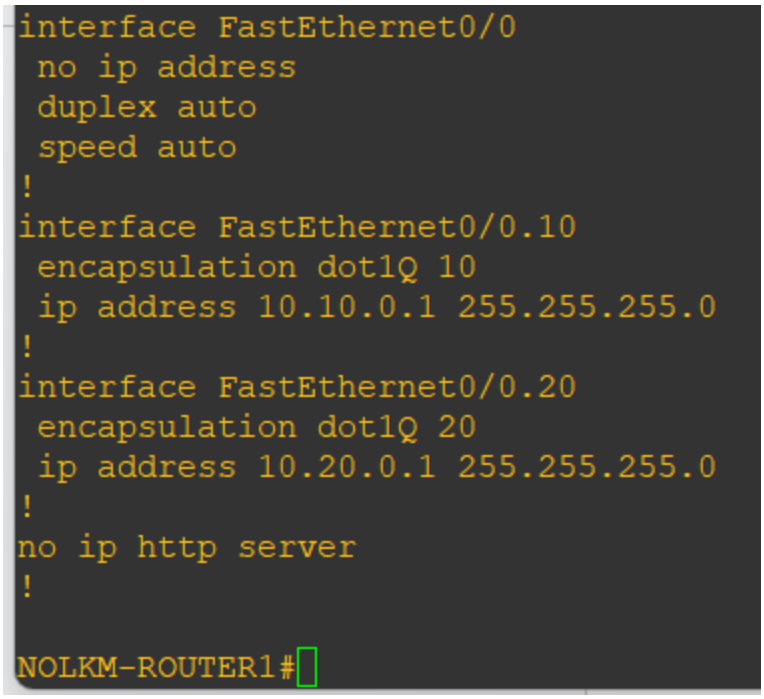
3. In Switch1, show the output of the **show vlan-switch** command:

Output from Switch1:

```
NOLKM-SWITCH1# show vlan-switch

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/0, Fa0/4, Fa0/5, Fa0/6
                                                Fa0/7, Fa0/8, Fa0/9, Fa0/10
                                                Fa0/11, Fa0/12, Fa0/13, Fa0/14
10   Sales                            active    Fa0/1
20   Marketing                        active    Fa0/2, Fa0/3
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  -      -      -        -    -        1002   1003
10   enet  100010     1500  -      -      -        -    -        0      0
20   enet  100020     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        1      1003
1003 tr    101003     1500  1005   0      -        -    srb      1      1002
1004 fdnet 101004     1500  -      -      1        ibm  -        0      0
1005 trnet 101005     1500  -      -      1        ibm  -        0      0
```

4. In Router1, run the **show run** command, and take screenshots of the parts showing the **interface configuration**. Do not include the rest of the config file. **There will be a 10% penalty if you simply paste a screenshot of the entire config file**.

Output from Router1:



5. From each PC, ping the other PCs and both router interfaces. Take one screenshot showing the 4 ping results. **There will be a 10% penalty if the screenshot contains irrelevant information**.

Output from PC1:

```
PC1> ping 10.10.0.1
84 bytes from 10.10.0.1 icmp_seq=1 ttl=255 time=0.904 ms
84 bytes from 10.10.0.1 icmp_seq=2 ttl=255 time=14.204 ms
84 bytes from 10.10.0.1 icmp_seq=3 ttl=255 time=12.001 ms
84 bytes from 10.10.0.1 icmp_seq=4 ttl=255 time=18.485 ms
84 bytes from 10.10.0.1 icmp_seq=5 ttl=255 time=14.844 ms

PC1> ping 10.20.0.1
84 bytes from 10.20.0.1 icmp_seq=1 ttl=255 time=15.204 ms
84 bytes from 10.20.0.1 icmp_seq=2 ttl=255 time=16.400 ms
84 bytes from 10.20.0.1 icmp_seq=3 ttl=255 time=15.188 ms
84 bytes from 10.20.0.1 icmp_seq=4 ttl=255 time=18.334 ms
84 bytes from 10.20.0.1 icmp_seq=5 ttl=255 time=0.998 ms

PC1> ping 10.20.0.3
10.20.0.3 icmp_seq=1 timeout
84 bytes from 10.20.0.3 icmp_seq=2 ttl=63 time=30.788 ms
84 bytes from 10.20.0.3 icmp_seq=3 ttl=63 time=31.771 ms
84 bytes from 10.20.0.3 icmp_seq=4 ttl=63 time=32.045 ms
84 bytes from 10.20.0.3 icmp_seq=5 ttl=63 time=31.853 ms

PC1> ping 10.20.0.2
10.20.0.2 icmp_seq=1 timeout
84 bytes from 10.20.0.2 icmp_seq=2 ttl=63 time=31.660 ms
84 bytes from 10.20.0.2 icmp_seq=3 ttl=63 time=31.806 ms
84 bytes from 10.20.0.2 icmp_seq=4 ttl=63 time=32.030 ms
84 bytes from 10.20.0.2 icmp_seq=5 ttl=63 time=30.792 ms

PC1> nolm #991673010
```

