EX.NO:08	**Demonstration of Dynamic Routing**	**REG.NO: URK22AI1048**
DATE: 04 -10 -2023		

AIM

To design a network topology to perform the initial router configurations required for connectivity by using the IP addresses and configure the RIPv2 dynamic routing that are needed to allow communication between the hosts.

DESCRIPTION

Dynamic routing, also called adaptive routing, is a process where a router can forward data via a different route for a given destination based on the current conditions of the communication circuits within a system.

CONFIGURATION COMMANDS

ROUTER 1
Router>en
Router#conf
Enter configuration commands, one per line. End with CNTL/Z.
Router (config)#int fa0/0
Router (config-if)#ip addr 192.168.1.1 255.255.255.0
Router (config-if) #no sh
Router (config-if) #int se2/0
Router (config-if) #ip add 10.0.0.2 255.0.0.0
Router (contig-if)#no sh
Router (config-if) #int se3/0
Router (config-if) #ip add 12.0.0.2 255.0.0.0
Router (contig-if)#no sh
Router (confiq-if)#exit
Router (config)#ip route 192.168.2.0 255.255.255.0 10.0.0.3
Router (config)#ip route 192.168.3.0 255.255.255.0 12.0.0.3

ROUTER 2
Router>en
Router#conf
Enter configuration commands, one per line. End with CNTL/Z.
Router (config)#int fa0/0
Router (config-if)#ip addr 192.168.2.1 255.255.255.0
Router (config-if) #no sh
Router (config-if) #int se2/0
Router (config-if) #ip add 10.0.0.3 255.0.0.0
Router (contig-if)#no sh
Router (config-if) #int se3/0
Router (config-if) #ip add 11.0.0.2 255.0.0.0
Router (contig-if)#no sh
Router (confiq-if)#exit
Router (config)#ip route 192.168.1.0 255.255.255.0 10.0.0.2
Router (config)#ip route 192.168.3.0 255.255.255.0 11.0.0.3
ROUTER 3
Router>en

```
Router#conf
Enter configuration commands, one per line. End with CNTL/Z.
Router (config)#int fa0/0
Router (config-if)#ip addr 192.168.3.1 255.255.255.0
Router (config-if) #no sh
Router (config-if) #int  se2/0
Router (config-if) #ip add 11.0.0.3 255.0.0.0
Router (contig-if)#no sh
Router (config-if) #int  se3/0
Router (config-if) #ip add 12.0.0.3 255.0.0.0
Router (contig-if)#no sh
Router (confiq-if)#exit
Router (config)#ip route 192.168.1.0 255.255.255.0 12.0.0.2
Router (config)#ip route 192.168.2.0 255.255.255.0 11.0.0.2
```
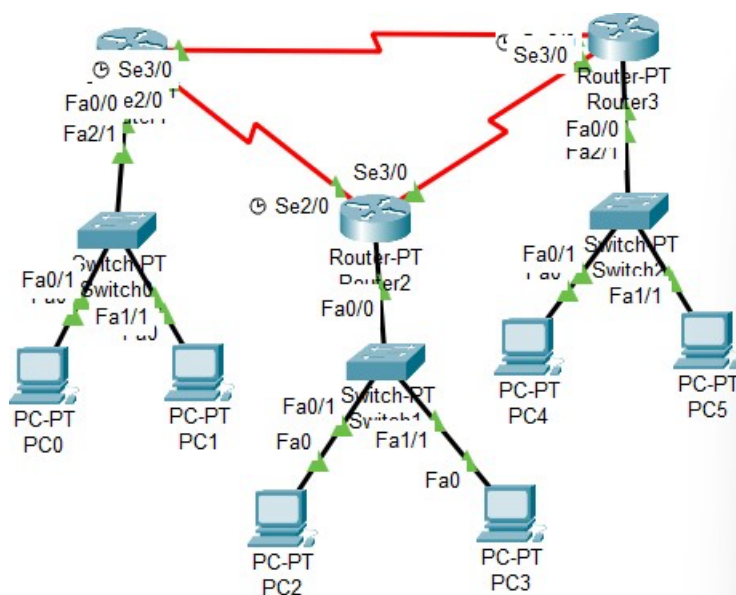
PROCEDURE

1. Configure IP Addressing on the Host PCs.
2. Configure Routers Interfaces.
3. Configure the routers to install the dynamic routing in the routing table
4. Test and Verify the Configurations.

