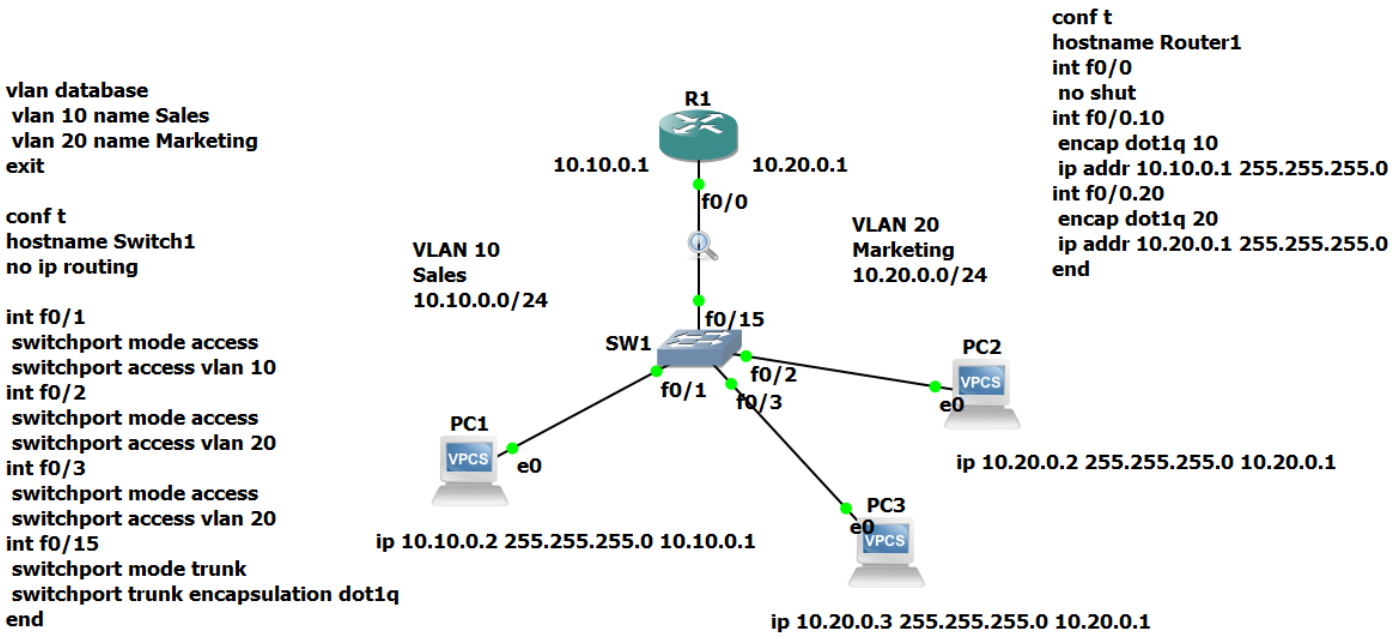
Assignment 4: VLANs

Student Name:	Micah Joshua Rahardjo
Class day/time:	24/11/2023

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.



1. Answer the following questions:

Router1 has ___ physical interface(s).	1
Router1 has ___ subinterface(s).	2

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

Output from Router1:

```
router1#show ip int br
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
```

Output from Switch1:

```
*Mar  1 00:04:05.107: %SYS-5-CONFIG_I: Configured from console by console
switch1#show ip int brie
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:

```
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:

```
interface FastEthernet0/0
 no ip address
 duplex auto
 speed auto
!
interface FastEthernet0/0.10
 encapsulation dot1Q 10
 ip address 10.10.0.1 255.255.255.0
!
interface FastEthernet0/0.20
 encapsulation dot1Q 20
 ip address 10.20.0.1 255.255.255.0
```

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=23.987 ms
84 bytes from 10.10.0.1 icmp_seq=2 ttl=255 time=16.009 ms
84 bytes from 10.10.0.1 icmp_seq=3 ttl=255 time=16.063 ms
84 bytes from 10.10.0.1 icmp_seq=4 ttl=255 time=16.009 ms
84 bytes from 10.10.0.1 icmp_seq=5 ttl=255 time=16.004 ms

PC1> ping 10.10.0.1
84 bytes from 10.10.0.1 icmp_seq=1 ttl=255 time=16.007 ms
84 bytes from 10.10.0.1 icmp_seq=2 ttl=255 time=15.971 ms
84 bytes from 10.10.0.1 icmp_seq=3 ttl=255 time=24.532 ms
84 bytes from 10.10.0.1 icmp_seq=4 ttl=255 time=23.897 ms
84 bytes from 10.10.0.1 icmp_seq=5 ttl=255 time=16.105 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=40.333 ms
84 bytes from 10.20.0.2 icmp_seq=3 ttl=63 time=31.997 ms
84 bytes from 10.20.0.2 icmp_seq=4 ttl=63 time=32.099 ms
84 bytes from 10.20.0.2 icmp_seq=5 ttl=63 time=40.004 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=32.130 ms
84 bytes from 10.20.0.3 icmp_seq=3 ttl=63 time=32.307 ms
84 bytes from 10.20.0.3 icmp_seq=4 ttl=63 time=40.044 ms
84 bytes from 10.20.0.3 icmp_seq=5 ttl=63 time=33.278 ms

