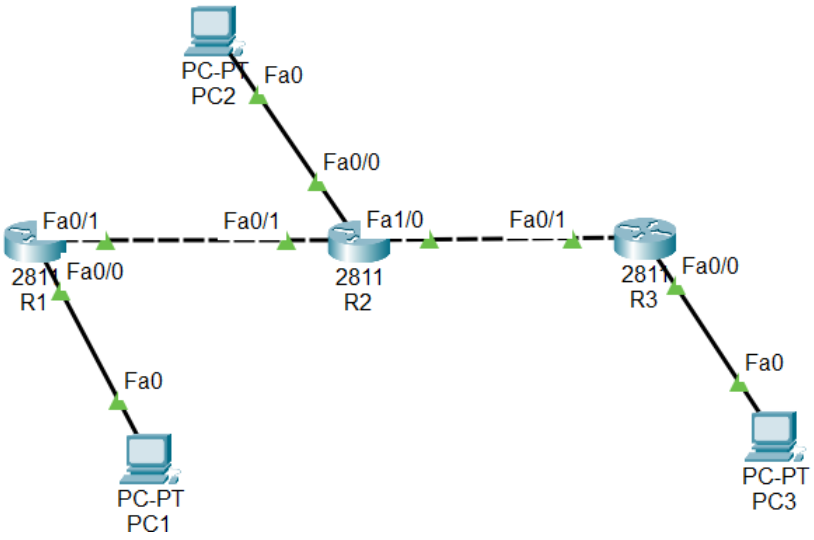
Nama : Bunga Ananda
NIM : 09010282327020
Kelas : MI3A
MK : Praktikum Jaringan Komputer

RIP & EIGRP Dynamic Routing

RIP

SS Topologi Routing RIP

NAMA : Bunga Ananda
NIM : 09010282327020
Kelas : MI3A



SS hasil perintah #show ip route RIP dari setiap router.

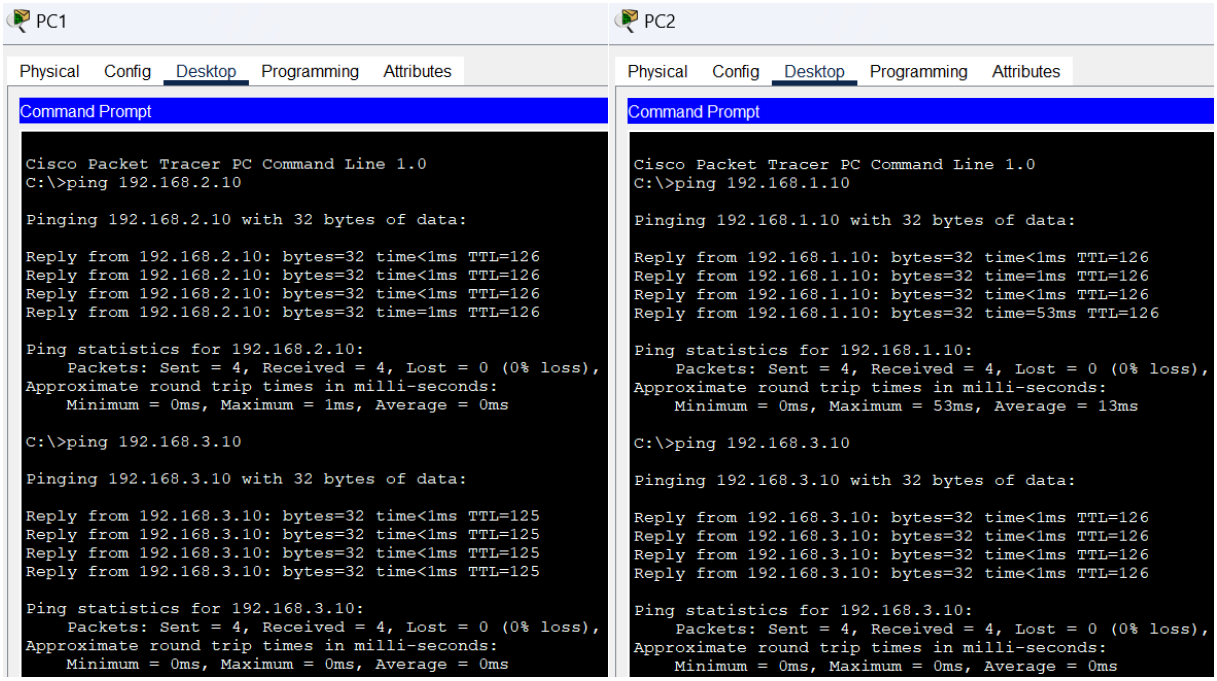
```
RI_09010282327020>show ip route rip
     192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
R    192.168.2.0/24 [120/1] via 192.168.100.2, 00:00:19, FastEthernet0/1
R    192.168.3.0/24 [120/2] via 192.168.100.2, 00:00:19, FastEthernet0/1
     192.168.200.0/30 is subnetted, 1 subnets
R       192.168.200.0 [120/1] via 192.168.100.2, 00:00:19, FastEthernet0/1
```

