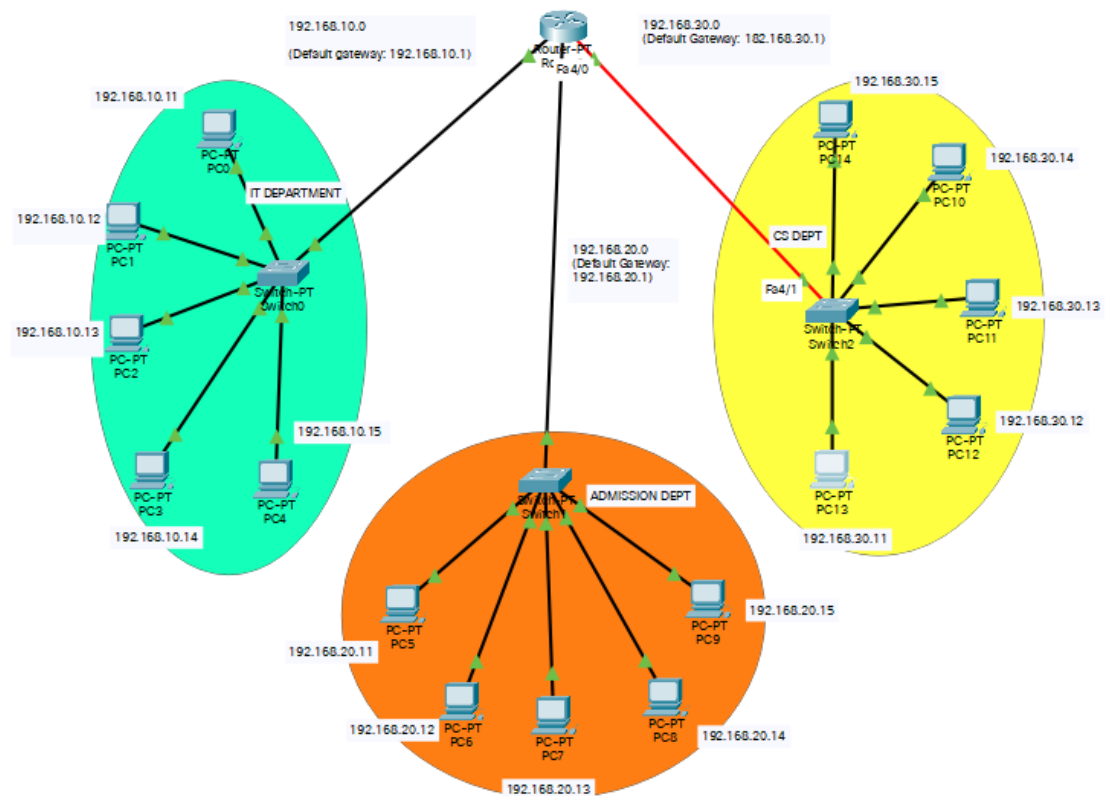


# Computer Networks Lab Final Exam

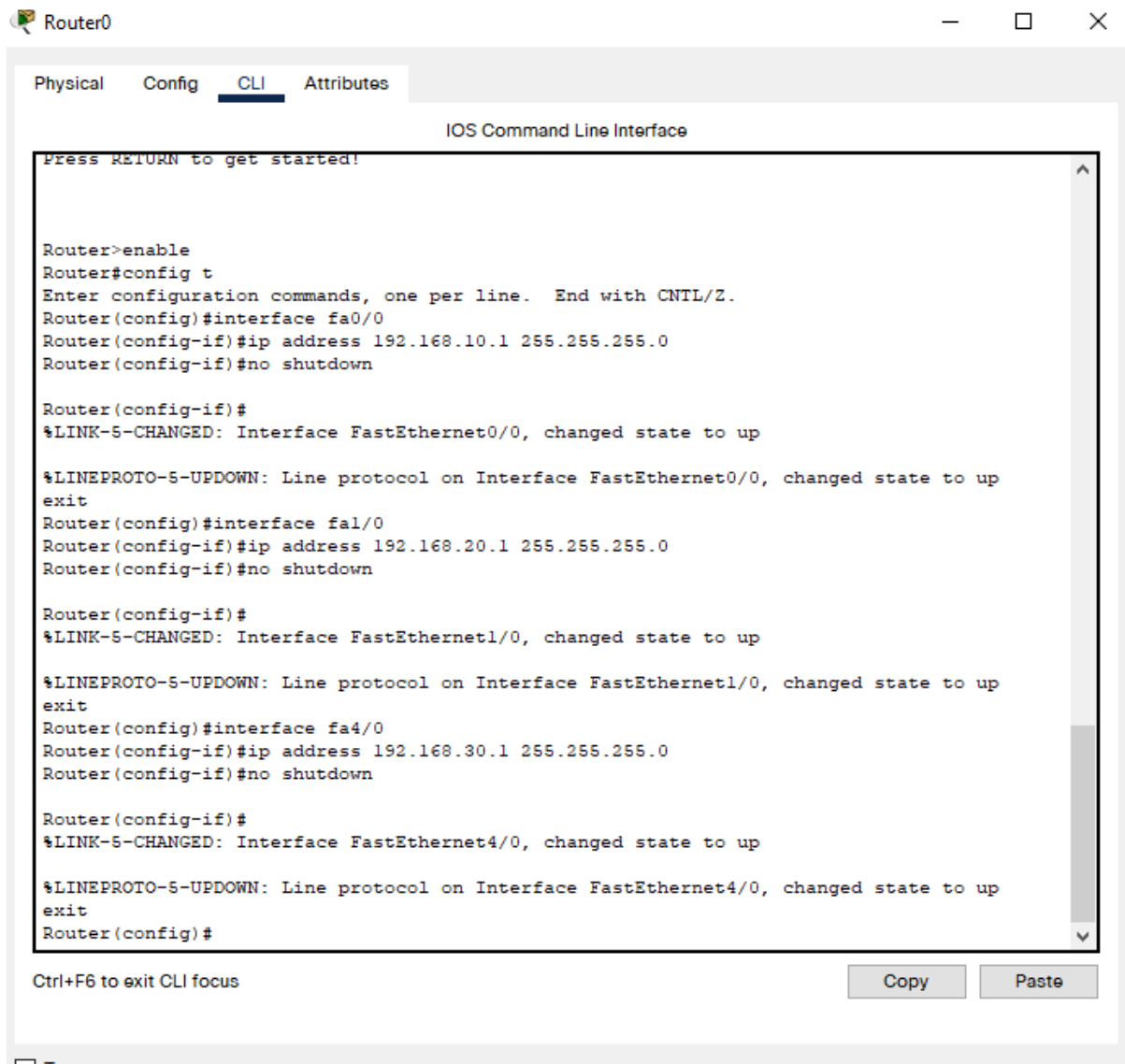
- **Name:** Shayan Adnan Hasan
- **Roll Number:** SE221060
- **Class:** SE-5B

