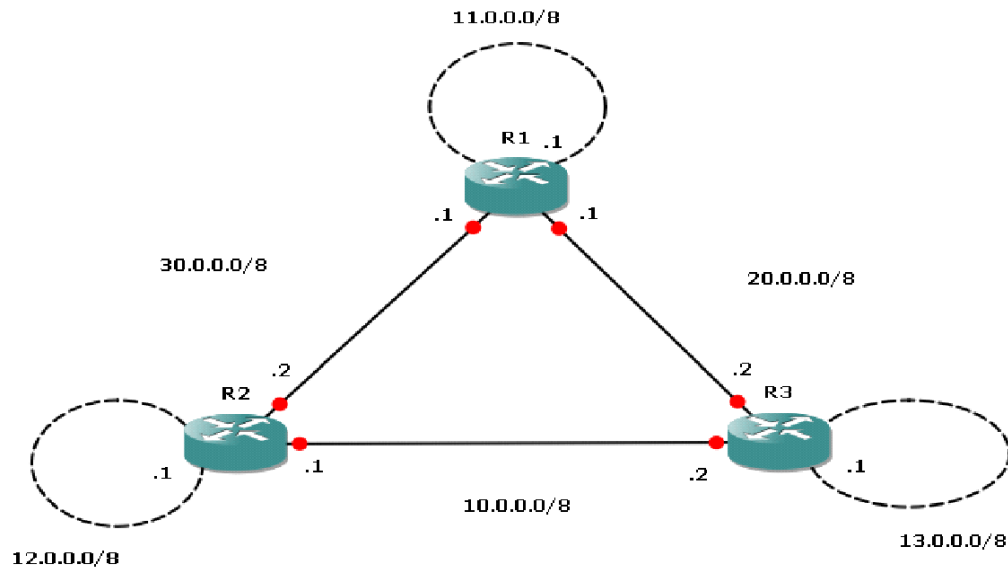


### Assignment 3: Dynamic Routing using RIP

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Class day/time:	2023-11-08

#### Instructions:

- **IMPORTANT:** The router hostname should be set to **Lastname-RouterX**. So if your last name is Smith and you are setting the hostname for Router2, the hostname should be **Smith-Router2**.
- Use this file to submit yours answers. Take screenshots as instructed below. Crop out any irrelevant parts of the screen (**10% penalty if I can't easily read the output in the screenshot**).
- Submit the file in SLATE before the deadline. **You should submit 2 files;** this Word document saved as PDF file, and a ZIP file containing all the files in your GNS3 project. **Your submission will consist of one PDF file and one ZIP file. If the ZIP file is not submitted there will be a penalty of 10%.**



1. Answer the following questions:

Each router has <u>2</u> active physical interface(s).	2
Each router has <u>1</u> virtual interface(s).	1
Each router has <u>3</u> directly-connected networks in its routing table.	3
Each router has <u>3</u> RIP routes in its routing table. (count only one for each remote network)	3
Total number of networks in the routing table?	1 per router

2. For each router, show the output of the **show ip interface brief** command:

Output from Router1:				
<pre>nolk-Router1#show ip interface brief</pre>				
Interface	IP-Address	OK?	Method Status	Protocol
FastEthernet0/0	30.0.0.1	YES	manual up	up
FastEthernet1/0	20.0.0.1	YES	manual up	up
Loopback0	11.0.0.1	YES	manual up	up
Output from Router2:				
<pre>nolk-Router2#show ip interface brief</pre>				
Interface	IP-Address	OK?	Method Status	Protocol
FastEthernet0/0	30.0.0.2	YES	manual up	up
FastEthernet1/0	10.0.0.1	YES	manual up	up
Loopback0	12.0.0.1	YES	manual up	up
Output from Router3:				
<pre>nolk-Router3#show ip interface brief</pre>				
Interface	IP-Address	OK?	Method Status	Protocol
FastEthernet0/0	20.0.0.2	YES	manual up	up
FastEthernet1/0	10.0.0.2	YES	manual up	up
Loopback0	13.0.0.1	YES	manual up	up

