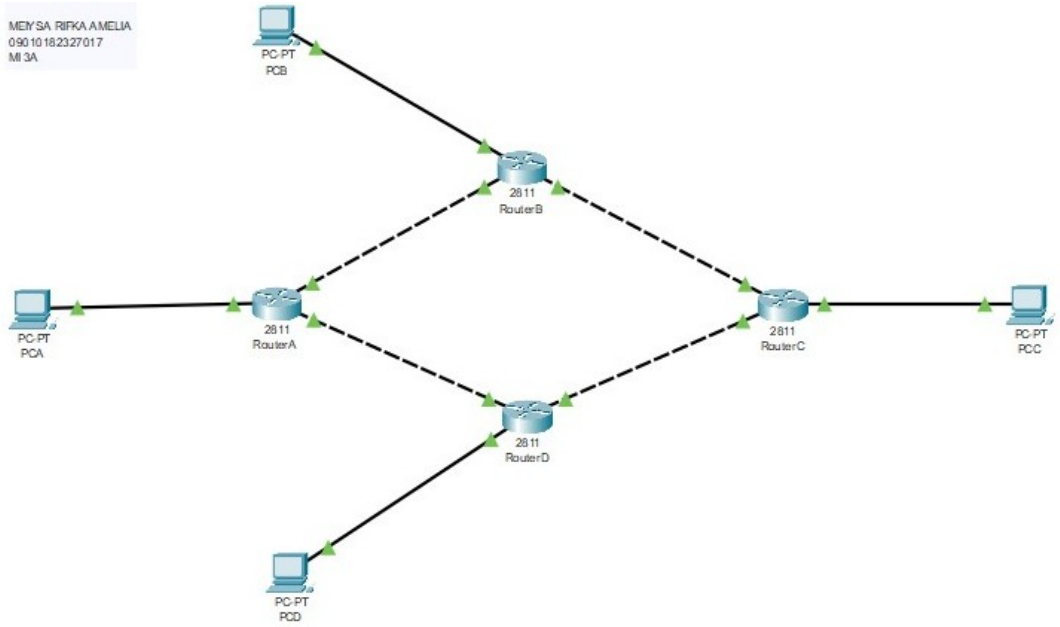
NAMA : MEIYSA RIFKA AMELIA
NIM : 09010182327017
KELAS : MI3A
MATA KULIAH : JARINGAN KOMPUTER

LAPORAN PRAKTIKUM EIGRP DYNAMIC ROUTING



Buatlah IP Address di PC

NO	NAMA DEVICE	ALAMAT	NETMASK	GATEWAY
1	PCA	192.168.1.10	255.255.255.0	192.168.1.1
2	PCB	192.168.2.10	255.255.255.0	192.168.2.1
3	PCC	192.168.3.10	255.255.255.0	192.168.3.1

Selanjutnya menambahkan konfigurasi IP Address di PC, selanjutnya konfigurasi EIGRP pada Router, sebagai berikut:

ROUTER A

```
RouterA_09010182327017#en
RouterA_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
RouterA_09010182327017(config)#hostname routerA_09010182327017
routerA_09010182327017(config)#int fa0/0
routerA_09010182327017(config-if)#ip address 192.168.1.1 255.255.255.0
routerA_09010182327017(config-if)#no shutdown
routerA_09010182327017(config-if)#exit
routerA_09010182327017(config)#int fa1/0
routerA_09010182327017(config-if)#ip address 100.100.100.1 255.255.255.252
routerA_09010182327017(config-if)#no shutdown
routerA_09010182327017(config-if)#exit
routerA_09010182327017(config)#int fa0/1
routerA_09010182327017(config-if)#ip address 100.100.100.5 255.255.255.252
routerA_09010182327017(config-if)#no shutdown
routerA_09010182327017(config-if)#exit
routerA_09010182327017(config)#router eigrp 1
routerA_09010182327017(config-router)#network 192.168.1.0 0.0.0.255
routerA_09010182327017(config-router)#network 100.100.100.0 0.0.0.3
routerA_09010182327017(config-router)#network 100.100.100.4 0.0.0.3
routerA_09010182327017(config-router)#no auto-summary
routerA_09010182327017(config-router)#exit
routerA_09010182327017(config)#show ip route eigrp
                              ^
% Invalid input detected at '^' marker.

routerA_09010182327017(config)#exit
routerA_09010182327017#
%SYS-5-CONFIG_I: Configured from console by console
```

ROUTER B

```
RouterB_09010182327017#en
RouterB_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
RouterB_09010182327017(config)#hostname routerB_09010182327017
routerB_09010182327017(config)#int fa0/0
routerB_09010182327017(config-if)#ip address 192.168.2.1 255.255.255.0
routerB_09010182327017(config-if)#no shutdown
routerB_09010182327017(config-if)#exit
routerB_09010182327017(config)#int fa1/0
routerB_09010182327017(config-if)#ip address 100.100.100.6 255.255.255.252
routerB_09010182327017(config-if)#no shutdwon
                                  ^
% Invalid input detected at '^' marker.

routerB_09010182327017(config-if)#no shutdown
routerB_09010182327017(config-if)#exit
routerB_09010182327017(config)#int fa0/1
routerB_09010182327017(config-if)#ip address 100.100.100.9 255.255.255.252
routerB_09010182327017(config-if)#no shutdown
routerB_09010182327017(config-if)#exit
routerB_09010182327017(config)#router eigrp 1
routerB_09010182327017(config-router)#network 192.168.2.0 0.0.0.255
routerB_09010182327017(config-router)#network 100.100.100.4 0.0.0.3
routerB_09010182327017(config-router)#network 100.100.100.8 0.0.0.3
routerB_09010182327017(config-router)#no auto-summary
routerB_09010182327017(config-router)#exit
routerB_09010182327017(config)#exit
routerB 09010182327017#
```

