

# IQRA NATIONAL UNIVERSITY



## EXAMINATION-2020

### ASSIGNMENT

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<b>PROGRAM</b>	<b>BS-SE, 4<sup>th</sup> SEM, SEC-A</b>
<b>COURSE</b>	<b>Computer Communication and Networks( lab)</b>
<b>INSTRUCTOR</b>	<b>Mansoor Qadir</b>

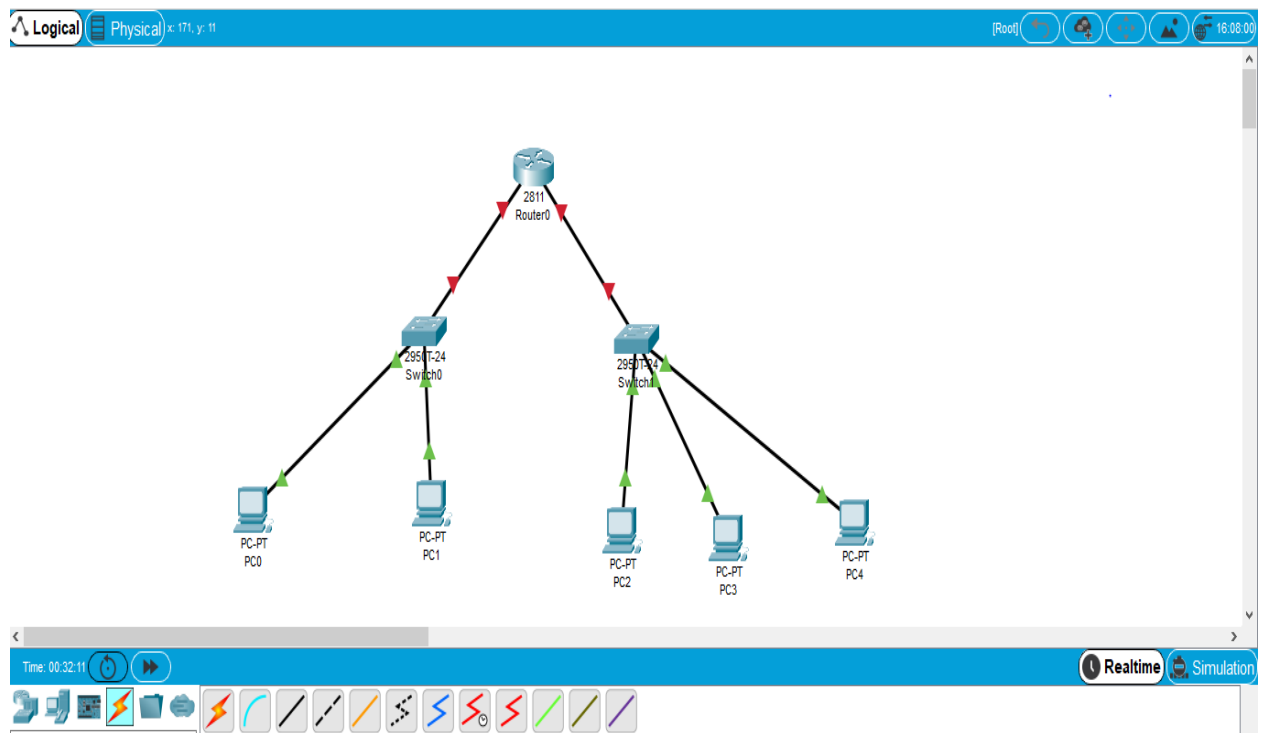
## COMPUTER COMMUNICATION AND NETWORKS:

### LAB EXAMINATION-FINAL:

The software used for the examination is Cisco Packet Tracer.