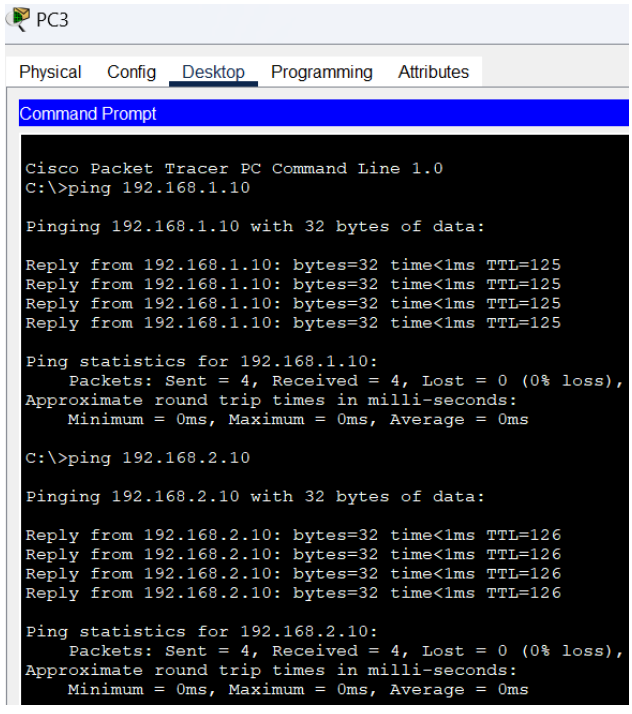
```
R2_09010282327020#show ip route rip
R    192.168.1.0/24 [120/1] via 192.168.100.1, 00:00:03, FastEthernet0/1
     192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
R    192.168.3.0/24 [120/1] via 192.168.200.2, 00:00:08, FastEthernet1/0
```

```
R3_09010282327020#show ip route rip
R    192.168.1.0/24 [120/2] via 192.168.200.1, 00:00:07, FastEthernet0/1
R    192.168.2.0/24 [120/1] via 192.168.200.1, 00:00:07, FastEthernet0/1
     192.168.100.0/30 is subnetted, 1 subnets
R       192.168.100.0 [120/1] via 192.168.200.1, 00:00:07, FastEthernet0/1
```

❖ Tabel hasil Ping

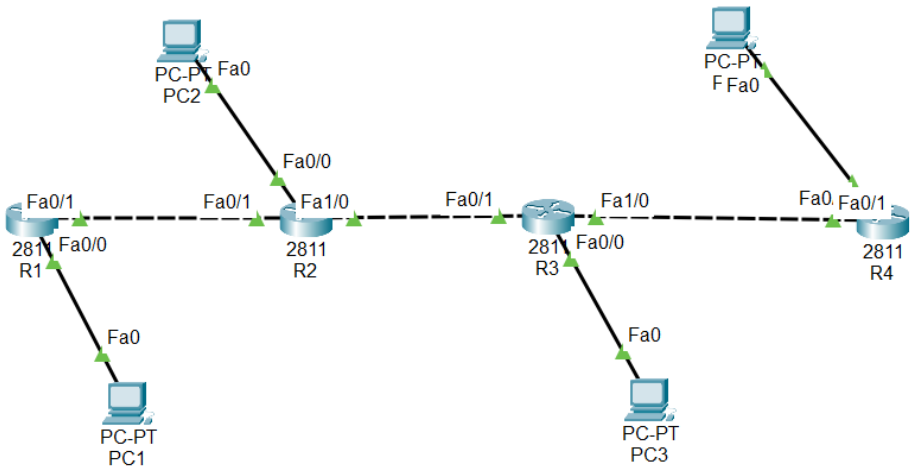
No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PC1	PC2	Ya	
		PC3	Ya	
2	PC2	PC1	Ya	
		PC3	Ya	
3	PC3	PC1	Ya	
		PC2	Ya	