ROUTER C

```
routerC_09010182327017>en
routerC_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
routerC_09010182327017(config)#hostname routerC_09010182327017
routerC_09010182327017(config)#int fa0/0
routerC_09010182327017(config-if)#ip address 192.168.3.1 255.255.255.0
routerC_09010182327017(config-if)#no shutdown
routerC_09010182327017(config-if)#exit
routerC_09010182327017(config)#int fa1/0
routerC_09010182327017(config-if)#ip address 100.100.100.10 255.255.255.252
routerC_09010182327017(config-if)#no shutdown
routerC_09010182327017(config-if)#exit
routerC_09010182327017(config)#int fa0/1
routerC_09010182327017(config-if)#ip address 100.100.100.2 255.255.255.252
routerC_09010182327017(config-if)#no shutdown
routerC_09010182327017(config-if)#exit
routerC_09010182327017(config)#router eigrp 1
routerC_09010182327017(config-router)#network 192.168.3.0 0.0.0.255
routerC_09010182327017(config-router)#network 100.100.100.0 0.0.0.3
routerC_09010182327017(config-router)#network 100.100.100.8 0.0.0.3
routerC_09010182327017(config-router)#end
routerC_09010182327017#
```

Hasil 'SHOW IP ROUTE EIGRP'

ROUTER A

```
routerA_09010182327017>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, 00:26:22, FastEthernet0/1
     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, 00:26:22, FastEthernet0/1
D    192.168.3.0/24 [90/33280] via 100.100.100.6, 00:26:22, FastEthernet0/1
D    192.168.4.0/24 [90/30720] via 100.100.100.2, 00:26:22, FastEthernet1/0
```

ROUTER B

```
%SYS-5-CONFIG_I: Configured from console by console
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, 00:24:00, FastEthernet1/0
D    192.168.1.0/24 [90/30720] via 100.100.100.5, 00:24:00, 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, 00:24:00, FastEthernet0/1
D    192.168.4.0/24 [90/33280] via 100.100.100.5, 00:24:00, FastEthernet1/0
```

ROUTER C

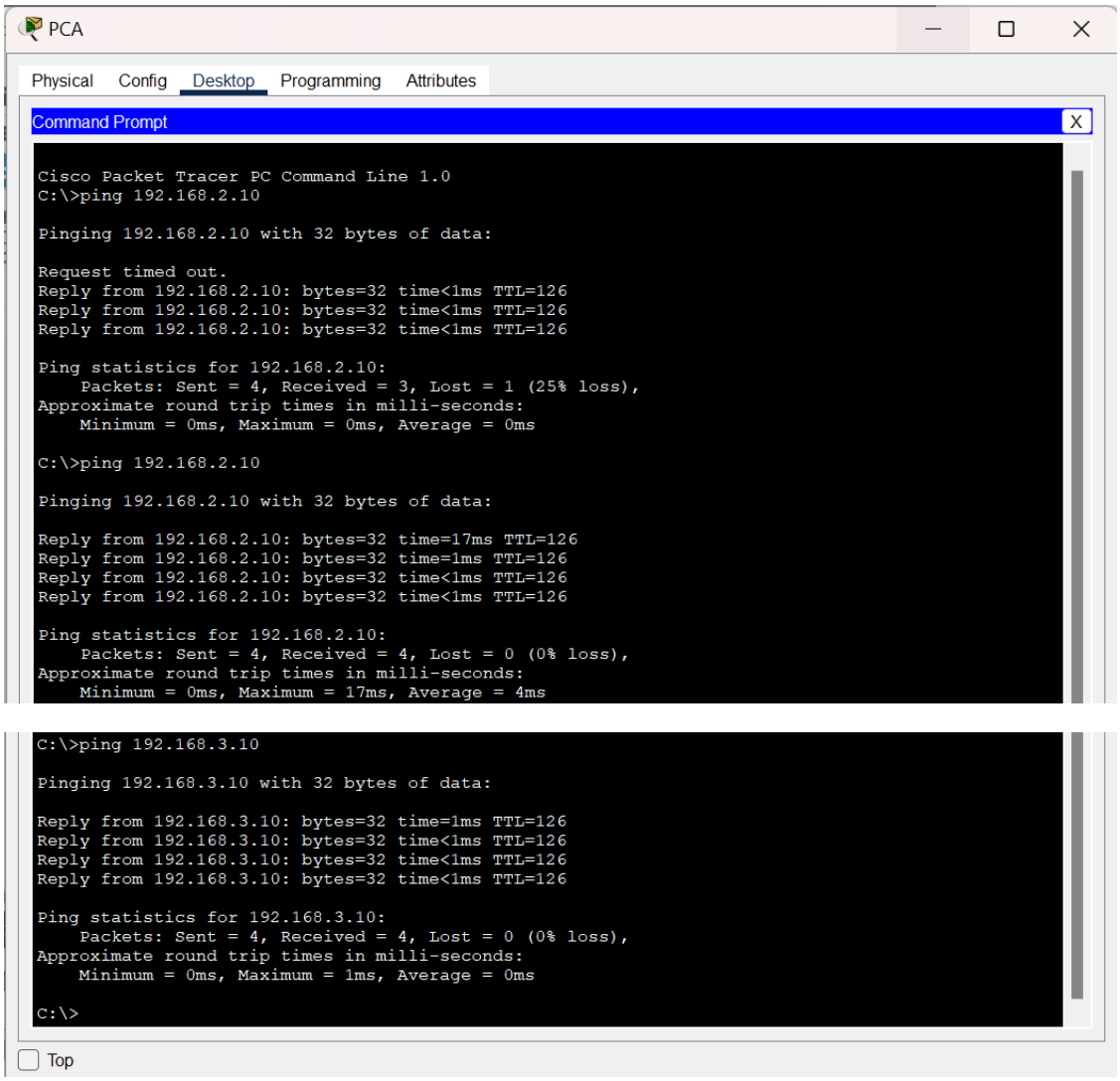
```
%SYS-5-CONFIG_I: Configured from console by console
show ip route eigrp
     100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D       100.100.100.4/30 [90/30720] via 100.100.100.9, 00:45:50, FastEthernet1/0
D    192.168.1.0/24 [90/33280] via 100.100.100.9, 00:45:50, FastEthernet1/0
D    192.168.2.0/24 [90/30720] via 100.100.100.9, 00:45:50, FastEthernet1/0
     192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
D    192.168.4.0/24 [90/35840] via 100.100.100.9, 00:45:50, FastEthernet1/0
```

Melakukan PING dan Traceroute dari PC A ke PC B dan PC C, PC B ke PC A dan PC C, serta PC C ke PC A dan PC B.

