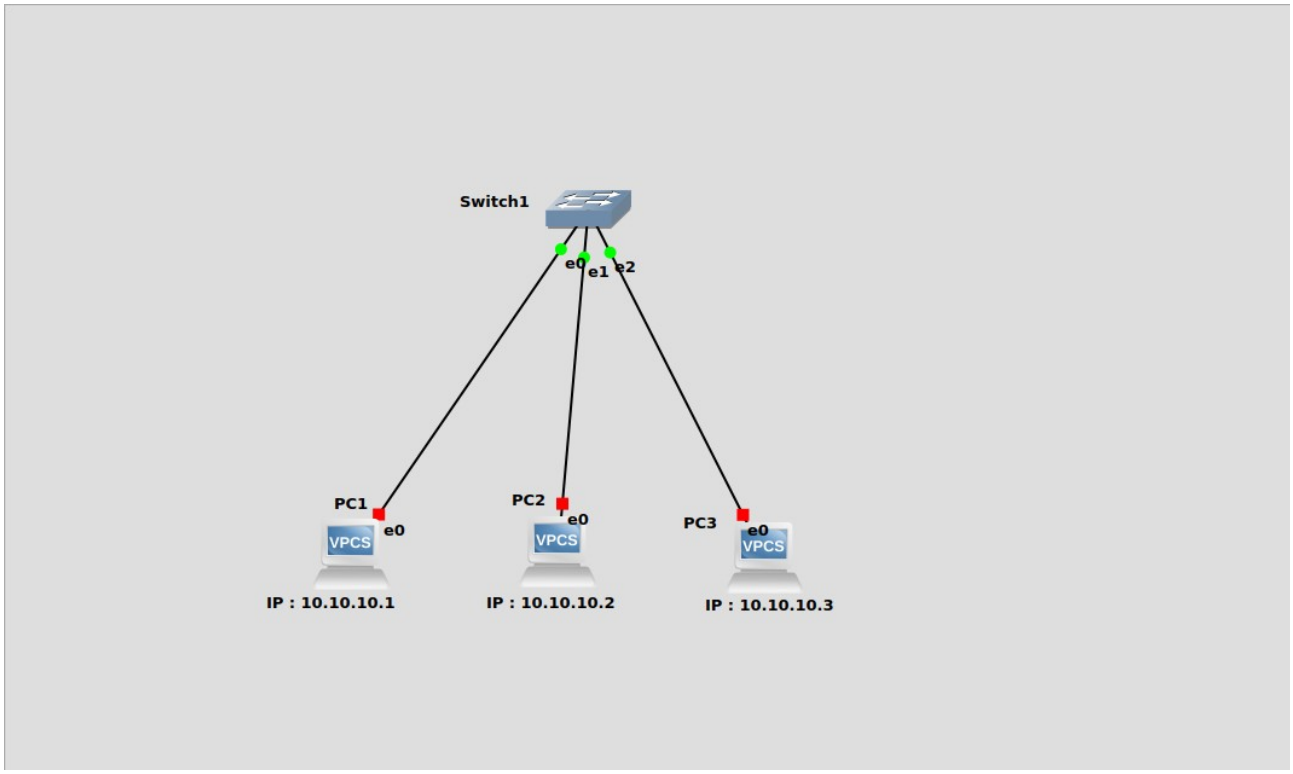
190905514 MOHAMMAD TOFIK BATCH : C3
ROLL NO : 62 SECTION : C3 SEM : 5th

-: CN-LAB-7 :-

EXCERCISE :



Ping PC1 to PC2 :

```
PC1> show ip

NAME        : PC1[1]
IP/MASK     : 10.10.10.1/28
GATEWAY     : 255.255.255.240
DNS         :
MAC         : 00:50:79:66:68:00
LPORT       : 10008
RHOST:PORT  : 127.0.0.1:10009
MTU:        : 1500

PC1> ping 10.10.10.2
84 bytes from 10.10.10.2 icmp_seq=1 ttl=64 time=0.321 ms
84 bytes from 10.10.10.2 icmp_seq=2 ttl=64 time=0.329 ms
84 bytes from 10.10.10.2 icmp_seq=3 ttl=64 time=0.402 ms
84 bytes from 10.10.10.2 icmp_seq=4 ttl=64 time=0.504 ms
84 bytes from 10.10.10.2 icmp_seq=5 ttl=64 time=0.381 ms

PC1>
```