### Formulating network Topology:

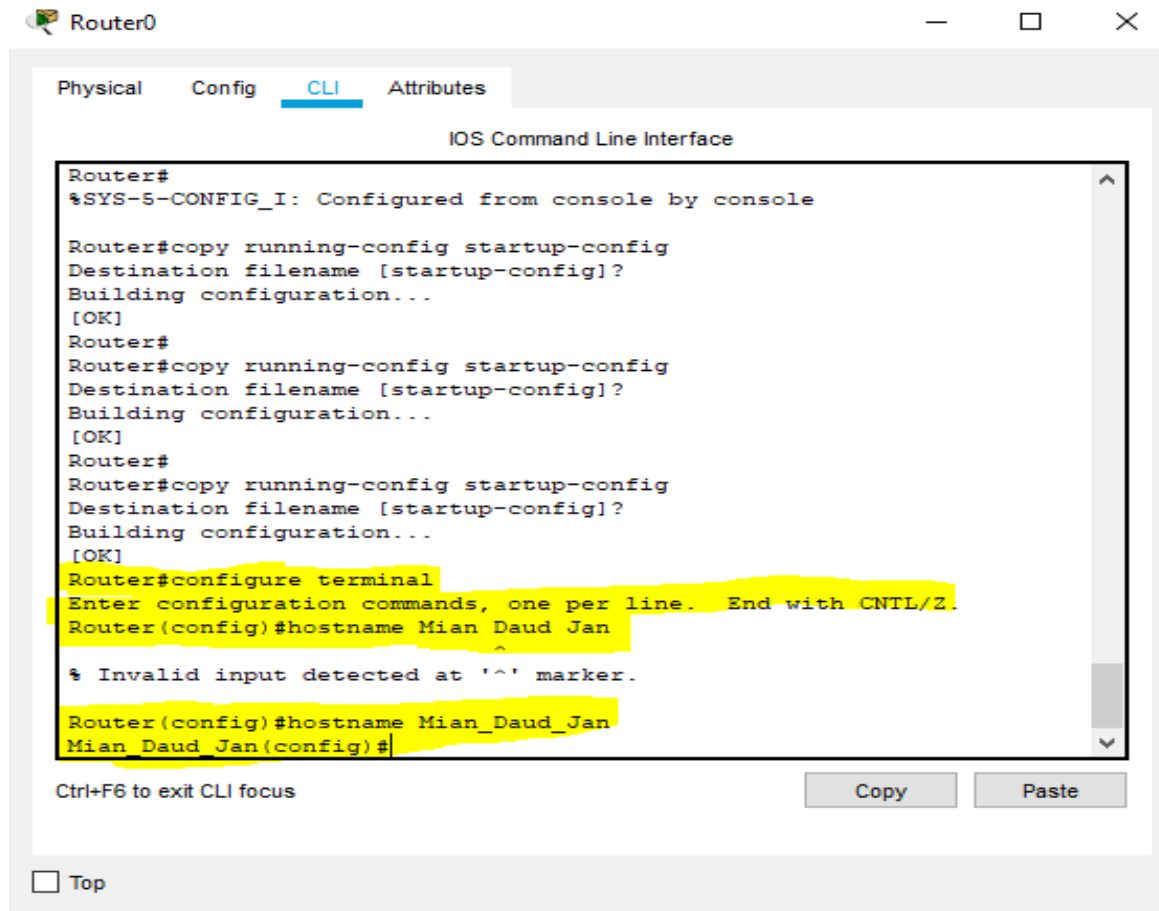
- First of all, selecting router 2811 (ROUTER 0) from the tab.
- then selecting two switches 2950T-24 (switch0 and switch 1) from the tab below.
- Selecting total of 5 PCs and connecting 2 with switch0 and 3 PCs with switch1.
- Using copper straight wire connection for connecting Router to switches and to the PCs respectively.



## Router Configuration:

### For Hostname:

- Opening CLI tab of router0 and using commands,
- Configure terminal followed by #hostname Mian\_Daud\_Jan



```
Router0
Physical Config CLI Attributes
IOS Command Line Interface
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Mian_Daud_Jan
^
% Invalid input detected at '^' marker.

Router(config)#hostname Mian_Daud_Jan
Mian_Daud_Jan(config)#
```

