

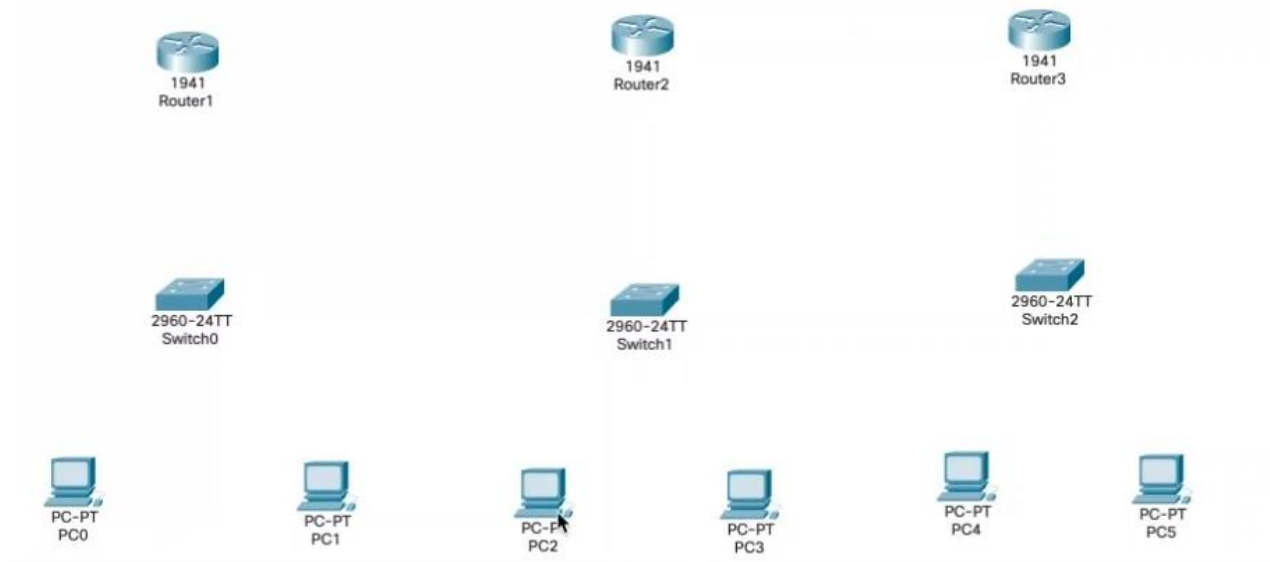
# Computer Networks (CS303)

## Assignment - 8

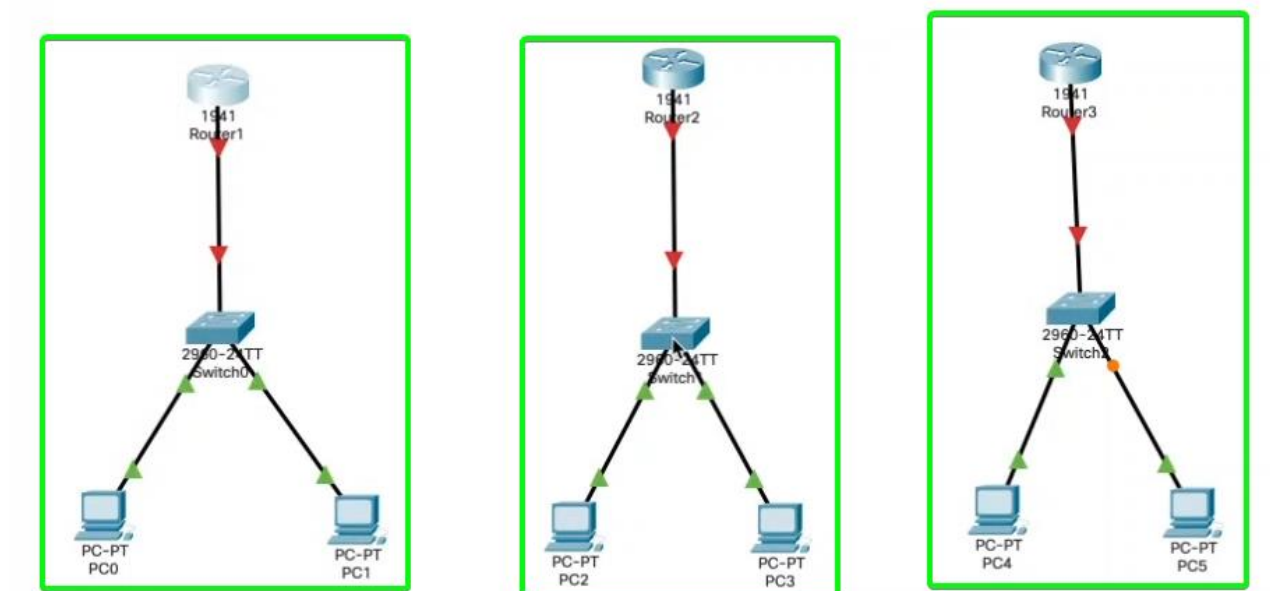
### U19CS012

1) Implement **Static Routing** in Cisco Packet Tracer.

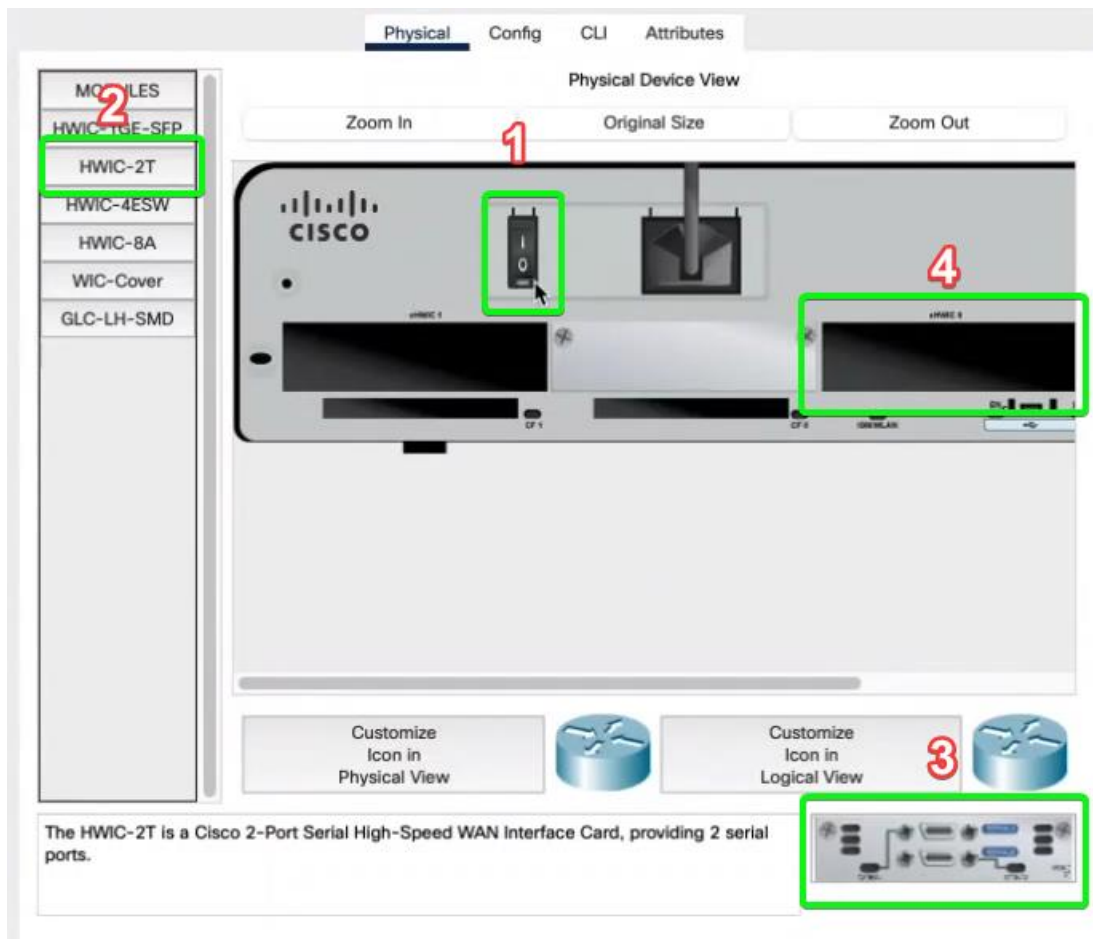
**Step 1:** Select 6 PC's, 3 Switches and 3 Routers and Place them as Shown in Figure Below.



**Step 2:** Also Connect them using Wire. Basically, we want to Develop 3 Network consisting of {2 PC, 1 Switch and 1 Router}.