Setelah ditambah Router4 :

NAMA : Bunga Ananda
NIM : 09010282327020
Kelas : MI3A



SS hasil perintah #show ip route RIP dari R4 :

```
R4_09010282327020>enable
R4_09010282327020#show ip route rip
R    192.168.1.0/24 [120/3] via 192.168.220.2, 00:00:16, FastEthernet0/1
R    192.168.2.0/24 [120/2] via 192.168.220.2, 00:00:16, FastEthernet0/1
R    192.168.3.0/24 [120/1] via 192.168.220.2, 00:00:16, FastEthernet0/1
     192.168.100.0/30 is subnetted, 1 subnets
R       192.168.100.0 [120/2] via 192.168.220.2, 00:00:16, FastEthernet0/1
     192.168.200.0/30 is subnetted, 1 subnets
R       192.168.200.0 [120/1] via 192.168.220.2, 00:00:16, FastEthernet0/1
```

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PC1	PC2	Ya	
		PC3	Ya	
		PC4	Ya	
2	PC2	PC1	Ya	
		PC3	Ya	
		PC4	Ya	
3	PC3	PC1	Ya	
		PC2	Ya	
		PC4	Ya	
4	PC4	PC1	Ya	
		PC2	Ya	
		PC3	Ya	

PC1

Physical Config Desktop Programming Attributes

Command Prompt

```
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=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
Reply from 192.168.2.10: bytes=32 time<1ms 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

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=125
Reply from 192.168.3.10: bytes=32 time=1ms TTL=125
Reply from 192.168.3.10: bytes=32 time<1ms TTL=125
Reply from 192.168.3.10: bytes=32 time<1ms TTL=125

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 = 1ms, Average = 0ms

C:\>ping 192.168.4.10

Pinging 192.168.4.10 with 32 bytes of data:

Reply from 192.168.4.10: bytes=32 time=15ms TTL=124
Reply from 192.168.4.10: bytes=32 time<1ms TTL=124
Reply from 192.168.4.10: bytes=32 time<1ms TTL=124
Reply from 192.168.4.10: bytes=32 time<1ms TTL=124

Ping statistics for 192.168.4.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 15ms, Average = 3ms
```

PC2

Physical Config Desktop Programming Attributes

Command Prompt

```
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=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 = 0ms, Maximum = 1ms, Average = 0ms

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
Reply from 192.168.3.10: bytes=32 time=1ms 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 = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.4.10

Pinging 192.168.4.10 with 32 bytes of data:

Reply from 192.168.4.10: bytes=32 time=8ms TTL=125
Reply from 192.168.4.10: bytes=32 time<1ms TTL=125
Reply from 192.168.4.10: bytes=32 time<1ms TTL=125
Reply from 192.168.4.10: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.4.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 8ms, Average = 2ms
```

PC3

Physical Config Desktop Programming Attributes

Command Prompt

```
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=125
Reply from 192.168.1.10: bytes=32 time=14ms TTL=125
Reply from 192.168.1.10: bytes=32 time<1ms TTL=125
Reply from 192.168.1.10: bytes=32 time=1ms TTL=125

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 = 14ms, Average = 3ms

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

C:\>ping 192.168.4.10

Pinging 192.168.4.10 with 32 bytes of data:

Reply from 192.168.4.10: bytes=32 time=1ms TTL=126
Reply from 192.168.4.10: bytes=32 time=1ms TTL=126
Reply from 192.168.4.10: bytes=32 time<1ms TTL=126
Reply from 192.168.4.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.4.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

PC4

Physical Config Desktop Programming Attributes

Command Prompt

```
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=9ms TTL=124
Reply from 192.168.1.10: bytes=32 time<1ms TTL=124
Reply from 192.168.1.10: bytes=32 time<1ms TTL=124
Reply from 192.168.1.10: bytes=32 time<1ms TTL=124

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 = 9ms, Average = 2ms

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=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125

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

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
Reply from 192.168.3.10: bytes=32 time<1ms 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 = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

❖ Hasil Praktikum

Hasil pengujian menunjukkan bahwa seluruh perangkat PC mampu melakukan koneksi antar-satu sama lain tanpa hambatan. Hal ini menunjukkan bahwa konfigurasi protokol RIP berfungsi sesuai harapan, dengan setiap router berhasil menerima dan mengolah informasi routing yang diterima dari router tetangganya.