## Question #1

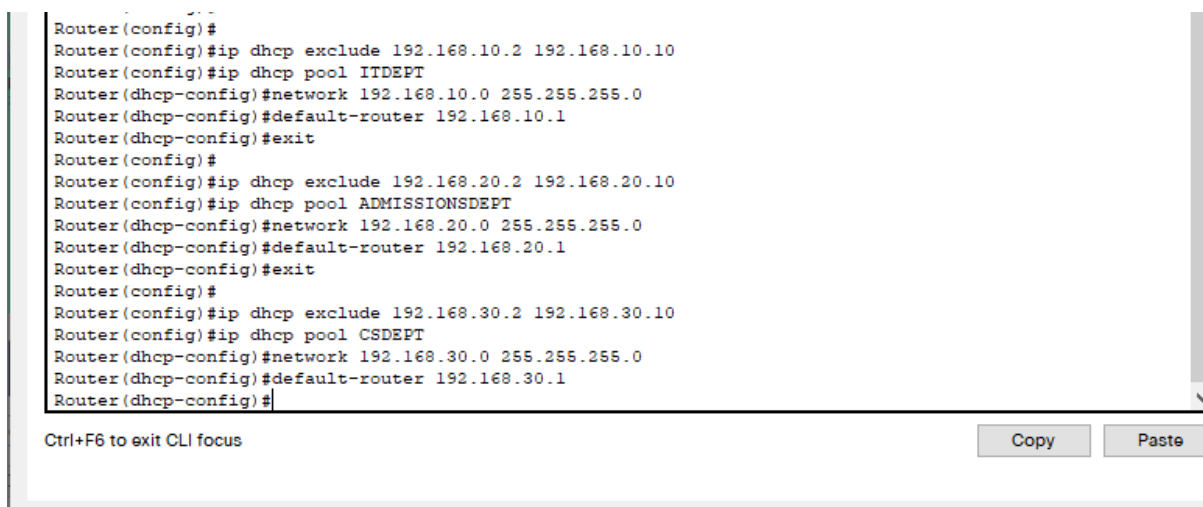
### Topology:



### Router Configuration:



## Setting up DHCP (Router) to grant IPs automatically:



## PC Configuration:

PC0

Physical Config **Desktop** Programming Attributes

**IP Configuration** X

Interface: FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address: 192.168.10.11

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.10.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::260:3EFF:FEFE:4E38

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

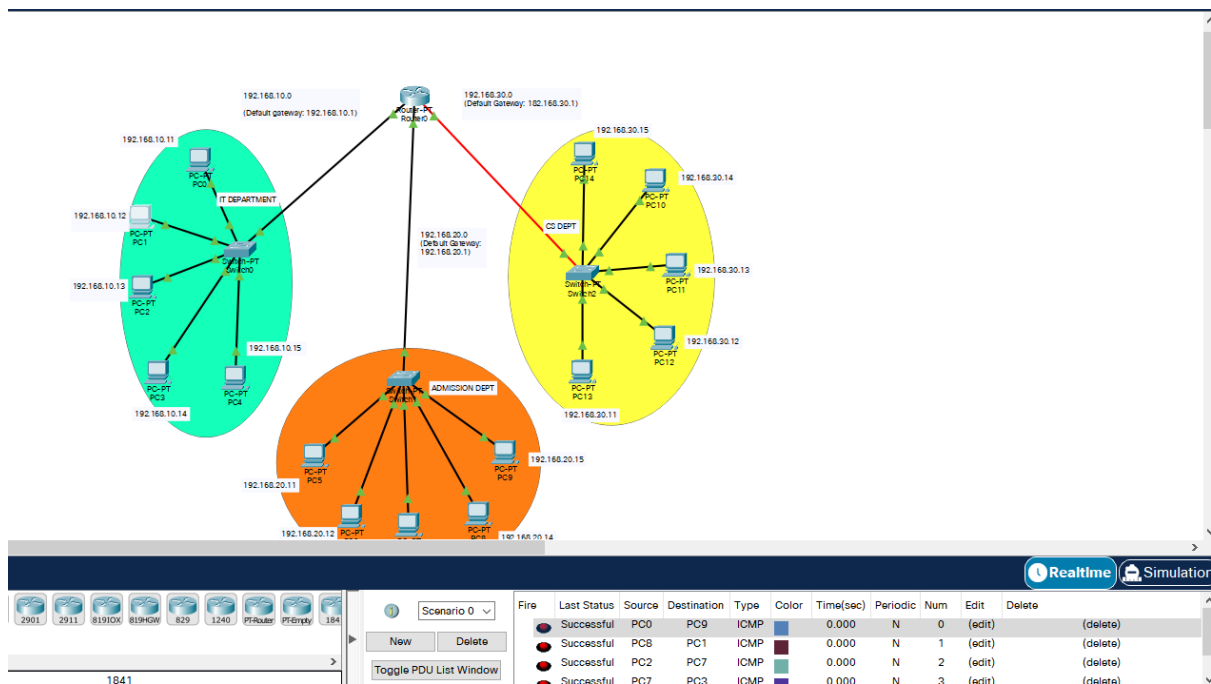
Authentication: MD5

Username:

Password:

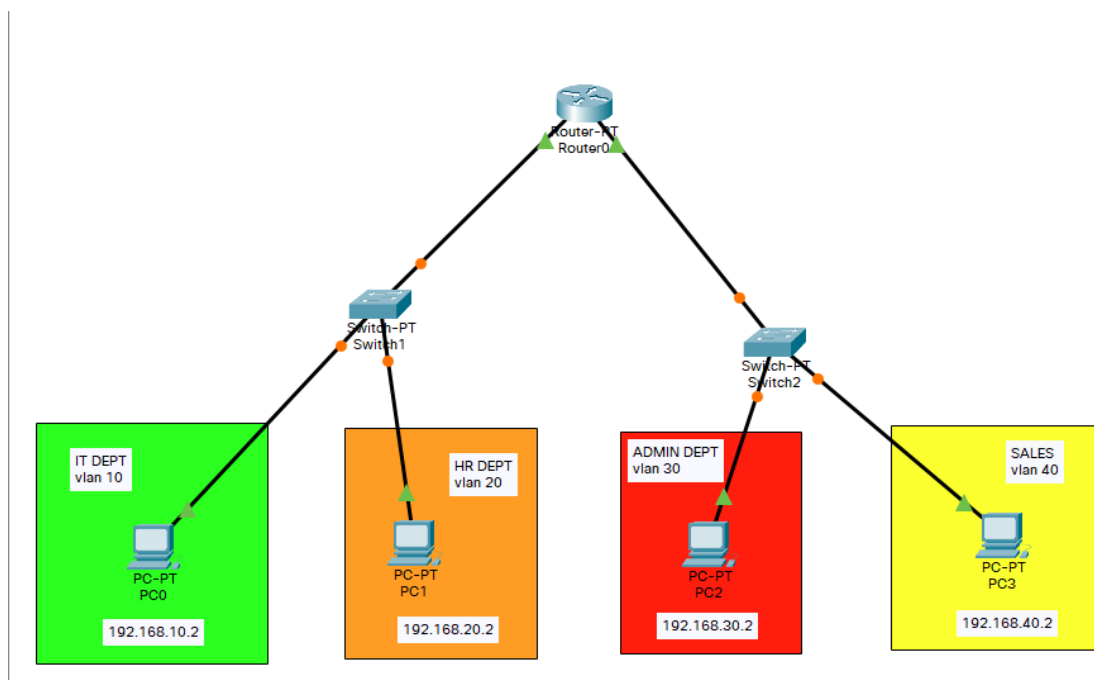
### Output:

All five workstations of every department can successfully share data.



## Question #2

### Topology:



### Switch #1 Configuration:

Physical Config CLI Attributes

## IOS Command Line Interface

```
%LINK-5-CHANGED: Interface FastEthernet1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet2/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet2/1, changed state to up

Switch>enab
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name ITDEPT
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name HRDEPT
Switch(config-vlan)#exit
Switch(config)#interface fa1/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
Switch(config)#interface fa2/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#exit
```

Ctrl+F6 to exit CLI focus

Copy

Paste

☐ Top

Switch1

Physical

Config

CLI

Attributes

IOS Command Line Interface

Switch>show vlan brief

VLAN	Name	Status	Ports
1	default	active	Fa0/1, Fa3/1, Fa4/1, Fa5/1
10	ITDEPT	active	Fa1/1
20	HRDEPT	active	Fa2/1
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

Switch>

%LINK-S-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Switch>enable

Switch#config t

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#interface fa0/1

Switch(config-if)#switchport mode trunk

Switch(config-if)#

%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Ctrl+F6 to exit CLI focus

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## Switch #2 Configuration:

Physical Config CLI Attributes

## IOS Command Line Interface

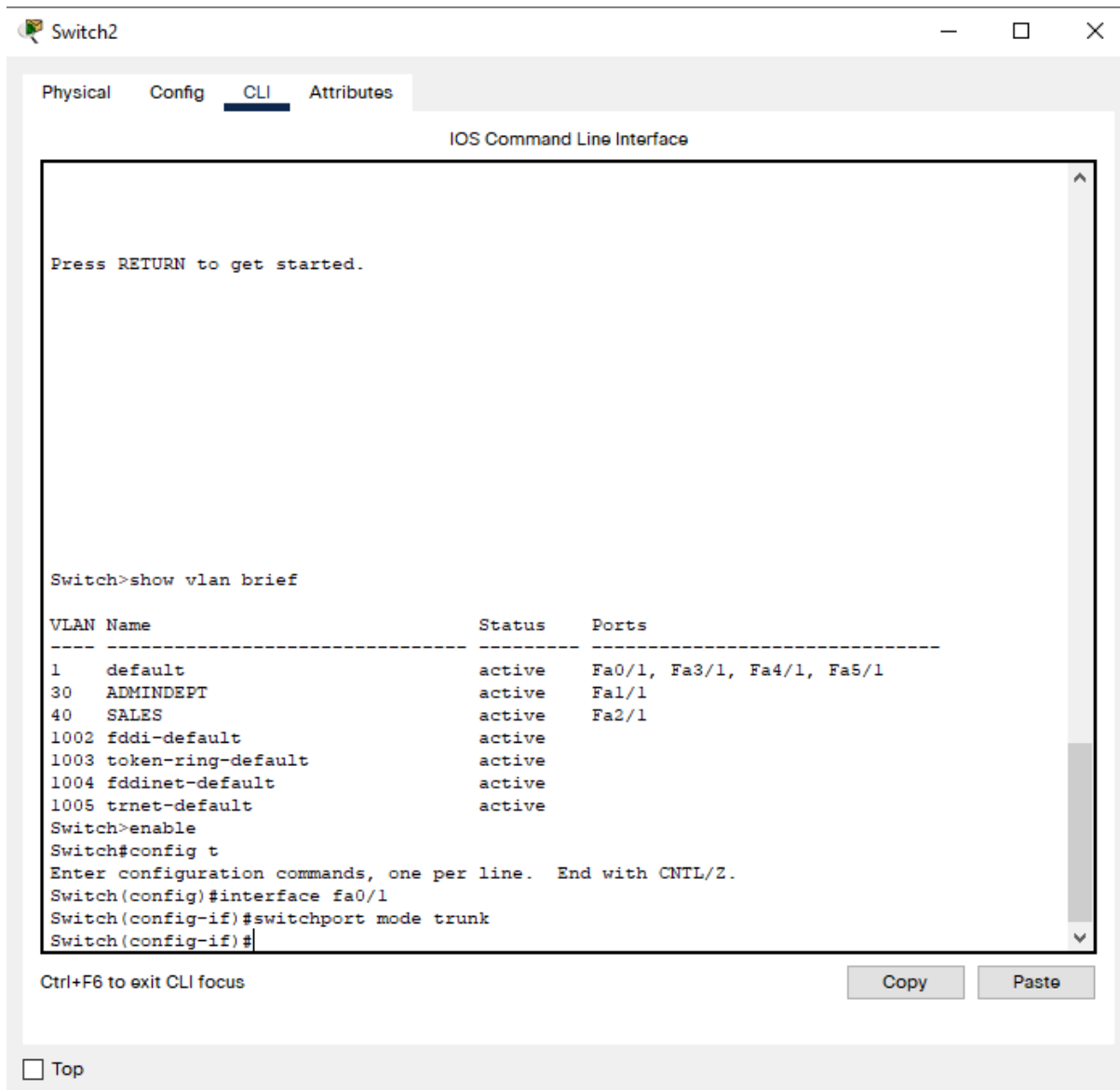
```
%LINK-5-CHANGED: Interface FastEthernet1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet2/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet2/1, changed state to up

Switch>enable
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 30
Switch(config-vlan)#name ADMINDEPT
Switch(config-vlan)#exit
Switch(config)#vlan 40
Switch(config-vlan)#name SALES
Switch(config-vlan)#exit
Switch(config)#interface fa1/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
Switch(config-if)#exit
Switch(config)#interface fa2/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 40
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

Ctrl+F6 to exit CLI focus

Copy

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## Router Configuration:

**For VLAN 10 and 20:**



Router0

Physical

Config

CLI

Attributes

IOS Command Line Interface

Press RETURN to get started!

Router>enable  
Router#config t  
Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#interface fa0/0  
Router(config-if)#interface fa0/0.10  
Router(config-subif)#encapsulation dot1Q 10  
Router(config-subif)#ip address 192.168.10.1 255.255.255.0  
Router(config-subif)#exit  
Router(config)#interface fa0/0  
Router(config-if)#interface fa0/0.20  
Router(config-subif)#encapsulation dot1Q 20  
Router(config-subif)#ip address 192.168.20.1 255.255.255.0  
Router(config-subif)#no shutdown  
Router(config-subif)#exit  
Router(config)#interface fa0/0  
Router(config-if)#no shutdown  
  
Router(config-if)#  
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up  
  
%LINK-5-CHANGED: Interface FastEthernet0/0.10, changed state to up  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.10, changed state to up  
  
%LINK-5-CHANGED: Interface FastEthernet0/0.20, changed state to up  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.20, changed state to up

Ctrl+F6 to exit CLI focus

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☐ Top

**For VLAN 30 and 40:**

Router0

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
%LINK-5-CHANGED: Interface FastEthernet0/0.10, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.10, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/0.20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.20, changed state to up

Router(config-if)#exit
Router(config)#interface fal/0
Router(config-if)#interface fal/0.10
Router(config-subif)#encapsulation dot1Q 30
Router(config-subif)#ip address 192.168.30.1 255.255.255.0
Router(config-subif)#exit
Router(config)#interface fal/0
Router(config-if)#interface fal/0.20
Router(config-subif)#encapsulation dot1Q 40
Router(config-subif)#ip address 192.168.40.1 255.255.255.0
Router(config-subif)#exit
Router(config)#interface fal/0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
%LINK-5-CHANGED: Interface FastEthernet1/0.10, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0.10, changed state to up
%LINK-5-CHANGED: Interface FastEthernet1/0.20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0.20, changed state to up
```