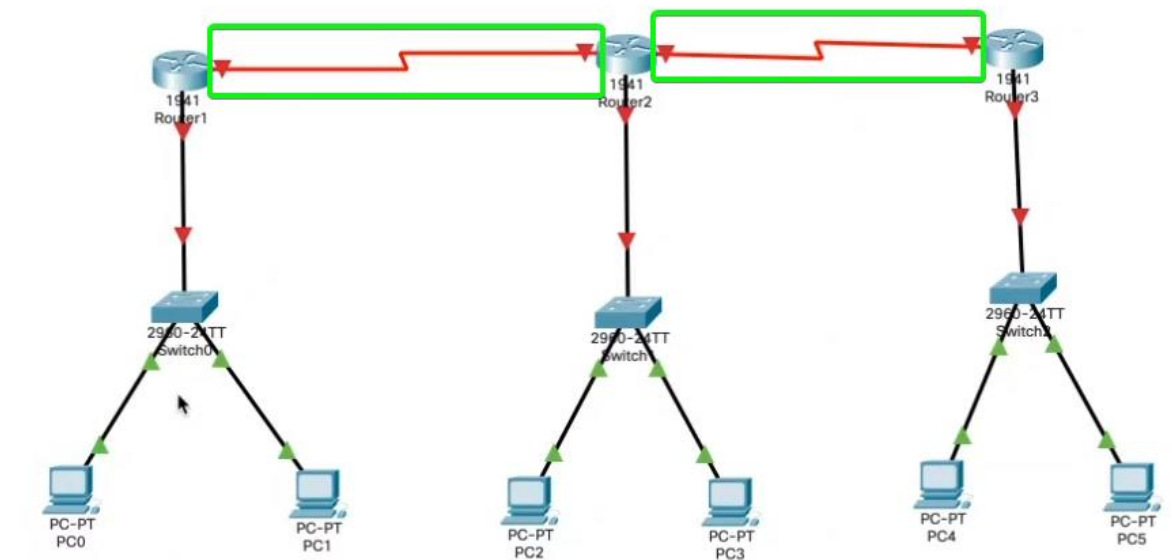


**Step 3:** Since we require 3 Points for Connection, we will add "HWIC-2T" [High Speed Interface Card]

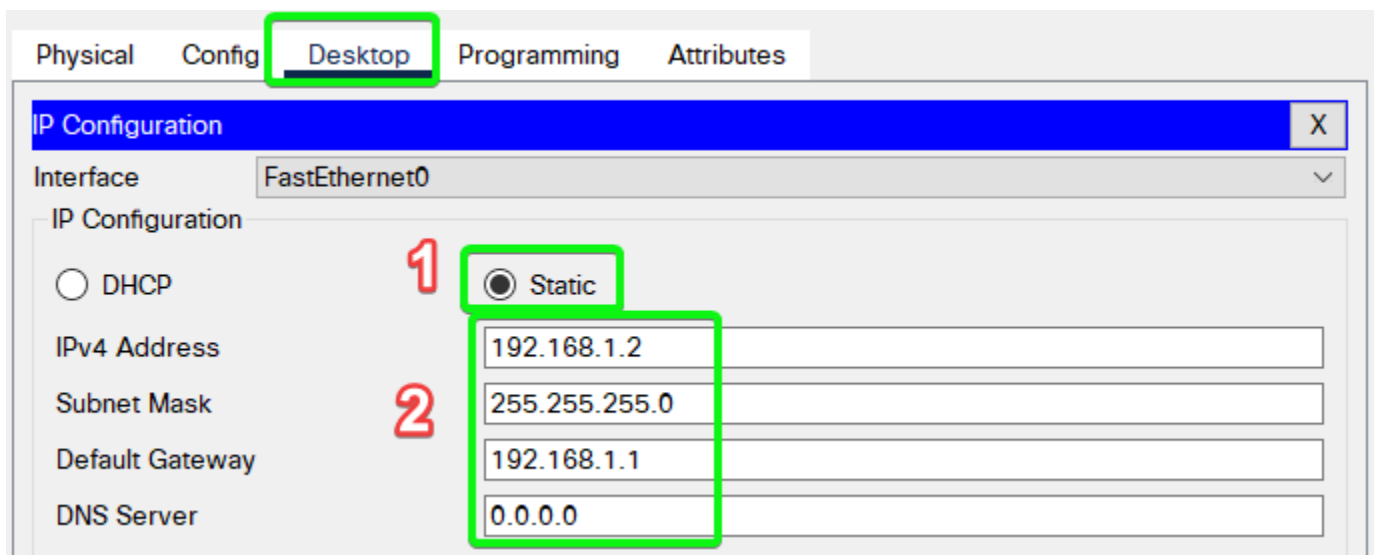
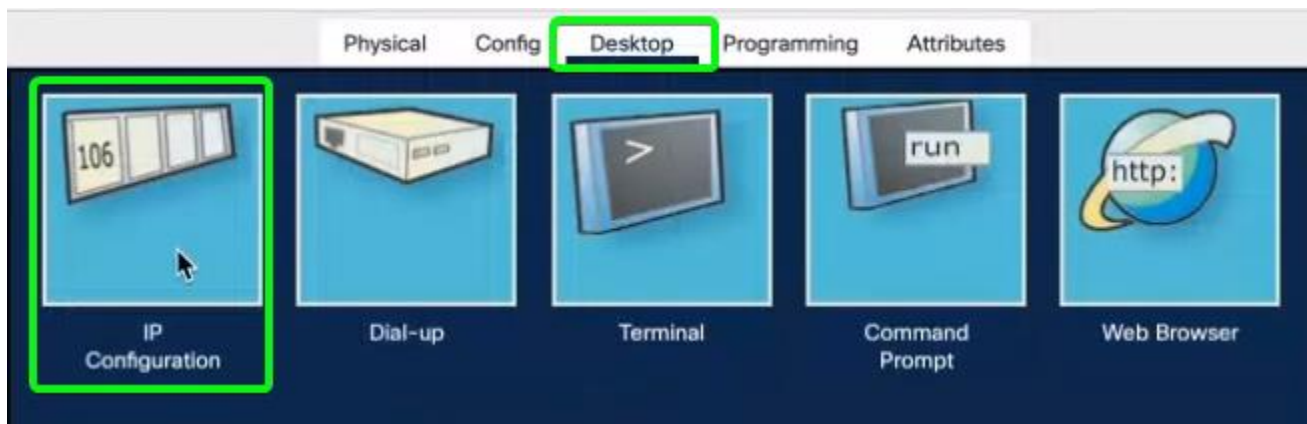


Add it for all three Routers.

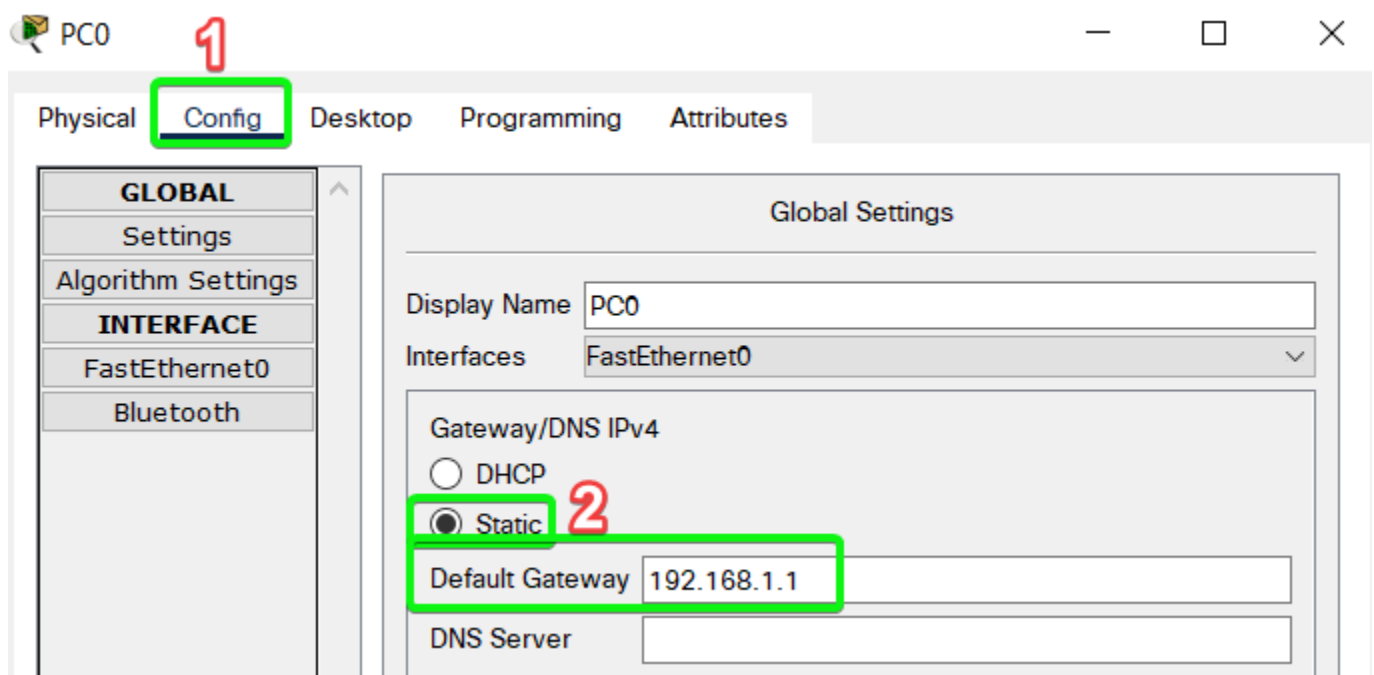
**Step 4:** Connect the Routers with Automatic Wiring.



**Step 5:** Configure the IP Address of Each PC as shown below.



Also, Don't Forget to Configure the Default Gateway.



## Step 6: Configure each Router as shown below.

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

GigabitEthernet0/0

GigabitEthernet0/1

Serial0/0/0

Serial0/0/1

**GigabitEthernet0/0**

Port Status **3** ☒ On

Bandwidth ☒ 1000 Mbps ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 00D0.9752.3601

IP Configuration

IPv4 Address **2** 192.168.1.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

GigabitEthernet0/0

GigabitEthernet0/1

**Serial0/0/0** **1**

Serial0/0/1

**Serial0/0/0**

Port Status **3** ☒ On

Duplex ☐ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address **2** 11.0.0.2

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

GigabitEthernet0/0

GigabitEthernet0/1

Serial0/0/0

**Serial0/0/1**

**Serial0/0/1**

Port Status ☒ On

Duplex ☐ Full Duplex

Clock Rate 2000000

IP Configuration

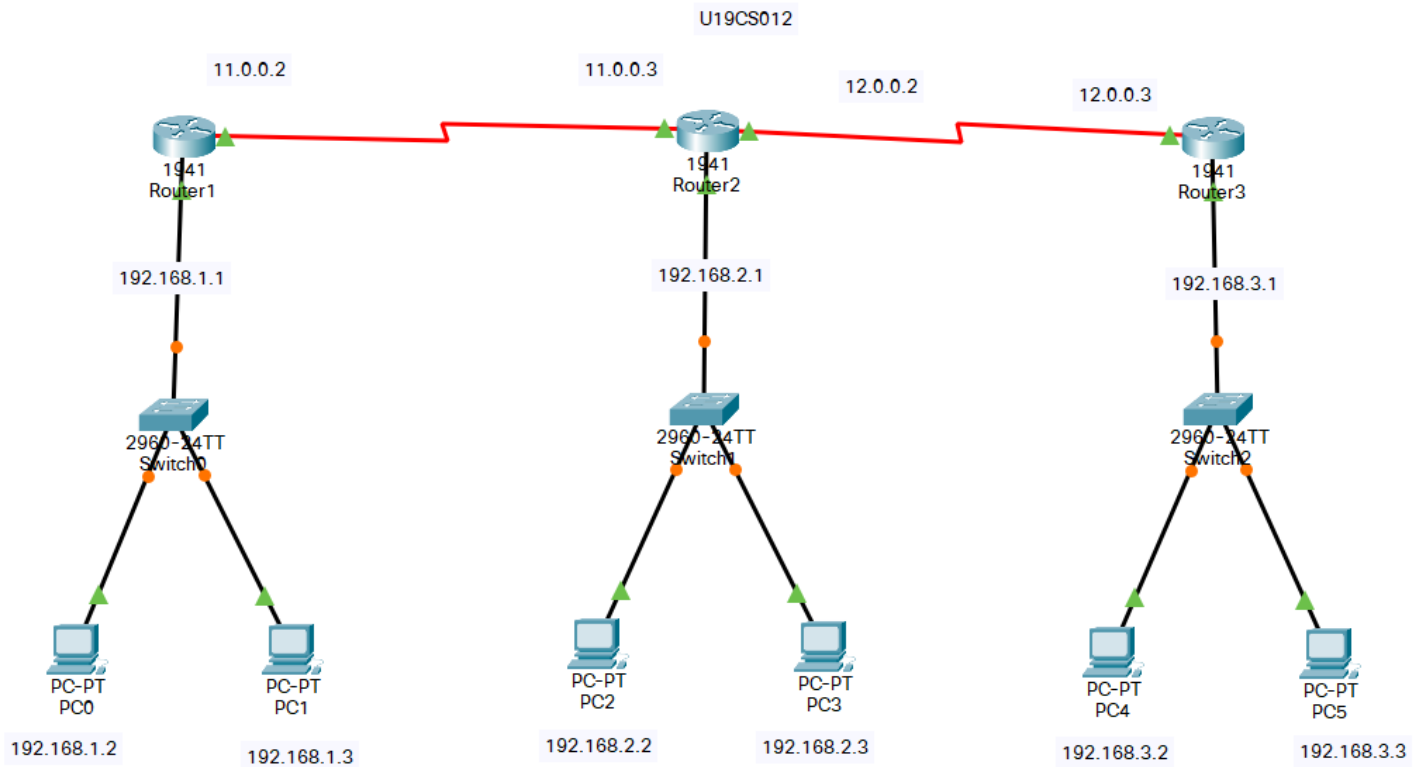
IPv4 Address 12.0.0.2

Subnet Mask 255.0.0.0

Tx Ring Limit 10

**For Router 2, We need to  
Both Serial Ports**

## Step 7: Label Each PC and Router as Shown Below.



## Step 8: Add Static Routes Paths for Each Router

Physical   **Config**   CLI   Attributes

GLOBAL

Settings

Algorithm Settings

**ROUTING** <sup>1</sup>

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

Serial0/0/0

Serial0/0/1

Static Routes

Network <sup>2</sup> 192.168.3.0

Mask 255.255.255.0

Next Hop <sup>3</sup> 11.0.0.3

Add

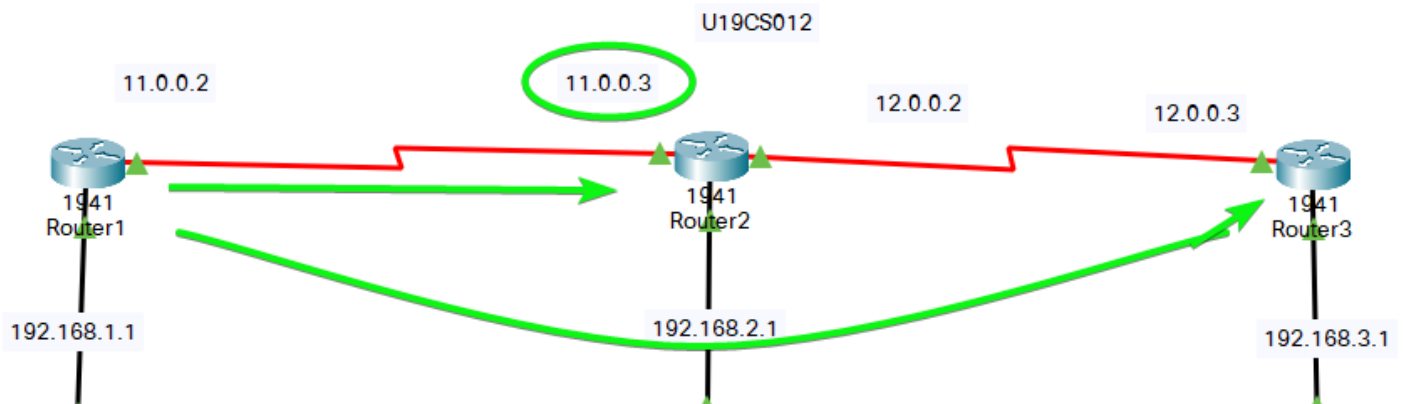
Network Address

192.168.2.0/24 via 11.0.0.3

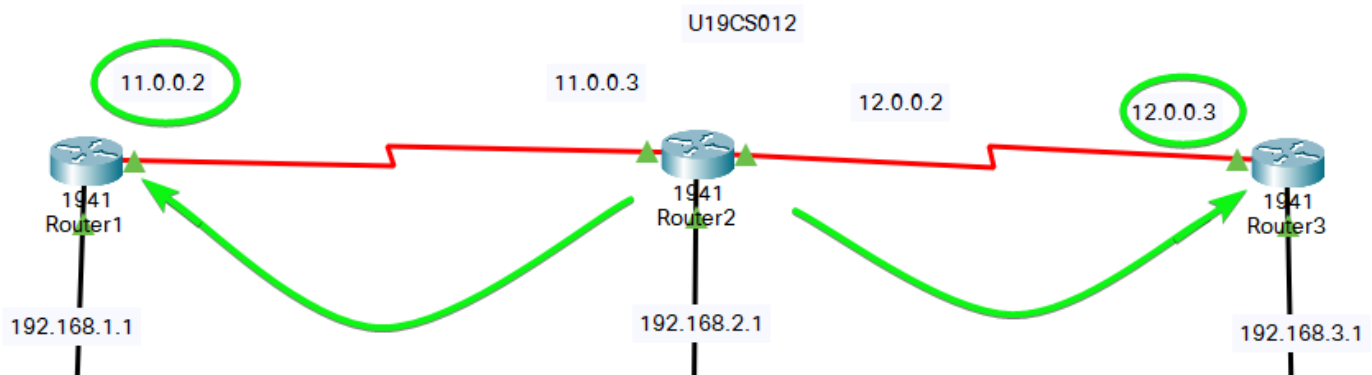
192.168.3.0/24 via 11.0.0.3 <sup>4</sup>

