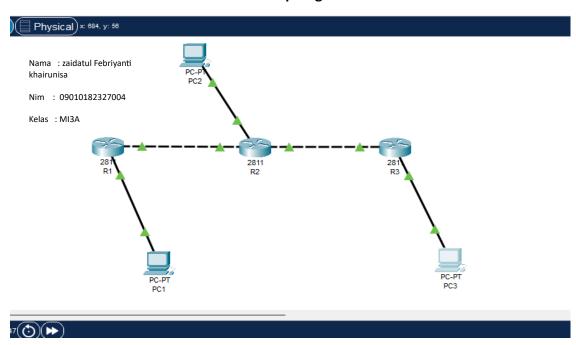
Nama : Zaidatul febriyanti Khairunisa

NIM : 09010182327004

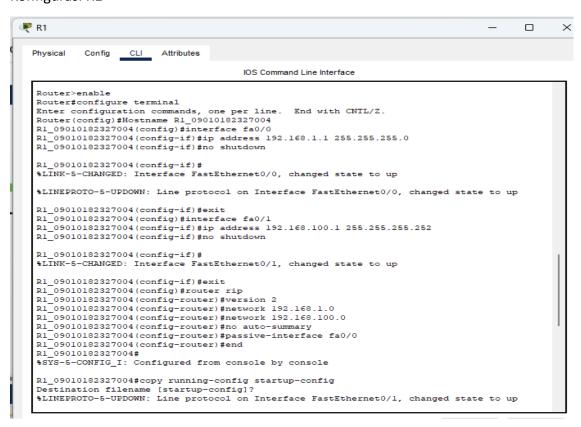
Kelas : MI3A

## Laprak Praktikum jarkom RIP & EIGRP Dynamic Routing

## **Topologi RIP**



## Konfigurasi R1



## Konfigurasi R2

```
₽ R2
                                                                                        \times
  Physical
           Config CLI Attributes
                                       IOS Command Line Interface
  Router>enable
  Router#configure terminal
  Enter configuration commands, one per line. End with CNTL/Z.
  Router(config) #Hostname R2 09010182327004
  R2_09010182327004(config)#interface fa0/0
  R2_09010182327004(config-if) #ip address 192.168.2.1 255.255.255.0
  R2_09010182327004(config-if)#no shutdown
  R2 09010182327004(config-if)#
  %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
  %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
  R2 09010182327004(config-if)#exit
  R2 09010182327004(config)#interface fa0/1
  R2_09010182327004(config-if)#ip address 192.168.100.2 255.255.255.252
  R2_09010182327004(config-if)#no shutdown
  R2 09010182327004(config-if)#
  %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
  %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
  R2 09010182327004(config-if)#exit
  R2_09010182327004(config)#interface fal/0
  R2_09010182327004(config-if)#ip address 192.168.200.1 255.255.255.252
  R2 09010182327004(config-if)#no shutdown
  R2_09010182327004(config-if)#
  %LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
  R2_09010182327004(config-if)#exit
  R2_09010182327004(config) #router rip
  R2_09010182327004(config-router) #version 2
  R2_09010182327004(config-router) #network 192.168.2.0
  R2_09010182327004(config-router) #network 192.168.100.0
```

```
R2_09010182327004(config-router)#network 192.168.200.0
R2_09010182327004(config-router)#no auto-summary
R2_09010182327004(config-router)#passive-interface fa0/0
R2_09010182327004(config-router)#end
R2_09010182327004#
%SYS-5-CONFIG_I: Configured from console by console

R2_09010182327004#copy running-config startup-config
Destination filename [startup-config]?
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
```