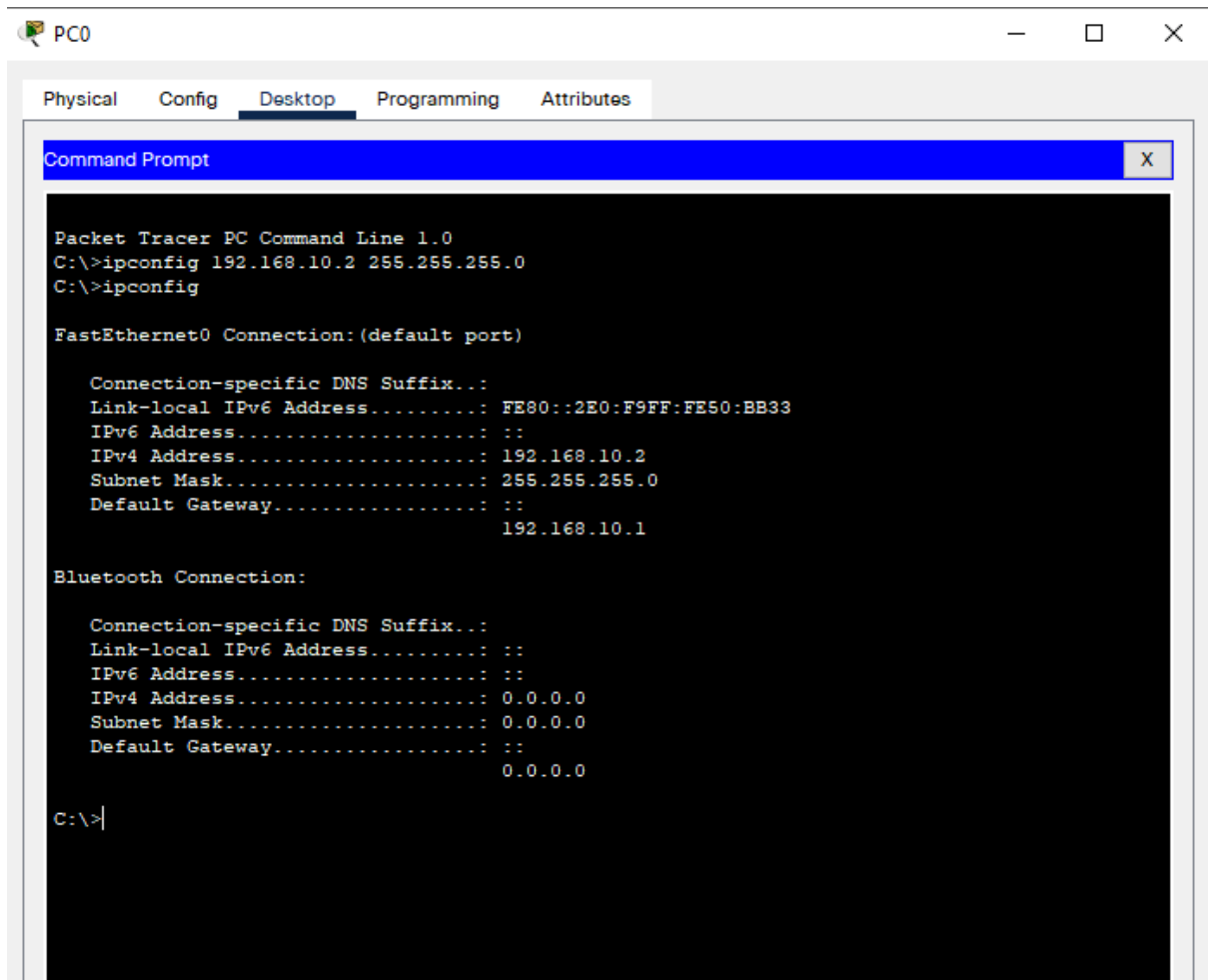
Ctrl+F6 to exit CLI focus

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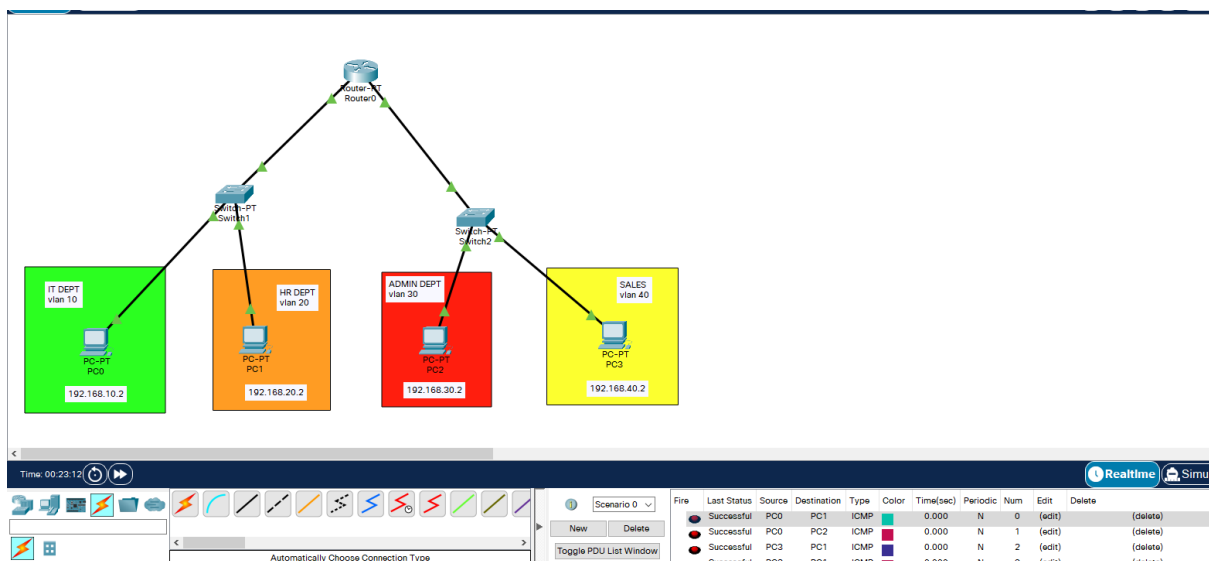
☐ Top