Remove

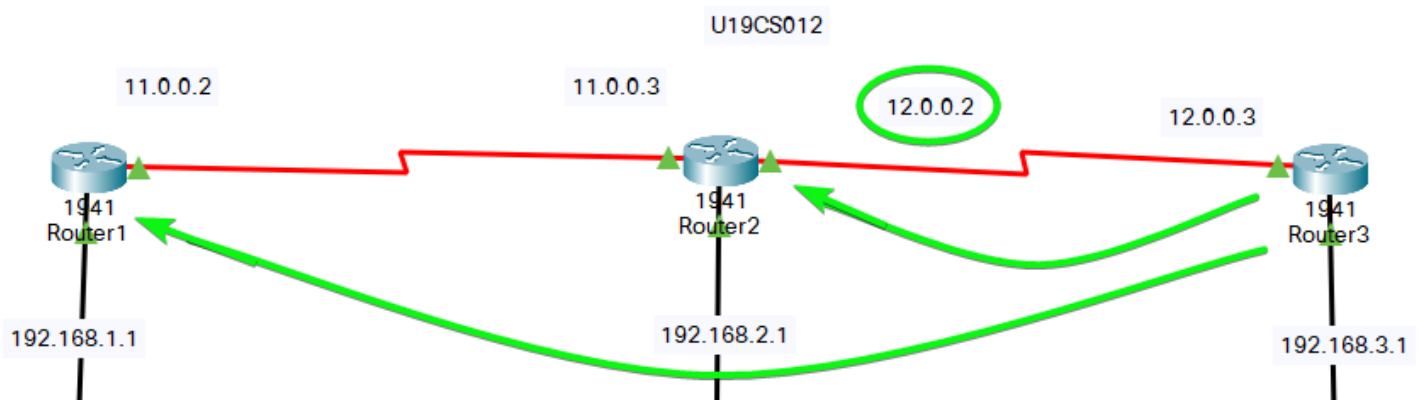
**Router 1:** To Reach From 192.168.1.0 to {192.168.2.0 & 192.168.3.0} we need to Hop via {11.0.0.3}.



**Router 2:** To reach From 192.168.2.0 to {192.168.1.0} we need to Hop via {11.0.0.2}.  
To Reach From 192.168.2.0 to {192.168.3.0} we need to Hop via {12.0.0.3}.