❖ Analisis

1. **Implementasi RIP dan Metode Distance-Vector Routing**

   Protokol RIP menggunakan metode distance-vector routing yang melakukan pembaruan routing secara otomatis setiap 30 detik. Metode ini memungkinkan setiap router untuk memperbarui dan berbagi informasi jalur yang diperolehnya, sehingga setiap router dapat mengakses rute ke seluruh perangkat lainnya dalam jaringan tanpa perlu pengaturan manual pada setiap jalur.

2. **Efektivitas Distribusi Routing pada Jaringan Sederhana**

   Dalam topologi sederhana ini, RIP terbukti mampu mendistribusikan informasi routing dengan efisien. Setiap router dapat memahami dan menyimpan rute menuju seluruh perangkat lain dalam jaringan, sehingga menghemat waktu konfigurasi dan mempercepat proses pengiriman data.

3. **Penambahan Perangkat Baru ke Jaringan**

   Kami juga melakukan simulasi penambahan perangkat baru (R4 dan PC4) ke dalam topologi jaringan. Router R3 dikonfigurasi ulang agar dapat berkomunikasi dengan R4, dan RIP secara otomatis memperbarui informasi routing untuk mengakomodasi penambahan perangkat baru ini. Hasil pengujian PING dan Traceroute antara PC4 dan perangkat lainnya menunjukkan bahwa protokol RIP mampu mengelola perubahan topologi jaringan secara otomatis tanpa gangguan pada konektivitas yang sudah ada.