Output from PC2:

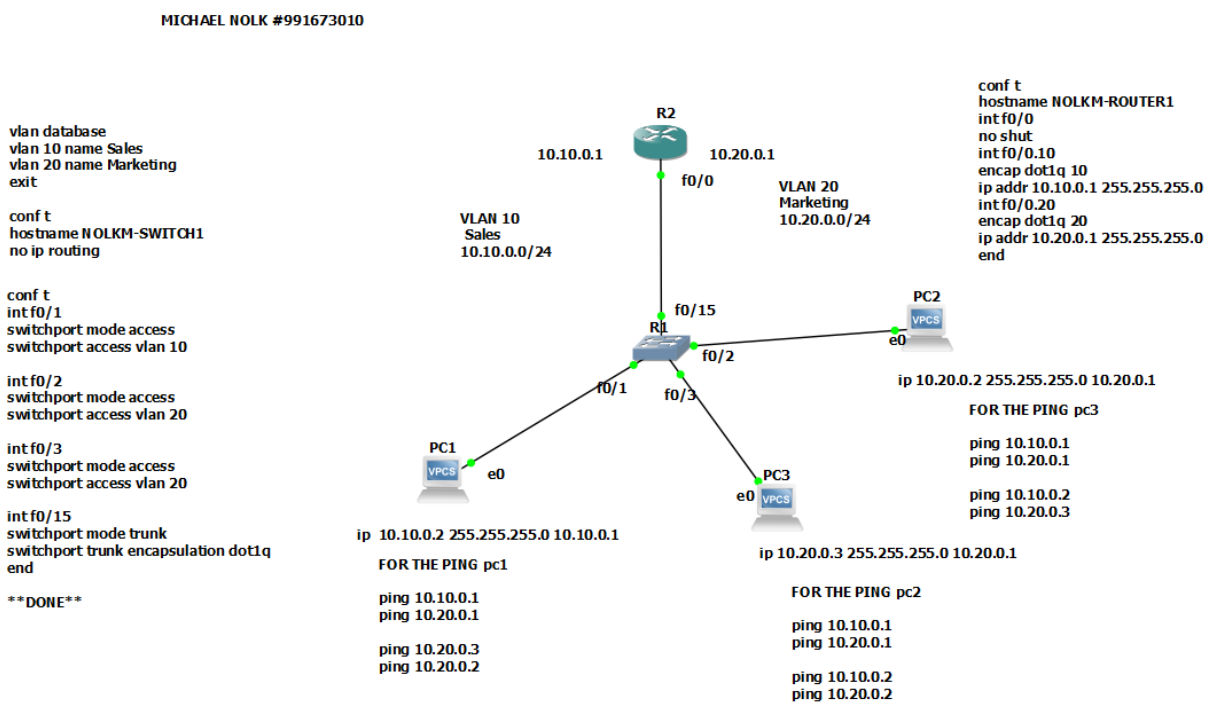
```
PC2> ping 10.10.0.1
84 bytes from 10.10.0.1 icmp_seq=1 ttl=255 time=14.559 ms
84 bytes from 10.10.0.1 icmp_seq=2 ttl=255 time=13.444 ms
84 bytes from 10.10.0.1 icmp_seq=3 ttl=255 time=16.239 ms
84 bytes from 10.10.0.1 icmp_seq=4 ttl=255 time=16.623 ms
84 bytes from 10.10.0.1 icmp_seq=5 ttl=255 time=15.726 ms

PC2> ping 10.20.0.1
84 bytes from 10.20.0.1 icmp_seq=1 ttl=255 time=13.085 ms
84 bytes from 10.20.0.1 icmp_seq=2 ttl=255 time=14.947 ms
84 bytes from 10.20.0.1 icmp_seq=3 ttl=255 time=14.301 ms
84 bytes from 10.20.0.1 icmp_seq=4 ttl=255 time=17.380 ms
84 bytes from 10.20.0.1 icmp_seq=5 ttl=255 time=15.028 ms

PC2> ping 10.10.0.2
84 bytes from 10.10.0.2 icmp_seq=1 ttl=63 time=78.857 ms
84 bytes from 10.10.0.2 icmp_seq=2 ttl=63 time=31.862 ms
84 bytes from 10.10.0.2 icmp_seq=3 ttl=63 time=29.216 ms
84 bytes from 10.10.0.2 icmp_seq=4 ttl=63 time=31.132 ms
84 bytes from 10.10.0.2 icmp_seq=5 ttl=63 time=30.868 ms

PC2> ping 10.20.0.3
84 bytes from 10.20.0.3 icmp_seq=1 ttl=64 time=2.960 ms
84 bytes from 10.20.0.3 icmp_seq=2 ttl=64 time=1.014 ms
84 bytes from 10.20.0.3 icmp_seq=3 ttl=64 time=1.597 ms
84 bytes from 10.20.0.3 icmp_seq=4 ttl=64 time=1.999 ms
84 bytes from 10.20.0.3 icmp_seq=5 ttl=64 time=1.419 ms

PC2> nolkm #991673010
```