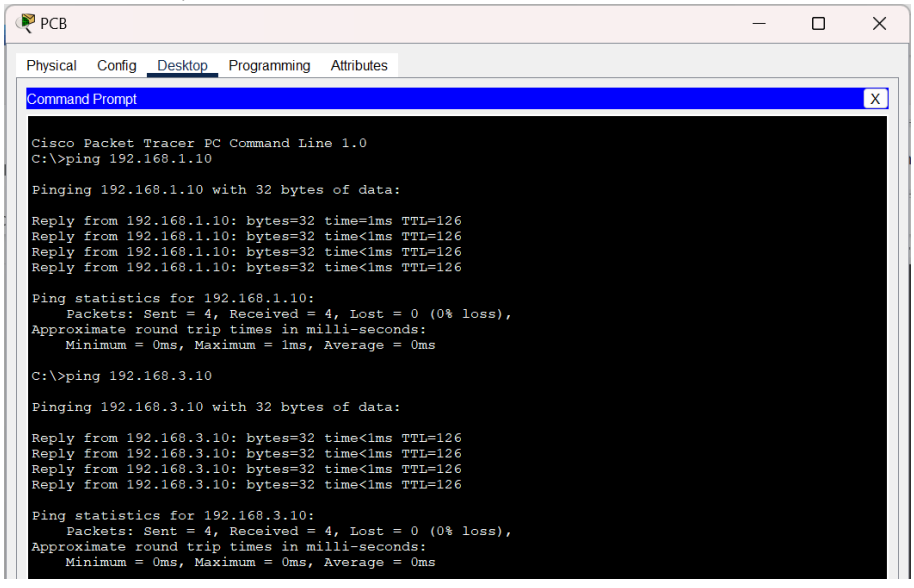
NO	SUMBER	TUJUAN	HASIL	
			YA	TIDAK
1	PC1	PC2	YA	-

		PC3	YA	-
2	PC2	PC1	YA	-
		PC3	YA	-
3	PC3	PC1	YA	-
		PC2	YA	-

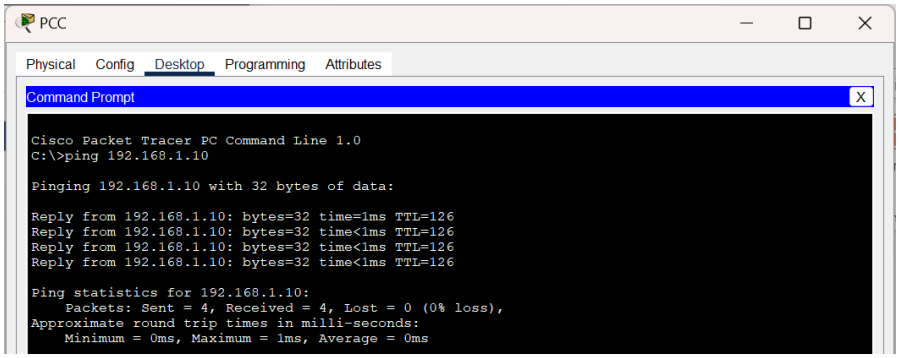
PC A > PC B, PC C

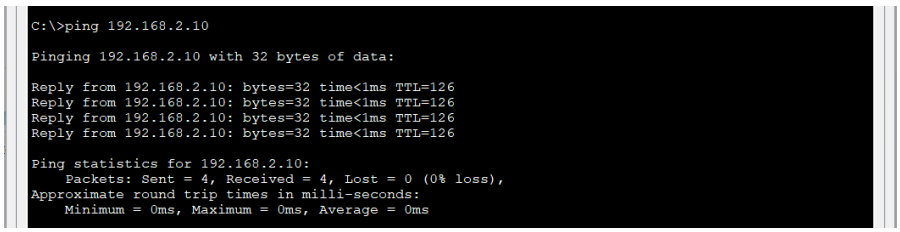


PC B > PC A, PC C



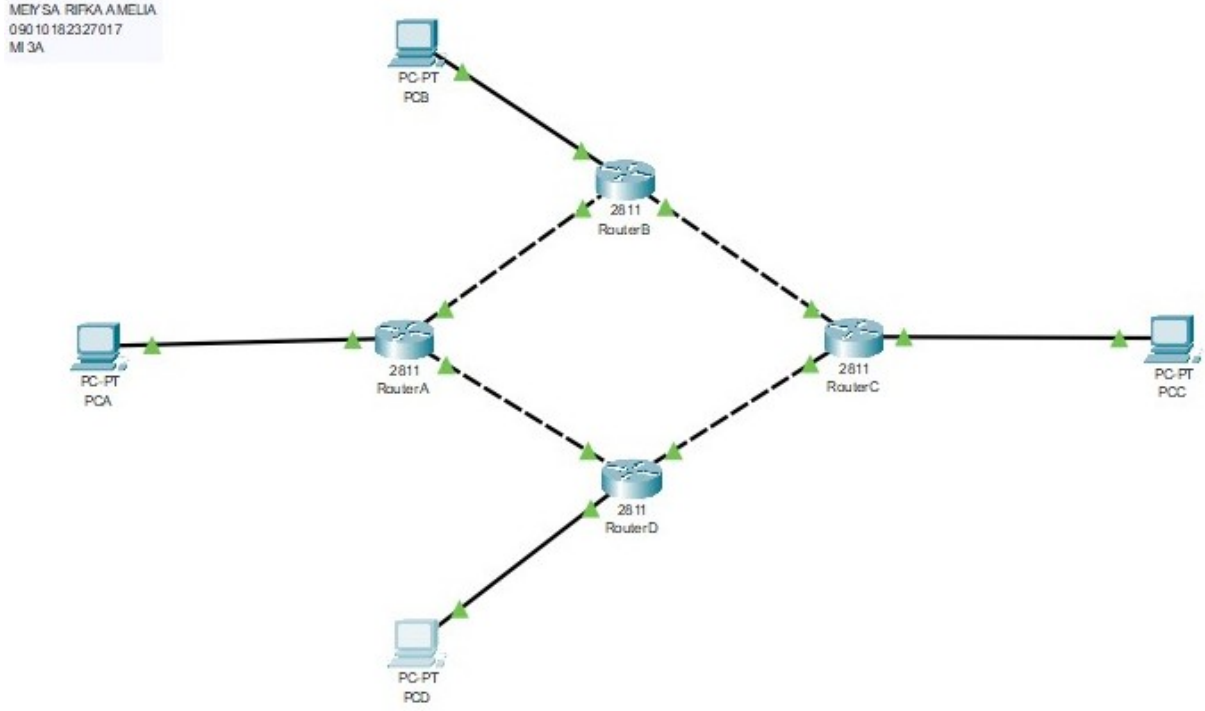
PC C > PC A, PC B





Putuskan koneksi pada Router A ke Router C, lalu tambahkan satu Router yaitu Router D dan PC yaitu PCD, dimana RouterD terhubung ke Router A dan Router C