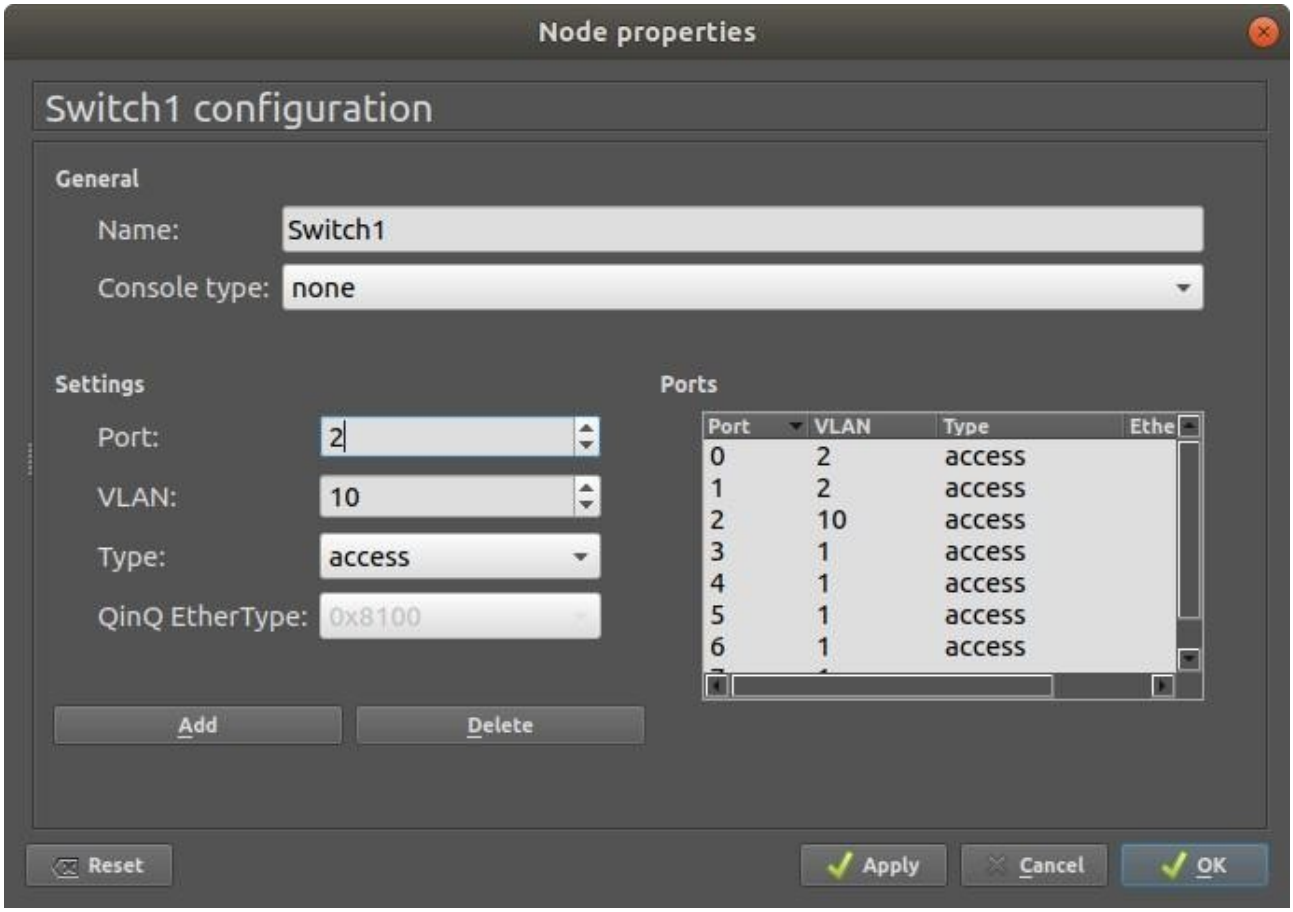
Ping PC2 to PC3 :

```
PC2> show ip

NAME        : PC2[1]
IP/MASK     : 10.10.10.2/28
GATEWAY     : 255.255.255.240
DNS         :
MAC         : 00:50:79:66:68:01
LPORT       : 10006
RHOST:PORT  : 127.0.0.1:10007
MTU:        : 1500

PC2> ping 10.10.10.3
84 bytes from 10.10.10.3 icmp_seq=1 ttl=64 time=0.334 ms
84 bytes from 10.10.10.3 icmp_seq=2 ttl=64 time=0.332 ms
84 bytes from 10.10.10.3 icmp_seq=3 ttl=64 time=0.488 ms
84 bytes from 10.10.10.3 icmp_seq=4 ttl=64 time=0.484 ms
84 bytes from 10.10.10.3 icmp_seq=5 ttl=64 time=0.332 ms

PC2>
```

Ping PC3 to PC1 :

```
PC3> show ip

NAME        : PC3[1]
IP/MASK     : 10.10.10.3/28
GATEWAY     : 255.255.255.240
DNS         :
MAC         : 00:50:79:66:68:02
LPORT       : 10010
RHOST:PORT  : 127.0.0.1:10011
MTU:        : 1500

PC3> ping 10.10.10.1
84 bytes from 10.10.10.1 icmp_seq=1 ttl=64 time=0.359 ms
84 bytes from 10.10.10.1 icmp_seq=2 ttl=64 time=0.374 ms
84 bytes from 10.10.10.1 icmp_seq=3 ttl=64 time=0.378 ms
84 bytes from 10.10.10.1 icmp_seq=4 ttl=64 time=0.424 ms
84 bytes from 10.10.10.1 icmp_seq=5 ttl=64 time=0.360 ms

PC3>
```

Now we divide the LAN into 2 VLAN with IDs 2 and 10 respectively :