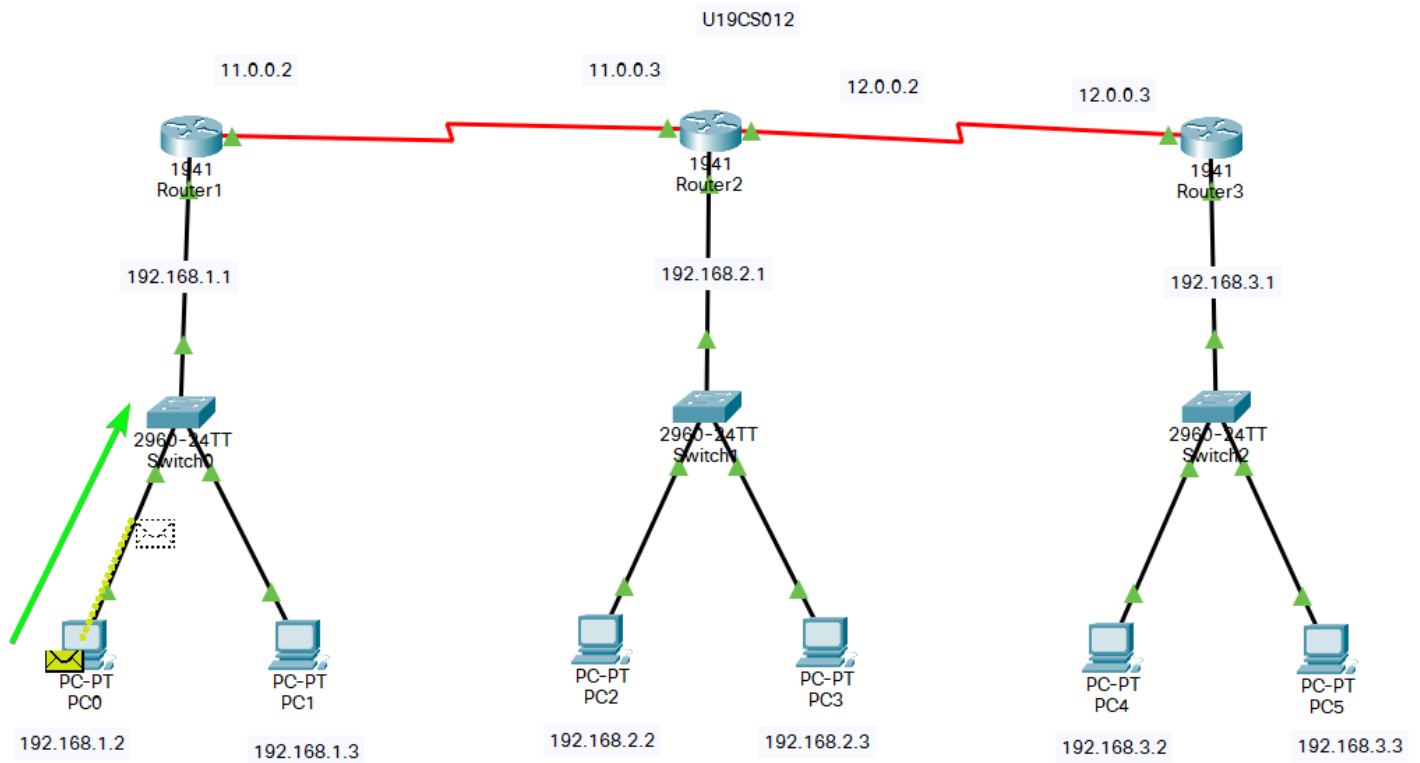


**Router 3:** To reach From 192.168.3.0 to {192.168.1.0 & 192.168.2.0} we need to Hop via {12.0.0.2}.

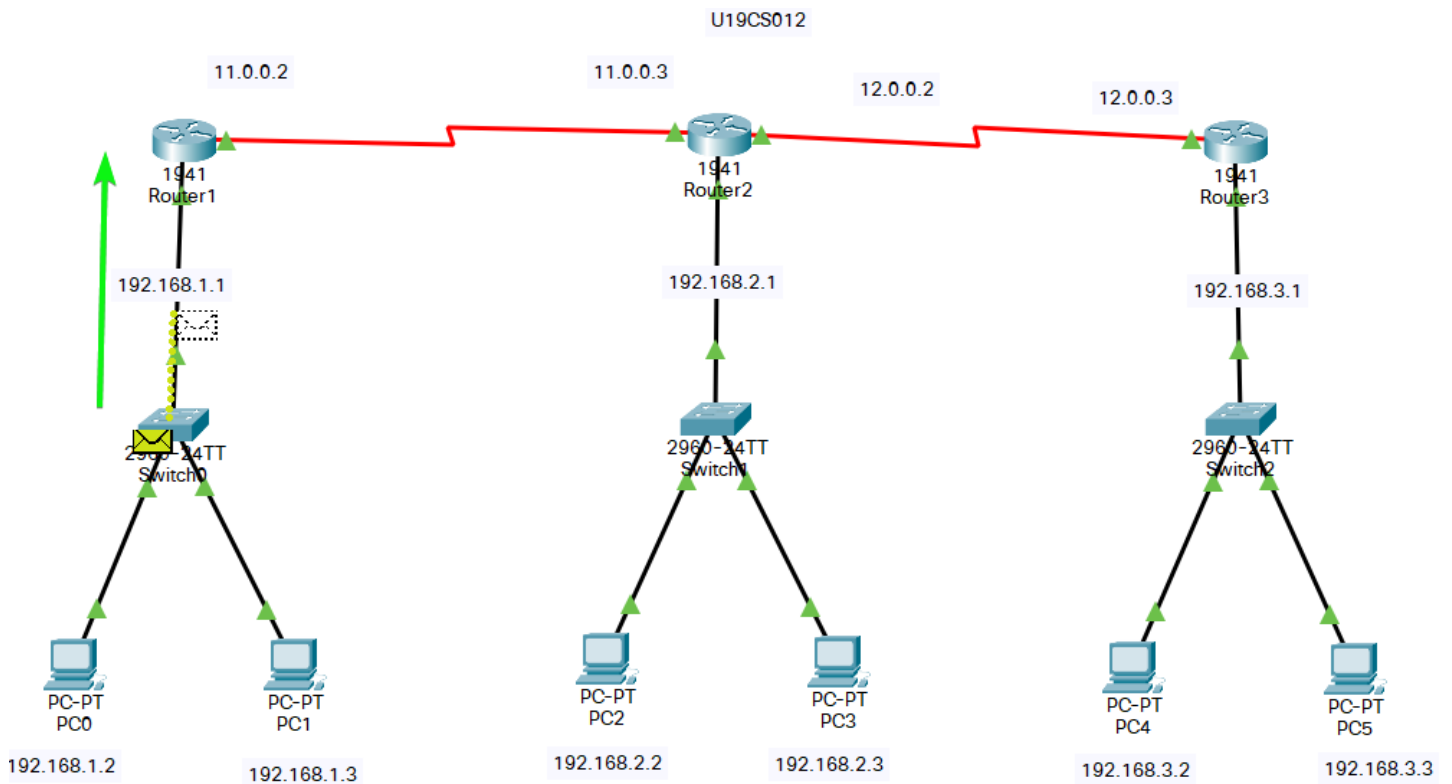


## Simulation

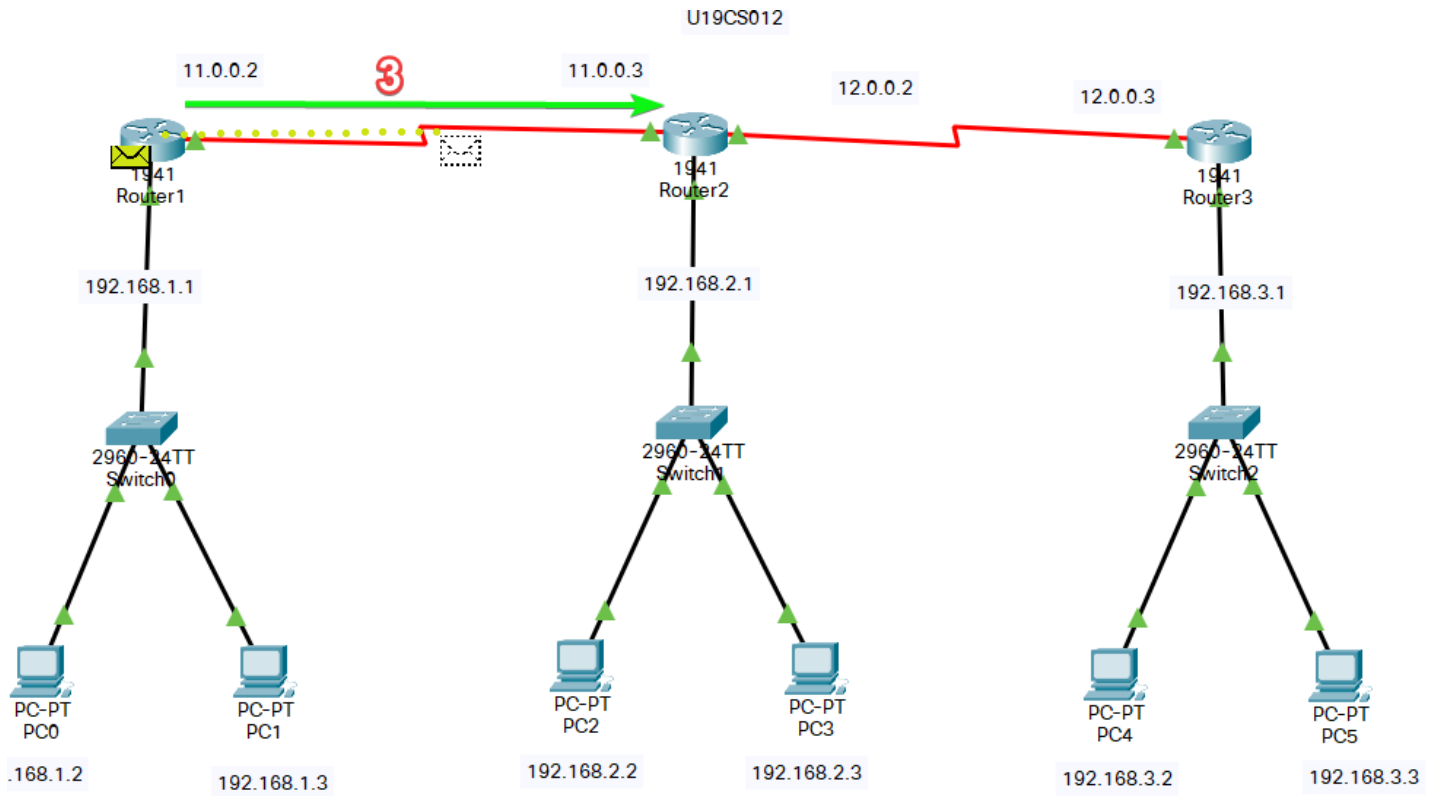
### Static Routing Step 1



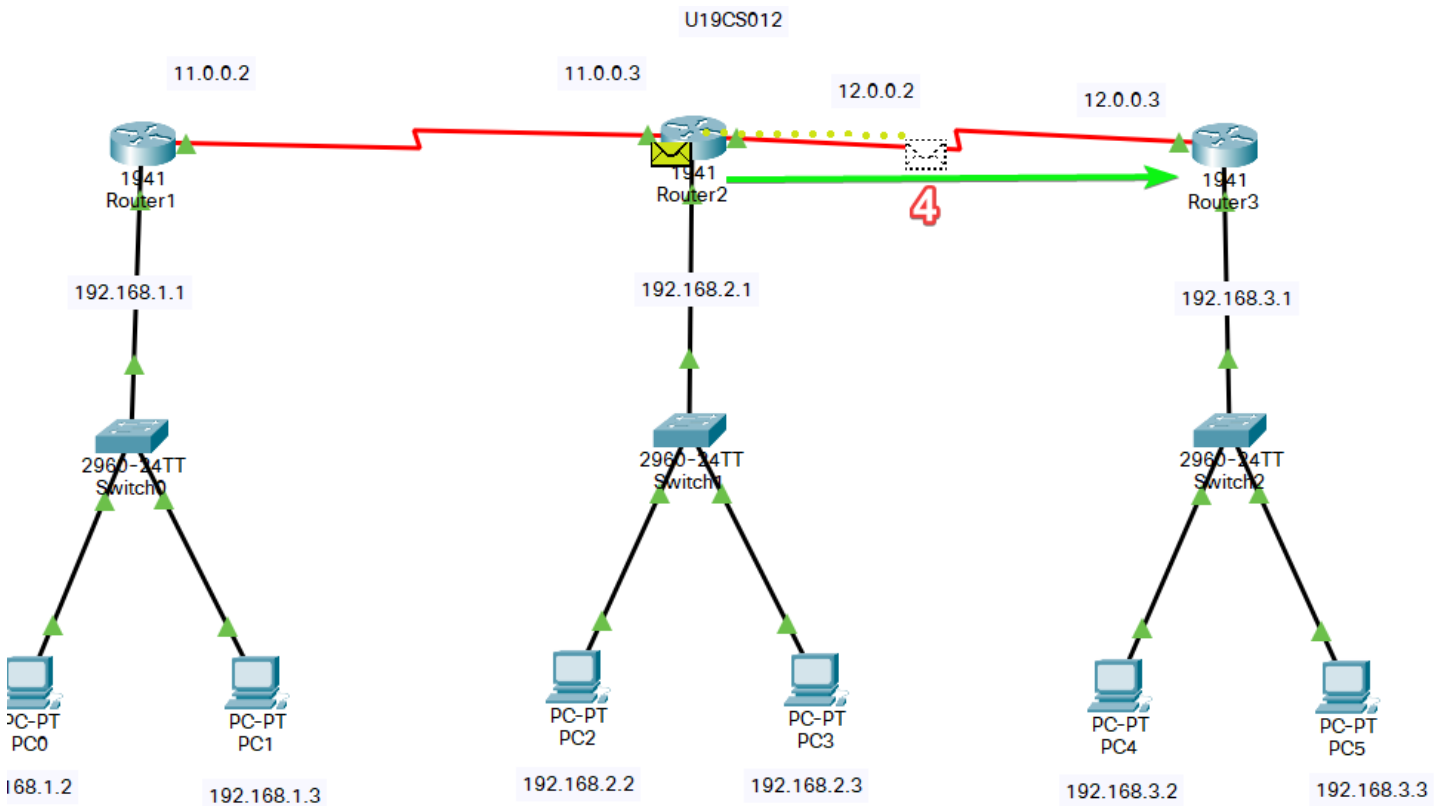
### Static Routing Step 2



### Static Routing Step 3

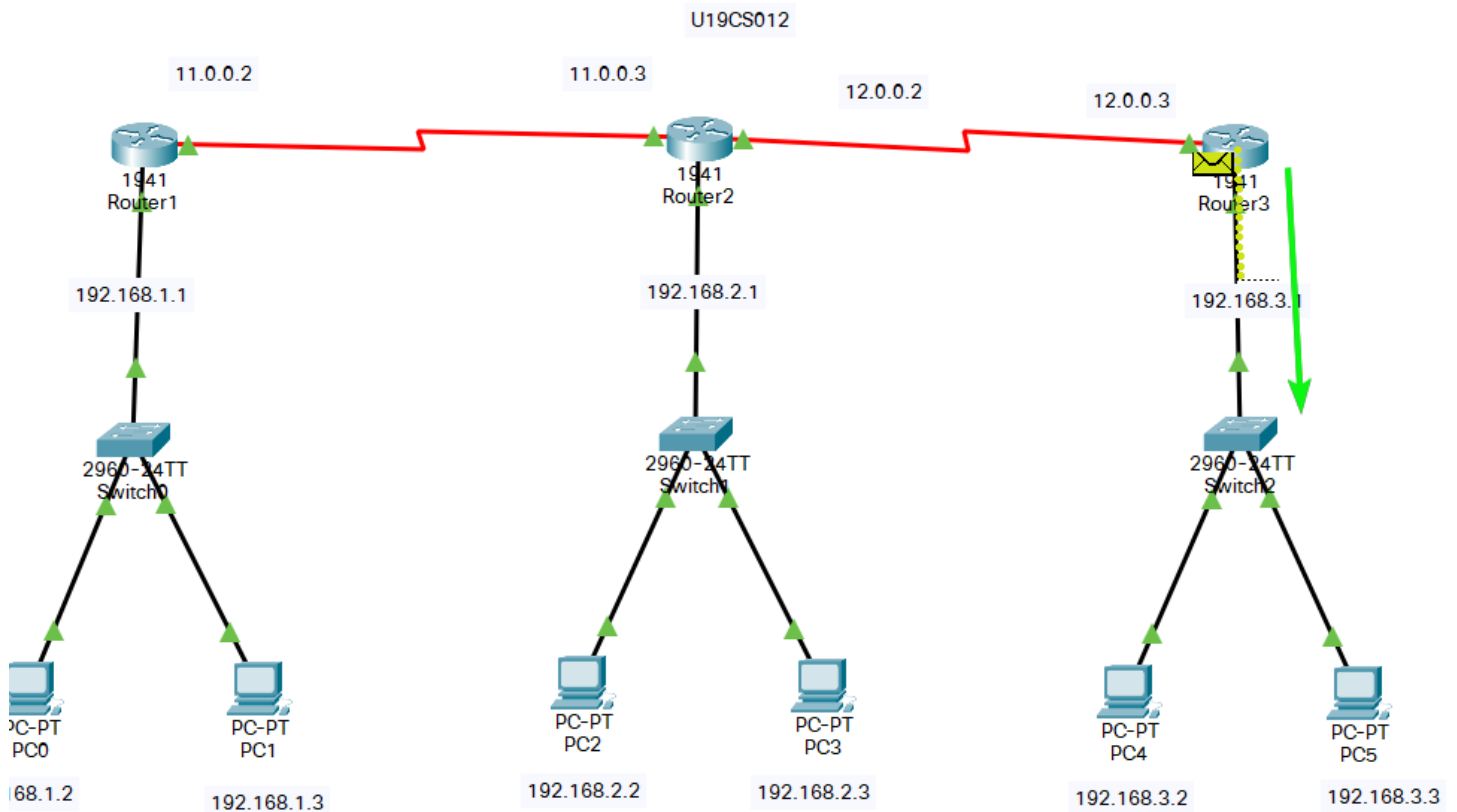


### Static Routing Step 4

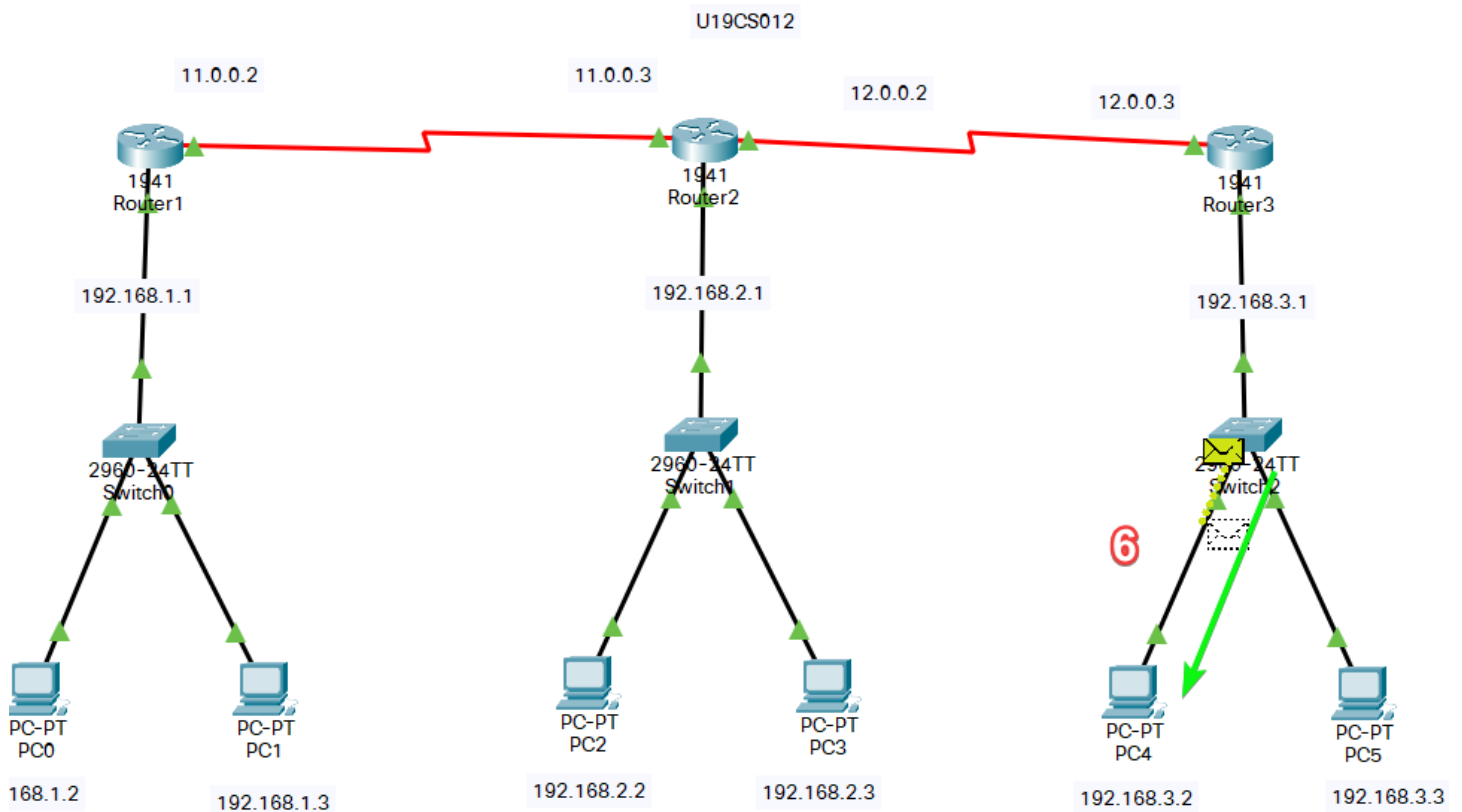