MEIYSA RIFKA AMELIA
0901018232701 7
MI 3A



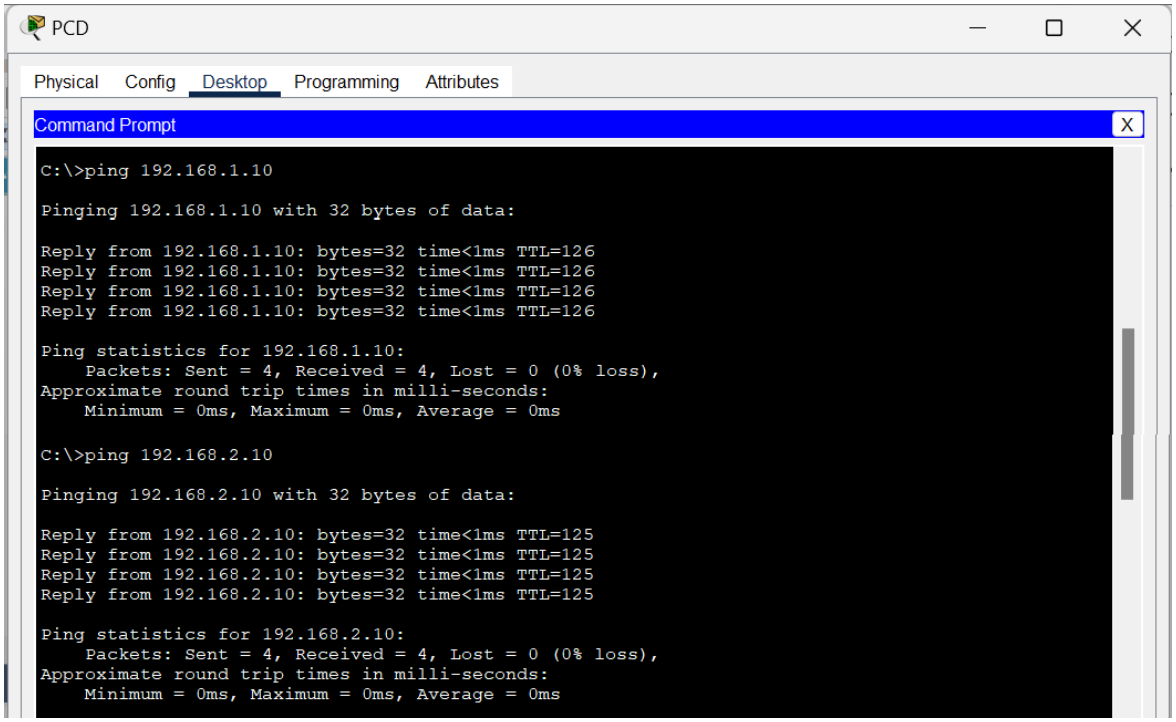
Konfigurasi Router dengan protocol EIGRP pada Router D dan konfigurasi IP pada PC D. Lakukanlah konfiguran seperti tahap 3, buktikan jika PC D dapat melakukan PING dan traceroute ke PC lainnya.

ROUTER D

```
RouterD_09010182327017#en
RouterD_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
RouterD_09010182327017(config)#hostname routerD_09010182327017
routerD_09010182327017(config)#int fal/0
routerD_09010182327017(config-if)#ip address 100.100.100.14 255.255.255.252
routerD_09010182327017(config-if)#no shutdwon
                                  ^
% Invalid input detected at '^' marker.

routerD_09010182327017(config-if)#no shutdown
routerD_09010182327017(config-if)#exit
routerD_09010182327017(config)#int fa0/1
routerD_09010182327017(config-if)#ip address 100.100.100.2 255.255.255.252
routerD_09010182327017(config-if)#no shutdown
routerD_09010182327017(config-if)#exit
routerD_09010182327017(config)#router eigrp 1
routerD_09010182327017(config-router)#network
% Incomplete command.
routerD_09010182327017(config-router)#network 192.168.4.0 0.0.0.255
routerD_09010182327017(config-router)#network 100.100.100.0 0.0.0.3
routerD_09010182327017(config-router)#network 100.100.100.0 0.0.0.3
routerD_09010182327017(config-router)#no auto-summary
routerD_09010182327017(config-router)#exit
routerD_09010182327017(config)#exit
routerD_09010182327017#
%SYS-5-CONFIG_I: Configured from console by console
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, 00:59:42, FastEthernet0/1
D       100.100.100.8/30 [90/33280] via 100.100.100.1, 00:59:42, FastEthernet0/1
D    192.168.1.0/24 [90/30720] via 100.100.100.1, 00:59:42, FastEthernet0/1
D    192.168.2.0/24 [90/33280] via 100.100.100.1, 00:59:42, FastEthernet0/1
D    192.168.3.0/24 [90/35840] via 100.100.100.1, 00:59:42, FastEthernet0/1
```