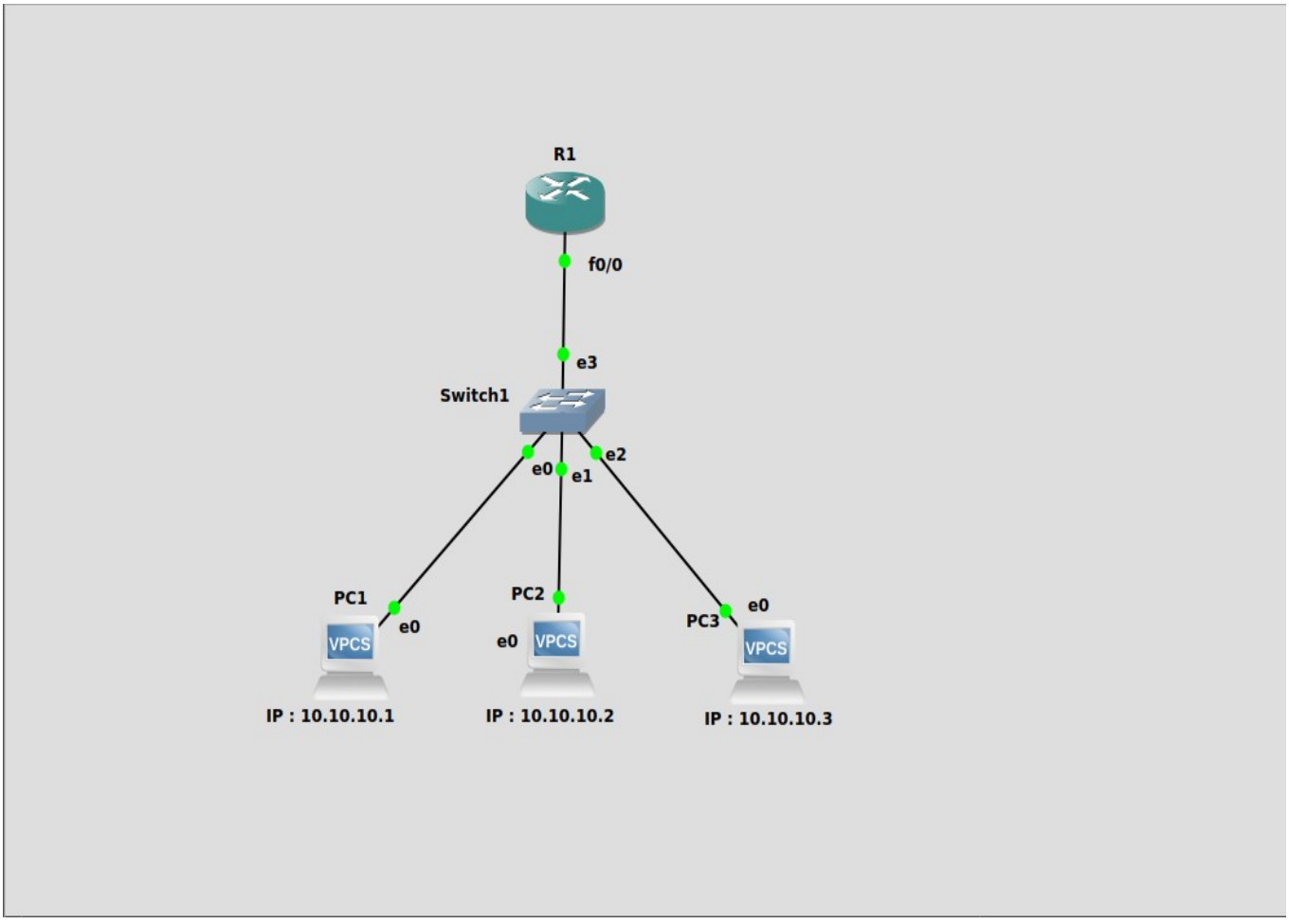
Ping PC1 to PC2 :

```
PC1> ping 10.10.10.2
84 bytes from 10.10.10.2 icmp_seq=1 ttl=64 time=0.253 ms
84 bytes from 10.10.10.2 icmp_seq=2 ttl=64 time=0.396 ms
84 bytes from 10.10.10.2 icmp_seq=3 ttl=64 time=0.399 ms
84 bytes from 10.10.10.2 icmp_seq=4 ttl=64 time=0.390 ms
84 bytes from 10.10.10.2 icmp_seq=5 ttl=64 time=0.509 ms

PC1>
```

Ping PC3 to PC1 does not work :

```
PC3> ping 10.10.10.1
host (10.10.10.1) not reachable

PC3>
```

We add a router to connect PC1 to PC3 :

