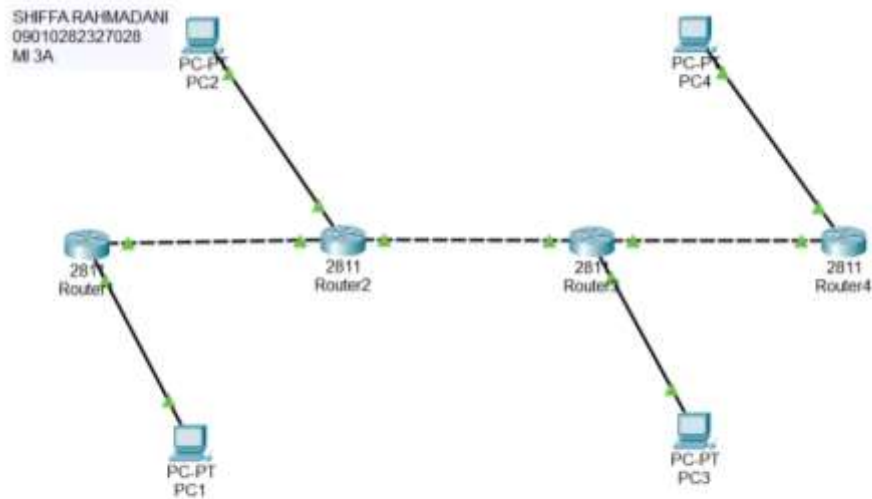


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NIM : 09010282327028  
KELAS : MI3A  
MATA KULIAH : JARINGAN KOMPUTER

### ***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_09010282327028#en
R1_09010282327028#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1_09010282327028(config)#int fa0/0
R1_09010282327028(config-if)#ip address 192.168.1.1 255.255.255.0
R1_09010282327028(config-if)#no shutdown
R1_09010282327028(config-if)#exit
R1_09010282327028(config)#int fa 0/1
R1_09010282327028(config-if)#ip address 192.168.100.1 255.255.255.252
R1_09010282327028(config-if)#no shutdown
R1_09010282327028(config-if)#exit
R1_09010282327028(config)#router rip
R1_09010282327028(config-router)#version 2
R1_09010282327028(config-router)#network 192.168.1.0
R1_09010282327028(config-router)#network 192.168.100.0
R1_09010282327028(config-router)#no auto-summary
R1_09010282327028(config-router)#passive-interface fa0/0
R1_09010282327028(config-router)#end
R1_09010282327028#
%SYS-5-CONFIG_I: Configured from console by console
copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1_09010282327028#
```

## ROUTER 2

```
R2_09010282327028#en
R2_09010282327028#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2_09010282327028(config)#int fa0/0
R2_09010282327028(config-if)#ip address 192.168.2.1 255.255.255.0
R2_09010282327028(config-if)#no sh
R2_09010282327028(config-if)#exit
R2_09010282327028(config)#int fa0/1
R2_09010282327028(config-if)#ip address 192.168.100.2 255.255.255.252
R2_09010282327028(config-if)#no sh
R2_09010282327028(config-if)#exit
R2_09010282327028(config)#int fa1/0
R2_09010282327028(config-if)#ip address 192.168.200.1 255.255.255.252
R2_09010282327028(config-if)#no sh
R2_09010282327028(config-if)#exit
R2_09010282327028(config)#router rip
R2_09010282327028(config-router)#version 2
R2_09010282327028(config-router)#network 192.168.2.0
R2_09010282327028(config-router)#network 192.168.100.0
R2_09010282327028(config-router)#network 192.168.200.0
R2_09010282327028(config-router)#no auto-summart
R2_09010282327028(config-router)#no auto-summary
R2_09010282327028(config-router)#passive-interface fa0/0
R2_09010282327028(config-router)#end
R2_09010282327028#
%SYS-5-CONFIG_I: Configured from console by console
copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R2_09010282327028#
```

## ROUTER 3