## Konfigurasi R3

```
₹ R3
                                                                                                                    \times
               Config CLI Attributes
   Physical
                                                     IOS Command Line Interface
    Router>enable
    Router#configure terminal
    Enter configuration commands, one per line. End with CNTL/Z.
   Enter configuration commands, one per line. End with CNTL/Z.

Router(config) #Hostname R3_09010182327004

R3_09010182327004(config) #interface fa0/0

R3_09010182327004(config-if) #ip address 192.168.3.1 255.255.255.0

R3_09010182327004(config-if) #no shutdown
    R3_09010182327004(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
    %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
    R3_09010182327004(config-if)#exit
   R3_09010182327004(config)#interface fa0/1
   R3_09010182327004(config-if) #ip address 192.168.200.2 255.255.252
R3_09010182327004(config-if) #no shutdown
    R3_09010182327004(config-if)#
    %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
    %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
   R3 09010182327004(config-if)#exit
    R3_09010182327004(config) #router rip
    R3_09010182327004(config-router) #version 2
   R3_09010182327004(config-router)#network 192.168.3.0
R3_09010182327004(config-router)#network 192.168.200.0
   R3_09010182327004(config-router)#no auto-summary
R3_09010182327004(config-router)#passive-interface fa0/0
   R3_09010182327004(config-router)#end
R3_09010182327004#
    %SYS-5-CONFIG_I: Configured from console by console
    R3_09010182327004#copy running-config startup-config
  Destination filename [startup-config]?
```

#### - Show ip route rip R1

```
R1_09010182327004#show ip route rip

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

R 192.168.2.0/24 [120/1] via 192.168.100.2, 00:00:25, FastEthernet0/1

R 192.168.3.0/24 [120/2] via 192.168.100.2, 00:00:25, FastEthernet0/1

192.168.200.0/30 is subnetted, 1 subnets

R 192.168.200.0 [120/1] via 192.168.100.2, 00:00:25, FastEthernet0/1

R1_09010182327004#
```

#### - Show ip route rip R2

```
R2_09010182327004#show ip route rip
R 192.168.1.0/24 [120/1] via 192.168.100.1, 00:00:22, FastEthernet0/1
192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
R 192.168.3.0/24 [120/1] via 192.168.200.2, 00:00:07, FastEthernet1/0
R2_09010182327004#
```

## - Show ip route rip R3

```
R3_09010182327004#show ip route rip

R 192.168.1.0/24 [120/2] via 192.168.200.1, 00:00:19, FastEthernet0/1

R 192.168.2.0/24 [120/1] via 192.168.200.1, 00:00:19, FastEthernet0/1

192.168.100.0/30 is subnetted, 1 subnets

R 192.168.100.0 [120/1] via 192.168.200.1, 00:00:19, FastEthernet0/1

R3_09010182327004#
```

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PC1	PC2	Ya	
		PC3	Ya	

2	DC2	PC1	Ya	
	PC2	PC3	Ya	

	DC3	PC1	Ya	
	PCS	PC2	Ya	

## Hasil Ping dari PC 1 ke PC2 dan 3

```
₹ PC1
                                                                                                                                                          _ _
                                                                                                                                                                                  \times
                     Config __Desktop__ Programming
    Physical
                                                                            Attributes
     Command Prompt
                                                                                                                                                                             Х
     Cisco Packet Tracer PC Command Line 1.0 C:\>ping 192.168.1.10
     Pinging 192.168.1.10 with 32 bytes of data:
     Reply from 192.168.1.10: bytes=32 time<1ms TTL=128 Reply from 192.168.1.10: bytes=32 time=33ms TTL=128 Reply from 192.168.1.10: bytes=32 time=37ms TTL=128
     Reply from 192.168.1.10: bytes=32 time=6ms TTL=128
     Ping statistics for 192.168.1.10:
     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 37ms, Average = 19ms
     C:\>ping 192.168.2.10
     Pinging 192.168.2.10 with 32 bytes of data:
     Request timed out.

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
     Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Request timed out.
Reply from 192.168.3.10: bytes=32 time=11ms TTL=125
Reply from 192.168.3.10: bytes=32 time=12ms TTL=125
Reply from 192.168.3.10: bytes=32 time=35ms TTL=125

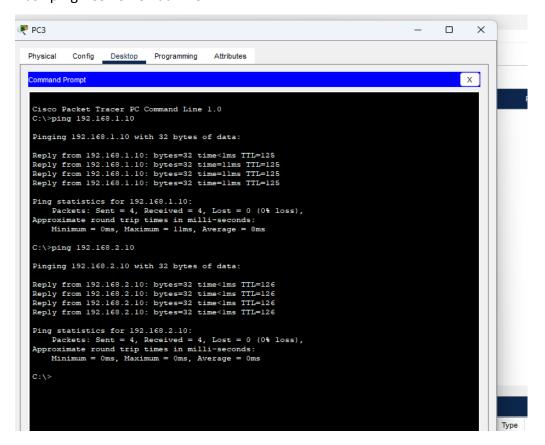
Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 11ms, Maximum = 35ms, Average = 19ms

C:\>
```