## PC Configuration:



**Output:**

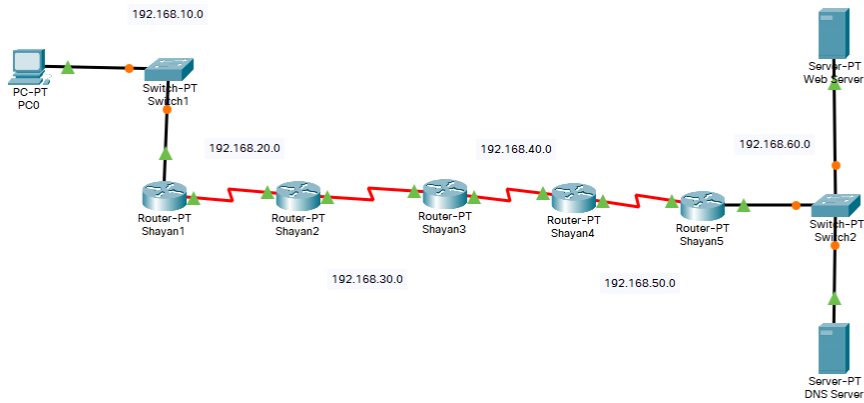
**All VLANs can successfully communicate with each other.**



## Question #3

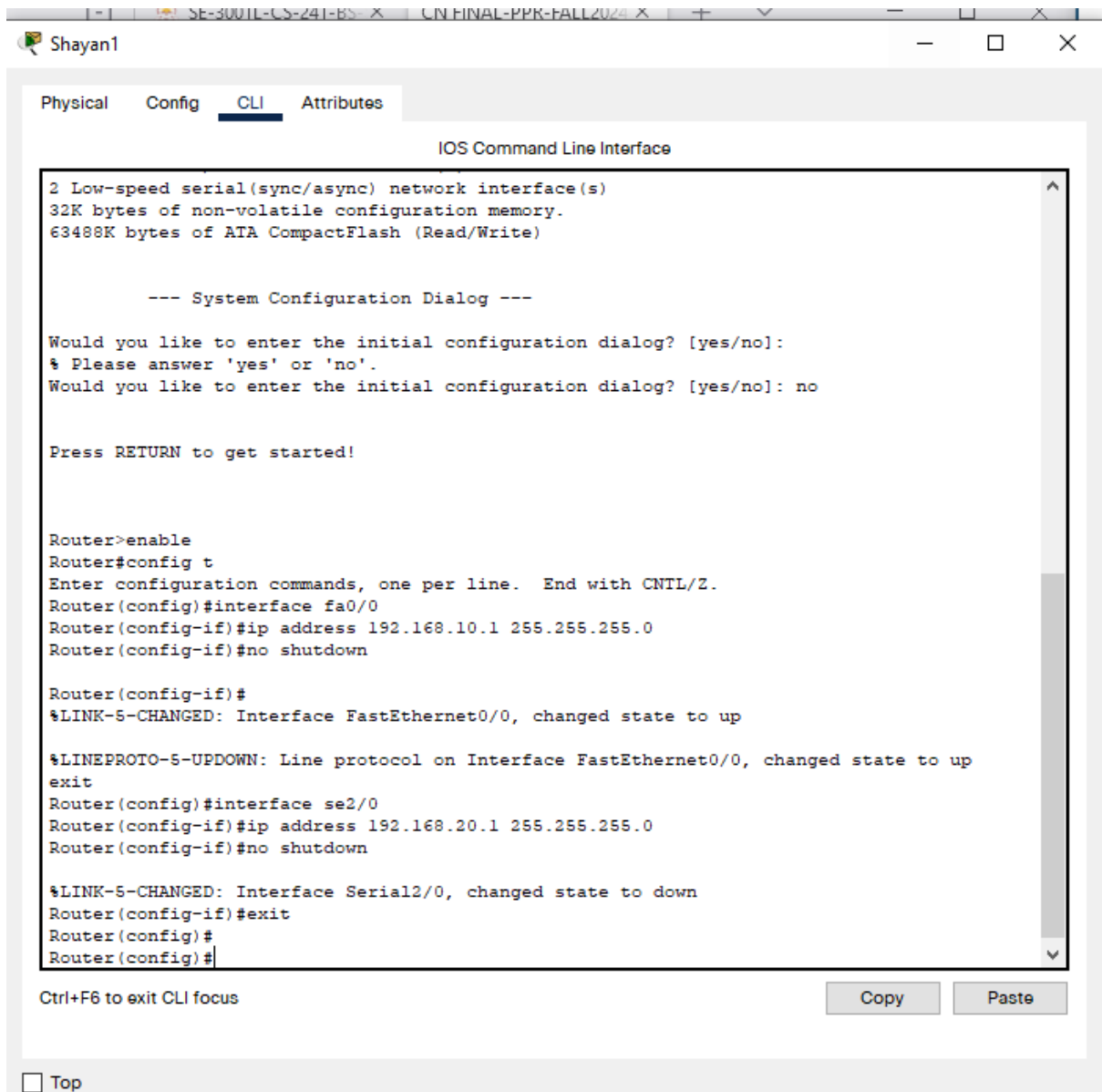
### Topology:

---



### Configuring IPs

#### Router #1 Configuration:



## Router #2 Configuration:

## IOS Command Line Interface

```
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]:
% Please answer 'yes' or 'no'.
Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface se2/0
Router(config-if)#ip address 192.168.20.2 255.255.255.0
Router(config-if)#exit
Router(config)#interface se3/0
Router(config-if)#ip address 192.168.30.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#exit
Router(config)#interface se2/0
Router(config-if)#no shutdown

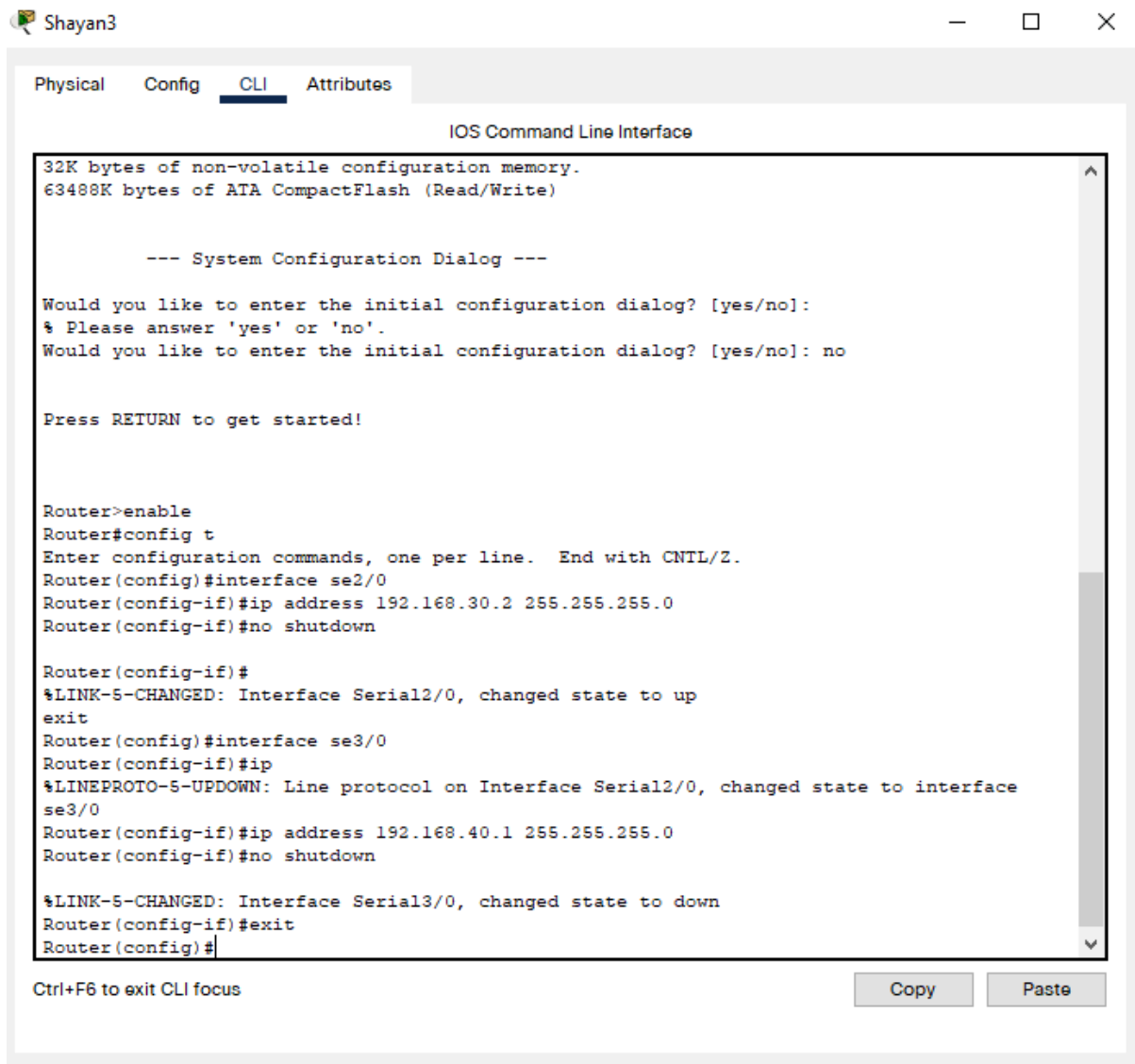
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
exit
Router(config)#
```

Ctrl+F6 to exit CLI focus

Copy

Paste

**Router #3 Configuration:**



## Router #4 Configuration:

Shayan4

PhysicalConfigCLIAttributes

IOS Command Line Interface

```
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface se2/0
Router(config-if)#ip address 192.168.40.2 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#interface se3/0
Router(config-if)#ip address 192.168.50.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#exit
Router(config)#
Router(config)#exit
```