PC D > PC A, PC B, PC C

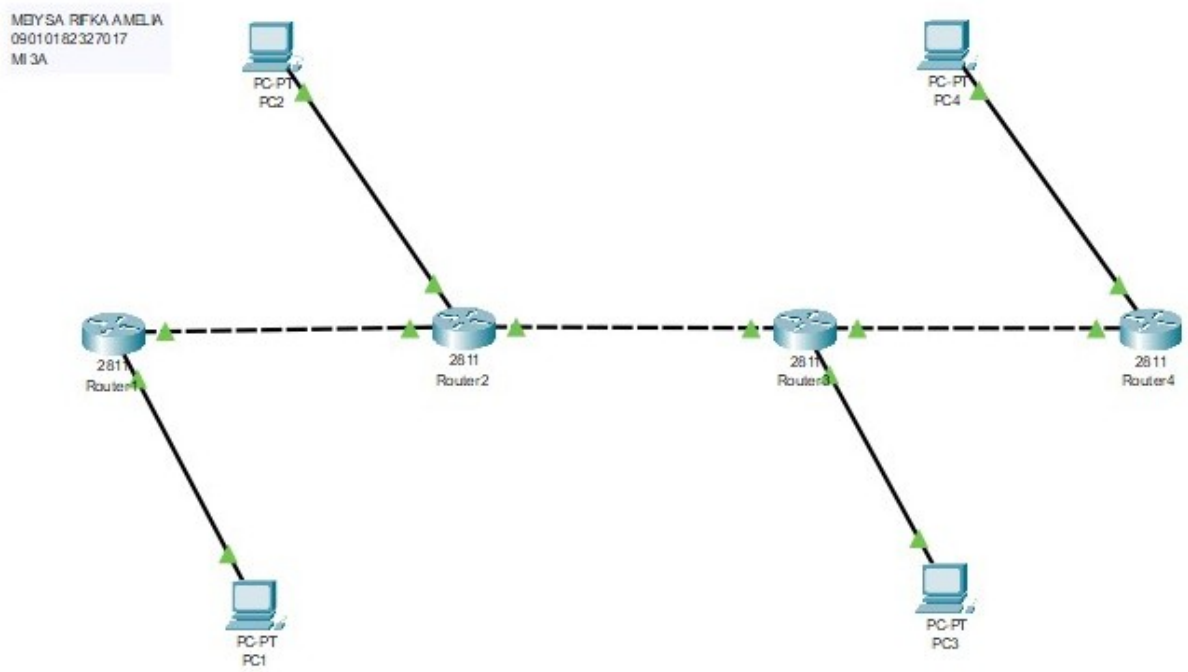


- **Hasil Praktikum:** Setelah melakukan konfigurasi protokol EIGRP pada router yang terhubung ke beberapa perangkat (PC A, PC B, dan PC C), pengujian menunjukkan bahwa setiap perangkat berhasil berkomunikasi satu sama lain menggunakan perintah PING dan traceroute. Saat Router D dan PC D ditambahkan ke jaringan serta dikonfigurasi dengan protokol EIGRP, PC D juga berhasil terhubung dan berkomunikasi dengan PC A, PC B, dan PC C. Hal ini menandakan bahwa konfigurasi EIGRP yang diterapkan berjalan dengan baik, memungkinkan jalur komunikasi antar perangkat terbentuk secara otomatis tanpa konfigurasi rute manual yang berlebihan.

- **Analisis:** Implementasi protokol EIGRP pada jaringan ini berhasil membentuk rute dinamis antar perangkat, sehingga memungkinkan setiap perangkat berkomunikasi secara langsung dan efisien. Keunggulan EIGRP terlihat saat ada perubahan topologi jaringan—misalnya ketika koneksi antara Router A dan Router C diputus. Dengan adanya mekanisme rute dinamis, EIGRP secara otomatis mencari jalur alternatif tanpa membutuhkan intervensi manual, meningkatkan kehandalan dan fleksibilitas jaringan. Hal ini menunjukkan bahwa EIGRP sangat berguna untuk jaringan dengan perangkat yang saling bergantung pada konektivitas berkelanjutan.

- **Kesimpulan:** Praktikum ini mengonfirmasi bahwa protokol EIGRP adalah solusi routing dinamis yang andal dan efisien untuk jaringan multi-router. Protokol ini mendukung pembentukan jalur komunikasi yang optimal antar perangkat dengan adaptasi otomatis terhadap perubahan topologi. EIGRP secara otomatis menemukan rute terbaik dan mengalihkan rute saat jalur utama terganggu, menjaga kelangsungan komunikasi antar perangkat. Dengan demikian, EIGRP memberikan solusi routing yang efisien dan stabil untuk jaringan dengan perangkat yang dinamis.

LAPORAN PRAKTIKUM RIP DYNAMIC ROUTING



Buatlah IP Address di PC

NO	NAMA DEVICE	ALAMAT	NETMASK	GATEWAY
1	PC1	192.168.1.10	255.255.255.0	192.168.1.1
2	PC2	192.168.2.10	255.255.255.0	192.168.2.1
3	PC3	192.168.3.10	255.255.255.0	192.168.3.1

Selanjutnya menambahkan konfigurasi IP Address di PC, selanjutnya melakukan konfigurasi RIP pada Router, sebagai berikut:

ROUTER 1

```
R1_09010182327017#en
R1_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1_09010182327017(config)#hostname router1_09010182327017
router1_09010182327017(config)#int fa0/0
router1_09010182327017(config-if)#ip address 192.168.1.1 255.255.255.0
router1_09010182327017(config-if)#no shutdown
router1_09010182327017(config-if)#exit
router1_09010182327017(config)#int fa0/1
router1_09010182327017(config-if)#ip address 192.168.100.1 255.255.255.252
router1_09010182327017(config-if)#no shutdown
router1_09010182327017(config-if)#exit
router1_09010182327017(config)#router rip
router1_09010182327017(config-router)#version 2
router1_09010182327017(config-router)#network 192.168.1.0
router1_09010182327017(config-router)#network 192.168.100.0
router1_09010182327017(config-router)#no auto-summary
router1_09010182327017(config-router)#passive-interface fa0/0
router1_09010182327017(config-router)#end
router1_09010182327017#
%SYS-5-CONFIG_I: Configured from console by console

router1_09010182327017#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, 00:00:08, FastEthernet0/1
R    192.168.3.0/24 [120/2] via 192.168.100.2, 00:00:08, FastEthernet0/1
R    192.168.4.0/24 [120/3] via 192.168.100.2, 00:00:08, FastEthernet0/1
     192.168.200.0/30 is subnetted, 1 subnets
R       192.168.200.0 [120/1] via 192.168.100.2, 00:00:08, FastEthernet0/1
     192.168.220.0/30 is subnetted, 1 subnets
R       192.168.220.0 [120/2] via 192.168.100.2, 00:00:08, FastEthernet0/1
```