```
R3_090282327028#en
R3_090282327028#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3_090282327028(config)#int fa0/0
R3_090282327028(config-if)#ip address 192.168.3.1 255.255.255.0
R3_090282327028(config-if)#no shutdown
R3_090282327028(config-if)#exit
R3_090282327028(config)#int fa0/1
R3_090282327028(config-if)#ip address 192.168.100.2 255.255.255.252
R3_090282327028(config-if)#no shutdown
R3_090282327028(config-if)#exit
R3_090282327028(config)#router rip
R3_090282327028(config-router)#version 2
R3_090282327028(config-router)#network 192.168.3.0
R3_090282327028(config-router)#network 192.168.100.0
R3_090282327028(config-router)#no auto-summary
R3_090282327028(config-router)#passive-interface fa0/0
R3_090282327028(config-router)#end
R3_090282327028#
%SYS-5-CONFIG_I: Configured from console by console
copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R3_090282327028#
```

## HASIL 'SHOW IP ROUTE RIP'

### ROUTER 1

```

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, 00:00:09, FastEthernet0/1
R 192.168.3.0/24 [120/2] via 192.168.100.2, 00:00:09, FastEthernet0/1
R 192.168.4.0/24 [120/3] via 192.168.100.2, 00:00:09, FastEthernet0/1
192.168.200.0/30 is subnetted, 1 subnets
R 192.168.200.0 [120/1] via 192.168.100.2, 00:00:09, FastEthernet0/1
192.168.220.0/30 is subnetted, 1 subnets
R 192.168.220.0 [120/2] via 192.168.100.2, 00:00:09, FastEthernet0/1
```

### ROUTER 2

```

R 192.168.1.0/24 [120/1] via 192.168.100.1, 00:00:01, 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, 00:00:06, FastEthernet1/0
R 192.168.4.0/24 [120/2] via 192.168.200.2, 00:00:06, FastEthernet1/0
192.168.220.0/30 is subnetted, 1 subnets
R 192.168.220.0 [120/1] via 192.168.200.2, 00:00:06, FastEthernet1/0
```

### ROUTER 3

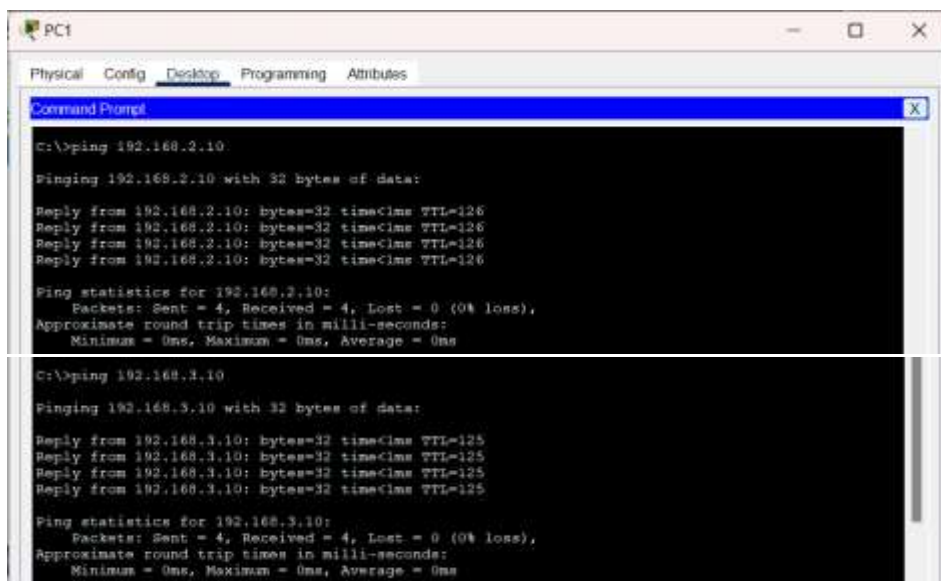
```

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
192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
R 192.168.4.0/24 [120/1] via 192.168.220.2, 00:00:11, FastEthernet1/0
192.168.100.0/30 is subnetted, 1 subnets
R 192.168.100.0 [120/1] via 192.168.200.1, 00:00:07, 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