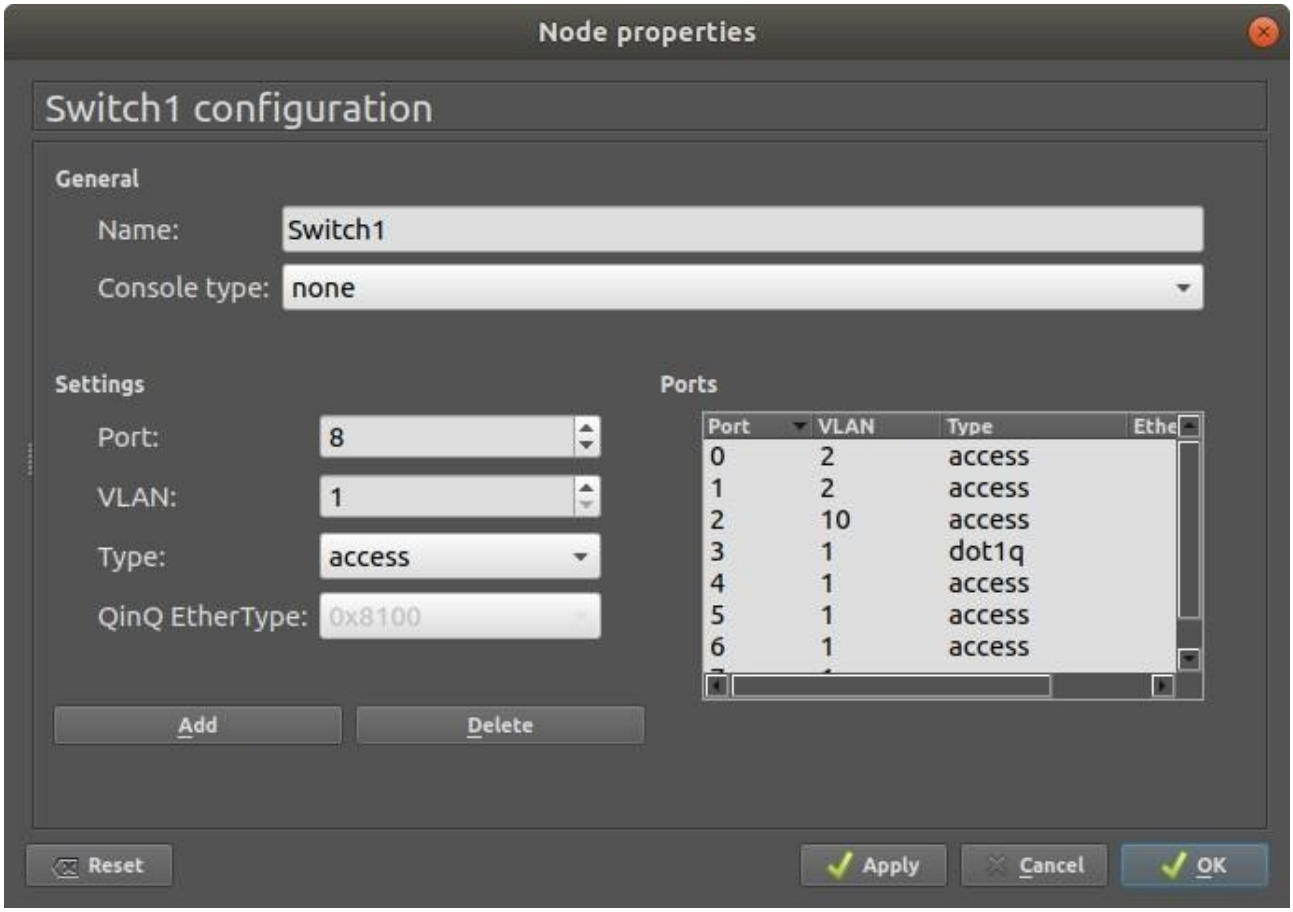


Router R1 Configuration :

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int f0/0
R1(config-if)#ip address 192.168.10.1 255.255.255.240
R1(config-if)#no sh
R1(config-if)#exit
R1(config)#
*Mar  1 00:00:56.387: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar  1 00:00:57.387: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/
0, changed state to up
R1(config)#int f0/0.2
R1(config-subif)#encapsulation dot1q 2
R1(config-subif)#ip add
*Mar  1 00:02:55.435: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
R1(config-subif)#ip address 192.168.1.65 255.255.255.192
R1(config-subif)#no sh
R1(config-subif)#exit
R1(config)#int f0/0.10
R1(config-subif)#encapsulation dot1q 10
R1(config-subif)#ip address 192.168.1.129 255.255.255.224
R1(config-subif)#no sh
R1(config-subif)#exit
R1(config)#exit
R1#
*Mar  1 00:04:15.543: %SYS-5-CONFIG_I: Configured from console by console
R1#sh ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
```

```
R1(config-subif)#no sh
R1(config-subif)#exit
R1(config)#int f0/0.10
R1(config-subif)#encapsulation dot1q 10
R1(config-subif)#ip address 192.168.1.129 255.255.255.224
R1(config-subif)#no sh
R1(config-subif)#exit
R1(config)#exit
R1#
*Mar  1 00:04:15.543: %SYS-5-CONFIG_I: Configured from console by console
R1#sh ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