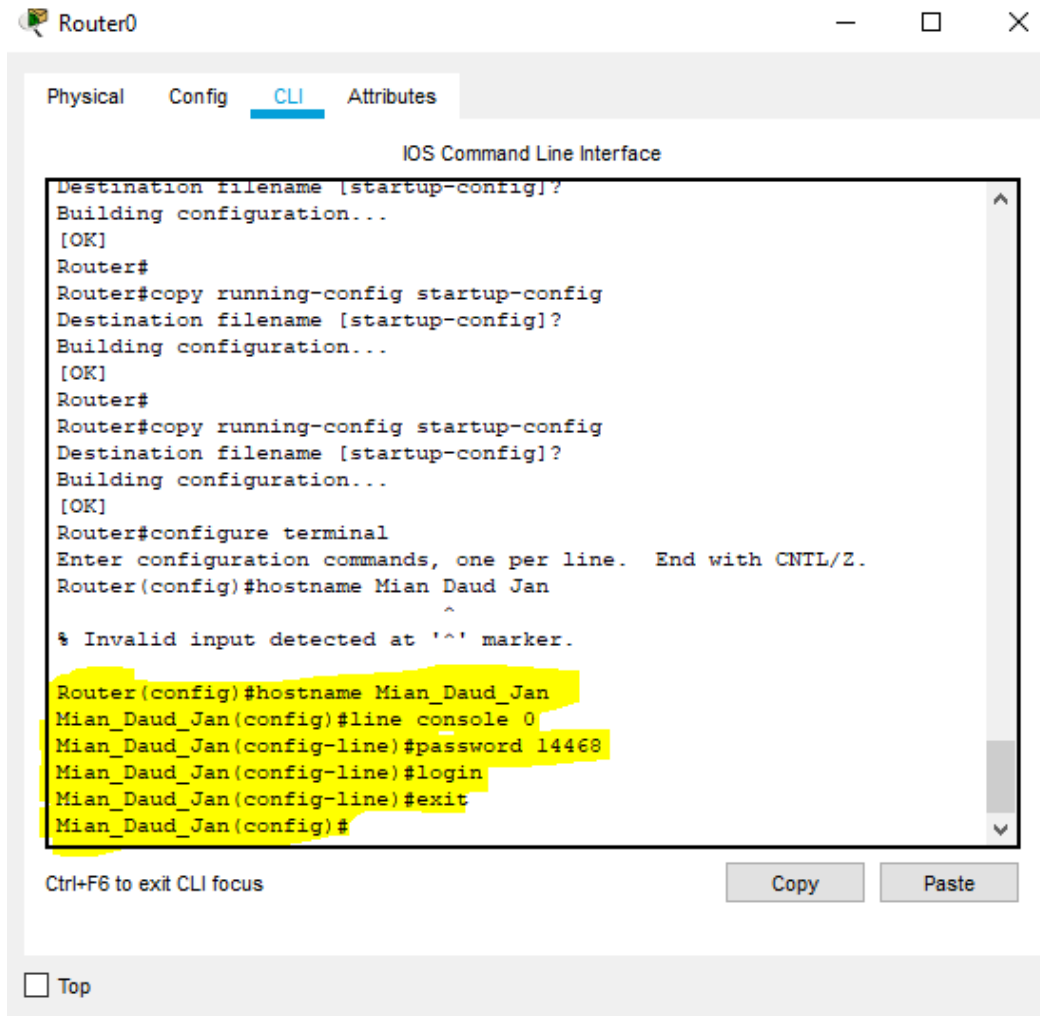
Ctrl+F6 to exit CLI focus

Copy Paste

Top

## For Password:

- Using command line console 0 and #password 14468 to set password to the router.