## Static Routing Step 5

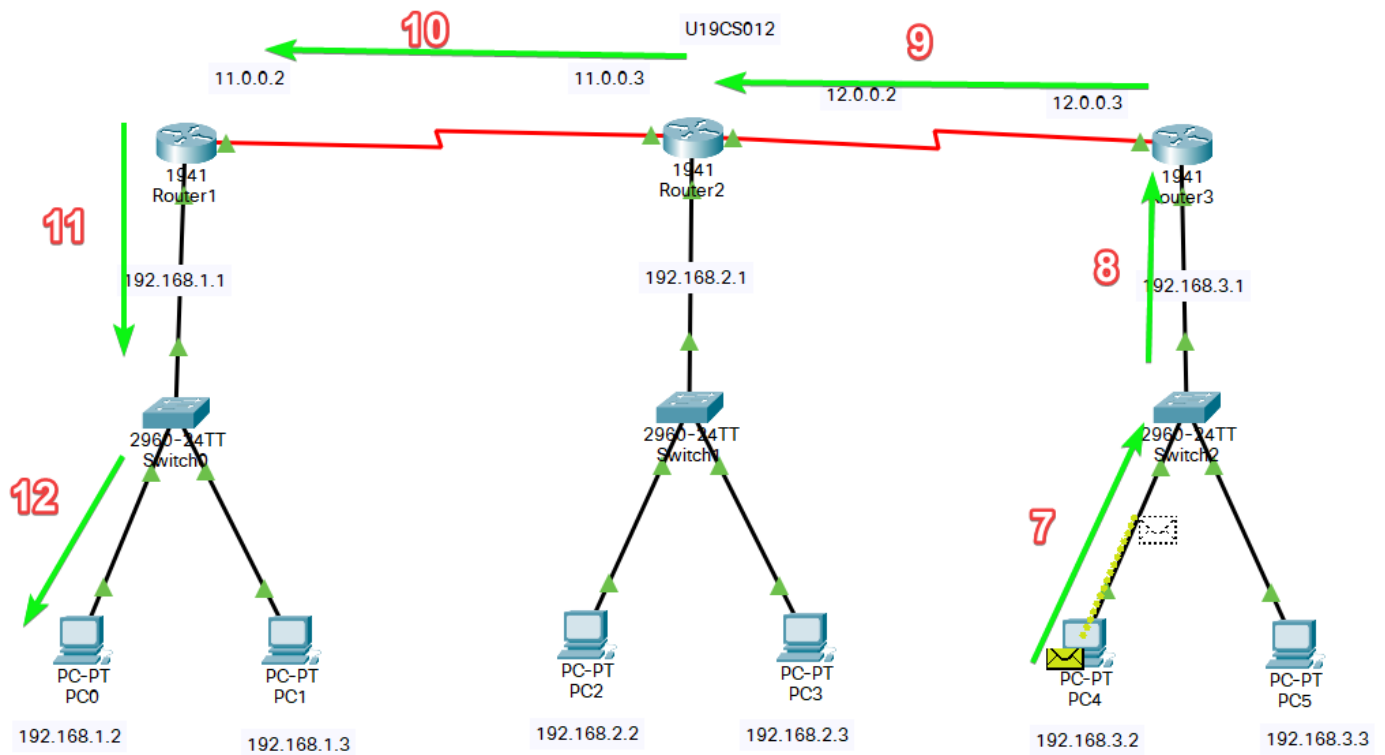


## Static Routing Step 6



## Static Routing Step 7-12

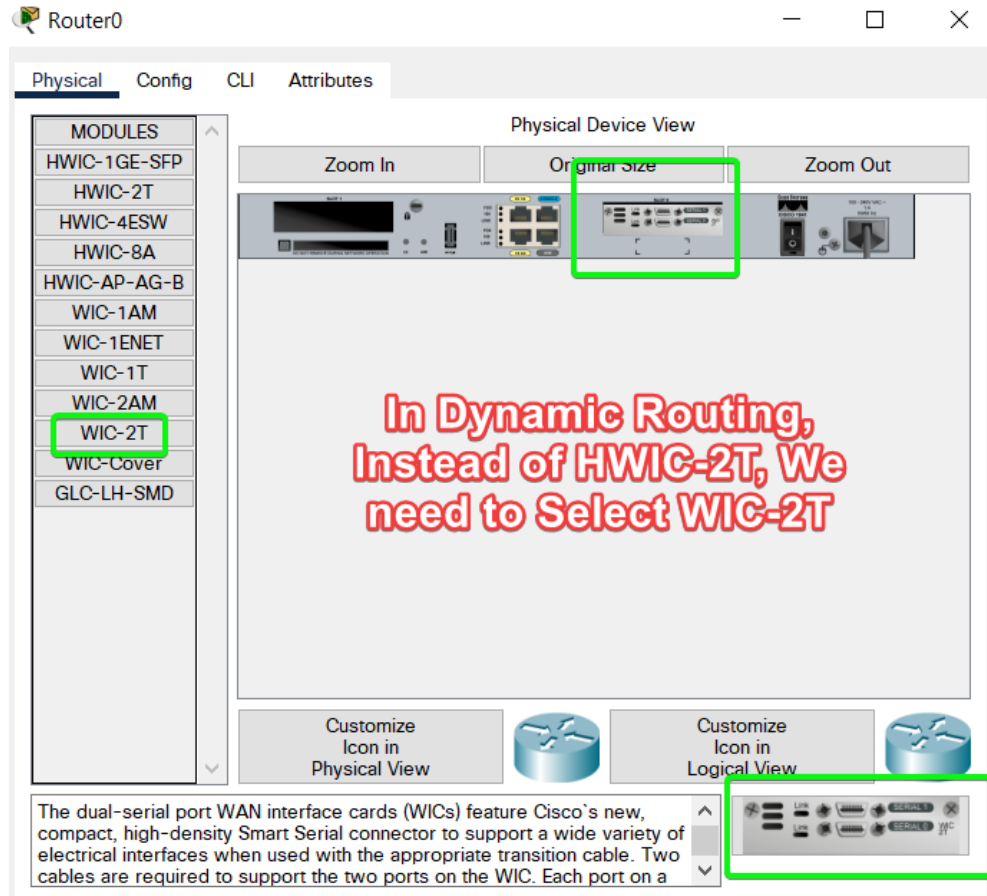
Acknowledgement is Send Back via Same Route.



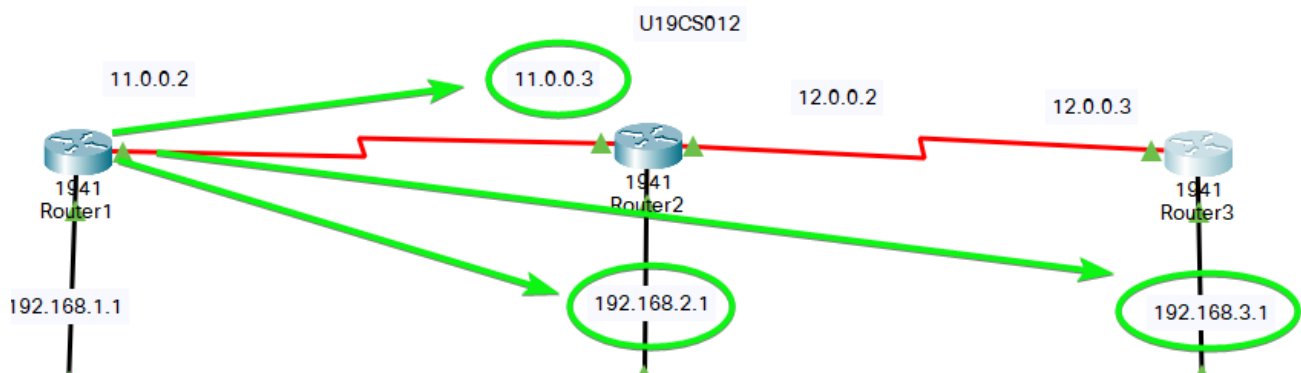
We have Successfully Implemented Static Routing in Cisco Packet Tracer.

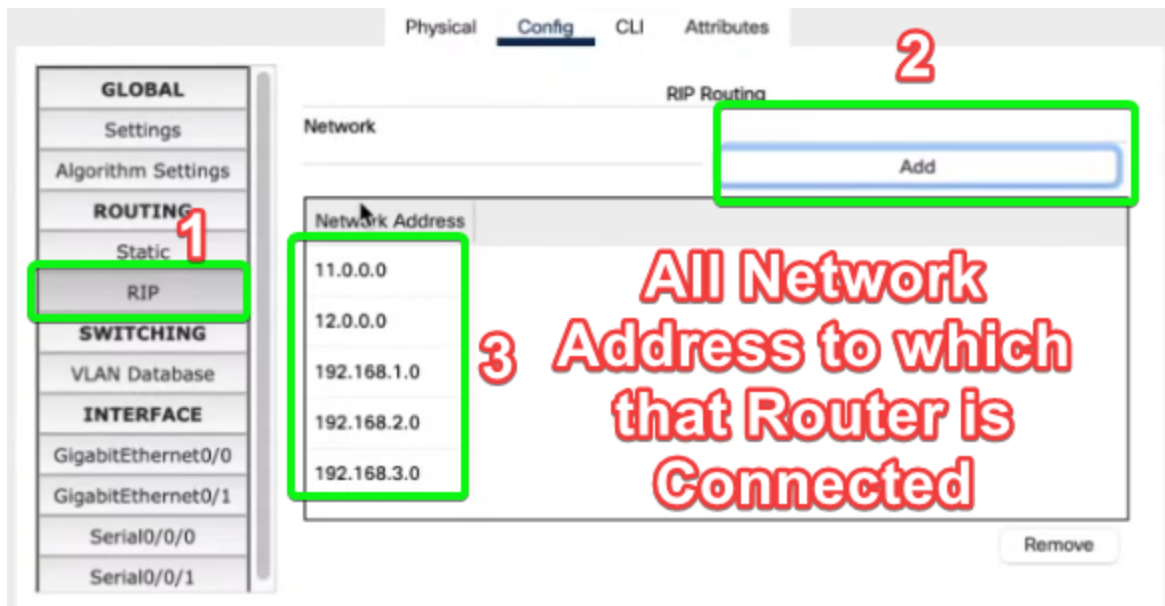
## 2) Implement **Dynamic Routing** in Cisco Packet Tracer.