The screenshot shows the Command Prompt window on PC1. It displays the results of two ping commands. The first command is 'C:\>ping 192.168.2.10', which pings PC2. The output shows four successful replies with a TTL of 126 and 0ms round trip times. The second command is 'C:\>ping 192.168.3.10', which pings PC3. The output shows four successful replies with a TTL of 125 and 0ms round trip times. Both pings show 0% packet loss.

```
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

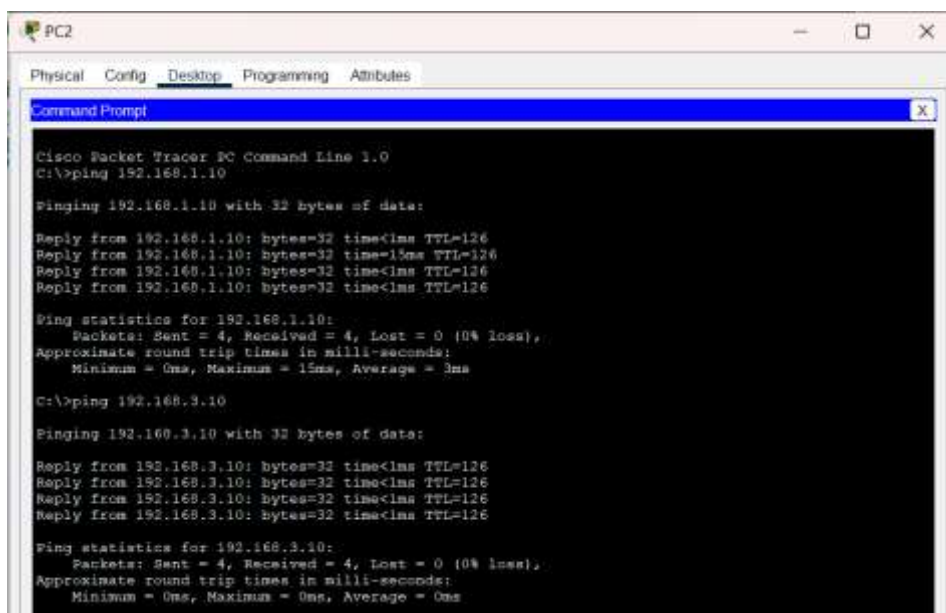
C:\>ping 192.168.3.10

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 = 0ms, Average = 0ms
```

PC 2 > PC 1, PC 3



The screenshot shows the Command Prompt window on PC2. It displays the results of two ping commands. The first command is 'C:\>ping 192.168.1.10', which pings PC1. The output shows four successful replies with a TTL of 126 and 3ms round trip times. The second command is 'C:\>ping 192.168.3.10', which pings PC3. The output shows four successful replies with a TTL of 126 and 0ms round trip times. Both pings show 0% packet loss.

```
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=15ms 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 = 15ms, Average = 3ms

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
```

PC 3 > PC 1, PC 2

```
PC1
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

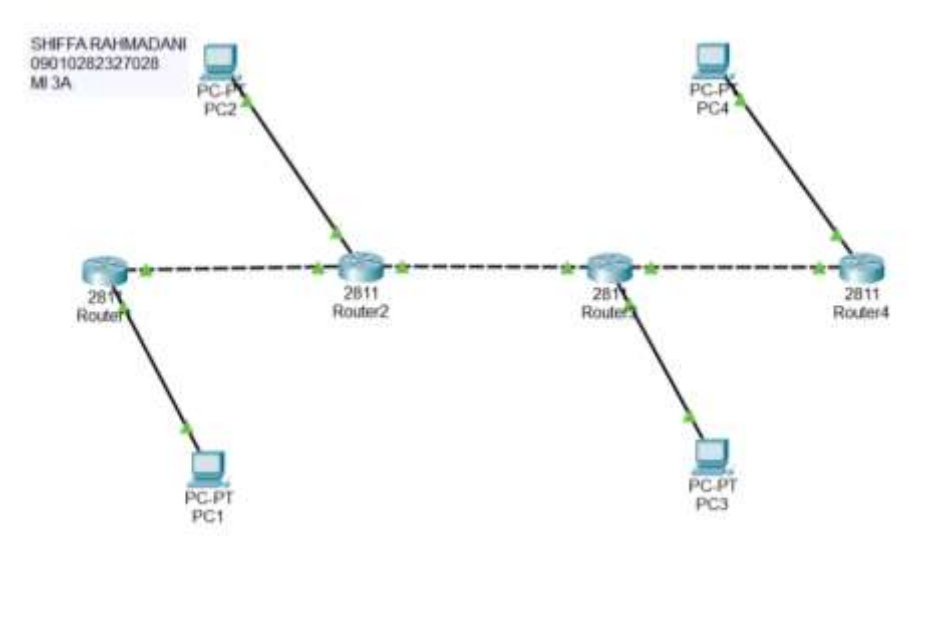
C:\>ping 192.168.2.10

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 = 1ms, Average = 0ms
```