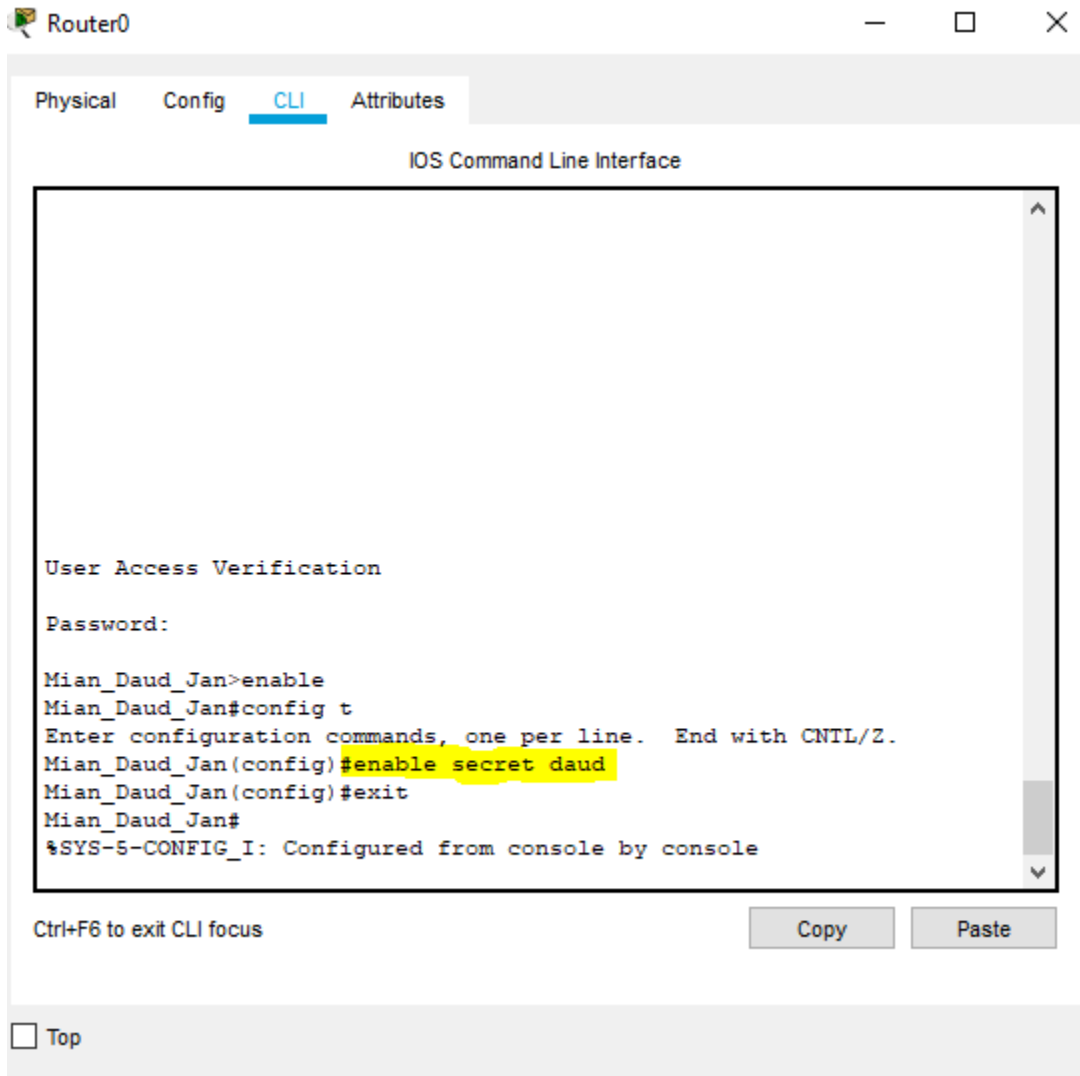


```
Router0
Physical Config CLI Attributes
IOS Command Line Interface
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Mian Daud Jan
^
% Invalid input detected at '^' marker.
Router(config)#hostname Mian_Daud_Jan
Mian_Daud_Jan(config)#line console 0
Mian_Daud_Jan(config-line)#password 14468
Mian_Daud_Jan(config-line)#login
Mian_Daud_Jan(config-line)#exit
Mian_Daud_Jan(config)#

Ctrl+F6 to exit CLI focus
Copy Paste
Top
```

### For Secret Password:

- For secret password, I used the commands,
- enable->config t-> #enable secret daud. Where **daud** is the secret password.
- The results are shown as,