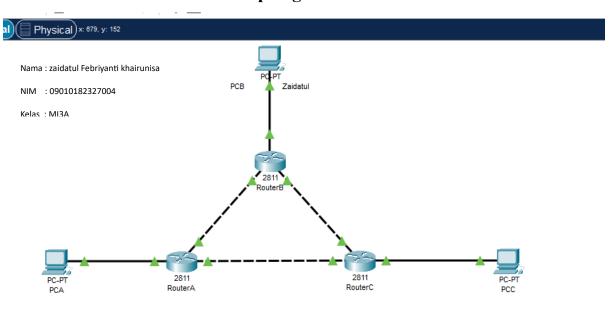
## Hasil Ping dari PC2 ke Pc1 dan PC 3

```
PC2
                    Desktop
  Physical
           Confia
                             Programming
                                           Attributes
  Command Prompt
  Reply from 192.168.2.10: bytes=32 time=15ms TTL=128 Reply from 192.168.2.10: bytes=32 time=32ms TTL=128
  Reply from 192.168.2.10: bytes=32 time=35ms TTL=128
   Reply from 192.168.2.10: bytes=32 time=32ms TTL=128
   Ping statistics for 192.168.2.10:
       Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
       Minimum = 15ms, Maximum = 35ms, Average = 28ms
  C:\>ping 192.168.1.10
  Pinging 192.168.1.10 with 32 bytes of data:
  Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
  Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
   Reply from 192.168.1.10: bytes=32 time<lms TTL=126
  Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
  Ping statistics for 192.168.1.10:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:
       Minimum = 0ms, Maximum = 0ms, Average = 0ms
   C:\>ping 192.168.3.10
   Pinging 192.168.3.10 with 32 bytes of data:
```

#### Hasil ping PC3 ke PC1 dan PC2



# Topologi EIGRP



3:34 (5)

Konfigurasi router A

```
🧗 RouterA
                                                                                     ×
 Physical
          Config CLI Attributes
                                      IOS Command Line Interface
  Router>enable
  Router#configure terminal
  Enter configuration commands, one per line. End with CNTL/Z.
  Router(config) #Hostname RA 09010182327004
  RA_09010182327004(config)#interface fa0/0
  RA_09010182327004(config-if) #ip address 192.168.1.1 255.255.255.0
  RA_09010182327004(config-if)#no shutdown
  RA_09010182327004(config-if)#
  %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
  %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
  RA_09010182327004(config-if)#exit
  RA 09010182327004(config)#interface fal/0
  RA_09010182327004(config-if) #ip address 100.100.100.1 255.255.255.252
  RA 09010182327004(config-if) #no shutdown
  RA_09010182327004(config-if)#
  %LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
  RA_09010182327004(config-if)#exit
  RA_09010182327004(config)#interface fa0/1
  RA_09010182327004(config-if)#ip address 100.100.100.5 255.255.255.252
  RA_09010182327004(config-if)#no shutdown
  RA_09010182327004(config-if)#
  %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
  RA 09010182327004(config-if)#exit
  RA_09010182327004(config)#eigrp 1
  % Invalid input detected at '^' marker.
  RA_09010182327004(config) #router eigrp 1
 RA 09010182327004(config-router) #network 192.168.1.0 0.0.0.255
```

```
RA_09010182327004(config-router) #network 192.168.1.0 0.0.0.255
RA_09010182327004(config-router) #network 100.100.100.0 0.0.0.3
RA_09010182327004(config-router) #network 100.100.100.4 0.0.0.3
RA_09010182327004(config-router) #no auto-summary
RA_09010182327004(config-router) #exit
RA_09010182327004(config) #exit
RA_09010182327004#
%SYS-5-CONFIG_I: Configured from console by console
RA_09010182327004#copy runnig-config startup-config
% Invalid input detected at '^' marker.

RA_09010182327004#copy running-config startup-config
Destination filename [startup-config]?
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 100.100.100.6 (FastEthernet0/1) is up: new adjacency
```