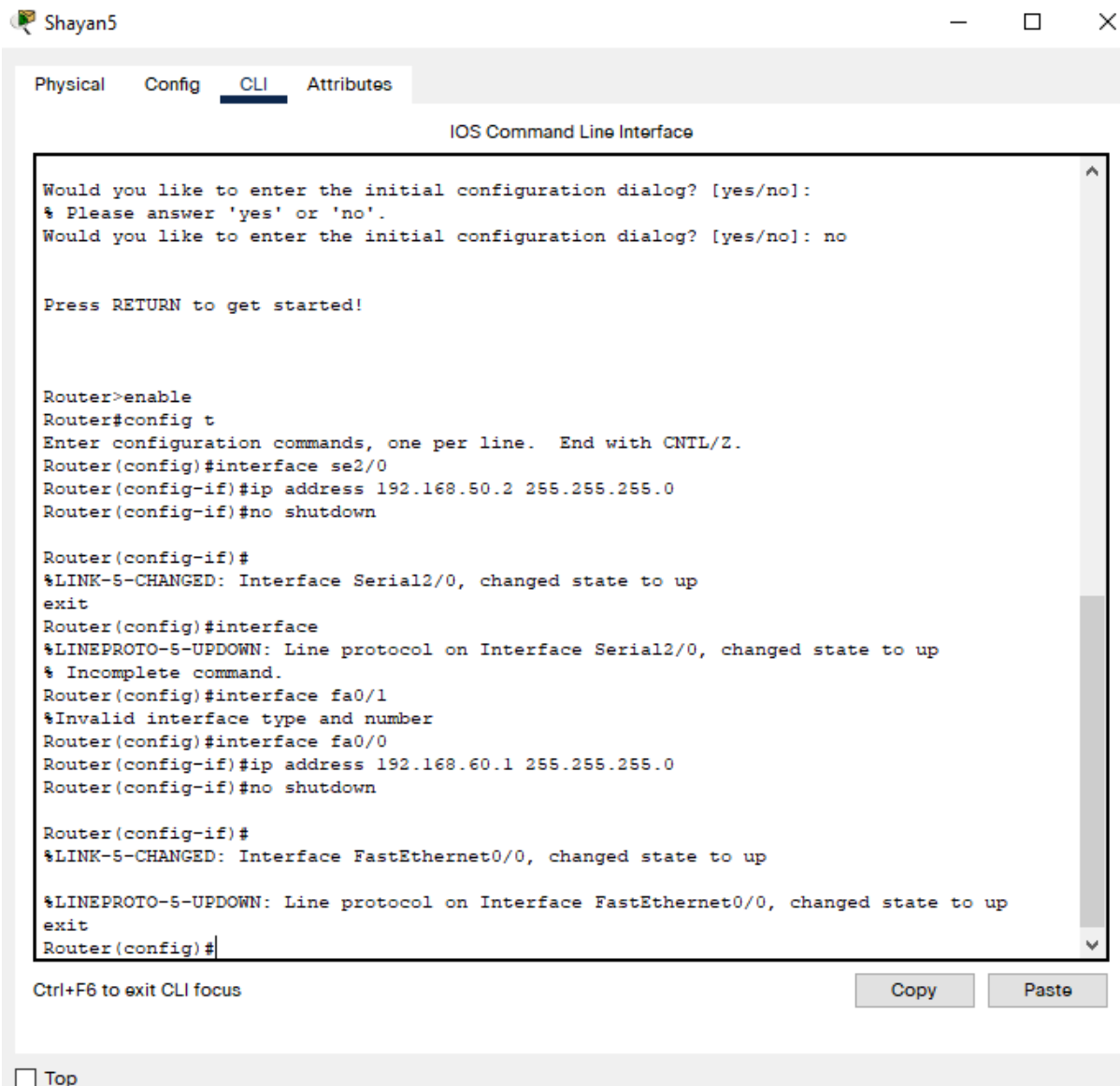
Ctrl+F6 to exit CLI focus

CopyPaste

☐ Top

## Router #5 Configuration:





## Configuring Static Routes

### Router #1 Configuration:

```

Press RETURN to get started!

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fa0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
exit
Router(config)#interface se2/0
Router(config-if)#ip address 192.168.20.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#
Router(config)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#
Router(config)#ip route 192.168.60.0 255.255.255.0 192.168.50.2
Router(config)#ip route 192.168.50.0 255.255.255.0 192.168.40.2
Router(config)#ip route 192.168.30.0 255.255.255.0 192.168.20.2
Router(config)#ip route 192.168.40.0 255.255.255.0 192.168.30.2
Router(config)#
    
```

Ctrl+F6 to exit CLI focus

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## Router #2 Configuration:

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Press RETURN to get started!

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface se2/0
Router(config-if)#ip address 192.168.20.2 255.255.255.0
Router(config-if)#exit
Router(config)#interface se3/0
Router(config-if)#ip address 192.168.30.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#exit
Router(config)#interface se2/0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

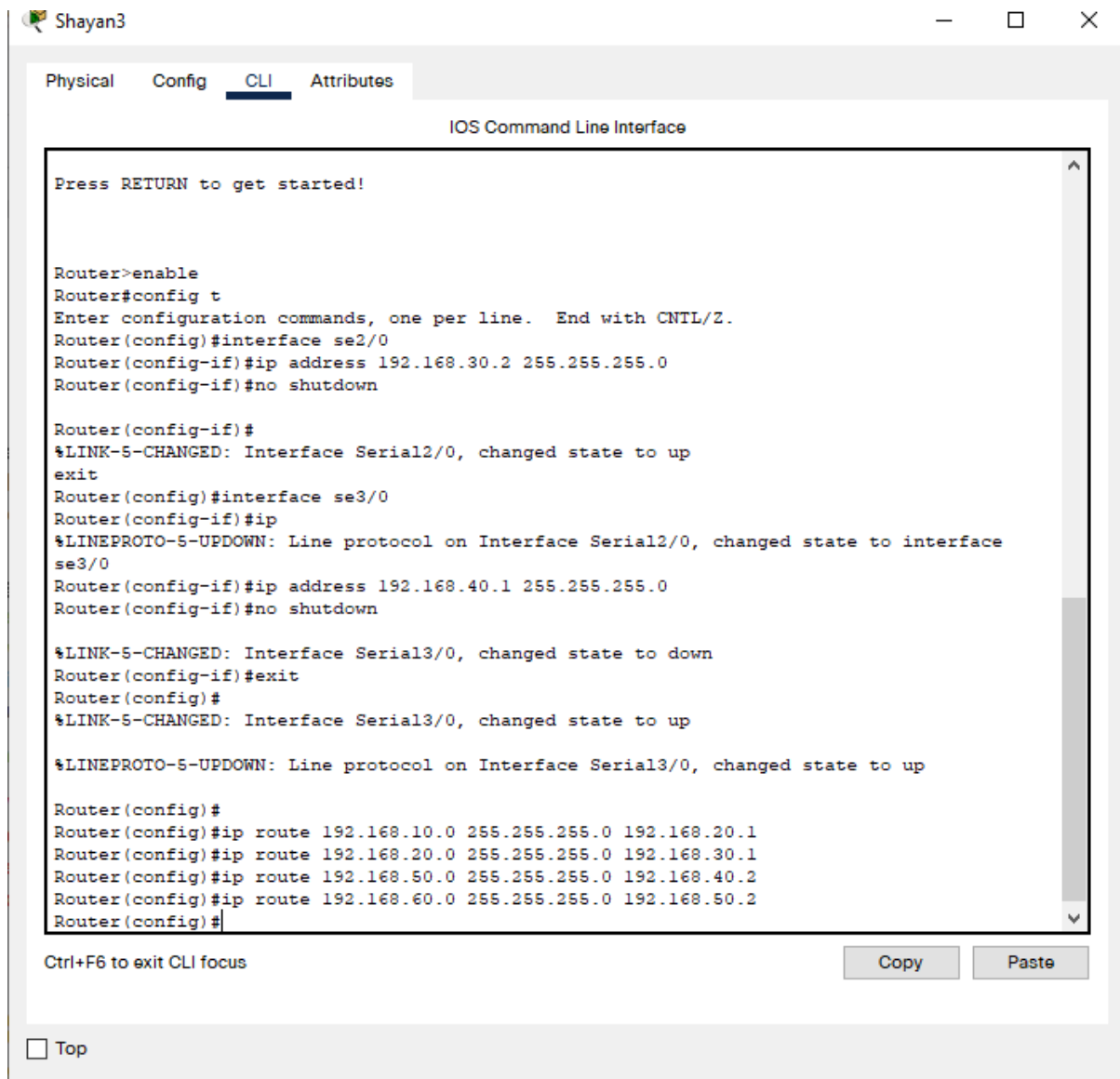
Router(config)#ip route 192.168.60.0 255.255.255.0 192.168.50.2
Router(config)#ip route 192.168.60.0 255.255.255.0 192.168.50.2
Router(config)#ip route 192.168.50.0 255.255.255.0 192.168.40.2
Router(config)#ip route 192.168.40.0 255.255.255.0 192.168.30.2
Router(config)#ip route 192.168.10.0 255.255.255.0 192.168.20.1
Router(config)#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