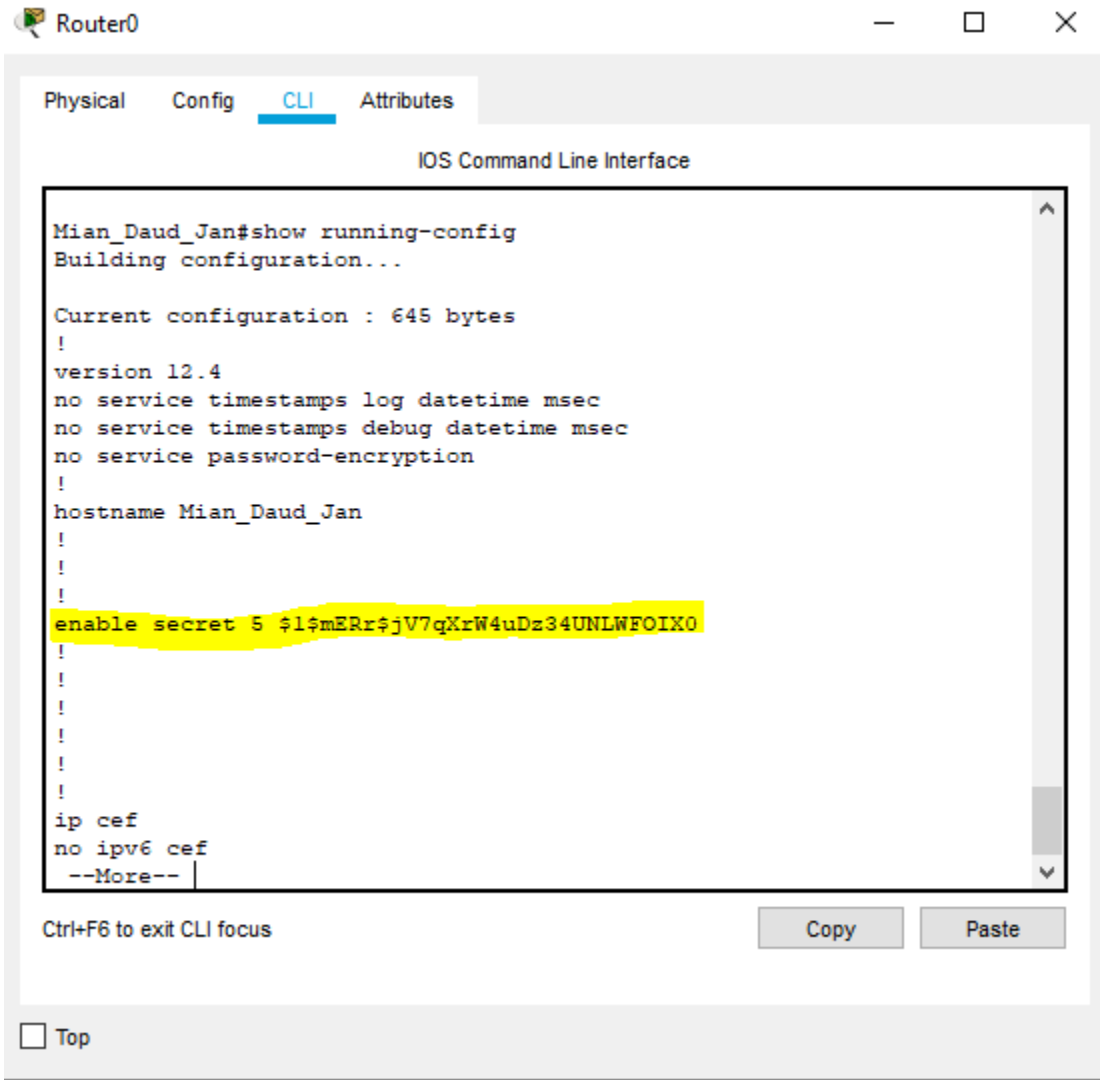


The screenshot shows a window titled "Router0" with a tabbed interface. The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and responses:

```
User Access Verification
Password:
Mian_Daud_Jan>enable
Mian_Daud_Jan#config t
Enter configuration commands, one per line. End with CNTL/Z.
Mian_Daud_Jan(config)#enable secret daud
Mian_Daud_Jan(config)#exit
Mian_Daud_Jan#
%SYS-5-CONFIG_I: Configured from console by console
```

Below the terminal window, there is a "Ctrl+F6 to exit CLI focus" message and "Copy" and "Paste" buttons. At the bottom left, there is a "Top" button with a checkbox.

- using command **#show running-config** to see the secret password encrypted



Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Mian_Daud_Jan#show running-config
Building configuration...