     192.168.10.0/28 is subnetted, 1 subnets
C       192.168.10.0 is directly connected, FastEthernet0/0
     192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.64/26 is directly connected, FastEthernet0/0.2
C       192.168.1.128/27 is directly connected, FastEthernet0/0.10
R1#
```

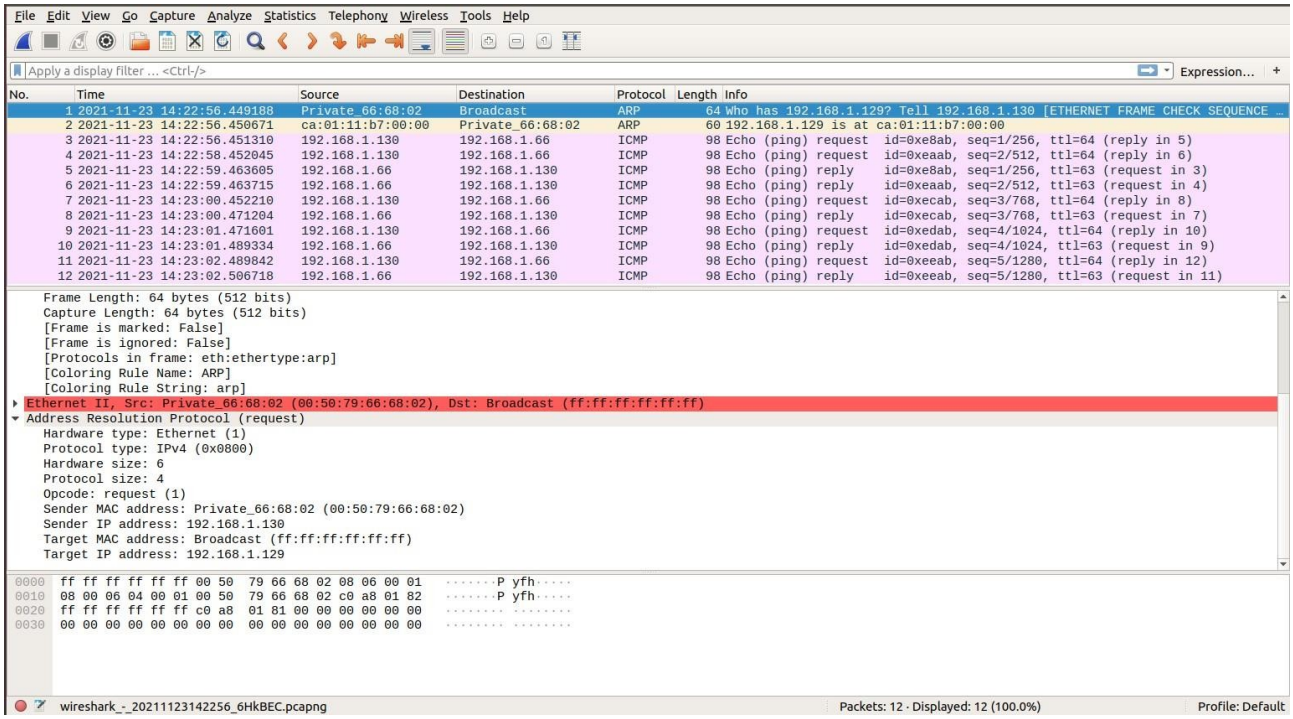
Node Properties :



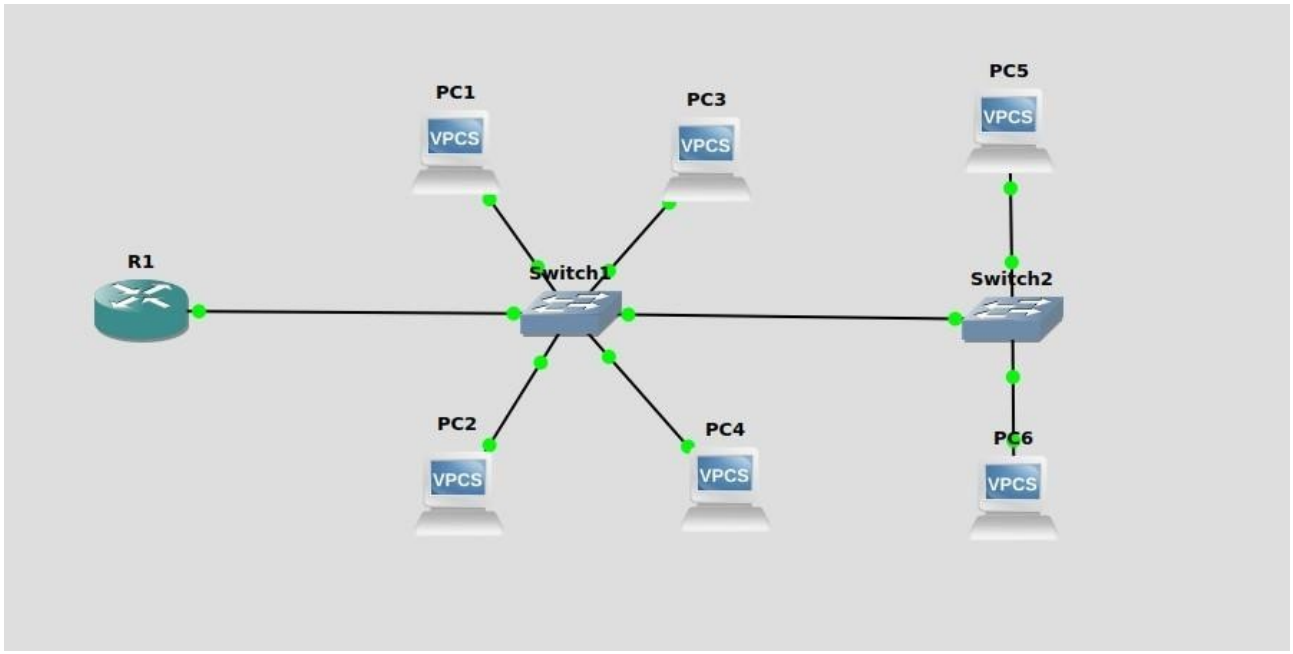
Again ping Pc1 to Pc3 :