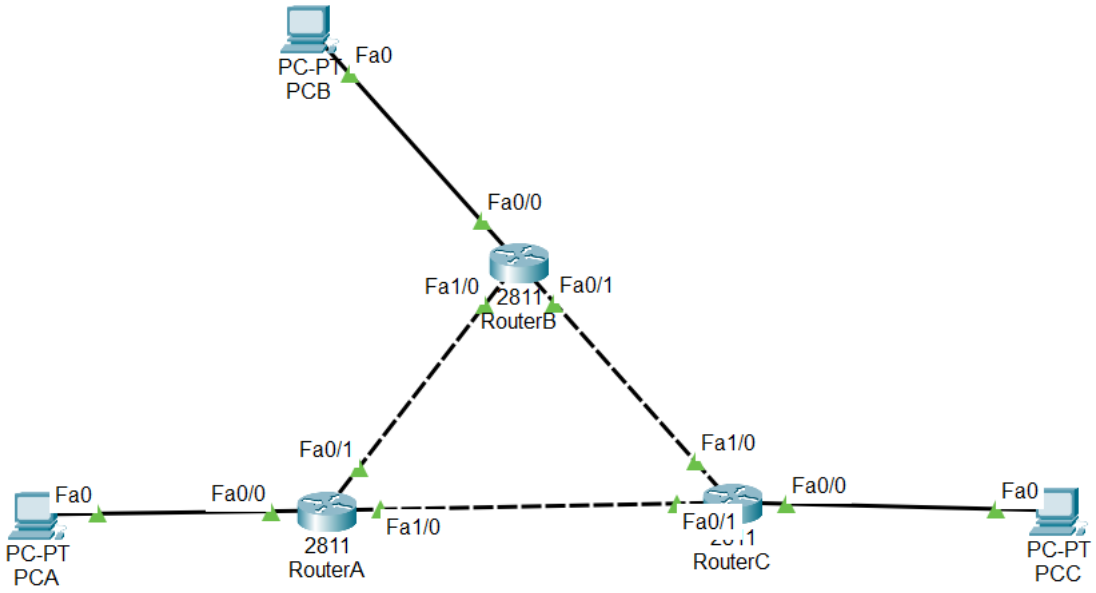
❖ Kesimpulan

Praktikum ini memberikan pemahaman mendalam tentang cara kerja protokol RIP dalam mendistribusikan informasi routing di dalam jaringan secara dinamis. Dengan menggunakan RIP, jaringan menjadi lebih fleksibel, memungkinkan administrator jaringan untuk menambah atau mengurangi perangkat tanpa perlu banyak perubahan konfigurasi manual. Hasil pengujian menunjukkan bahwa RIP merupakan pilihan protokol routing yang efisien dan andal untuk jaringan dengan skala kecil hingga menengah.

EIGRP

SS Topologi Routing EIGRP

Nama : Bunga Ananda
NIM : 09010282327020
Kelas : MI3A



SS hasil perintah #show ip route EIGRP dari setiap router.

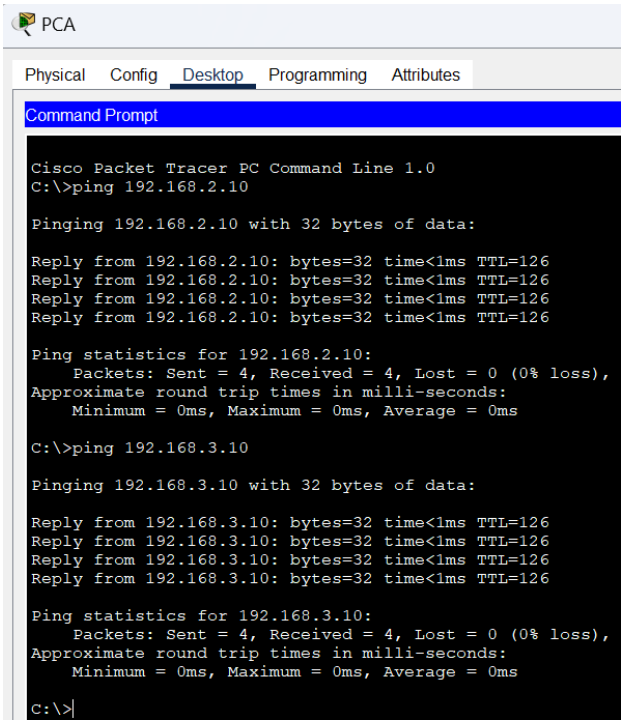
A.
```
RouterA_09010282327020>show ip route eigrp
     100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D       100.100.100.8/30 [90/30720] via 100.100.100.6, 00:01:42, FastEthernet0/1
                         [90/30720] via 100.100.100.2, 00:01:42, FastEthernet1/0
     192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
D    192.168.2.0/24 [90/30720] via 100.100.100.6, 00:01:42, FastEthernet0/1
D    192.168.3.0/24 [90/30720] via 100.100.100.2, 00:01:42, FastEthernet1/0
```

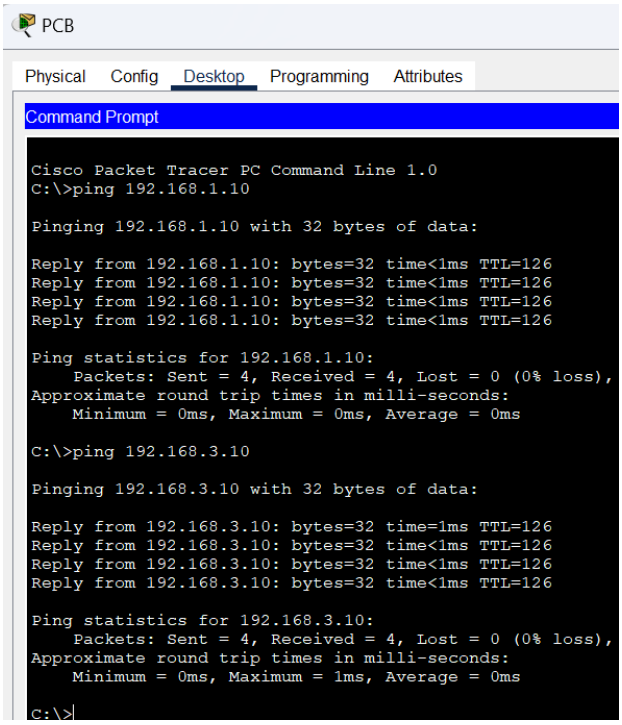
B.
```
RouterB_09010282327020>show ip route eigrp
     100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D       100.100.100.0/30 [90/30720] via 100.100.100.5, 00:03:58, FastEthernet1/0
                         [90/30720] via 100.100.100.10, 00:03:58, FastEthernet0/1
D    192.168.1.0/24 [90/30720] via 100.100.100.5, 00:03:58, FastEthernet1/0
     192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
D    192.168.3.0/24 [90/30720] via 100.100.100.10, 00:03:58, FastEthernet0/1
```

