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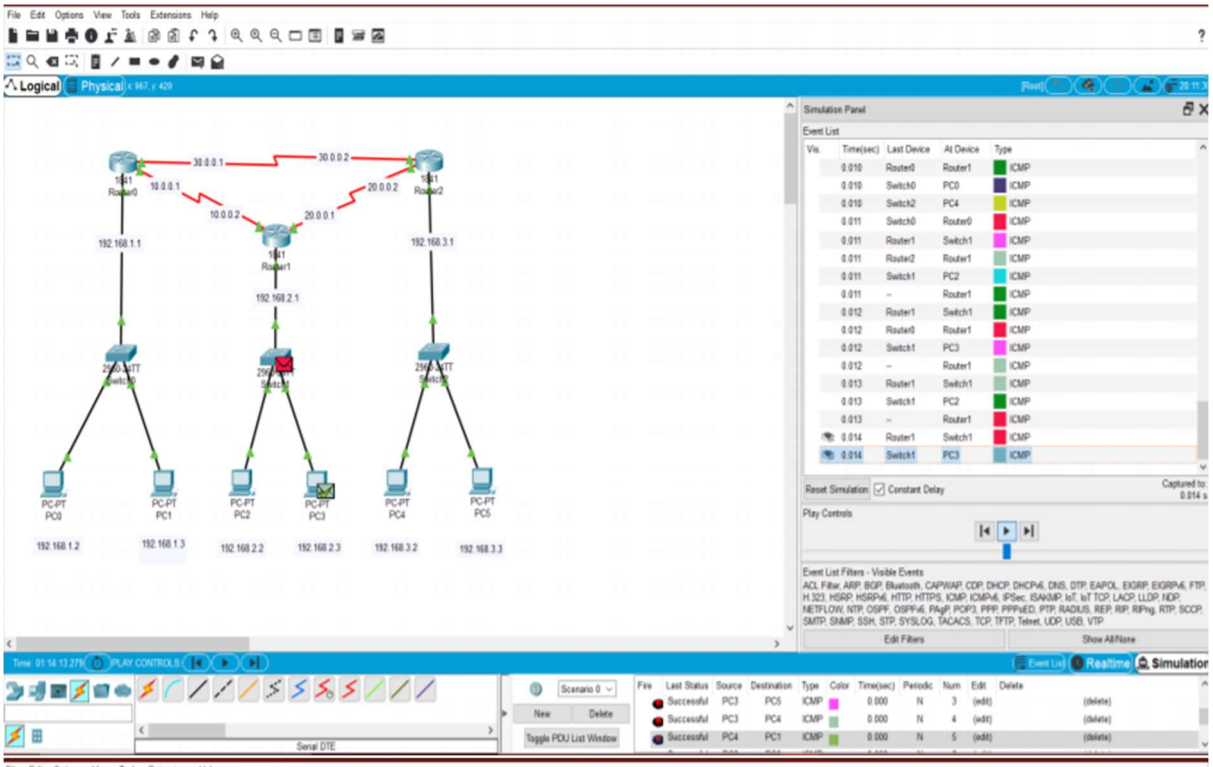
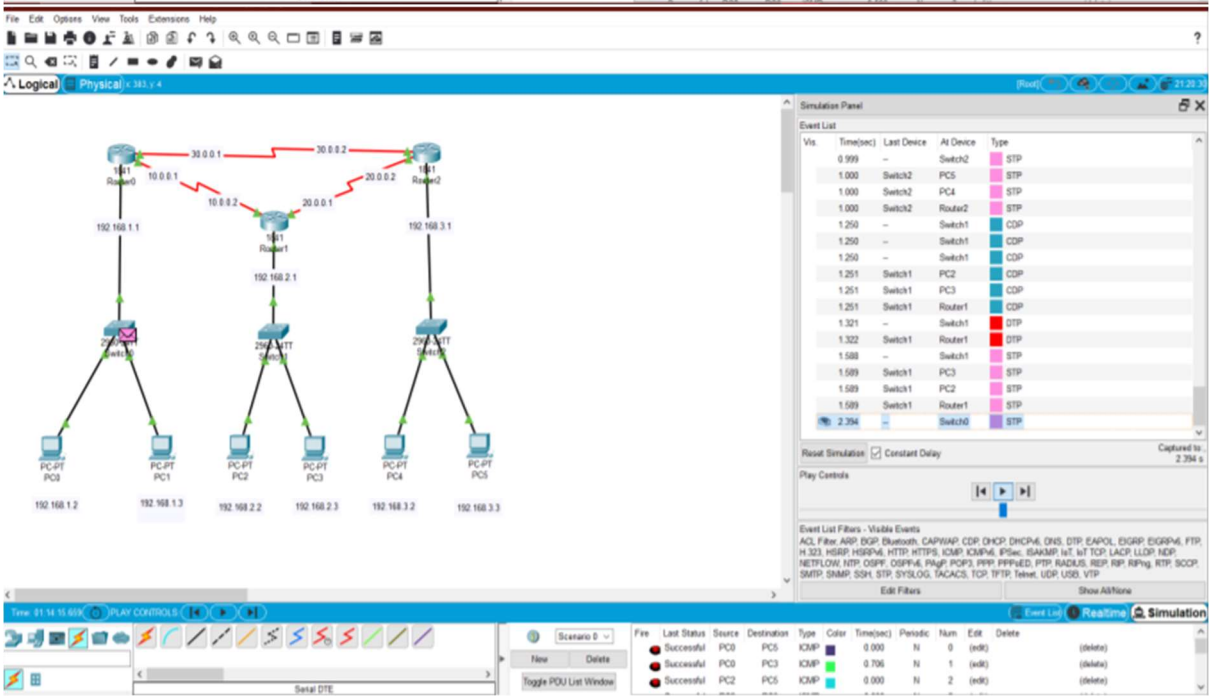
J1 CSE-CC