```
PC1> ping 10.10.10.3
84 bytes from 10.10.10.3 icmp_seq=1 ttl=64 time=0.470 ms
84 bytes from 10.10.10.3 icmp_seq=2 ttl=64 time=0.544 ms
84 bytes from 10.10.10.3 icmp_seq=3 ttl=64 time=0.547 ms
84 bytes from 10.10.10.3 icmp_seq=4 ttl=64 time=0.611 ms
84 bytes from 10.10.10.3 icmp_seq=5 ttl=64 time=0.537 ms
```

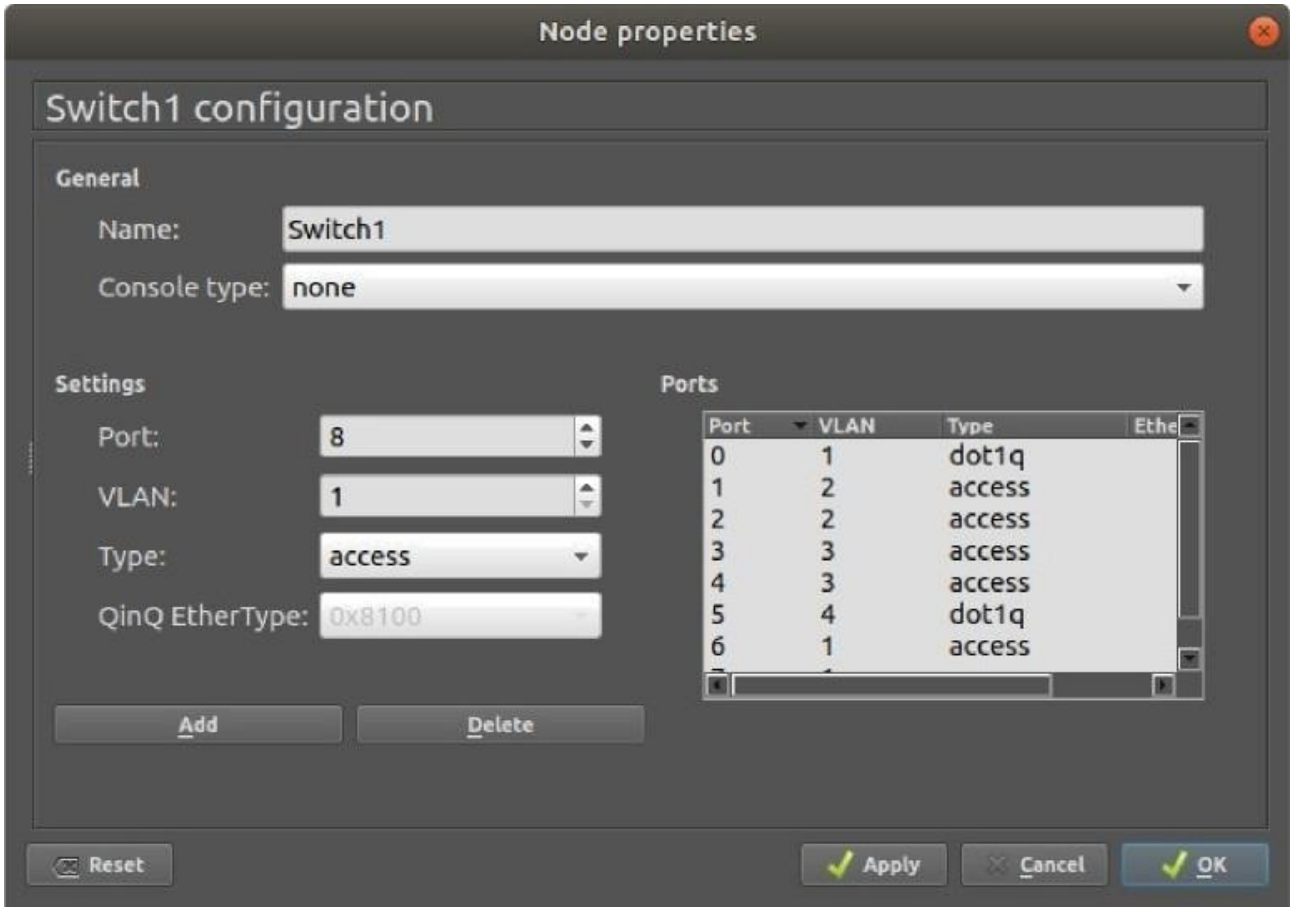
Wireshark :

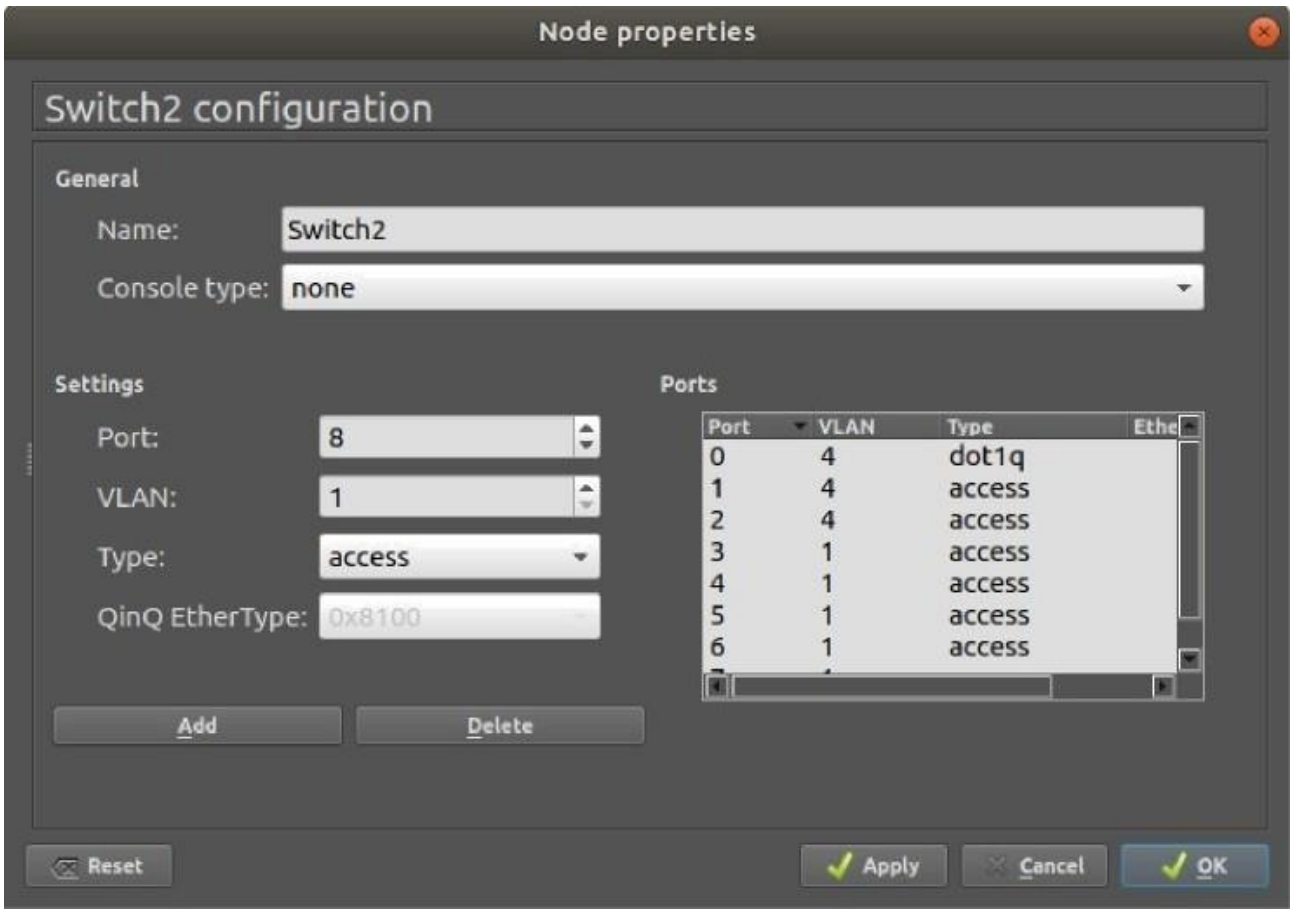


ECERCISE 2:



Node Properties :



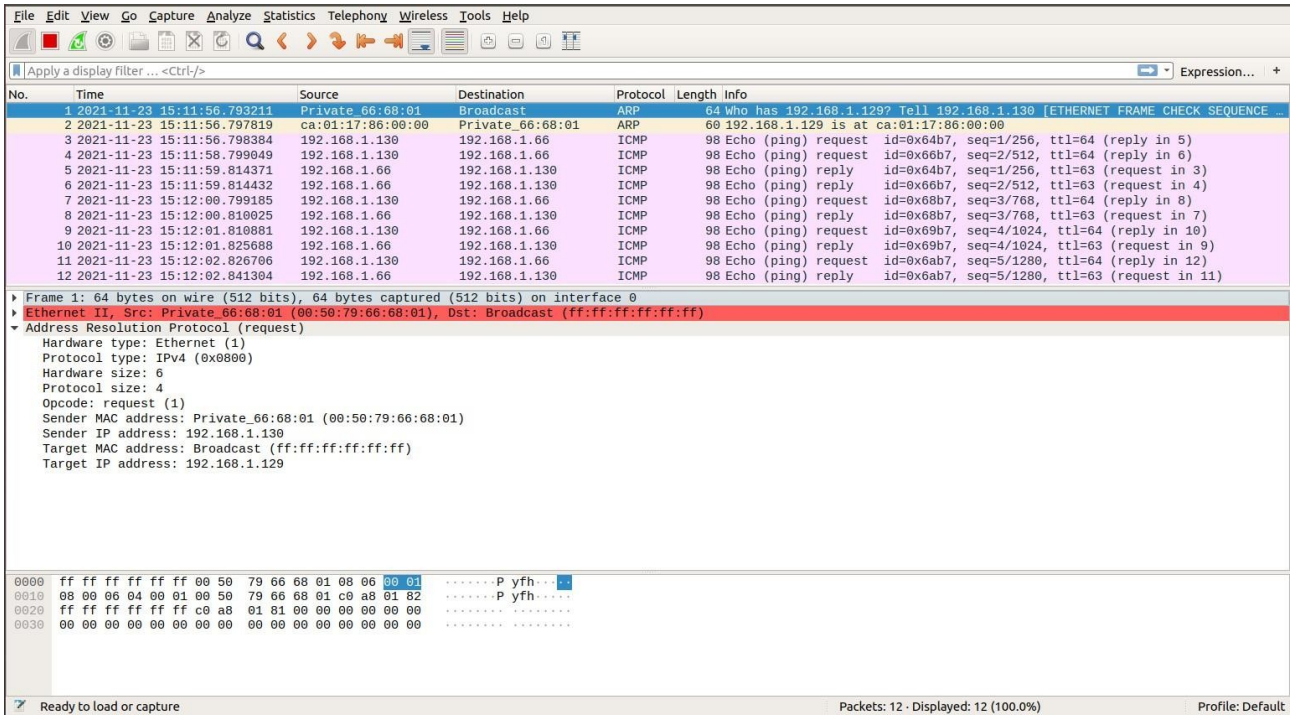