3. For each router, show the output of the **show ip route** command:

Output from Router1:	
<pre>nolk-Router1#show ip route</pre>	
<pre>Codes: C - connected, S - static, 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        i - IS-IS, su - IS-IS summary, 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</pre>	
<pre>Gateway of last resort is not set</pre>	
C	20.0.0.0/8 is directly connected, FastEthernet1/0
R	10.0.0.0/8 [120/1] via 30.0.0.2, 00:00:28, FastEthernet0/0 [120/1] via 20.0.0.2, 00:00:08, FastEthernet1/0
C	11.0.0.0/8 is directly connected, Loopback0
R	12.0.0.0/8 [120/1] via 30.0.0.2, 00:00:00, FastEthernet0/0
R	13.0.0.0/8 [120/1] via 20.0.0.2, 00:00:08, FastEthernet1/0
C	30.0.0.0/8 is directly connected, FastEthernet0/0
<pre>nolk-Router1#show run</pre>	
Output from Router2:	

```
nolk-Router2#show ip route
Codes: C - connected, S - static, 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
       i - IS-IS, su - IS-IS summary, 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    20.0.0.0/8 [120/1] via 30.0.0.1, 00:00:02, FastEthernet0/0
      [120/1] via 10.0.0.2, 00:00:15, FastEthernet1/0
C    10.0.0.0/8 is directly connected, FastEthernet1/0
R    11.0.0.0/8 [120/1] via 30.0.0.1, 00:00:04, FastEthernet0/0
C    12.0.0.0/8 is directly connected, Loopback0
R    13.0.0.0/8 [120/1] via 30.0.0.1, 00:00:04, FastEthernet0/0
      [120/1] via 10.0.0.2, 00:00:18, FastEthernet1/0
C    30.0.0.0/8 is directly connected, FastEthernet0/0
nolk-Router2#show run
```

#### Output from Router3:

```
nolk-Router3#show ip route
Codes: C - connected, S - static, 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
       i - IS-IS, su - IS-IS summary, 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    20.0.0.0/8 is directly connected, FastEthernet0/0
C    10.0.0.0/8 is directly connected, FastEthernet1/0
R    11.0.0.0/8 [120/1] via 20.0.0.1, 00:00:16, FastEthernet0/0
      [120/1] via 10.0.0.1, 00:00:07, FastEthernet1/0
R    12.0.0.0/8 [120/1] via 20.0.0.1, 00:00:16, FastEthernet0/0
      [120/1] via 10.0.0.1, 00:00:07, FastEthernet1/0
C    13.0.0.0/8 is directly connected, Loopback0
R    30.0.0.0/8 [120/1] via 20.0.0.1, 00:00:16, FastEthernet0/0
      [120/1] via 10.0.0.1, 00:00:07, FastEthernet1/0
nolk-Router3#show run
```

4. For each router, run the **show run** command, and take screenshots of the parts showing the **interface configurations** and the part showing the **RIP configuration**. Do not include the rest of the config file. **There will be a 10% penalty if you simply paste a screenshot of the entire config file.**

#### Output from Router1:

```
!  
interface Loopback0  
  ip address 11.0.0.1 255.0.0.0  
!  
interface FastEthernet0/0  
  ip address 30.0.0.1 255.0.0.0  
  duplex auto  
  speed auto  
!  
interface FastEthernet1/0  
  ip address 20.0.0.1 255.0.0.0  
  duplex auto  
  speed auto  
!  
router rip  
  network 11.0.0.0  
  network 20.0.0.0  
  network 30.0.0.0  
!
```

#### Output from Router2:

```
!  
interface Loopback0  
  ip address 12.0.0.1 255.0.0.0  
!  
interface FastEthernet0/0  
  ip address 30.0.0.2 255.0.0.0  
  duplex auto  
  speed auto  
!  
interface FastEthernet1/0  
  ip address 10.0.0.1 255.0.0.0  
  duplex auto  
  speed auto  
!  
router rip  
  network 10.0.0.0  
  network 12.0.0.0  
  network 30.0.0.0  
!
```

#### Output from Router3:

```
!  
!  
interface Loopback0  
  ip address 13.0.0.1 255.0.0.0  
!  
interface FastEthernet0/0  
  ip address 20.0.0.2 255.0.0.0  
  duplex auto  
  speed auto  
!  
interface FastEthernet1/0  
  ip address 10.0.0.2 255.0.0.0  
  duplex auto  
  speed auto  
!  
router rip  
  network 10.0.0.0  
  network 13.0.0.0  
  network 20.0.0.0  
!
```

5. From each router, ping all the interfaces on networks that are not directly connected to the router. For example, from Router1 you should ping 12.0.0.1, 13.0.0.1, 10.0.0.1 and 10.0.0.2. Take one screenshot showing the 4 ping results. **There will be a 10% penalty if the screenshot contains irrelevant information.**

**Output from Router1:**

```
nolkm-Router1>ping 12.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 12.0.0.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/66/72 ms
nolkm-Router1>ping 13.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 13.0.0.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/65/68 ms
nolkm-Router1>ping 10.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 68/88/100 ms
nolkm-Router1>Ping 10.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 72/99/140 ms
nolkm-Router1>
```