Current configuration : 645 bytes
!
version 12.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Mian_Daud_Jan
!
!
!
enable secret 5 $1$mERr$jjV7qXrW4uDz34UNLWFOIX0
!
!
!
!
!
ip cef
no ipv6 cef
--More--
```

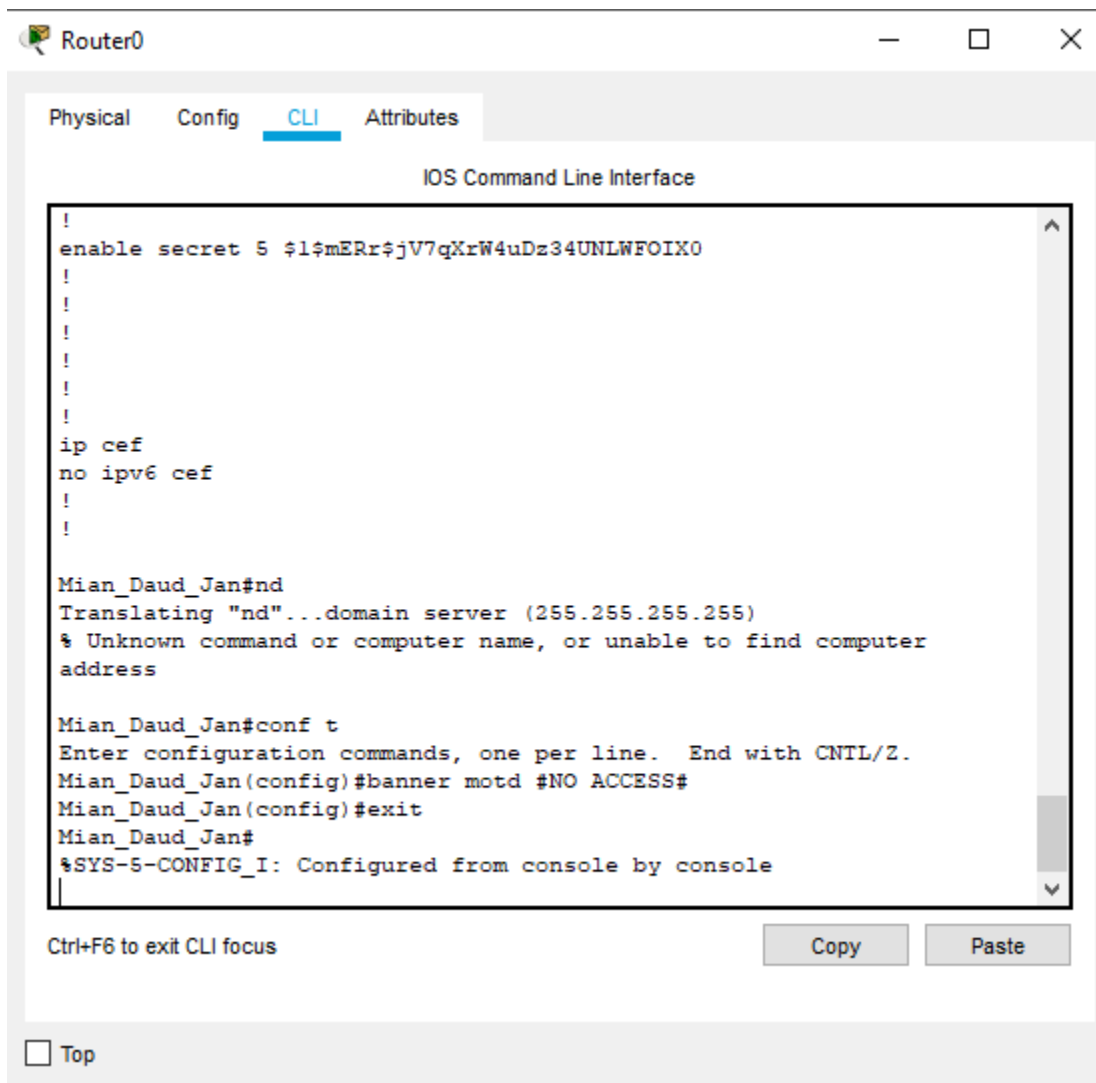
Ctrl+F6 to exit CLI focus

Copy Paste

Top