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

```
R3_090282327028>en
R3_090282327028#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3_090282327028(config)#int fa1/0
R3_090282327028(config-if)#ip address 192.168.220.1 255.255.255.252
R3_090282327028(config-if)#no sh
R3_090282327028(config-if)#exit
R3_090282327028(config)#router rip
R3_090282327028(config-router)#version 2
R3_090282327028(config-router)#network 192.168.220.0
R3_090282327028(config-router)#no auto-summary
R3_090282327028(config-router)#passive-interface fa0/0
R3_090282327028(config-router)#end
R3_090282327028#
```

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.

```

R3_090282327028>en
R3_090282327028#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3_090282327028(config)#int fa1/0
R3_090282327028(config-if)#ip address 192.168.220.1 255.255.255.252
R3_090282327028(config-if)#no sh
R3_090282327028(config-if)#exit
R3_090282327028(config)#router rip
R3_090282327028(config-router)#version 2
R3_090282327028(config-router)#network 192.168.220.0
R3_090282327028(config-router)#no auto-summary
R3_090282327028(config-router)#passive-interface fa0/0
R3_090282327028(config-router)#end
R3_090282327028#
%SYS-5-CONFIG_I: Configured from console by console
copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]

```

## HASIL 'SHOW IP ROUTE RIP'

### ROUTER 4

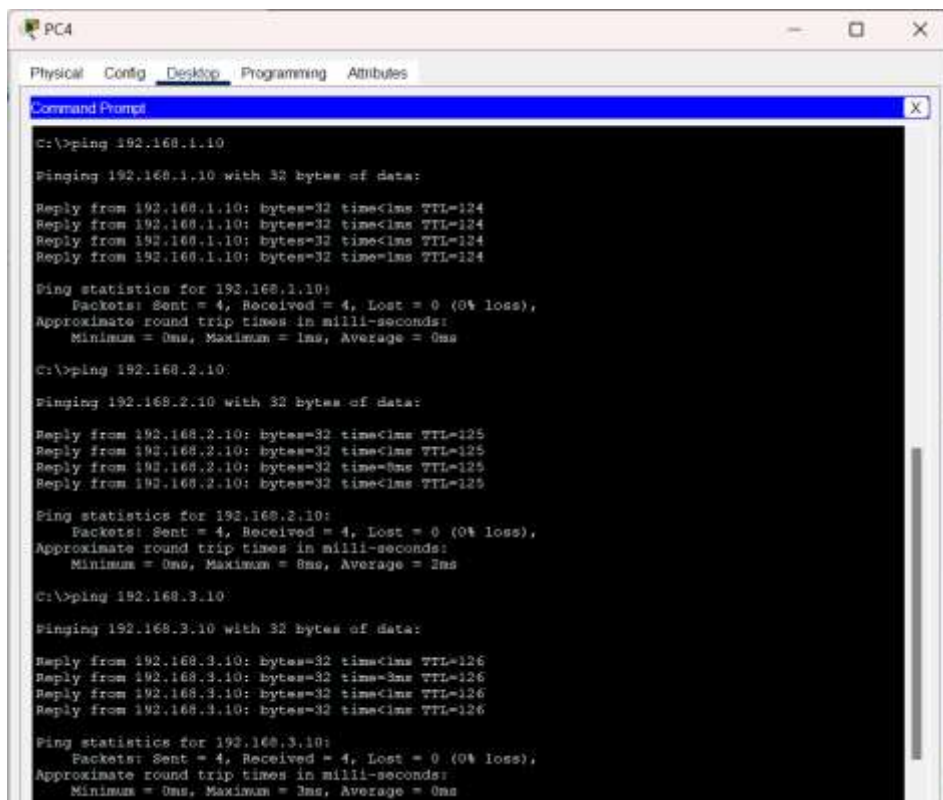
```

R3_090282327028#show ip route rip
      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, 00:00:18, FastEthernet1/0

R3_090282327028#

```

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



## Hasil Praktikum:

### Konfigurasi IP Address:

Pada praktikum ini, langkah pertama melibatkan pengaturan IP Address pada masing-masing PC dalam jaringan. Berikut adalah konfigurasi yang dilakukan:

- PC1: 192.168.1.2

- PC2: 192.168.1.3
- PC3: 192.168.1.4
- PC4: 192.168.2.2 (setelah penambahan)

### Konfigurasi Router:

Setelah pengaturan IP Address selesai, langkah berikutnya adalah konfigurasi Routing Information Protocol (RIP) pada tiga router yang tersedia:

- Router 1 (R1):
  - Konfigurasi RIP dilakukan dengan perintah:
 

```
router rip
version 2
network 192.168.1.0
```
- Router 2 (R2):
  - Konfigurasi serupa diterapkan pada R2 dengan menyesuaikan alamat jaringannya.
- Router 3 (R3):
  - R3 dikonfigurasi dengan cara yang sama.