```
R1#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

     192.168.10.0/28 is subnetted, 1 subnets
C       192.168.10.0 is directly connected, FastEthernet0/0
     192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.64/26 is directly connected, FastEthernet0/0.2
C       192.168.1.128/27 is directly connected, FastEthernet0/0.3
R1#
```

Ping PC2 to PC1
PC2 (VLAN 3) and PC1(VLAN 2) :

```
PC2> ip 192.168.1.130 255.255.255.224 192.168.1.129
Checking for duplicate address...
PC1 : 192.168.1.130 255.255.255.224 gateway 192.168.1.129

PC2> ping 192.168.1.66
192.168.1.66 icmp_seq=1 timeout
84 bytes from 192.168.1.66 icmp_seq=2 ttl=63 time=20.721 ms
84 bytes from 192.168.1.66 icmp_seq=3 ttl=63 time=15.223 ms
84 bytes from 192.168.1.66 icmp_seq=4 ttl=63 time=14.825 ms
84 bytes from 192.168.1.66 icmp_seq=5 ttl=63 time=14.283 ms

PC2>
```

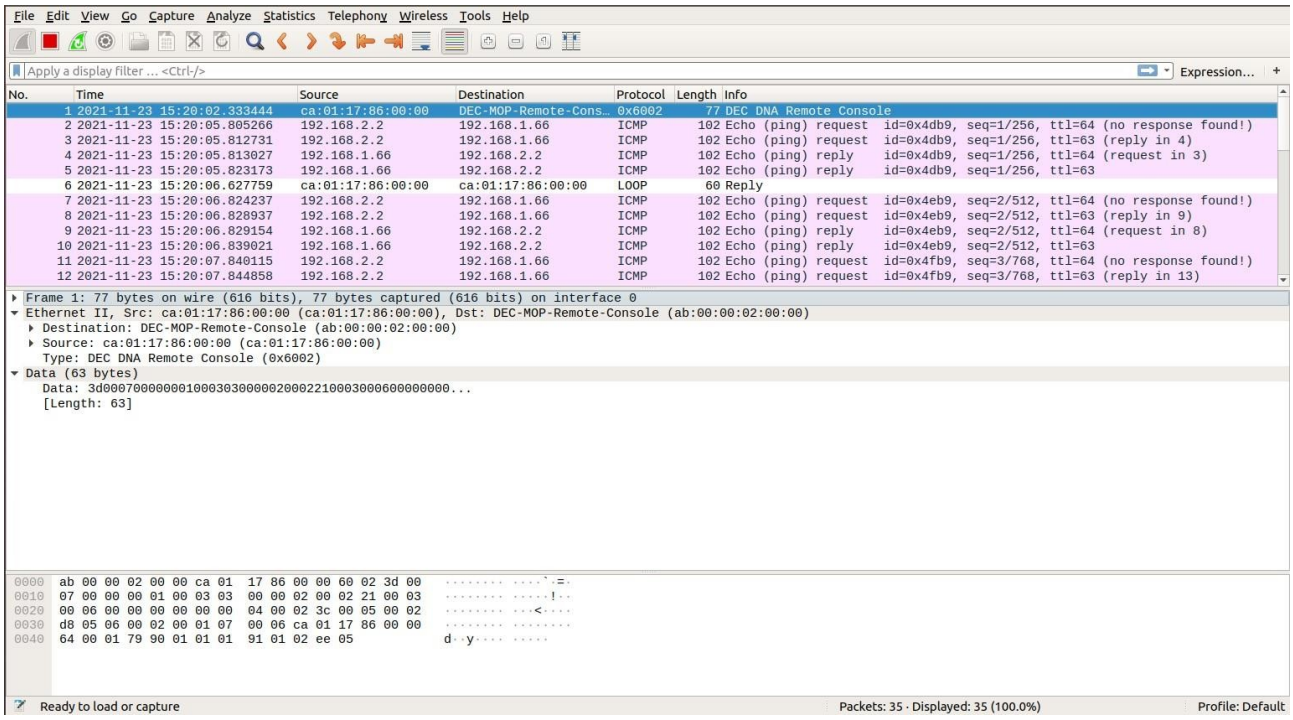
Wireshark :



Ping PC5(VLAN 4) to PC1(VLAN 2) :

```
PC5> ping 192.168.1.66
84 bytes from 192.168.1.66 icmp_seq=1 ttl=63 time=18.201 ms
84 bytes from 192.168.1.66 icmp_seq=2 ttl=63 time=15.059 ms
84 bytes from 192.168.1.66 icmp_seq=3 ttl=63 time=15.032 ms
84 bytes from 192.168.1.66 icmp_seq=4 ttl=63 time=14.883 ms
84 bytes from 192.168.1.66 icmp_seq=5 ttl=63 time=14.984 ms
```

Wireshark :


File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
Expression...
No. Time Source Destination Protocol Length Info
1 2021-11-23 15:20:02.333444 ca:01:17:86:00:00 DEC-MOP-Remote-Cons... 0x6002 77 DEC DNA Remote Console
2 2021-11-23 15:20:05.805266 192.168.2.2 192.168.1.66 ICMP 102 Echo (ping) request id=0x4db9, seq=1/256, ttl=64 (no response found!)
3 2021-11-23 15:20:05.812731 192.168.2.2 192.168.1.66 ICMP 102 Echo (ping) request id=0x4db9, seq=1/256, ttl=63 (reply in 4)
4 2021-11-23 15:20:05.813027 192.168.1.66 192.168.2.2 ICMP 102 Echo (ping) reply id=0x4db9, seq=1/256, ttl=64 (request in 3)
5 2021-11-23 15:20:05.823173 192.168.1.66 192.168.2.2 ICMP 102 Echo (ping) reply id=0x4db9, seq=1/256, ttl=63
6 2021-11-23 15:20:06.627759 ca:01:17:86:00:00 ca:01:17:86:00:00 LOOP 60 Reply
7 2021-11-23 15:20:06.824237 192.168.2.2 192.168.1.66 ICMP 102 Echo (ping) request id=0x4eb9, seq=2/512, ttl=64 (no response found!)
8 2021-11-23 15:20:06.828937 192.168.2.2 192.168.1.66 ICMP 102 Echo (ping) request id=0x4eb9, seq=2/512, ttl=63 (reply in 9)
9 2021-11-23 15:20:06.829154 192.168.1.66 192.168.2.2 ICMP 102 Echo (ping) reply id=0x4eb9, seq=2/512, ttl=64 (request in 8)
10 2021-11-23 15:20:06.839021 192.168.1.66 192.168.2.2 ICMP 102 Echo (ping) reply id=0x4eb9, seq=2/512, ttl=63
11 2021-11-23 15:20:07.840115 192.168.2.2 192.168.1.66 ICMP 102 Echo (ping) request id=0x4fb9, seq=3/768, ttl=64 (no response found!)
12 2021-11-23 15:20:07.844858 192.168.2.2 192.168.1.66 ICMP 102 Echo (ping) request id=0x4fb9, seq=3/768, ttl=63 (reply in 13)
Frame 1: 77 bytes on wire (616 bits), 77 bytes captured (616 bits) on interface 0
Ethernet II, Src: ca:01:17:86:00:00 (ca:01:17:86:00:00), Dst: DEC-MOP-Remote-Console (ab:00:00:02:00:00)
Destination: DEC-MOP-Remote-Console (ab:00:00:02:00:00)
Source: ca:01:17:86:00:00 (ca:01:17:86:00:00)
Type: DEC DNA Remote Console (0x6002)
Data (63 bytes)
Data: 3d000700000001000303000002000221000300060000000...
[Length: 63]
0000 ab 00 00 02 00 00 ca 01 17 86 00 00 60 02 3d 00
0010 07 00 00 00 01 00 03 03 00 00 02 00 02 21 00 03
0020 00 06 00 00 00 00 00 00 04 00 02 3c 00 05 00 02
0030 d8 05 06 00 02 00 01 07 00 06 ca 01 17 86 00 00
0040 64 00 01 79 90 01 01 01 91 01 02 ee 05
Ready to load or capture
Packets: 35 · Displayed: 35 (100.0%)
Profile: Default