## For Banner:

- using the following commands for banner,



The screenshot shows a window titled "Router0" with a tabbed interface. The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and responses:

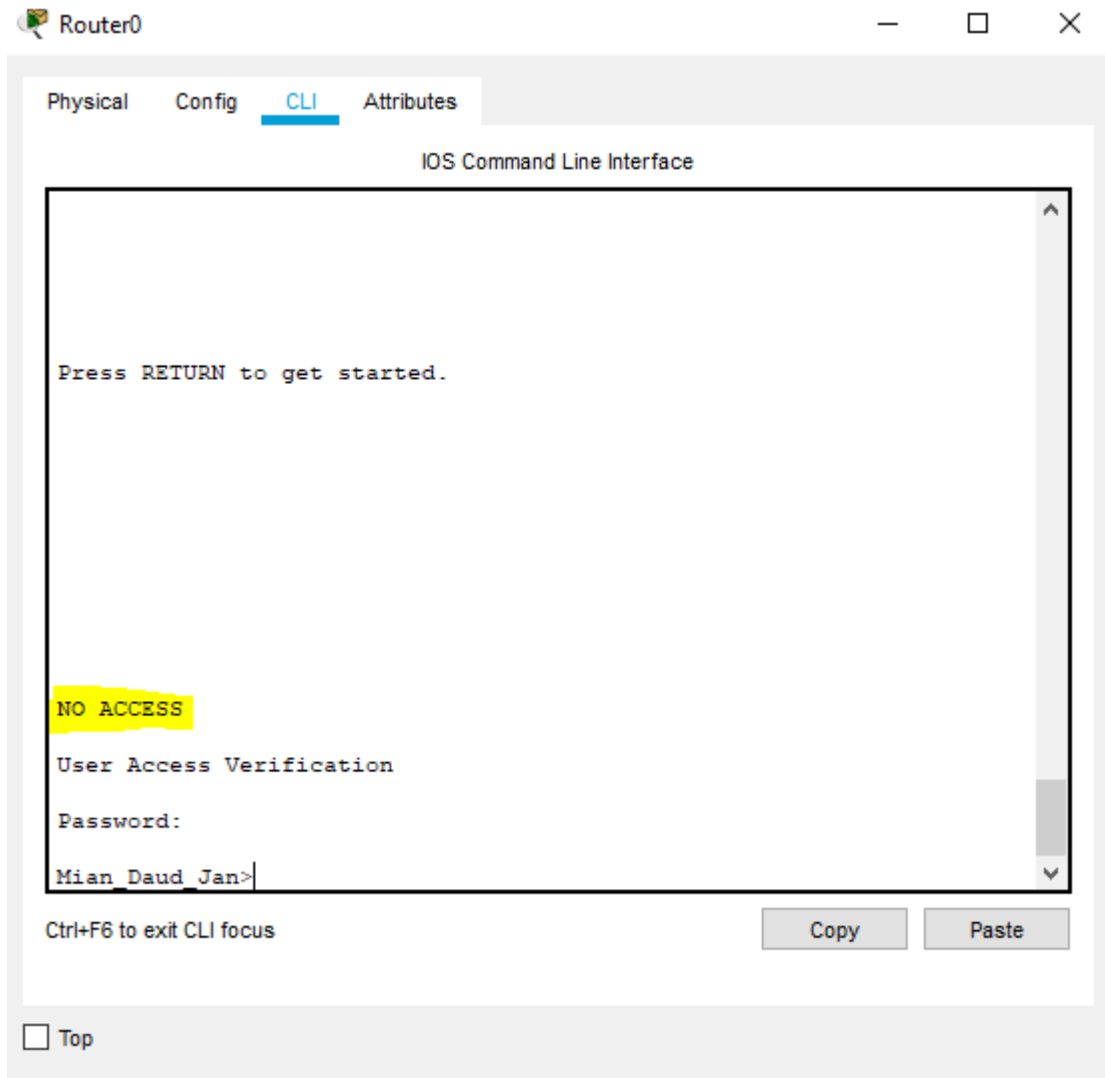
```
!
enable secret 5 $1$mERr$jV7qXrW4uDz34UNLWFOIX0
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!