ROUTER 2

```
router2_09010182327017#en
router2_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
router2_09010182327017(config)#hostname router2_09010182327017
router2_09010182327017(config)#int fa0/0
router2_09010182327017(config-if)#ip address 192.168.2.1 255.255.255.0
router2_09010182327017(config-if)#no sh
router2_09010182327017(config-if)#exit
router2_09010182327017(config)#int fa0/1
router2_09010182327017(config-if)#ip address 192.168.100.2 255.255.255.252
router2_09010182327017(config-if)#int fa1/0
router2_09010182327017(config-if)#ip address 192.168.200.1 255.255.255.252
router2_09010182327017(config-if)#no sh
router2_09010182327017(config-if)#exit
router2_09010182327017(config)#router rip
router2_09010182327017(config-router)#version 2
router2_09010182327017(config-router)#network 192.168.2.0
router2_09010182327017(config-router)#network 192.168.100.0
router2_09010182327017(config-router)#network 192.168.200.0
router2_09010182327017(config-router)#no auto-summary
router2_09010182327017(config-router)#passive-interface fa0/0
router2_09010182327017(config-router)#end
router2_09010182327017#
%SYS-5-CONFIG_I: Configured from console by console
show ip route rip
R    192.168.1.0/24 [120/1] via 192.168.100.1, 00:00:23, 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, 00:00:21, FastEthernet1/0
R    192.168.4.0/24 [120/2] via 192.168.200.2, 00:00:21, FastEthernet1/0
     192.168.220.0/30 is subnetted, 1 subnets
R       192.168.220.0 [120/1] via 192.168.200.2, 00:00:21, FastEthernet1/0
```

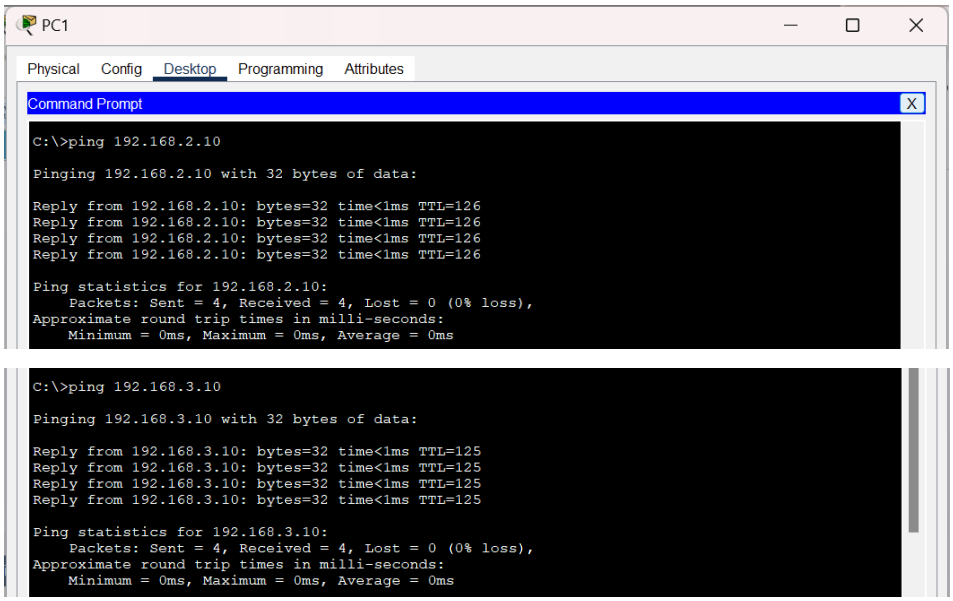
ROUTER 3

```
R3_09010182327017#en
R3_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R3_09010182327017(config)#hostname router3_09010182327017
router3_09010182327017(config)#int fa0/0
router3_09010182327017(config-if)#ip address 192.168.3.1 255.255.255.0
router3_09010182327017(config-if)#no sh
router3_09010182327017(config-if)#exit
router3_09010182327017(config)#int fa0/1
router3_09010182327017(config-if)#ip address 192.168.200.2 255.255.255.252
router3_09010182327017(config-if)#no sh
router3_09010182327017(config-if)#exit
router3_09010182327017(config)#router rip
router3_09010182327017(config-router)#version 2
router3_09010182327017(config-router)#network 192.168.3.0
router3_09010182327017(config-router)#network 192.168.200.0
router3_09010182327017(config-router)#no auto-summary
router3_09010182327017(config-router)#passive-interface fa0/0
router3_09010182327017(config-router)#end
router3_09010182327017#
%SYS-5-CONFIG_I: Configured from console by console
show ip route rip
R    192.168.1.0/24 [120/2] via 192.168.200.1, 00:00:24, FastEthernet0/1
R    192.168.2.0/24 [120/1] via 192.168.200.1, 00:00:24, FastEthernet0/1
     192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
R    192.168.4.0/24 [120/1] via 192.168.220.2, 00:00:24, FastEthernet1/0
     192.168.100.0/30 is subnetted, 1 subnets
R       192.168.100.0 [120/1] via 192.168.200.1, 00:00:24, FastEthernet0/1
```

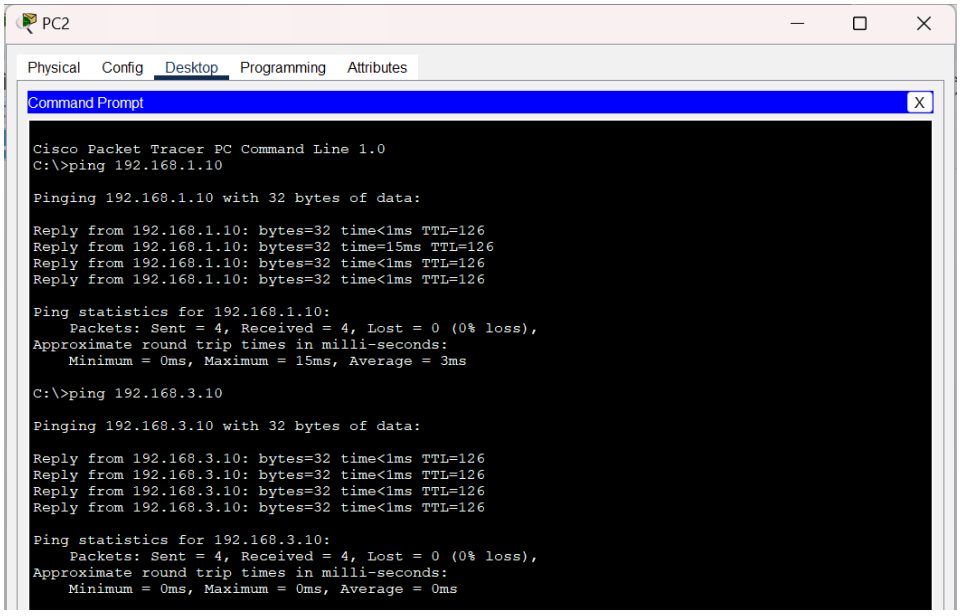
Melakukan PING dan Traceroute dari PC A ke PC B dan PC C, PC B ke PC A dan PC C, serta PC C ke PC A dan PC B.