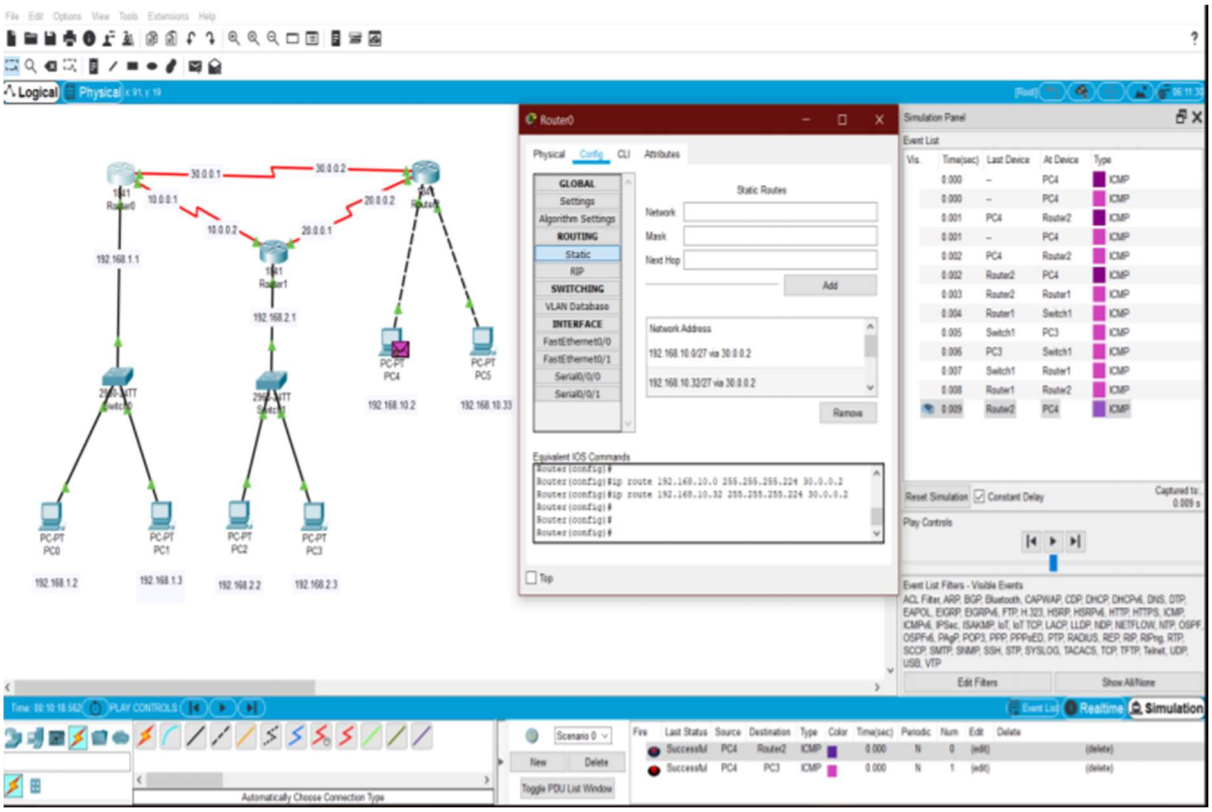
Experiment 6

AIM: Demonstration of RIP V1 with 3 Routers



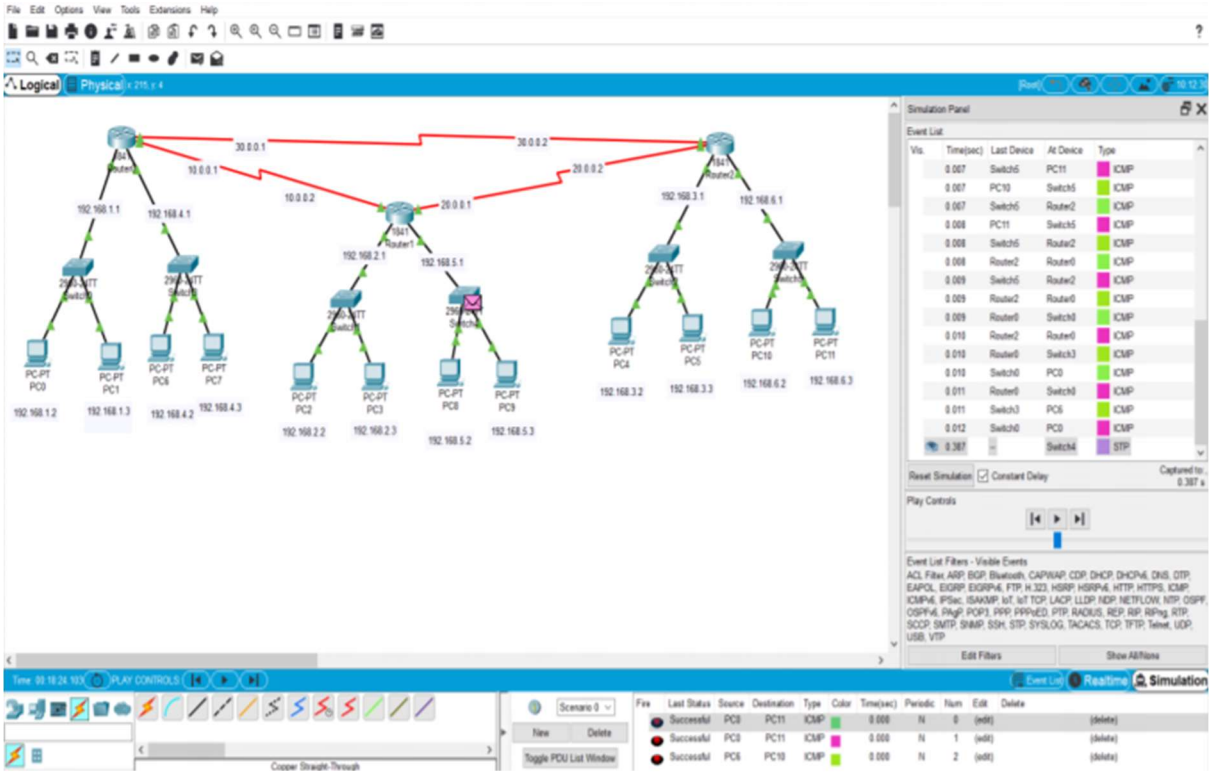


1. Assign any network with classless IP addressing and check what happens?