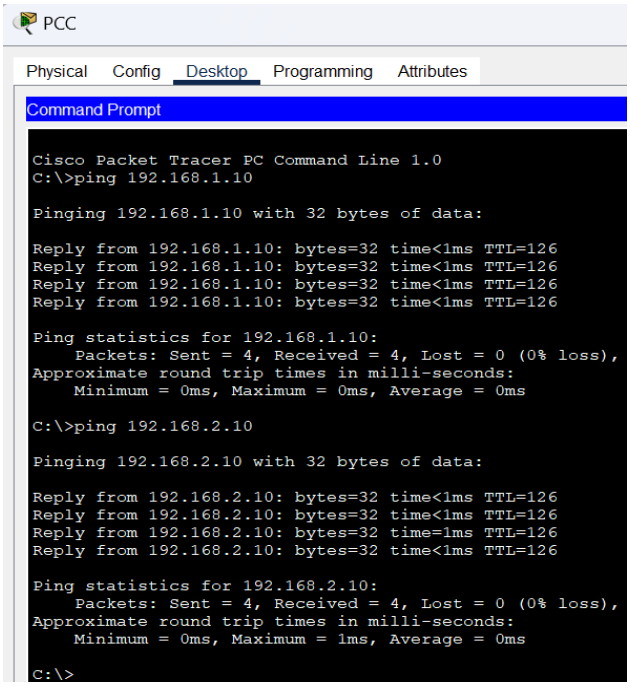
C.
```
RouterC_09010282327020>show ip route eigrp
     100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D       100.100.100.4/30 [90/30720] via 100.100.100.9, 00:04:59, FastEthernet1/0
                         [90/30720] via 100.100.100.1, 00:04:59, FastEthernet0/1
D    192.168.1.0/24 [90/30720] via 100.100.100.1, 00:04:59, FastEthernet0/1
D    192.168.2.0/24 [90/30720] via 100.100.100.9, 00:04:59, FastEthernet1/0
```

❖ Tabel hasil Ping

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

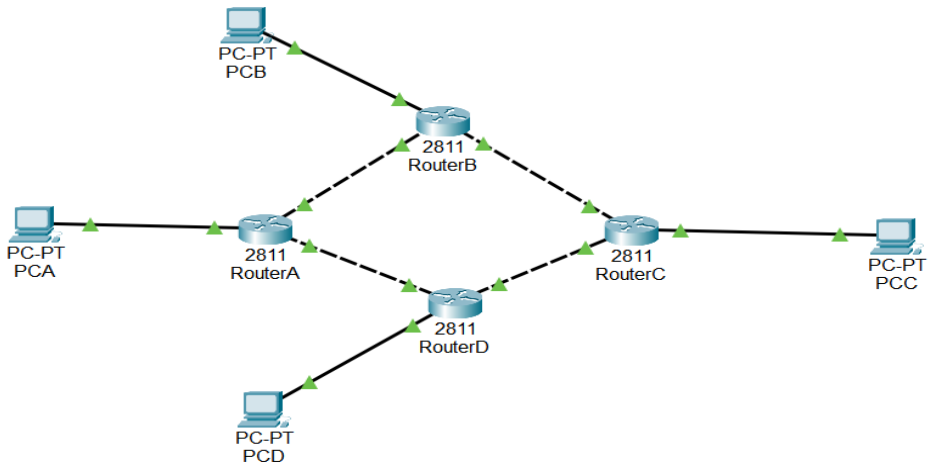






Setelah ditambah RouterD :