### Router #3 Configuration:



## Router #4 Configuration:

Shayan4

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>show ip interface brief
Interface                IP-Address      OK? Method Status        Protocol
FastEthernet0/0          unassigned      YES unset  administratively down down
FastEthernet1/0          unassigned      YES unset  administratively down down
Serial2/0                 192.168.40.2    YES manual    up            up
Serial3/0                 192.168.50.1    YES manual    down          down
FastEthernet4/0          unassigned      YES unset  administratively down down
FastEthernet5/0          unassigned      YES unset  administratively down down
Router>
%LINK-5-CHANGED: Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
Router>
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.10.0 255.255.255.0 192.168.20.1
Router(config)#ip route 192.168.20.0 255.255.255.0 192.168.30.1
Router(config)#ip route 192.168.30.0 255.255.255.0 192.168.40.1
Router(config)#ip route 192.168.60.0 255.255.255.0 192.168.50.2
Router(config)#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

## Router #5 Configuration:

Shayan5

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Press RETURN to get started!

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface se2/0
Router(config-if)#ip address 192.168.50.2 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
exit
Router(config)#interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
% Incomplete command.
Router(config)#interface fa0/1
%Invalid interface type and number
Router(config)#interface fa0/0
Router(config-if)#ip address 192.168.60.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
exit
Router(config)#ip route 192.168.10.0 255.255.255.0 192.168.20.1
Router(config)#ip route 192.168.20.0 255.255.255.0 192.168.30.1
Router(config)#ip route 192.168.30.0 255.255.255.0 192.168.40.1
Router(config)#ip route 192.168.40.0 255.255.255.0 192.168.60.1
%Invalid next hop address (it's this router)
Router(config)#ip route 192.168.40.0 255.255.255.0 192.168.50.1
Router(config)#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

## Web Server Configuration:

Web Server

Physical

Config

Services

Desktop

Programming

Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

HTTP

HTTP

On

Off

HTTPS

On

Off

File Manager

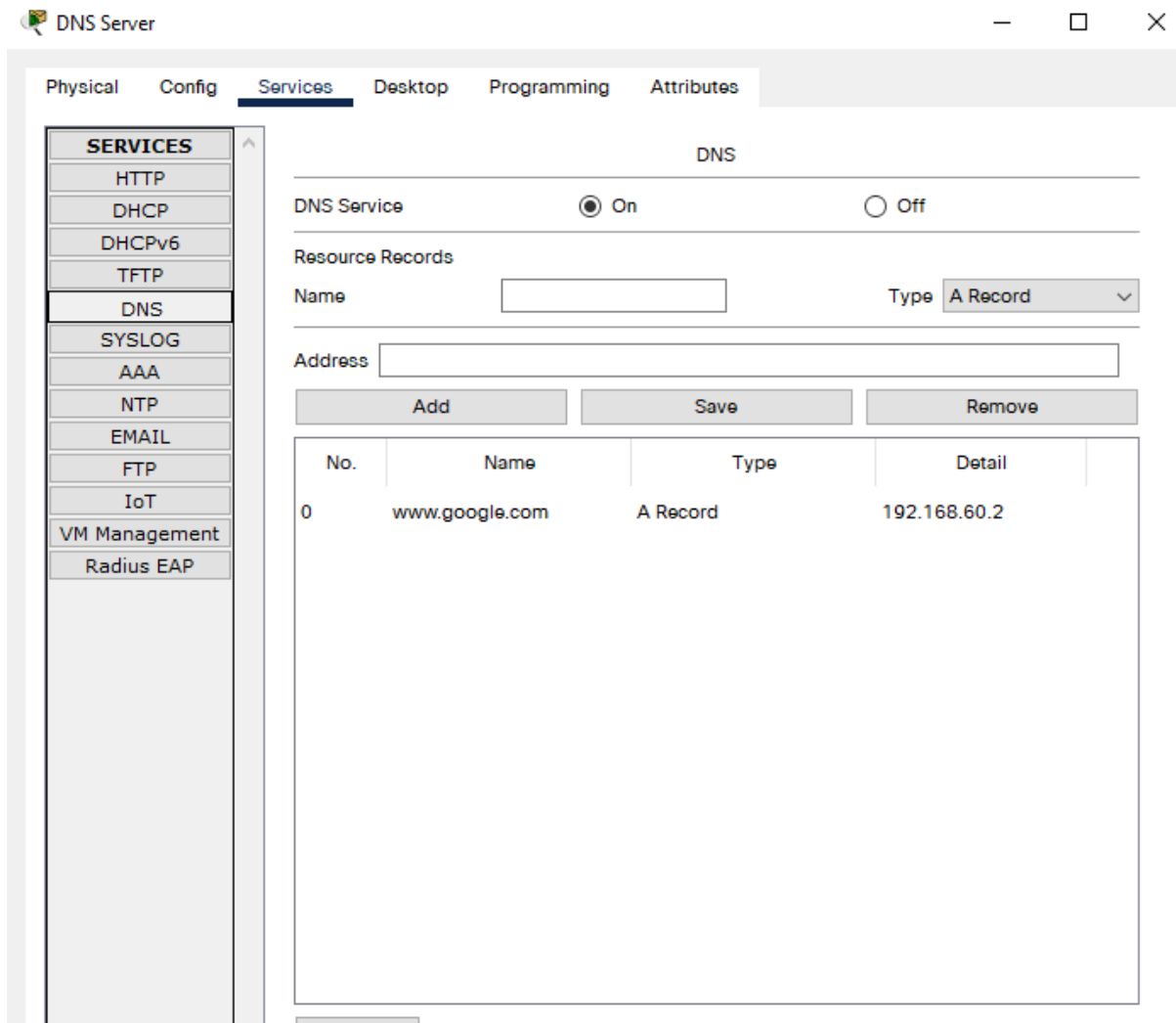
	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)

New File

Import

Top

## DNS Server Configuration:



**Searching the Web using PC using Domain Name:**



Physical Config **Desktop** Programming Attributes

Web Browser X

< > URL  Go Stop

## Cisco Packet Tracer

---

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- [Copyrights](#)
- [Image page](#)
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