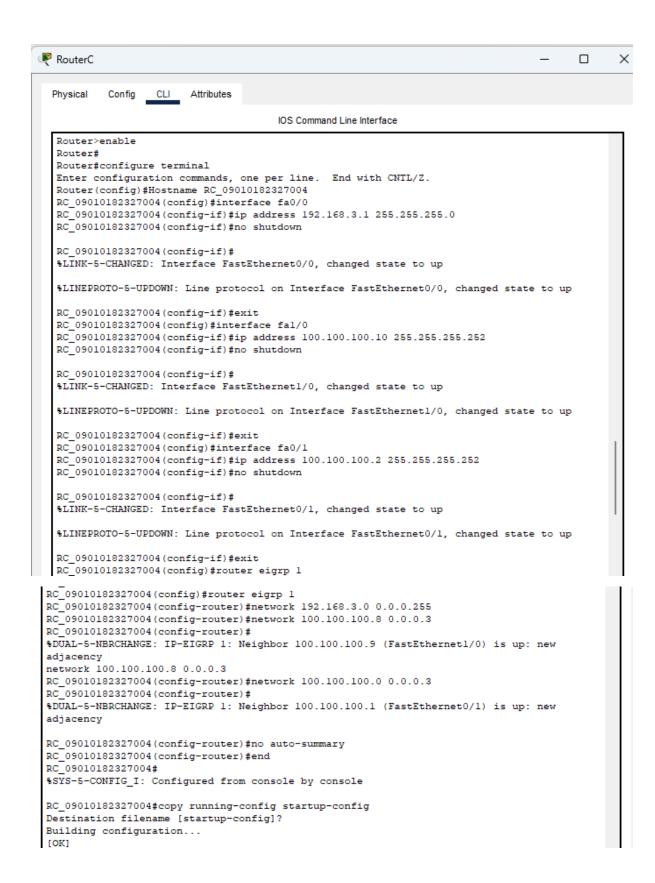
### Konfigurasi router B

```
RouterB
                                                                                      X
          Config CLI Attributes
  Physical
                                       IOS Command Line Interface
   Router>enable
   Router#configure terminal
   Enter configuration commands, one per line. End with CNTL/Z.
   Router(config) #Hostname RB 09010182327004
   RB 09010182327004(config)#interface fa0/0
   RB_09010182327004(config-if)#ip address 192.168.2.1 255.255.255.0
   RB 09010182327004(config-if)#no shutdown
   RB_09010182327004(config-if)#
   %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
   %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
   RB_09010182327004(config-if)#exit
   RB 09010182327004(config)#interface fal/0
   RB_09010182327004(config-if) #ip address 100.100.100.6 255.255.255.252
   RB_09010182327004(config-if)#no shutdown
   RB_09010182327004(config-if)#
   %LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
   LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
   RB 09010182327004(config-if)#exit
   RB 09010182327004(config)#interface fa0/1
   RB_09010182327004(config-if)#ip address 100.100.100.9 255.255.255.252
   RB 09010182327004(config-if)#no shutdown
   RB 09010182327004(config-if)#
   %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
   RB_09010182327004(config-if)#exit
   RB 09010182327004(config) #router eigrp 1
   RB_09010182327004(config-router)#192.168.2.0 0.0.0.255
   % Invalid input detected at '^' marker.
RB_09010182327004(config-router) #network 192.168.2.0 0.0.0.255
RB 09010182327004(config-router) #network 100.100.100.4 0.0.0.3
RB 09010182327004(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 100.100.100.5 (FastEthernet1/0) is up: new
adiacency
RB_09010182327004(config-router) #network 100.100.100.8 0.0.0.3
RB_09010182327004(config-router)#no auto-summary
RB_09010182327004(config-router)#exit
RB_09010182327004(config) #copy running-config startup-config
% Invalid input detected at '^' marker.
RB_09010182327004(config)#exit
RB_09010182327004#
%SYS-5-CONFIG_I: Configured from console by console
RB_09010182327004#copy running-config startup-config
```

[OK]

Building configuration...