NO	SUMBER	TUJUAN	HASIL	
			YA	TIDAK
1	PC1	PC2	YA	-
		PC3	YA	-
2	PC2	PC1	YA	-
		PC3	YA	-
3	PC3	PC1	YA	-
		PC2	YA	-

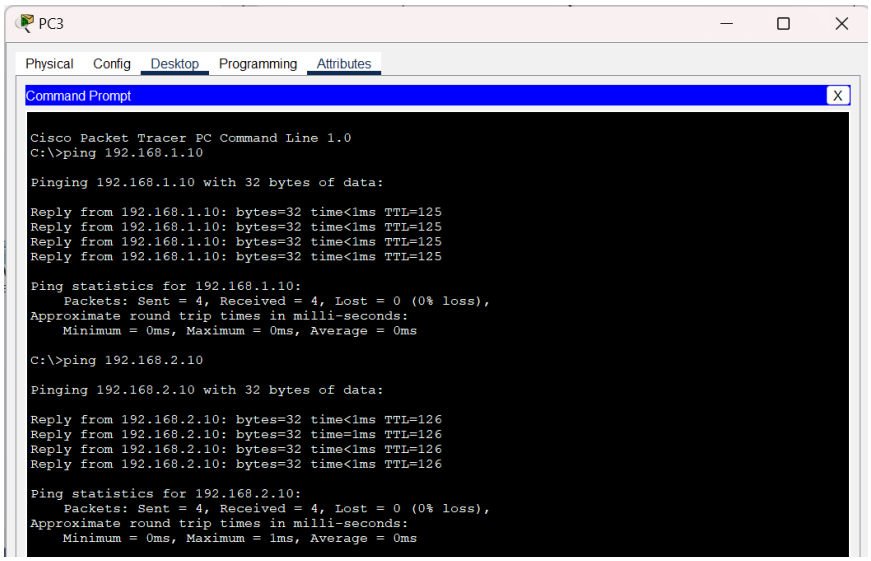
PC 1 > PC 2, PC 3



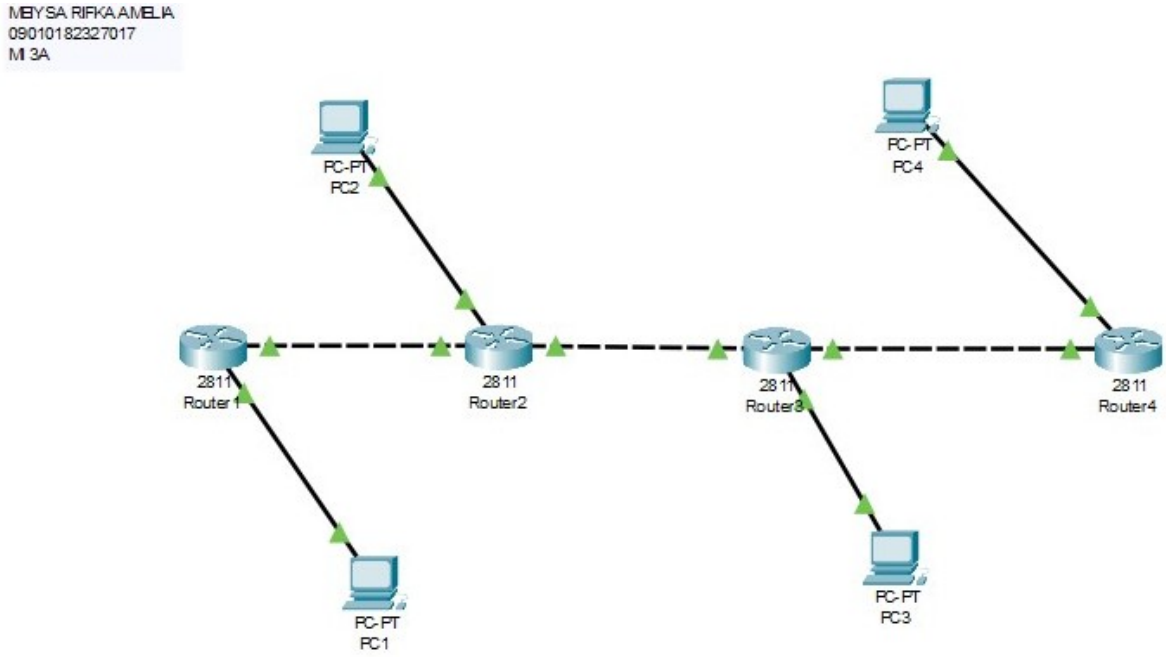
PC 2 > PC 1, PC 3



PC 3 > PC 1, PC 2



Tambahkan satu Router yaitu Router 4 dan PC yaitu PC4, dimana Router 4 terhubung ke Router 3 dan PC 4 terhubung ke Router 4