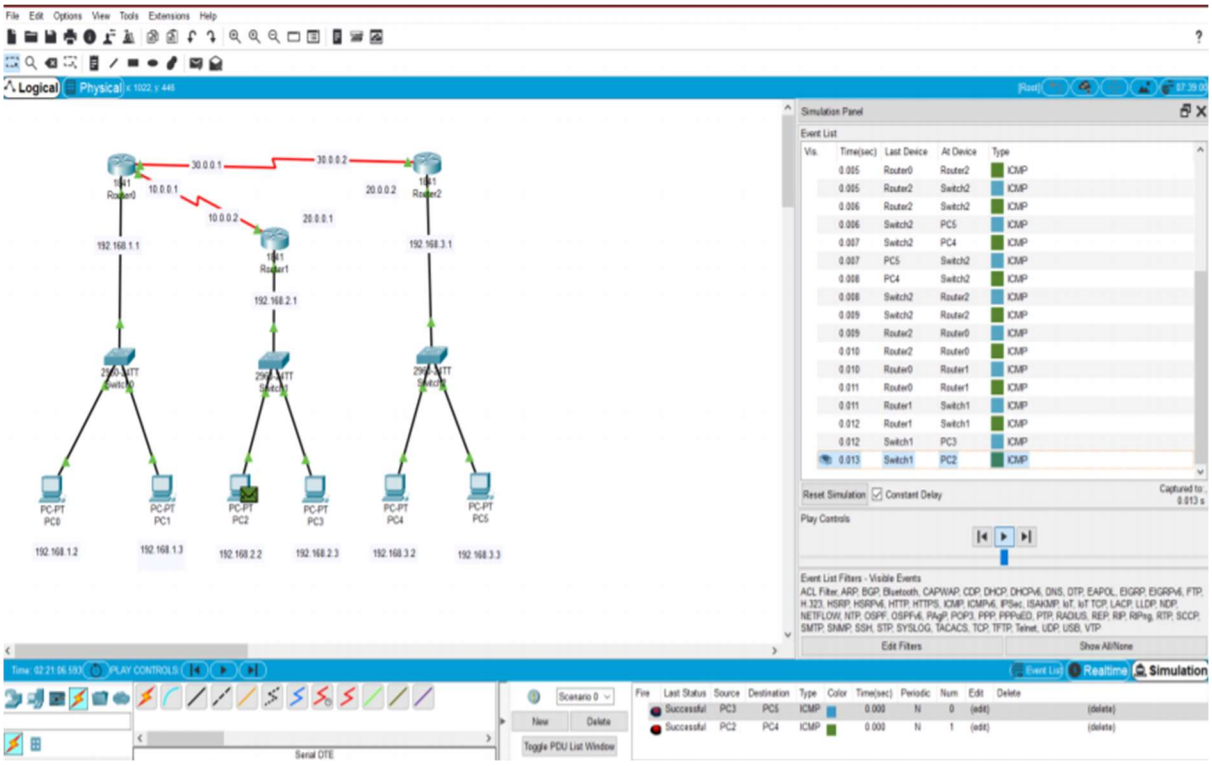


Yes, it's possible Assign any network with classless IP addressing and the PDU packets are being transferred successfully.