**Step 1:** You can make the Configuration of 6 PC's, 3 Switches and 3 Routers again for Dynamic Routing [Do Not Perform Step 8 {manually setting the Static Routes}]



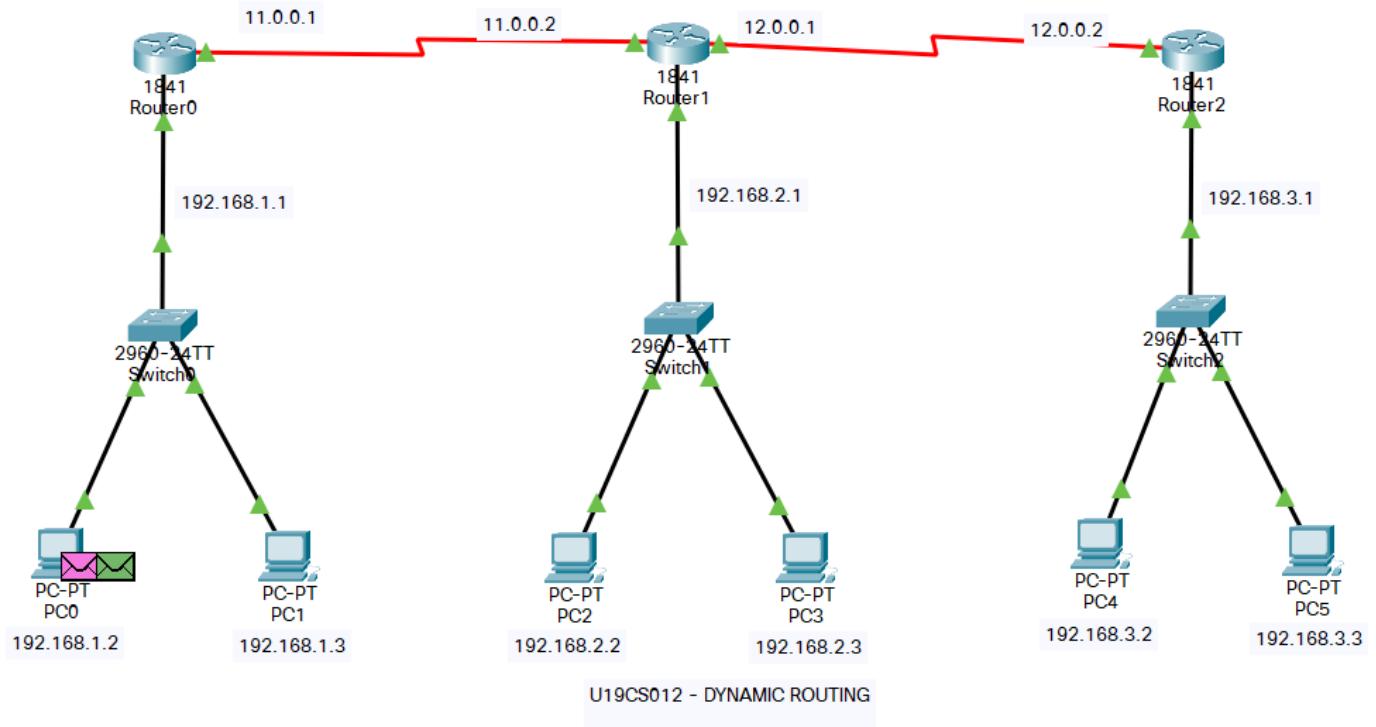
### Step 2: Configure the RIP in Each Router





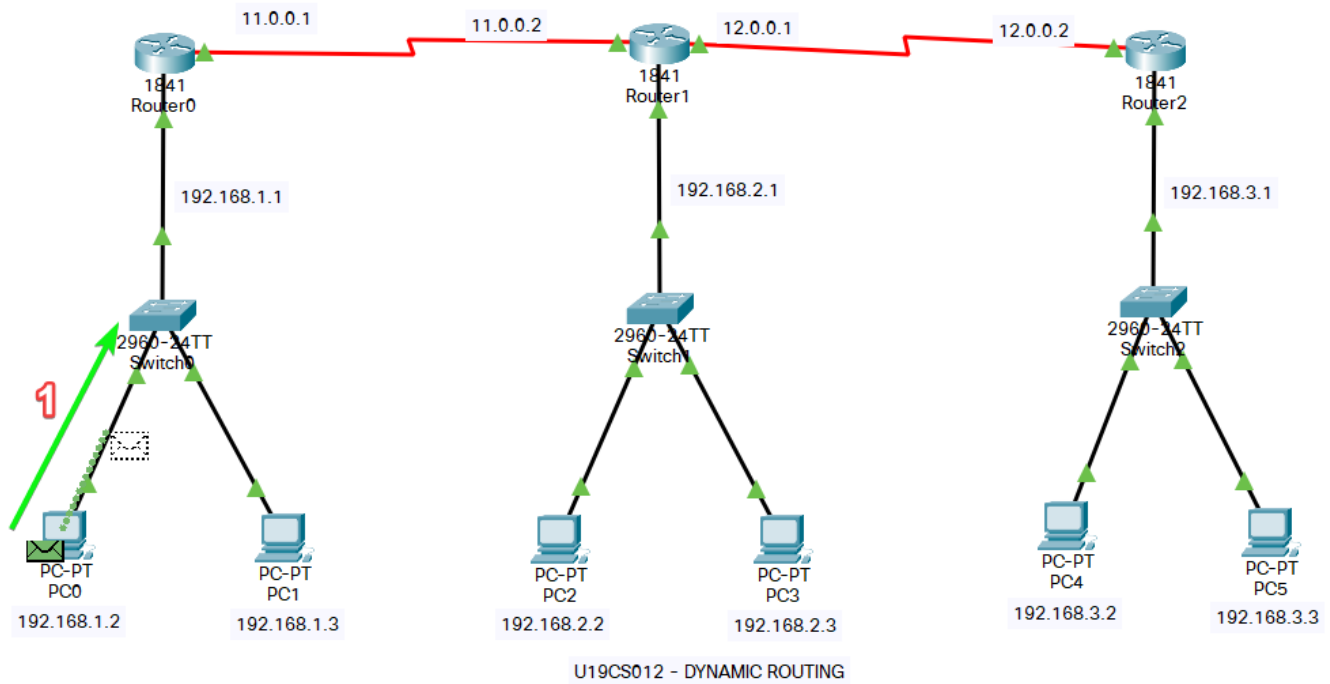
Router 1 is connected to 5 Network Addresses {192.168.1.0, 192.168.2.0, 192.168.3.0, 11.0.0.0, 12.0.0.0}

Configure the Router 2 and 3 in Similar Fashion.