Output from PC3:

```
PC3> ping 10.10.0.1
84 bytes from 10.10.0.1 icmp_seq=1 ttl=255 time=19.425 ms
84 bytes from 10.10.0.1 icmp_seq=2 ttl=255 time=16.135 ms
84 bytes from 10.10.0.1 icmp_seq=3 ttl=255 time=15.715 ms
84 bytes from 10.10.0.1 icmp_seq=4 ttl=255 time=15.115 ms
84 bytes from 10.10.0.1 icmp_seq=5 ttl=255 time=13.256 ms

PC3> ping 10.20.0.1
84 bytes from 10.20.0.1 icmp_seq=1 ttl=255 time=14.464 ms
84 bytes from 10.20.0.1 icmp_seq=2 ttl=255 time=15.599 ms
84 bytes from 10.20.0.1 icmp_seq=3 ttl=255 time=13.921 ms
84 bytes from 10.20.0.1 icmp_seq=4 ttl=255 time=15.345 ms
84 bytes from 10.20.0.1 icmp_seq=5 ttl=255 time=15.627 ms

PC3> ping 10.10.0.2
84 bytes from 10.10.0.2 icmp_seq=1 ttl=63 time=28.556 ms
84 bytes from 10.10.0.2 icmp_seq=2 ttl=63 time=29.501 ms
84 bytes from 10.10.0.2 icmp_seq=3 ttl=63 time=32.661 ms
84 bytes from 10.10.0.2 icmp_seq=4 ttl=63 time=31.818 ms
84 bytes from 10.10.0.2 icmp_seq=5 ttl=63 time=32.183 ms

PC3> ping 10.20.0.2
84 bytes from 10.20.0.2 icmp_seq=1 ttl=64 time=1.332 ms
84 bytes from 10.20.0.2 icmp_seq=2 ttl=64 time=0.993 ms
84 bytes from 10.20.0.2 icmp_seq=3 ttl=64 time=1.079 ms
84 bytes from 10.20.0.2 icmp_seq=4 ttl=64 time=1.977 ms
84 bytes from 10.20.0.2 icmp_seq=5 ttl=64 time=0.999 ms

PC3> nolkm #991673010
```

6. Take a screenshot of your GNS3 network topology. Use the screenshot feature in GNS3 (click File, Take a screenshot).

GNS3 Network:



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