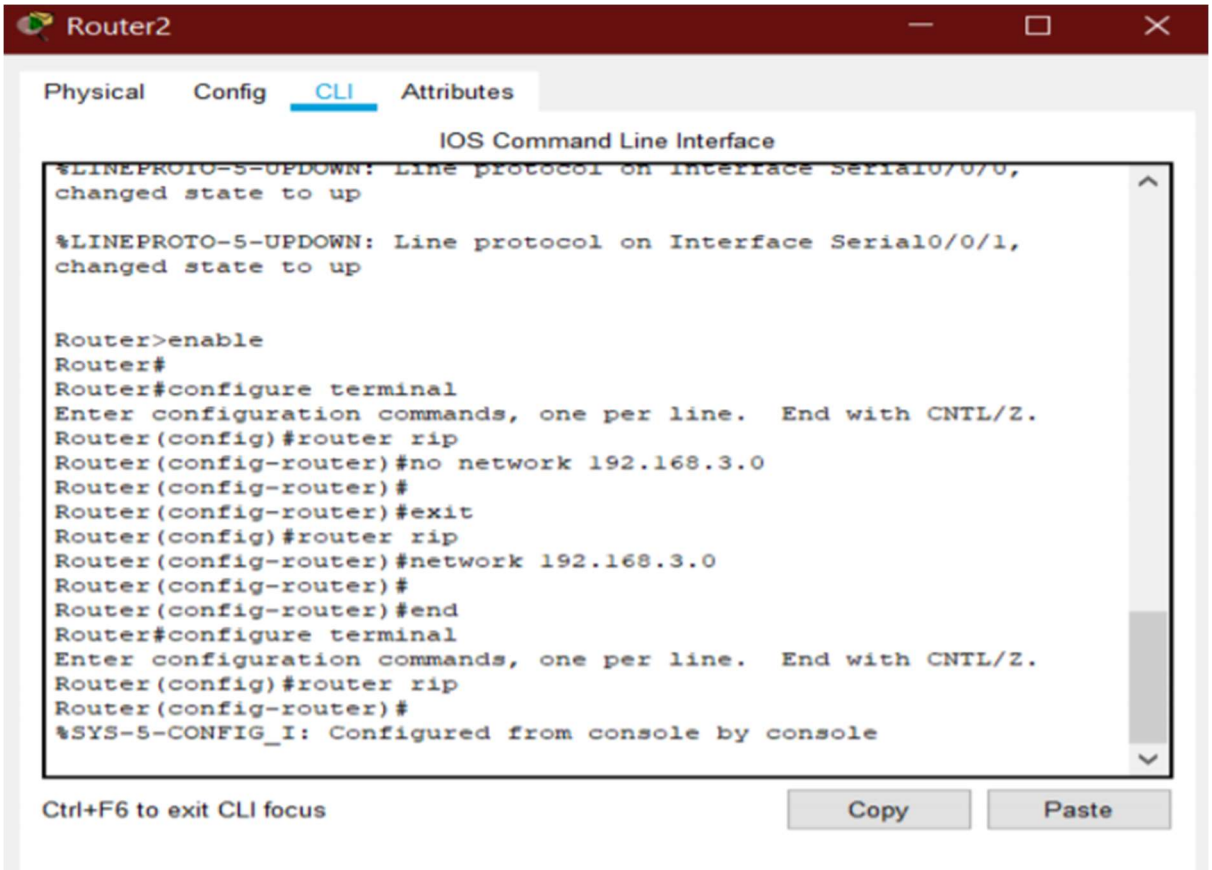
2. Create six different network and check its possible?