PC1> ping 10.20.0.1
84 bytes from 10.20.0.1 icmp_seq=1 ttl=255 time=24.218 ms
84 bytes from 10.20.0.1 icmp_seq=2 ttl=255 time=16.001 ms
84 bytes from 10.20.0.1 icmp_seq=3 ttl=255 time=24.008 ms
84 bytes from 10.20.0.1 icmp_seq=4 ttl=255 time=16.664 ms
84 bytes from 10.20.0.1 icmp_seq=5 ttl=255 time=24.541 ms
```

Output from PC2:

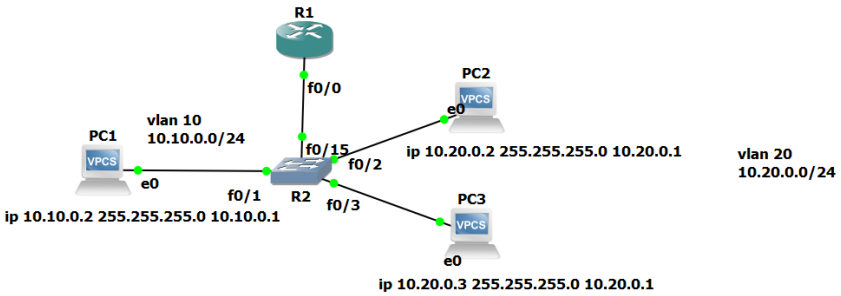
```
PC2> ping 10.20.0.1
84 bytes from 10.20.0.1 icmp_seq=1 ttl=255 time=16.434 ms
84 bytes from 10.20.0.1 icmp_seq=2 ttl=255 time=24.518 ms
84 bytes from 10.20.0.1 icmp_seq=3 ttl=255 time=23.971 ms
84 bytes from 10.20.0.1 icmp_seq=4 ttl=255 time=24.293 ms
84 bytes from 10.20.0.1 icmp_seq=5 ttl=255 time=24.097 ms

PC2> ping 10.20.0.3
84 bytes from 10.20.0.3 icmp_seq=1 ttl=64 time=0.000 ms
84 bytes from 10.20.0.3 icmp_seq=2 ttl=64 time=0.000 ms
84 bytes from 10.20.0.3 icmp_seq=3 ttl=64 time=0.000 ms
84 bytes from 10.20.0.3 icmp_seq=4 ttl=64 time=0.862 ms
84 bytes from 10.20.0.3 icmp_seq=5 ttl=64 time=0.000 ms

PC2> ping 10.10.0.1
84 bytes from 10.10.0.1 icmp_seq=1 ttl=255 time=24.575 ms
84 bytes from 10.10.0.1 icmp_seq=2 ttl=255 time=16.126 ms
84 bytes from 10.10.0.1 icmp_seq=3 ttl=255 time=23.871 ms
84 bytes from 10.10.0.1 icmp_seq=4 ttl=255 time=24.009 ms
84 bytes from 10.10.0.1 icmp_seq=5 ttl=255 time=8.136 ms

PC2> ping 10.10.0.2
10.10.0.2 icmp_seq=1 timeout
10.10.0.2 icmp_seq=2 timeout
84 bytes from 10.10.0.2 icmp_seq=3 ttl=63 time=40.048 ms
84 bytes from 10.10.0.2 icmp_seq=4 ttl=63 time=39.965 ms
84 bytes from 10.10.0.2 icmp_seq=5 ttl=63 time=32.427 ms
```

Output from PC3:

```
PC3> ping 10.10.0.1
84 bytes from 10.10.0.1 icmp_seq=1 ttl=255 time=23.974 ms
84 bytes from 10.10.0.1 icmp_seq=2 ttl=255 time=15.927 ms
84 bytes from 10.10.0.1 icmp_seq=3 ttl=255 time=24.076 ms
84 bytes from 10.10.0.1 icmp_seq=4 ttl=255 time=15.929 ms
84 bytes from 10.10.0.1 icmp_seq=5 ttl=255 time=16.001 ms

PC3> ping 10.10.0.2
84 bytes from 10.10.0.2 icmp_seq=1 ttl=63 time=39.911 ms
84 bytes from 10.10.0.2 icmp_seq=2 ttl=63 time=31.969 ms
84 bytes from 10.10.0.2 icmp_seq=3 ttl=63 time=32.086 ms
84 bytes from 10.10.0.2 icmp_seq=4 ttl=63 time=32.056 ms
84 bytes from 10.10.0.2 icmp_seq=5 ttl=63 time=31.925 ms

PC3> ping 10.20.0.1
84 bytes from 10.20.0.1 icmp_seq=1 ttl=255 time=23.969 ms
84 bytes from 10.20.0.1 icmp_seq=2 ttl=255 time=15.994 ms
84 bytes from 10.20.0.1 icmp_seq=3 ttl=255 time=16.007 ms
84 bytes from 10.20.0.1 icmp_seq=4 ttl=255 time=16.008 ms
84 bytes from 10.20.0.1 icmp_seq=5 ttl=255 time=16.090 ms

PC3> ping 10.20.0.2
84 bytes from 10.20.0.2 icmp_seq=1 ttl=64 time=0.000 ms
84 bytes from 10.20.0.2 icmp_seq=2 ttl=64 time=0.000 ms
84 bytes from 10.20.0.2 icmp_seq=3 ttl=64 time=0.000 ms
84 bytes from 10.20.0.2 icmp_seq=4 ttl=64 time=0.000 ms
84 bytes from 10.20.0.2 icmp_seq=5 ttl=64 time=0.000 ms
```

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

GNS3 Network:




```
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 encap 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
```

Final reminders:
Save this document as a PDF file.
Submit two files: one PDF file and one ZIP file.
DO NOT include the PDF file inside the ZIP file.