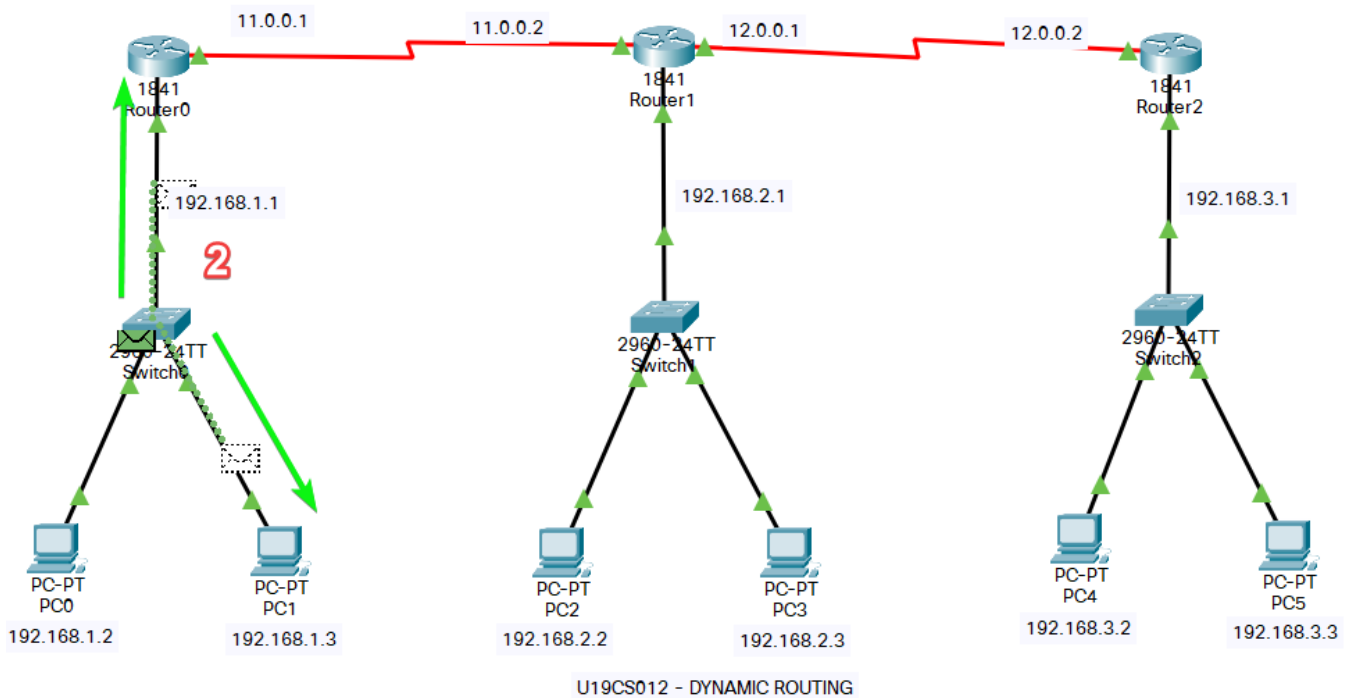


## Simulation

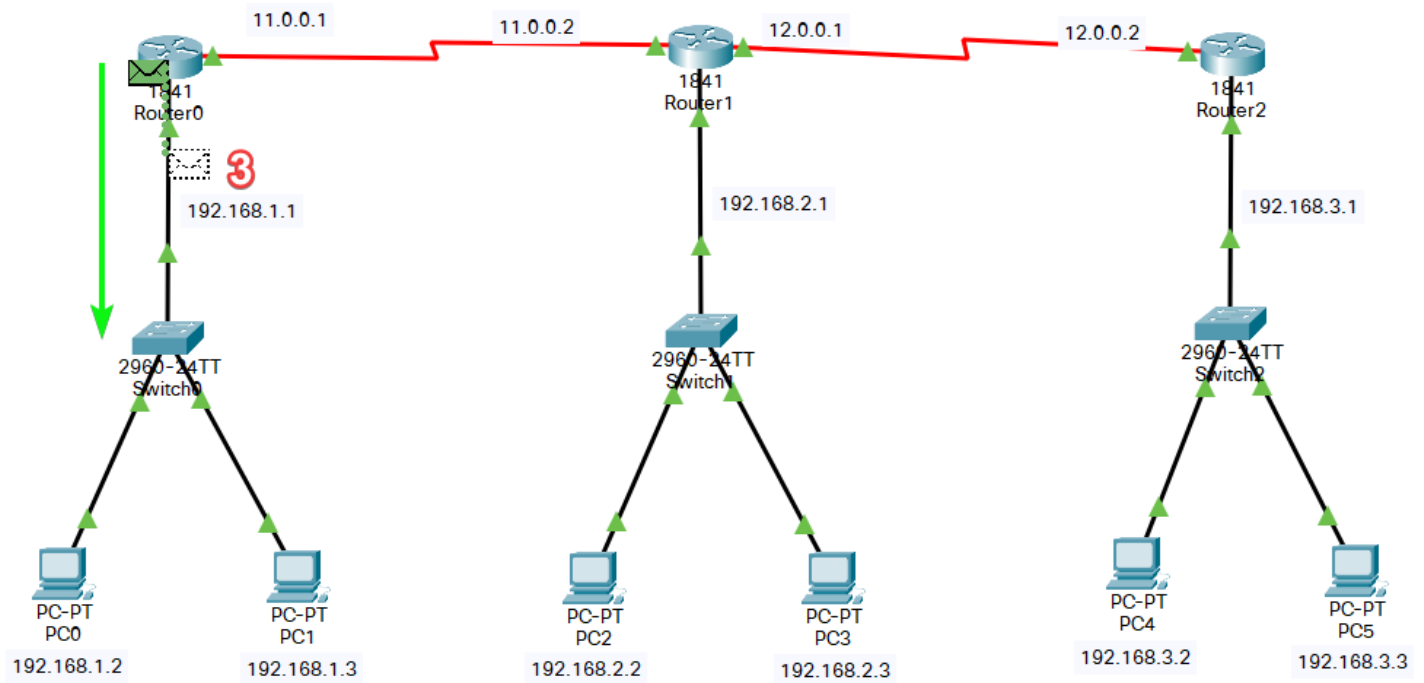
### Dynamic Routing Step 1



### Dynamic Routing Step 2

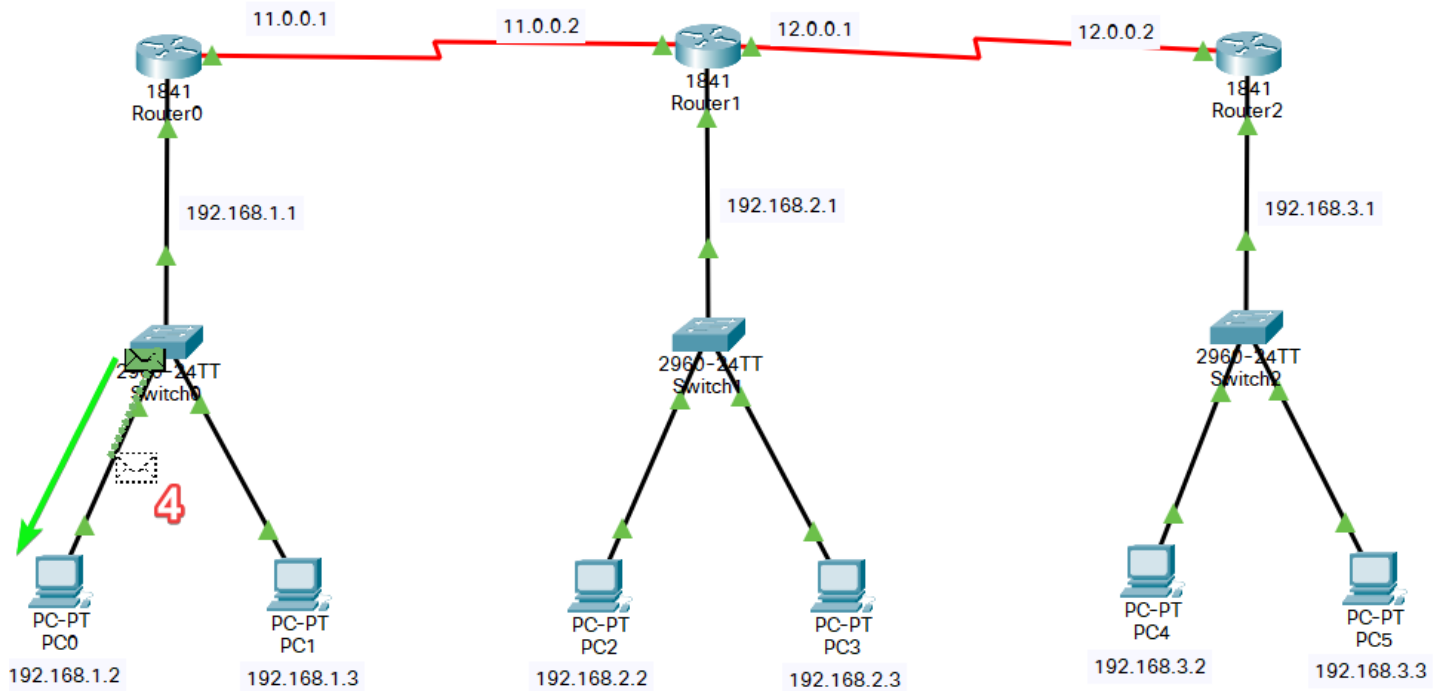


## Dynamic Routing Step 3



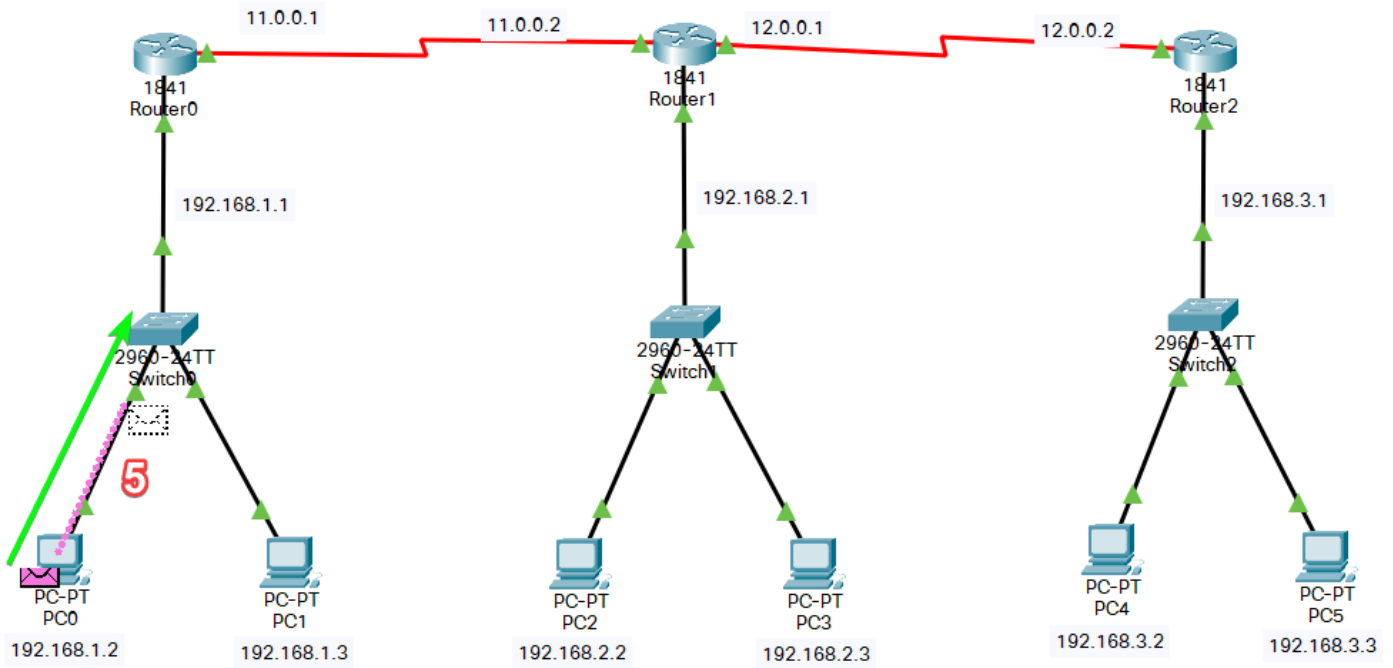
U19CS012 - DYNAMIC ROUTING

## Dynamic Routing Step 4



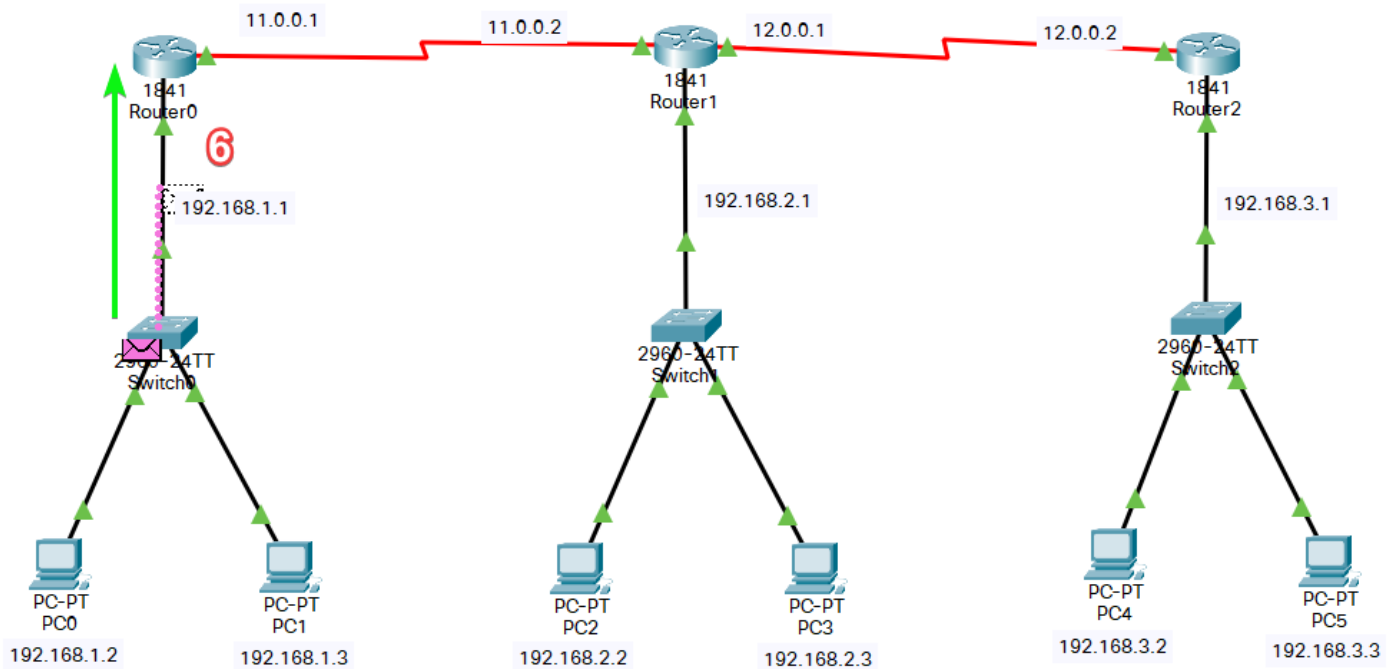
U19CS012 - DYNAMIC ROUTING

## Dynamic Routing Step 5



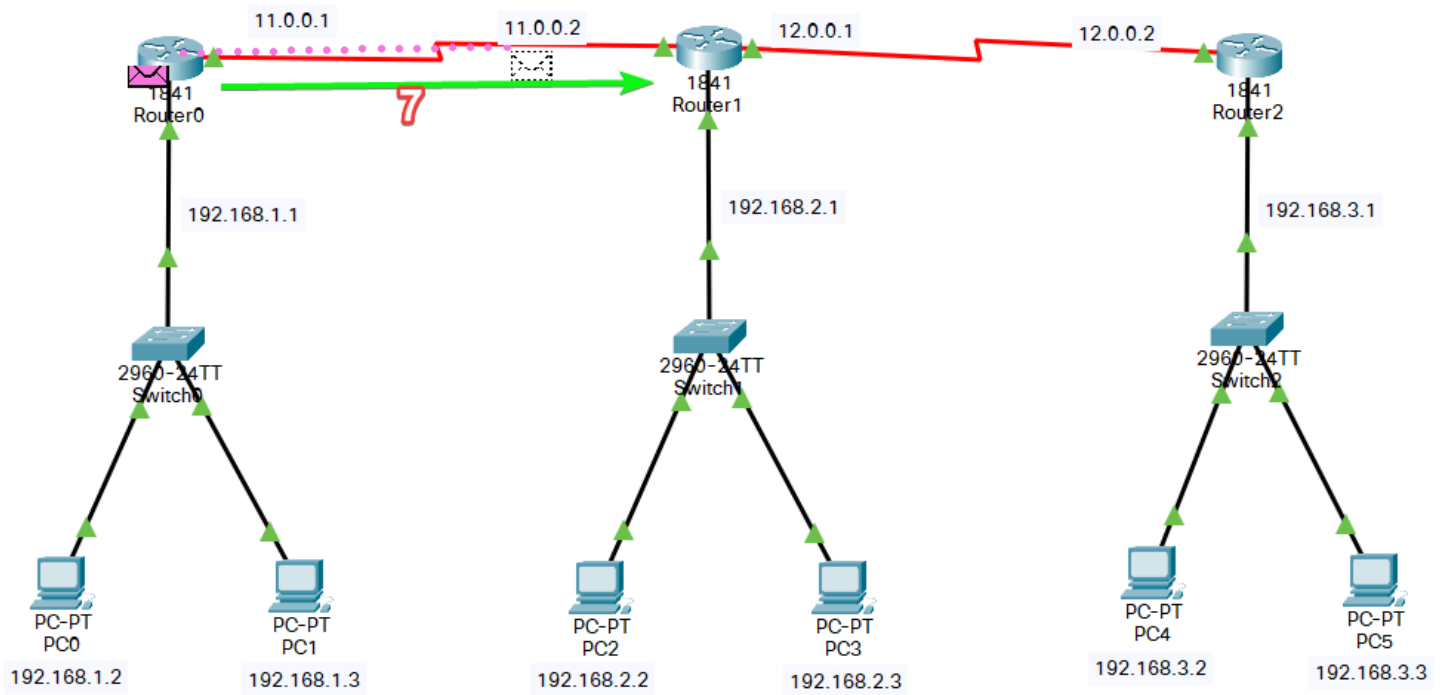
U19CS012 - DYNAMIC ROUTING

## Dynamic Routing Step 6



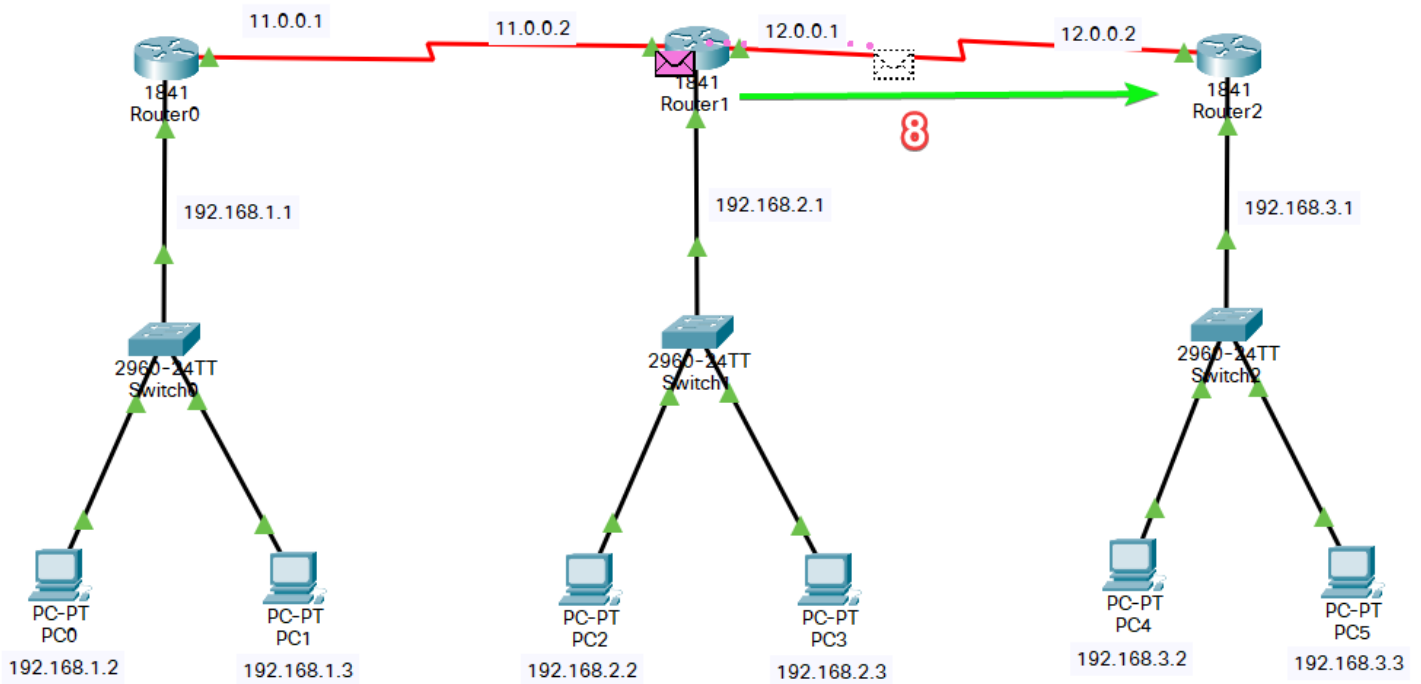