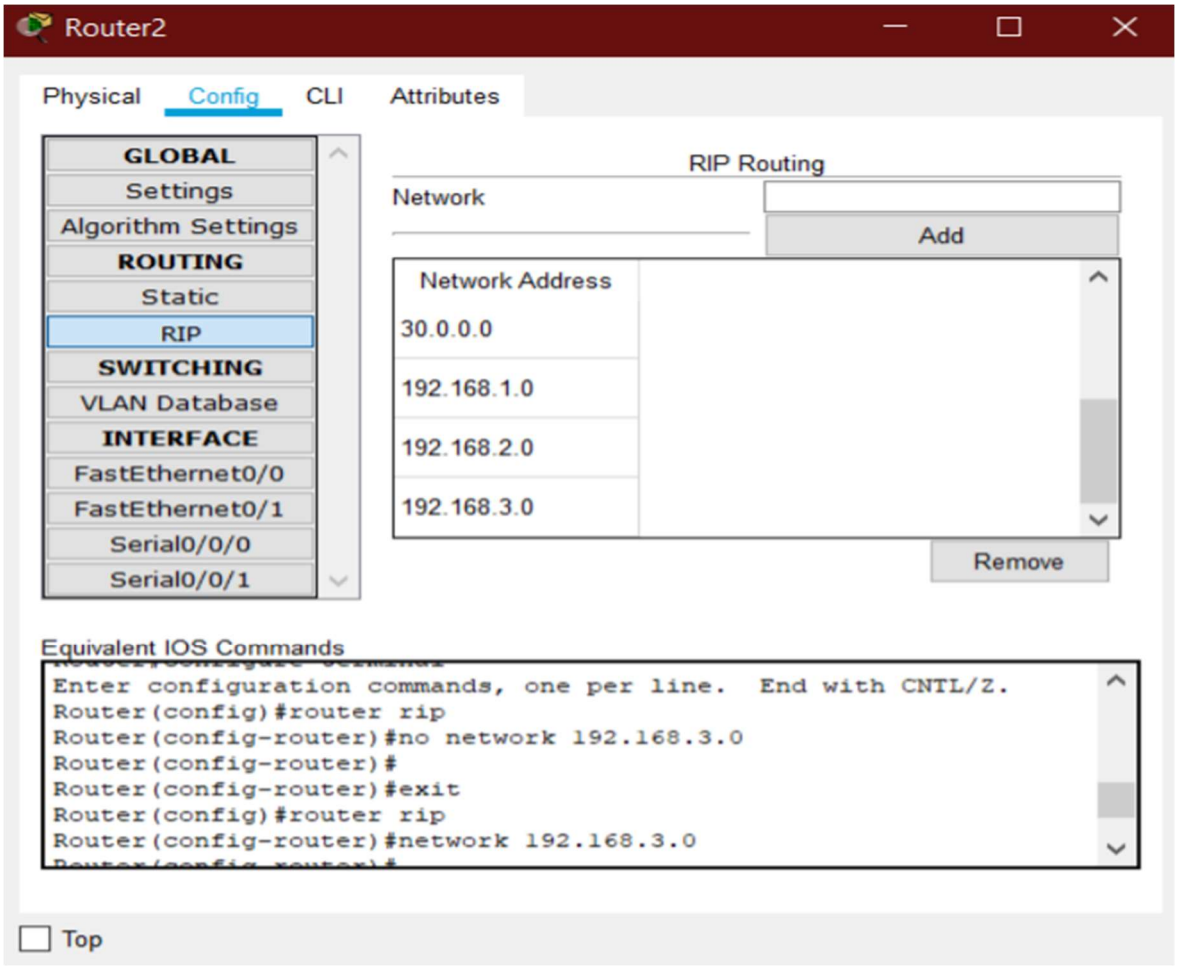


3. Disconnect any one serial connection between the router and check how the data flows?