Destination filename [startup-config]?



```
RA_09010182327004 show ip route eigrp

100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks

D 100.100.100.8/30 [90/30720] via 100.100.100.6, 00:04:35, FastEthernet0/1

[90/30720] via 100.100.100.2, 00:01:41, FastEthernet1/0

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

D 192.168.2.0/24 [90/30720] via 100.100.100.6, 00:11:11, FastEthernet0/1

D 192.168.3.0/24 [90/30720] via 100.100.100.2, 00:01:41, FastEthernet1/0

RA_09010182327004#
```

#### Show ip route rip Router B

## Show ip route rip Router C

```
RC_09010182327004 show ip route eigrp

100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks

D 100.100.100.4/30 [90/30720] via 100.100.100.9, 00:01:24, FastEthernet1/0

[90/30720] via 100.100.100.1, 00:01:05, FastEthernet0/1

D 192.168.1.0/24 [90/30720] via 100.100.100.1, 00:01:05, FastEthernet0/1

D 192.168.2.0/24 [90/30720] via 100.100.100.9, 00:01:24, FastEthernet1/0
```

## Ping

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PCA	PCB	Ya	
		PCC	Ya	

2	DCD	PCA	Ya	
	PCB	PCC	Ya	

2 [	DCC	PCA	Ya	
3	PCC	PCB	Ya	

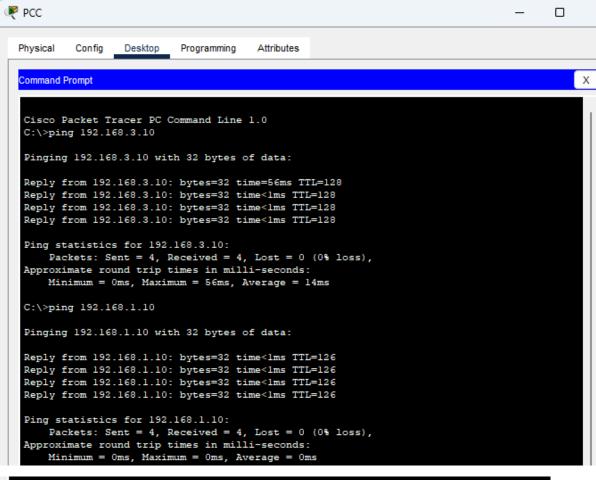
Hasil ping dari router A ke B dan C

```
PCA
                                                                                              ×
  Physical
           Config
                    Desktop
                             Programming
                                           Attributes
  Command Prompt
                                                                                                  X
  Cisco Packet Tracer PC Command Line 1.0 C:\>ping 192.168.1.10
   Pinging 192.168.1.10 with 32 bytes of data:
  Reply from 192.168.1.10: bytes=32 time=38ms TTL=128
  Reply from 192.168.1.10: bytes=32 time=45ms TTL=128
  Reply from 192.168.1.10: bytes=32 time=3ms TTL=128
   Reply from 192.168.1.10: bytes=32 time=51ms TTL=128
  Ping statistics for 192.168.1.10:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:
       Minimum = 3ms, Maximum = 5lms, Average = 34ms
  C:\>ping 192.168.2.10
  Pinging 192.168.2.10 with 32 bytes of data:
  Request timed out.
  Reply from 192.168.2.10: bytes=32 time=11ms TTL=126
   Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
  Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
  Ping statistics for 192.168.2.10:
  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss), Approximate round trip times in milli-seconds:
       Minimum = Oms, Maximum = 11ms, Average = 3ms
  C:\>ping 192.168.3.10
  Pinging 192.168.3.10 with 32 bytes of data:
  Request timed out.
  Reply from 192.168.3.10: bytes=32 time<lms TTL=126
   Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
   Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
 Ping statistics for 192.168.3.10:
     Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
     Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
₱ PCB

                                                                                   _ _
                                                                                                ×
  Physical
           Config
                   Desktop
                           Programming
                                         Attributes
  Command Prompt
                                                                                             Х
  Cisco Packet Tracer PC Command Line 1.0
  C:\>ping 192.168.2.10
  Pinging 192.168.2.10 with 32 bytes of data:
  Reply from 192.168.2.10: bytes=32 time<1ms TTL=128 Reply from 192.168.2.10: bytes=32 time=57ms TTL=128
  Reply from 192.168.2.10: bytes=32 time=1ms TTL=128
   Reply from 192.168.2.10: bytes=32 time=1ms TTL=128
  Ping statistics for 192.168.2.10:
       Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
      Minimum = 0ms, Maximum = 57ms, Average = 14ms
  C:\>ping 192.168.1.10
  Pinging 192.168.1.10 with 32 bytes of data:
  Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
  Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
   Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
  Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
  Ping statistics for 192.168.1.10:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds:
      Minimum = Oms, Maximum = Oms, Average = Oms
  C:\>ping 192.168.3.10
  Pinging 192.168.3.10 with 32 bytes of data:
  Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
  Ping statistics for 192.168.3.10:
       Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
       Minimum = 0ms, Maximum = 0ms, Average = 0ms
  C:\>
```