Konfigurasi Router 3 ke Router 4

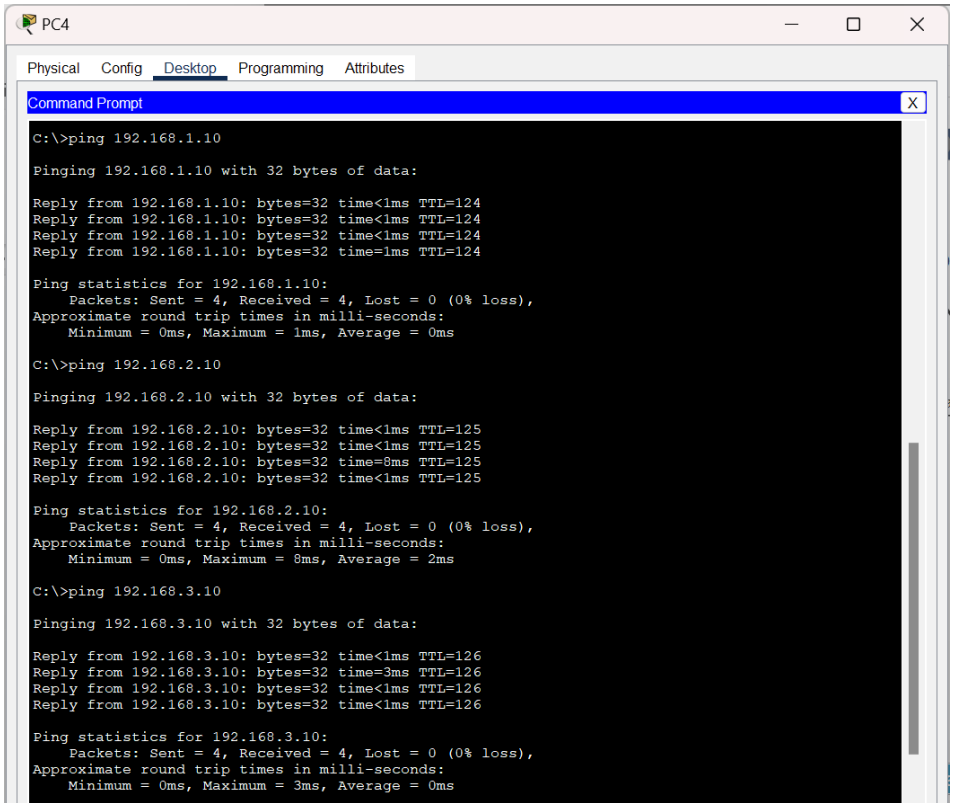
```
router4_09010182327017#
router4_09010182327017#en
router4_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
router4_09010182327017(config)#route rip
router4_09010182327017(config-router)#version 2
router4_09010182327017(config-router)#network 192.168.220.0
router4_09010182327017(config-router)#no auto-summary
router4_09010182327017(config-router)#passive-interface fa0/0
router4_09010182327017(config-router)#end
router4_09010182327017#
%SYS-5-CONFIG_I: Configured from console by console
```

Konfigurasi Router dengan protokol RIP pada R4, dan konfigurasi IP pada PC4. Lakukanlah konfigurasi seperti tahap 3, buktikan jika PC4 dapat melakukan PING dan traceroute ke PC lainnya.

ROUTER 4

```
router4_09010182327017#en
router4_09010182327017#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
router4_09010182327017(config)#hostname router4_09010182327017
router4_09010182327017(config)#int fa0/0
router4_09010182327017(config-if)#ip address 192.168.4.1 255.255.255.0
router4_09010182327017(config-if)#no sh
router4_09010182327017(config-if)#exit
router4_09010182327017(config)#int fa0/1
router4_09010182327017(config-if)#ip address 192.168.220.2 255.255.255.252
router4_09010182327017(config-if)#no sh
router4_09010182327017(config-if)#exit
router4_09010182327017(config)#router rip
router4_09010182327017(config-router)#version 2
router4_09010182327017(config-router)#network 192.168.4.0
router4_09010182327017(config-router)#network 192.168.220.0
router4_09010182327017(config-router)#no auto-summary
router4_09010182327017(config-router)#passive-interface fa0/0
router4_09010182327017(config-router)#end
router4_09010182327017#
%SYS-5-CONFIG_I: Configured from console by console
show ip route rip
R    192.168.1.0/24 [120/3] via 192.168.220.1, 00:00:20, FastEthernet0/1
R    192.168.2.0/24 [120/2] via 192.168.220.1, 00:00:20, FastEthernet0/1
R    192.168.3.0/24 [120/1] via 192.168.220.1, 00:00:20, FastEthernet0/1
     192.168.100.0/30 is subnetted, 1 subnets
R       192.168.100.0 [120/2] via 192.168.220.1, 00:00:20, FastEthernet0/1
     192.168.200.0/30 is subnetted, 1 subnets
R       192.168.200.0 [120/1] via 192.168.220.1, 00:00:20, FastEthernet0/1
```

Lakukan PING dan Traceroute dari PC4 ke PC1, PC 2 dan PC3



Hasil Praktikum

Berdasarkan hasil praktikum, dilakukan konfigurasi IP Address pada beberapa perangkat PC dan konfigurasi protokol RIP (Routing Information Protocol) pada beberapa router. Berikut adalah konfigurasi yang dilakukan:

1. **Konfigurasi IP Address** pada setiap PC:

    - PC1: 192.168.1.10/24 dengan Gateway 192.168.1.1
    - PC2: 192.168.2.10/24 dengan Gateway 192.168.2.1
    - PC3: 192.168.3.10/24 dengan Gateway 192.168.3.1

2. **Pengujian Konektivitas** menggunakan perintah PING dan Traceroute antara PC-PC yang telah dikonfigurasi, dengan hasil sebagai berikut:

    - Dari PC1 ke PC2 dan PC3: Koneksi berhasil (PING berhasil)
    - Dari PC2 ke PC1 dan PC3: Koneksi berhasil (PING berhasil)
    - Dari PC3 ke PC1 dan PC2: Koneksi berhasil (PING berhasil)

3. **Penambahan Router dan PC**:

    - Menambahkan Router 4 yang terhubung ke Router 3.
    - Menambahkan PC4 yang terhubung ke Router 4, dengan konfigurasi RIP pada Router 4.

4. **Pengujian Konektivitas PC4** ke PC1, PC2, dan PC3 menggunakan PING dan Traceroute untuk memastikan koneksi berhasil.

Analisis

Dari hasil pengujian di atas, terlihat bahwa setiap perangkat PC mampu berkomunikasi dengan perangkat lain menggunakan protokol RIP. Protokol ini bekerja dengan baik dalam mengirimkan informasi routing antar-router sehingga setiap PC pada jaringan dapat mengakses PC lainnya, baik secara langsung maupun melalui jalur routing yang diatur oleh RIP. Penambahan Router 4 dan PC4 menunjukkan fleksibilitas dan kemudahan dalam memperluas jaringan.

Kesimpulan

Protokol RIP berhasil digunakan untuk routing dinamis pada jaringan yang dikonfigurasi. Setiap perangkat dapat berkomunikasi satu sama lain tanpa masalah, membuktikan bahwa RIP secara otomatis meng-update routing table pada setiap router sesuai perubahan di jaringan.