### Hasil Tabel Routing:

Setelah konfigurasi selesai, perintah show ip route rip dijalankan pada masing-masing router untuk memastikan tabel routing telah diperbarui dengan benar.

- Hasil di R1: Menampilkan rute ke PC1 dan jaringan lain.
- Hasil di R2: Menampilkan rute ke PC2 dan jaringan lain.
- Hasil di R3: Menampilkan rute ke PC3 dan jaringan lain.

### Pengujian Konektivitas:

Pengujian konektivitas dilakukan dengan perintah PING dan Traceroute dari setiap PC ke PC lainnya:

- Dari PC1 ke PC2 dan PC3: Berhasil.
- Dari PC2 ke PC1 dan PC3: Berhasil.
- Dari PC3 ke PC1 dan PC2: Berhasil.

### Penambahan Router dan PC:

Setelah pengujian awal, satu router baru (R4) ditambahkan yang terhubung ke R3, serta satu PC baru (PC4) yang terhubung ke R4. **Konfigurasi R4 dan PC4:**

- Router 4 (R4):
  - Dikustomisasi dengan protokol RIP seperti router lainnya.
- PC4:
  - IP Address ditetapkan sebagai: 192.168.2.2

### Hasil Tabel Routing pada R4:

Perintah show ip route rip dijalankan di R4 untuk memastikan konfigurasi routing berjalan dengan baik.

### Pengujian Konektivitas untuk PC4:

Konektivitas dari PC4 ke semua perangkat lain (PC1, PC2, dan PC3) diuji dengan PING dan Traceroute, dan hasilnya berhasil.

### Analisis:

#### Konektivitas Jaringan:

- Seluruh perangkat dalam jaringan berhasil saling terhubung tanpa kendala, menunjukkan konfigurasi IP Address dan routing yang tepat.



- Penggunaan PING dan Traceroute membantu melihat jalur paket data antar perangkat, memberikan gambaran rinci mengenai konektivitas jaringan.

#### **Stabilitas Jaringan:**

- Penambahan Router R4 dan PC4 tidak menyebabkan gangguan terhadap konektivitas yang sudah ada.
- Router memperbarui tabel routing secara otomatis menggunakan protokol RIP, menunjukkan kehandalan RIP dalam manajemen routing.

#### **Efisiensi Protokol RIP:**

- Sebagai protokol distance-vector, RIP terbukti efektif dalam mengelola routing untuk jaringan skala kecil hingga menengah.
- Walaupun RIP memiliki batasan dalam hal waktu konvergensi dibandingkan protokol lain seperti OSPF, dalam praktikum ini, RIP cukup memadai untuk kebutuhan jaringan sederhana.

#### **Kesimpulan:**

Praktikum ini berhasil menunjukkan implementasi Routing Information Protocol (RIP) dalam jaringan komputer dengan efektif. Semua langkah konfigurasi telah dilaksanakan dengan benar, dan pengujian konektivitas mengonfirmasi bahwa seluruh perangkat dapat berkomunikasi tanpa masalah. Beberapa poin penting yang dapat disimpulkan dari praktikum ini adalah:

- **Pentingnya Pengaturan IP Address dan Protokol:** Pengaturan alamat IP dan penggunaan RIP yang tepat sangat penting untuk memastikan konektivitas jaringan.
- **Kemudahan Manajemen Routing:** Protokol RIP memberikan kemudahan dalam manajemen routing meskipun memiliki keterbatasan tertentu.
- **Pentingnya Pengujian Konektivitas:** Melakukan pengujian konektivitas adalah langkah penting untuk memastikan semua konfigurasi berjalan dengan baik.

Praktikum ini memberikan wawasan lebih tentang fungsi router dalam jaringan dan pentingnya pengaturan yang tepat untuk memastikan komunikasi yang efektif antar perangkat.