**Output from Router2:**

ping 11.0.0.1

ping 13.0.0.1

ping 20.0.0.1

Ping 20.0.0.2

---

```
nolk-Router2>ping 11.0.0.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 11.0.0.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/66/68 ms
```

```
nolk-Router2>ping 13.0.0.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 13.0.0.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/64/68 ms
```

```
nolk-Router2>ping 20.0.0.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 20.0.0.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/65/68 ms
```

```
nolk-Router2>Ping 20.0.0.2
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 20.0.0.2, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/67/76 ms
```

```
nolk-Router2>
```

**Output from Router3:**

ping 12.0.0.1

ping 11.0.0.1

ping 30.0.0.1

Ping 30.0.0.2

---

```
nolkm-Router3#ping 12.0.0.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 12.0.0.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/79/100 ms
```

```
nolkm-Router3#ping 11.0.0.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 11.0.0.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/79/96 ms
```

```
nolkm-Router3#ping 30.0.0.1
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 30.0.0.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/90/100 ms
```

```
nolkm-Router3#Ping 30.0.0.2
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 30.0.0.2, timeout is 2 seconds:
```

```
!!!!
```

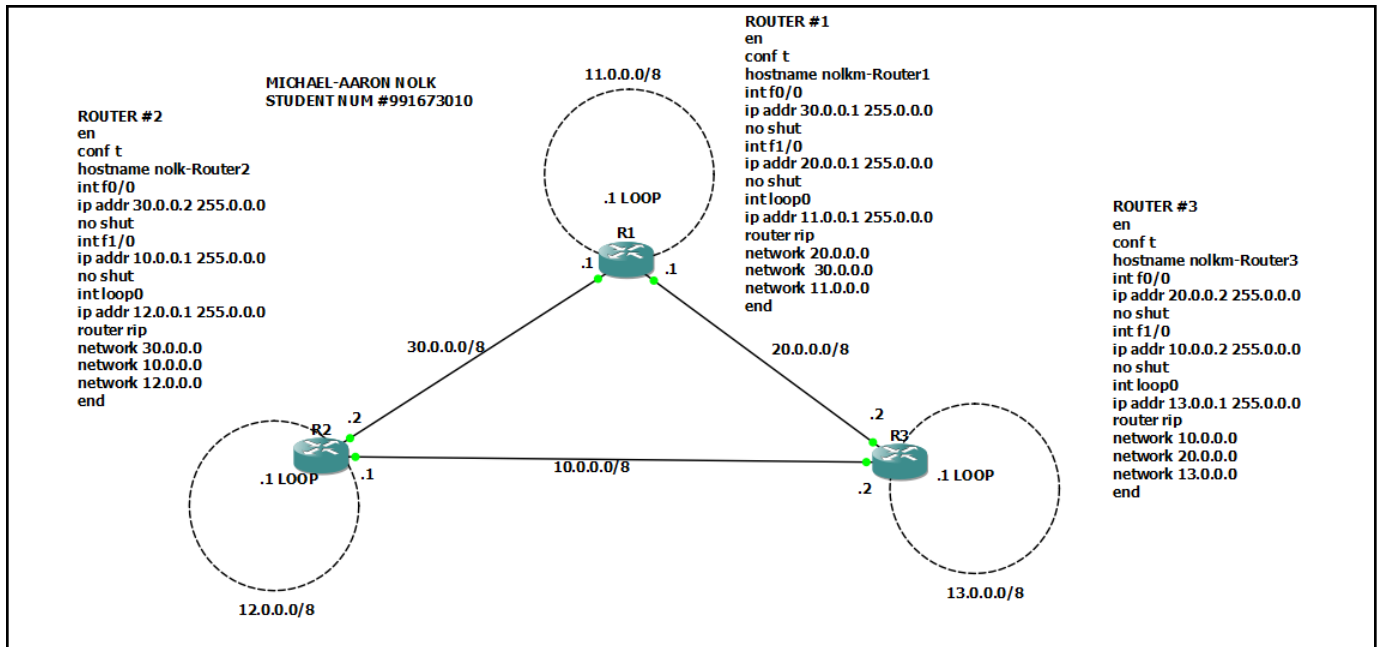
```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/64/68 ms
```

```
nolkm-Router3#
```

6. Take a screenshot of your GNS3 network topology. Use the screenshot feature in GNS3 (click File, Take a screenshot).

**GNS3 Network:**





Final reminders:

Remember to save this document as a PDF file.

Submit one PDF file and one ZIP file.

DO NOT include the PDF file inside the ZIP file.