Hasil ping dari PCC ke PCA dan PCB



```
C:\>ping 192.168.2.10
Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<lms TTL=126
Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms</pre>
C:\>
```

## Penjelasan Hasil Praktikum

Pada praktikum ini, dilakukan konfigurasi routing menggunakan dua protokol dinamis, yaitu Routing Information Protocol (RIP) dan Enhanced Interior Gateway Routing Protocol (EIGRP). Praktikum dimulai dengan membuat topologi jaringan sesuai diagram pada modul, di mana setiap router dikonfigurasi IP Address pada antarmuka yang berbeda. Pengujian koneksi dilakukan menggunakan perintah ping dan traceroute untuk memverifikasi konektivitas antar perangkat di jaringan.

- 1. **RIP Configuration:** Router R1, R2, dan R3 dikonfigurasi dengan protokol RIP versi 2 untuk memungkinkan pembagian informasi routing secara dinamis. Setelah konfigurasi, hasil perintah show ip route rip menunjukkan tabel routing yang dihasilkan oleh protokol RIP di setiap router.
- 2. **EIGRP Configuration:** Topologi diubah untuk konfigurasi EIGRP antara RouterA, RouterB, dan RouterC. Protokol EIGRP memungkinkan penggunaan nomor Autonomous System (AS) dan lebih efisien dibanding RIP dalam pembagian informasi routing.

#### **Analisis**

Praktikum ini menunjukkan perbandingan antara RIP dan EIGRP dalam hal konfigurasi, fleksibilitas, dan efisiensi dalam pembagian informasi routing:

- RIP terbatas pada jarak maksimum (hops), sehingga kurang cocok untuk jaringan skala besar. RIP melakukan update routing secara periodik, menyebabkan potensi penggunaan bandwidth lebih besar.
- **EIGRP** lebih efisien karena hanya mengirimkan perubahan topologi, bukan update penuh, yang membantu mengurangi penggunaan bandwidth. EIGRP juga menggunakan metrik yang lebih kompleks (bandwidth dan delay), memberikan kontrol routing yang lebih baik di jaringan besar.

#### Kesimpulan

Praktikum ini memberikan pemahaman tentang penggunaan dan konfigurasi RIP dan EIGRP. RIP sederhana namun memiliki keterbatasan untuk jaringan besar, sedangkan EIGRP lebih cocok untuk jaringan besar dengan efisiensi yang lebih tinggi. EIGRP mampu menjaga stabilitas jaringan dengan lebih baik karena hanya mengirimkan pembaruan jika ada perubahan topologi.