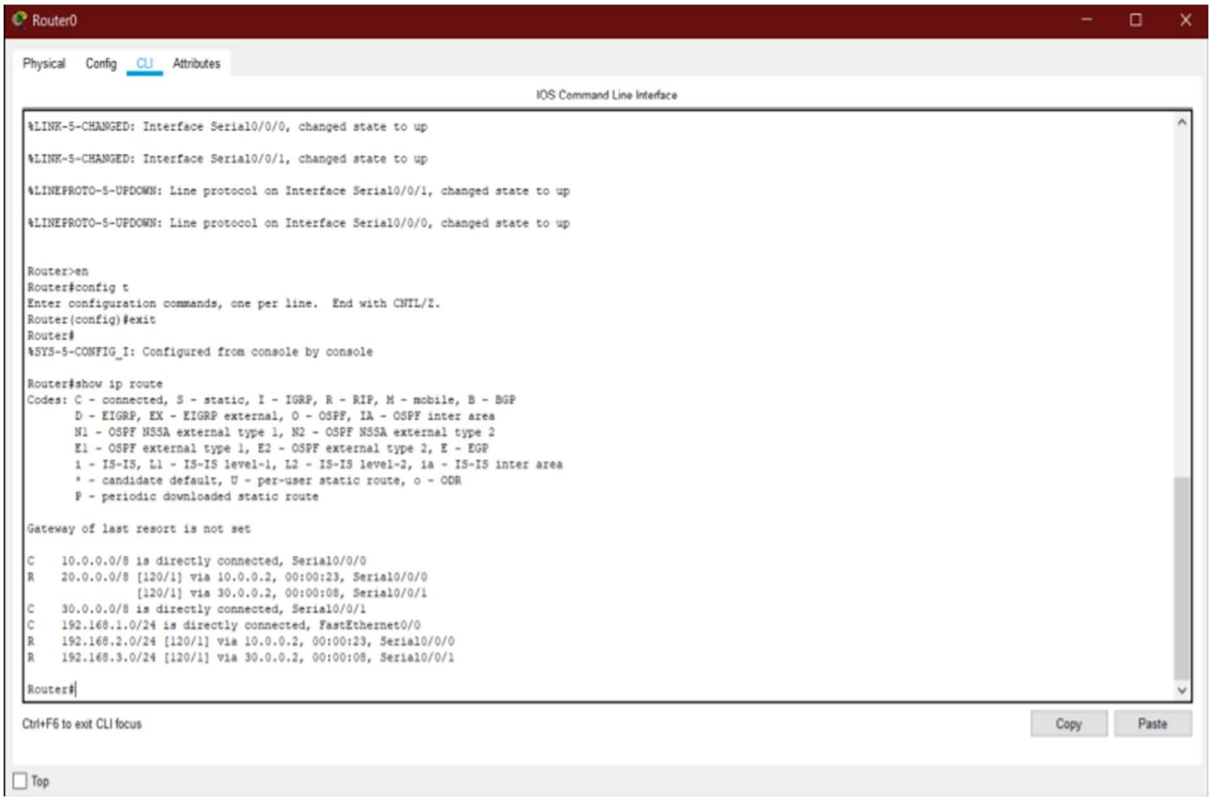
4. Configure RIP on the R2 router using the router rip and network commands.