Nama : Bunga Ananda
NIM : 09010282327020
Kelas : MI3A



SS hasil perintah #show ip route EIGRP dari routerD

```
RouterD_09010282327020#show ip route eigrp
     100.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
D       100.100.100.4/30 [90/30720] via 100.100.100.1, 00:02:01, FastEthernet0/1
D       100.100.100.8/30 [90/33280] via 100.100.100.1, 00:02:01, FastEthernet0/1
D    192.168.1.0/24 [90/30720] via 100.100.100.1, 00:02:01, FastEthernet0/1
D    192.168.2.0/24 [90/33280] via 100.100.100.1, 00:02:01, FastEthernet0/1
D    192.168.3.0/24 [90/35840] via 100.100.100.1, 00:02:01, FastEthernet0/1
```

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PCA	PCB	Ya	
		PCC	Ya	
		PCD	Ya	
2	PCB	PCA	Ya	
		PCC	Ya	
		PCD	Ya	
3	PCC	PCA	Ya	
		PCB	Ya	
		PCD	Ya	
4	PCD	PCA	Ya	
		PCB	Ya	
		PCC	Ya	

PCA

Physical Config Desktop Programming Attributes

Command Prompt

```
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=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
Reply from 192.168.2.10: bytes=32 time<1ms 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

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=125
Reply from 192.168.3.10: bytes=32 time=5ms TTL=125
Reply from 192.168.3.10: bytes=32 time<1ms TTL=125
Reply from 192.168.3.10: bytes=32 time<1ms TTL=125

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 = 5ms, Average = 1ms

C:\>ping 192.168.4.10

Pinging 192.168.4.10 with 32 bytes of data:

Reply from 192.168.4.10: bytes=32 time=9ms TTL=126
Reply from 192.168.4.10: bytes=32 time<1ms TTL=126
Reply from 192.168.4.10: bytes=32 time<1ms TTL=126
Reply from 192.168.4.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.4.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 9ms, Average = 2ms
```

PCB

Physical Config Desktop Programming Attributes

Command Prompt

```
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=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 = 0ms, Maximum = 0ms, Average = 0ms

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=23ms 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
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 = 23ms, Average = 5ms

C:\>ping 192.168.4.10

Pinging 192.168.4.10 with 32 bytes of data:

Reply from 192.168.4.10: bytes=32 time=1ms TTL=125
Reply from 192.168.4.10: bytes=32 time<1ms TTL=125
Reply from 192.168.4.10: bytes=32 time<1ms TTL=125
Reply from 192.168.4.10: bytes=32 time=1ms TTL=125

Ping statistics for 192.168.4.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

PCC

Physical Config Desktop Programming Attributes

Command Prompt

```
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=125
Reply from 192.168.1.10: bytes=32 time<1ms TTL=125
Reply from 192.168.1.10: bytes=32 time<1ms TTL=125
Reply from 192.168.1.10: bytes=32 time<1ms TTL=125

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 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

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
Reply from 192.168.2.10: bytes=32 time<1ms 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

C:\>ping 192.168.4.10

Pinging 192.168.4.10 with 32 bytes of data:

Reply from 192.168.4.10: bytes=32 time<1ms TTL=124
Reply from 192.168.4.10: bytes=32 time<1ms TTL=124
Reply from 192.168.4.10: bytes=32 time<1ms TTL=124
Reply from 192.168.4.10: bytes=32 time<1ms TTL=124

Ping statistics for 192.168.4.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PCD

Physical Config Desktop Programming Attributes

Command Prompt

```
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=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 = 0ms, Maximum = 0ms, Average = 0ms

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=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125

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

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=124
Reply from 192.168.3.10: bytes=32 time<1ms TTL=124
Reply from 192.168.3.10: bytes=32 time<1ms TTL=124
Reply from 192.168.3.10: bytes=32 time<1ms TTL=124

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
```

❖ Penjelasan Hasil Praktikum

Pada praktikum ini, konfigurasi protokol EIGRP (Enhanced Interior Gateway Routing Protocol) dilakukan pada beberapa router untuk mengimplementasikan routing dinamis yang memungkinkan komunikasi antar-jaringan yang saling terhubung dalam topologi yang terdiri dari beberapa PC (PCA, PCB, dan PCC). Konfigurasi ini bertujuan untuk memastikan bahwa setiap perangkat dapat berkomunikasi dengan lancar melalui jaringan, tanpa memerlukan konfigurasi rute statis yang kompleks pada tiap router. Setelah konfigurasi EIGRP diterapkan, dilakukan pengujian konektivitas antar-PC melalui perintah PING dan Traceroute. Hasil pengujian menunjukkan bahwa konektivitas berhasil diinisialisasi, dengan ping dan traceroute yang memberikan respons positif antara setiap perangkat, menandakan rute antar jaringan sudah berhasil terbentuk dan berjalan dengan baik.