TOPOLOGY DIAGRAM

ADDRESSING TABLE

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	Fa0/0	192.168.1.1	255.255.255.0	NA
	Se 2/0	10.0.0.2	255.0.0.0	NA
	Se3/0	12.0.0.2	255.0.0.0	NA
R2	Se2/0	10.0.0.3	255.0.0.0	NA
	Se3/0	11.0.0.2	255.0.0.0	NA
R3	Fa0/0	192.168,2,1	255.255.255.0	NA
	Se2/0	11.0.0.3	255.0.0.0	NA
	Se3/0	12.0.0.3	255.0.0.0	NA
PC1	NIC	192.168.1.2	255.255.255.0	192.168.1.1
PC2	NIC	192.168.2.2	255.255.255.0	192.168.2.1

OUTPUT

Screenshot of Topology
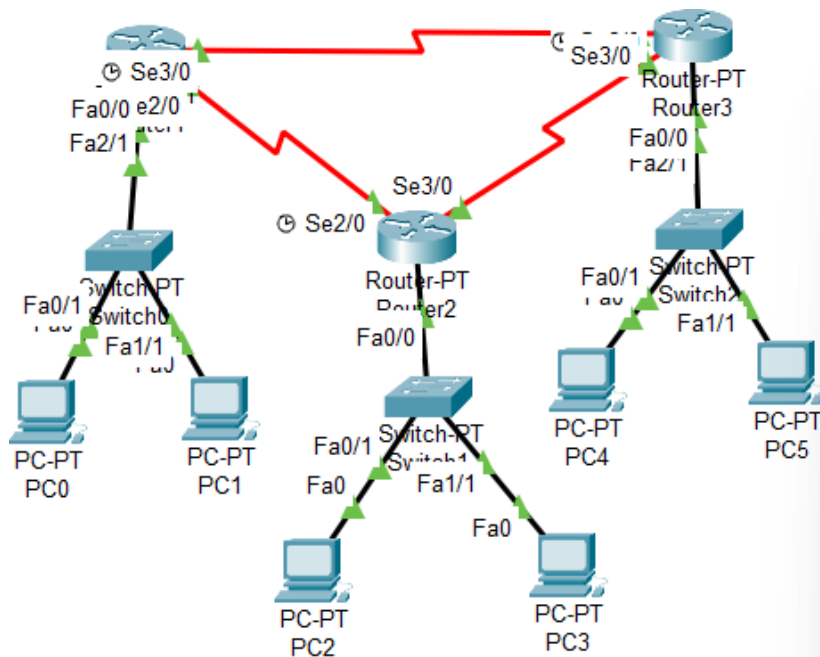
Screenshot of successful ping from PC to Router.

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time=15ms TTL=128
Reply from 192.168.10.2: bytes=32 time=5ms TTL=128
Reply from 192.168.10.2: bytes=32 time=2ms TTL=128
Reply from 192.168.10.2: bytes=32 time=6ms TTL=128

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 15ms, Average = 7ms

C:\>
```

Screenshot of unsuccessful ping from PC to a remote PC.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 12.0.0.3: Destination host unreachable.
Reply from 12.0.0.3: Destination host unreachable.
Reply from 12.0.0.3: Destination host unreachable.
Reply from 12.0.0.3: Destination host unreachable.

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Screenshot of the configuration of RIPv2 from any one router

```
Router(config)#router rip
Router(config-router)#no network 192.168.1.0
Router(config-router)#no network 12.0.0.0
Router(config-router)#no network 10.0.0.0
Router(config-router)#network 10.0.0.0
Router(config-router)#network 12.0.0.0
Router(config-router)#network 192.168.1.0
Router(config-router)#
```

Screenshot of Routing Table of RIP

```
router rip              router rip              router rip
 network 10.0.0.0        network 10.0.0.0        network 11.0.0.0
 network 12.0.0.0        network 11.0.0.0        network 12.0.0.0
 network 192.168.1.0     network 192.168.2.0     network 192.168.3.0
```

Screenshot of Show running-config

```
interface FastEthernet0/0
 ip address 192.168.1.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 10.0.0.2 255.0.0.0
!
interface Serial3/0
 ip address 12.0.0.2 255.0.0.0
 clock rate 2000000
!
interface FastEthernet4/0
 no ip address
 shutdown
!
interface FastEthernet5/0
 no ip address
 shutdown
!
router rip
 network 10.0.0.0
 network 12.0.0.0
 network 192.168.1.0
!
ip classless
!
ip flow-export version 9
```

Screenshot of Show ip protocols

```
Router#sh ip Protocol
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 25 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 1, receive any version
  Interface              Send  Recv  Triggered RIP  Key-chain
  FastEthernet0/0        12 1
  Serial2/0              12 1
  Serial3/0              12 1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
        10.0.0.0
        12.0.0.0
        192.168.1.0
Passive Interface(s):
Routing Information Sources:
        Gateway         Distance      Last Update
        10.0.0.3             120      00:00:26
        12.0.0.3             120      00:00:10
Distance: (default is 120)
```

RESULT

The above topology was constructed and the required output was achieved successful.