5. Give the commands in each router 0,1, and 2 and comment on the output.

a. show ip route



Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up


Router>en
Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

C    10.0.0.0/8 is directly connected, Serial0/0/0
C    20.0.0.0/8 is directly connected, Serial0/0/1
R    30.0.0.0/8 [120/1] via 10.0.0.1, 00:00:25, Serial0/0/0
                [120/1] via 20.0.0.2, 00:00:12, Serial0/0/1
R    192.168.1.0/24 [120/1] via 10.0.0.1, 00:00:25, Serial0/0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/0
R    192.168.3.0/24 [120/1] via 20.0.0.2, 00:00:12, Serial0/0/1

Router#
```

Ctrl+F6 to exit CLI focus

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Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#
%SYS-5-CONFIG_I: Configured from console by console

Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

R    10.0.0.0/8 [120/1] via 20.0.0.1, 00:00:18, Serial0/0/0
                [120/1] via 30.0.0.1, 00:00:01, Serial0/0/1
C    20.0.0.0/8 is directly connected, Serial0/0/0
C    30.0.0.0/8 is directly connected, Serial0/0/1
R    192.168.1.0/24 [120/1] via 30.0.0.1, 00:00:01, Serial0/0/1
R    192.168.2.0/24 [120/1] via 20.0.0.1, 00:00:18, Serial0/0/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0

Router#
```

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b. show ip protocols

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
C    10.0.0.0/8 is directly connected, Serial0/0/0
R    20.0.0.0/8 [120/1] via 10.0.0.2, 00:00:23, Serial0/0/0
                [120/1] via 30.0.0.2, 00:00:08, Serial0/0/1
C    30.0.0.0/8 is directly connected, Serial0/0/1
C    192.168.1.0/24 is directly connected, FastEthernet0/0
R    192.168.2.0/24 [120/1] via 10.0.0.2, 00:00:23, Serial0/0/0
R    192.168.3.0/24 [120/1] via 30.0.0.2, 00:00:08, Serial0/0/1

Router#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 9 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 1, receive any version
  Interface             Send  Recv  Triggered RIP  Key-chain
  FastEthernet0/0       1     2 1
  Serial0/0/1           1     2 1
  Serial0/0/0           1     2 1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
          10.0.0.0
          20.0.0.0
          30.0.0.0
          192.168.1.0
          192.168.2.0
          192.168.3.0
Passive Interface(s):
Routing Information Sources:
 --More--
```

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Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
C    10.0.0.0/8 is directly connected, Serial0/0/0
C    20.0.0.0/8 is directly connected, Serial0/0/1
R    30.0.0.0/8 [120/1] via 10.0.0.1, 00:00:25, Serial0/0/0
                [120/1] via 20.0.0.2, 00:00:12, Serial0/0/1
R    192.168.1.0/24 [120/1] via 10.0.0.1, 00:00:25, Serial0/0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/0
R    192.168.3.0/24 [120/1] via 20.0.0.2, 00:00:12, Serial0/0/1

Router#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 6 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 1, receive any version
  Interface             Send  Recv  Triggered RIP  Key-chain
  FastEthernet0/0       1     2 1
  Serial0/0/1           1     2 1
  Serial0/0/0           1     2 1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
          10.0.0.0
          20.0.0.0
          30.0.0.0
          192.168.1.0
          192.168.2.0
          192.168.3.0
Passive Interface(s):
Routing Information Sources:
 --More--
```