Tahapan utama dalam proses konfigurasi ini mencakup beberapa langkah, yaitu:

- Menetapkan alamat IP pada setiap PC dan gateway-nya sesuai dengan tabel pengalamatan yang telah disiapkan untuk topologi ini.
- Mengonfigurasi protokol EIGRP pada masing-masing router, yakni RouterA, RouterB, dan RouterC, dengan nomor AS (Autonomous System) yang telah ditentukan agar EIGRP dapat berfungsi dengan baik.
- Melakukan pengujian konektivitas untuk memastikan bahwa setiap jaringan dapat berkomunikasi satu sama lain melalui rute yang telah terbentuk.

Pada tahap akhir praktikum, dilakukan simulasi perubahan topologi jaringan dengan memutus koneksi antara RouterA dan RouterC, serta menambahkan RouterD dan PCD ke dalam jaringan. Setelah konfigurasi EIGRP dilakukan pada RouterD dan alamat IP diberikan pada PCD, pengujian konektivitas dilakukan kembali dan menunjukkan bahwa PCD pun berhasil terhubung dengan jaringan lain, menunjukkan kemampuan adaptasi EIGRP dalam menghadapi perubahan topologi.

❖ Analisis Praktikum

Dari hasil konfigurasi dan pengujian konektivitas, beberapa poin penting dapat dianalisis, yaitu:

- **Efektivitas EIGRP dalam Routing Dinamis**

  Praktikum ini menunjukkan kemampuan EIGRP dalam mengonfigurasi routing dinamis antar-subnet secara efisien dan responsif. EIGRP dapat mendeteksi tetangganya secara otomatis dan membentuk tabel rute yang tepat untuk menjangkau semua jaringan yang terhubung, tanpa membutuhkan input manual dari pengguna setiap kali terjadi perubahan rute.

- **Pengujian dan Verifikasi Konektivitas**

  Pengujian dengan perintah ping dan traceroute menunjukkan bahwa EIGRP dapat menghasilkan rute optimal antar-jaringan. Selain itu, traceroute memberikan detail mengenai jalur yang dilalui oleh paket data, sehingga memudahkan verifikasi jalur komunikasi antar-perangkat dan memastikan tidak ada hambatan dalam proses komunikasi.

- **Kemampuan Adaptasi Jaringan terhadap Perubahan Topologi**

  Saat RouterD dan PCD ditambahkan, EIGRP secara otomatis mendistribusikan rute baru tanpa mengganggu rute yang sudah ada. Ini menunjukkan fleksibilitas EIGRP dalam menangani perubahan topologi jaringan dengan cepat dan efisien.

- **Manajemen Jaringan yang Efisien**

  Dengan EIGRP, kebutuhan untuk melakukan konfigurasi manual pada setiap perangkat dapat diminimalisir, terutama pada topologi jaringan yang kompleks. Hal ini menjadikan EIGRP sebagai protokol yang ideal untuk administrasi jaringan yang dinamis dan membutuhkan penyesuaian secara berkala.

❖ Kesimpulan

Berdasarkan hasil praktikum, dapat disimpulkan bahwa EIGRP adalah protokol routing dinamis yang sangat efektif dan efisien untuk jaringan berskala besar. Protokol ini memudahkan manajemen rute, mendukung adaptasi terhadap perubahan topologi tanpa memerlukan konfigurasi ulang manual di setiap router, serta menyediakan komunikasi antar-jaringan yang lancar. Dengan kemampuan EIGRP dalam menemukan dan mempertahankan hubungan dengan router tetangga, EIGRP terbukti sangat andal untuk lingkungan jaringan yang membutuhkan komunikasi antar-subnet yang dinamis dan fleksibel.