U19CS012 - DYNAMIC ROUTING

## Dynamic Routing Step 7



U19CS012 - DYNAMIC ROUTING

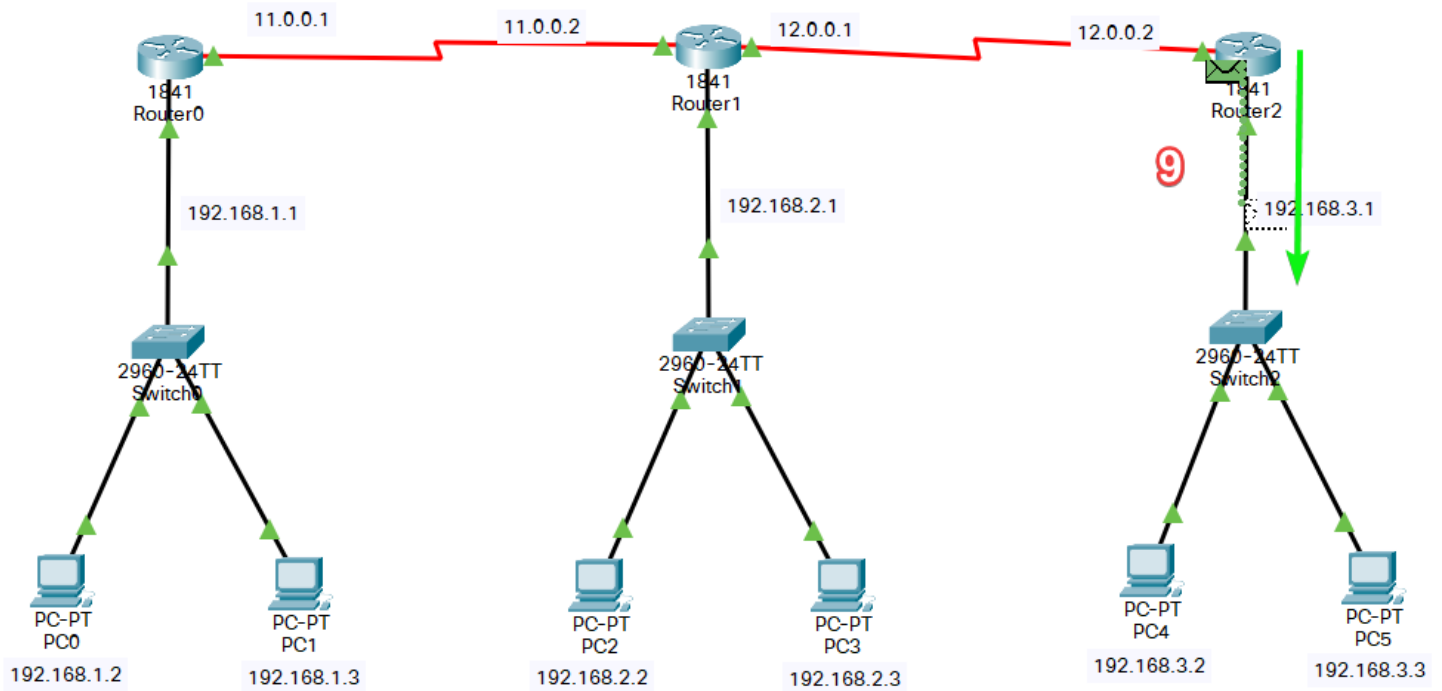
## Dynamic Routing Step 8



U19CS012 - DYNAMIC ROUTING

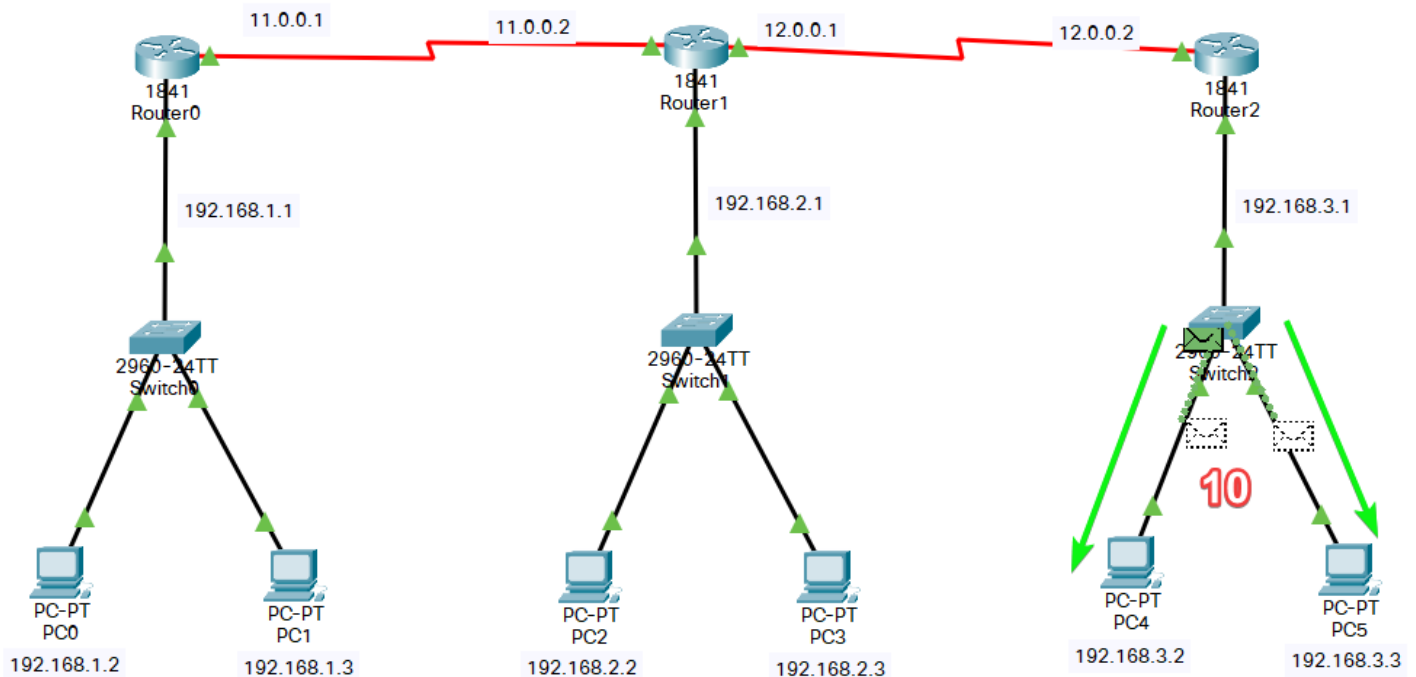


## Dynamic Routing Step 9



U19CS012 - DYNAMIC ROUTING

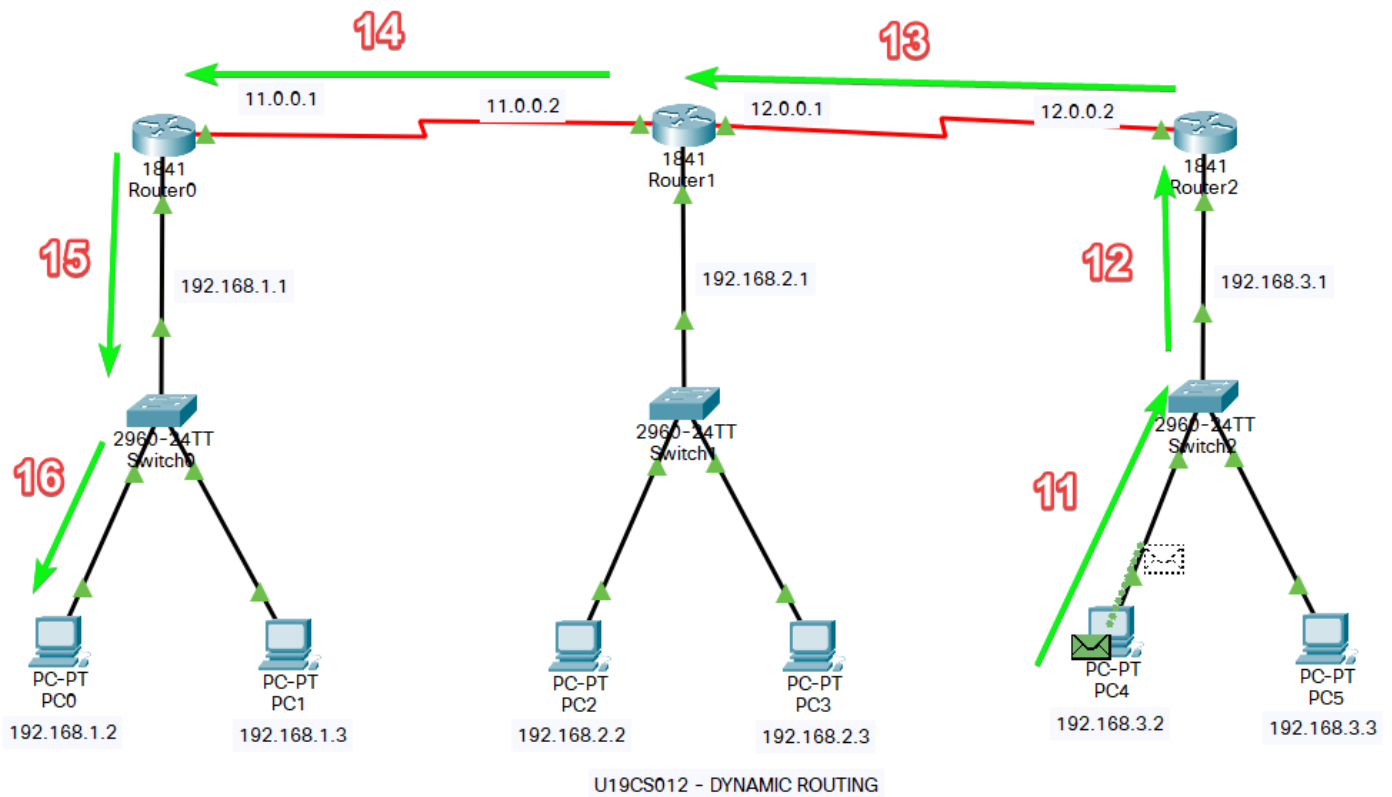
## Dynamic Routing Step 10



U19CS012 - DYNAMIC ROUTING

## Dynamic Routing Step 11-16

Acknowledgement is Send Back via Same Route.



We have Successfully Implemented Dynamic Routing in Cisco Packet Tracer.

SUBMITTED BY:

**U19CS012**

**BHAGYA VINOD RANA**