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Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
C    20.0.0.0/8 is directly connected, Serial0/0/0
C    30.0.0.0/8 is directly connected, Serial0/0/1
R    192.168.1.0/24 [120/1] via 30.0.0.1, 00:00:01, Serial0/0/1
R    192.168.2.0/24 [120/1] via 20.0.0.1, 00:00:18, Serial0/0/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0

Router#show ip protocols
                ^
% Invalid input detected at '^' marker.

Router#show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 4 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 1, receive any version
  Interface             Send  Recv  Triggered RIP  Key-chain
  Serial0/0/0           1     2 1
  Serial0/0/1           1     2 1
  FastEthernet0/0       1     2 1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
          10.0.0.0
          20.0.0.0
          30.0.0.0
          192.168.1.0
          192.168.2.0
          192.168.3.0
Passive Interface(s):
Routing Information Sources:
 --More--
```

Ctrl+F6 to exit CLI focus

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6. Use the debug ip rip command to view the RIP messages being sent and received.

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router#debug ip rip
RIP protocol debugging is on
Router#RIP: received v1 update from 30.0.0.2 on Serial0/0/1
      20.0.0.0 in 1 hops
      192.168.2.0 in 2 hops
      192.168.3.0 in 1 hops

Router#RIP: sending  v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.1.1)
RIP: build update entries
      network 10.0.0.0 metric 1
      network 20.0.0.0 metric 2
      network 30.0.0.0 metric 1
      network 192.168.2.0 metric 2
      network 192.168.3.0 metric 2
RIP: sending  v1 update to 255.255.255.255 via Serial0/0/1 (30.0.0.1)
RIP: build update entries
      network 10.0.0.0 metric 1
      network 192.168.1.0 metric 1
      network 192.168.2.0 metric 2
RIP: sending  v1 update to 255.255.255.255 via Serial0/0/0 (10.0.0.1)
RIP: build update entries
      network 30.0.0.0 metric 1
      network 192.168.1.0 metric 1
      network 192.168.3.0 metric 2
RIP: received v1 update from 10.0.0.2 on Serial0/0/0
      20.0.0.0 in 1 hops
      192.168.2.0 in 1 hops
      192.168.3.0 in 2 hops
RIP: received v1 update from 30.0.0.2 on Serial0/0/1
      20.0.0.0 in 1 hops
      192.168.2.0 in 2 hops
      192.168.3.0 in 1 hops
RIP: sending  v1 update to 255.255.255.255 via FastEthernet0/0 (192.168.1.1)
RIP: build update entries
      network 10.0.0.0 metric 1
      network 20.0.0.0 metric 2
      network 30.0.0.0 metric 1
      network 192.168.2.0 metric 2
      network 192.168.3.0 metric 2
RIP: sending  v1 update to 255.255.255.255 via Serial0/0/1 (30.0.0.1)
RIP: build update entries
      network 10.0.0.0 metric 1
      network 192.168.1.0 metric 1
      network 192.168.2.0 metric 2
RIP: sending  v1 update to 255.255.255.255 via Serial0/0/0 (10.0.0.1)
RIP: build update entries
      network 30.0.0.0 metric 1
      network 192.168.1.0 metric 1
      network 192.168.3.0 metric 2
RIP: received v1 update from 10.0.0.2 on Serial0/0/0
      20.0.0.0 in 1 hops
```

Ctrl+F6 to exit CLI focus

7. Discontinue the debug output with the undebug all command

```
Router#undebug all
All possible debugging has been turned off
Router#
```

RESULT: Hence, demonstration of RIP V1 is verified using CISCO Packet Tracer.