Mian_Daud_Jan#nd
Translating "nd"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer
address

Mian_Daud_Jan#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Mian_Daud_Jan(config)#banner motd #NO ACCESS#
Mian_Daud_Jan(config)#exit
Mian_Daud_Jan#
%SYS-5-CONFIG_I: Configured from console by console
```

Below the terminal window, there is a "Ctrl+F6 to exit CLI focus" label and two buttons: "Copy" and "Paste". At the bottom left, there is a "Top" button with a square icon.

- The Result for banner is shown as,

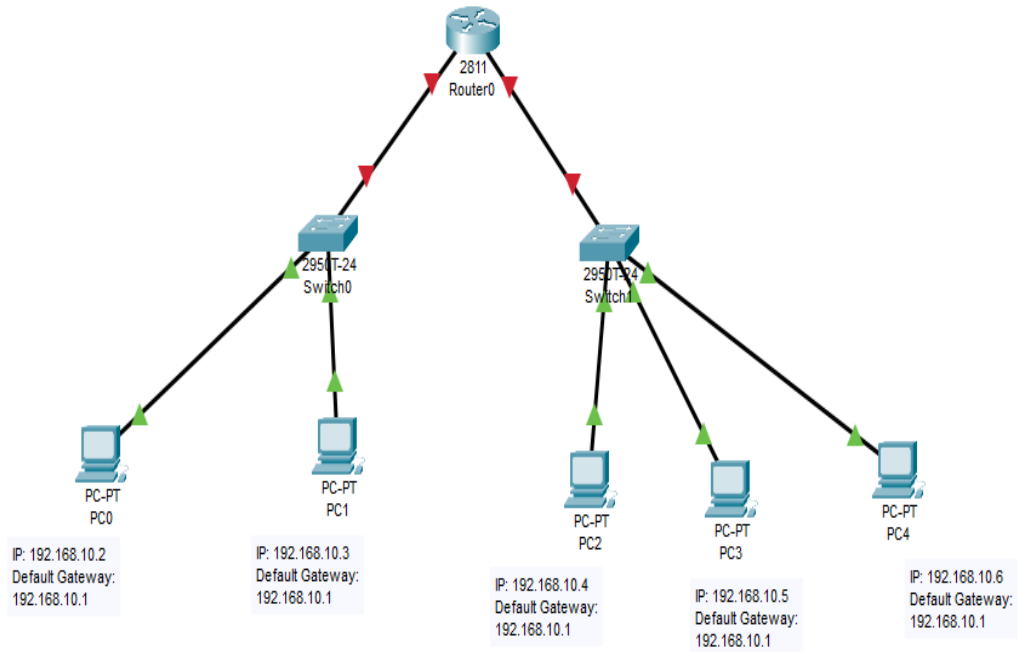




## Assigning PCs, Switches and Router the following: IP addresses, subnet mask and default gateways:

For PCs:

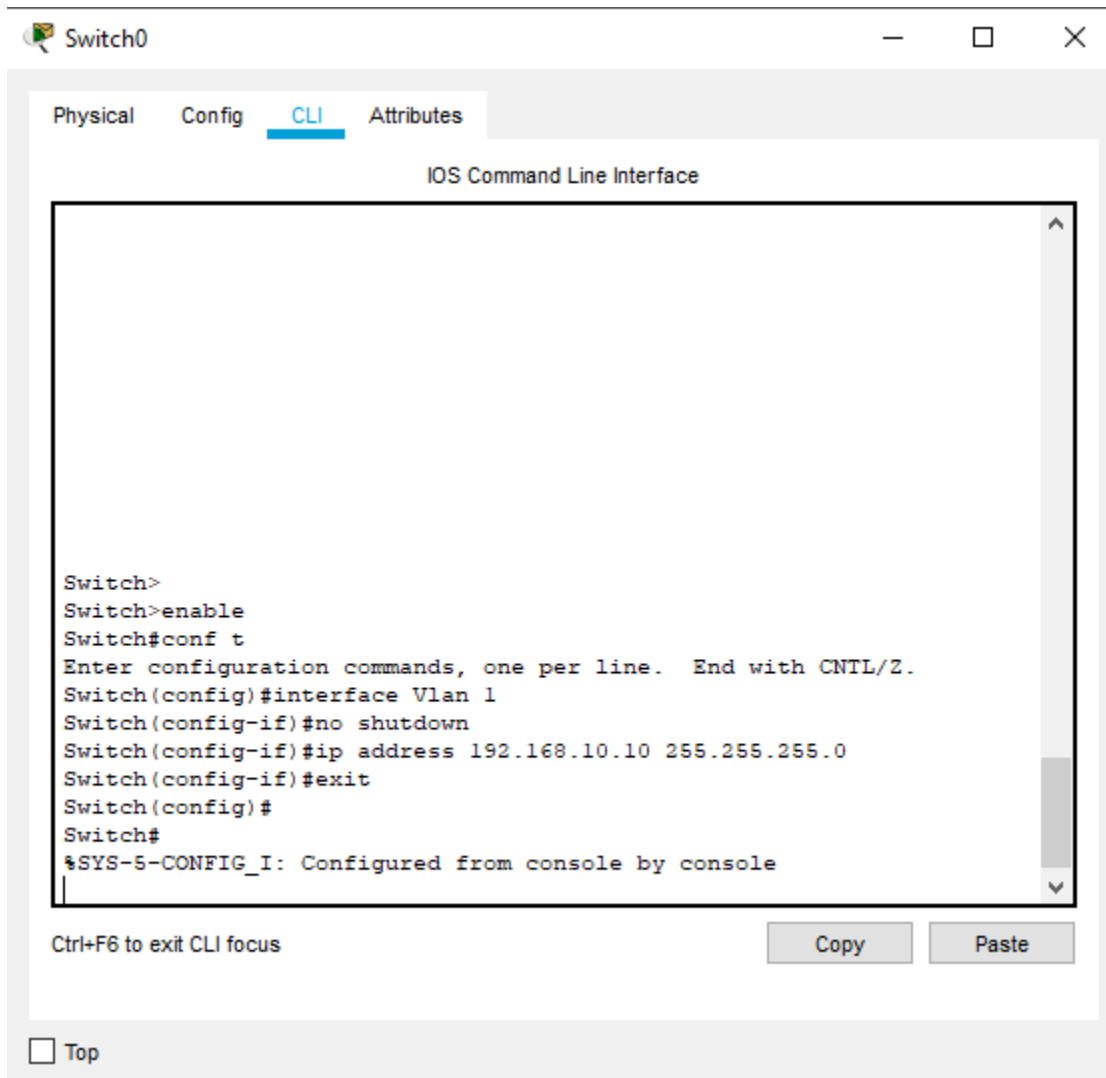
Logical Physical x: 498, y: 157



## For Switches:

### For Switch0:

- The following coding is used to configure IP and subnet mask for the switch 0.

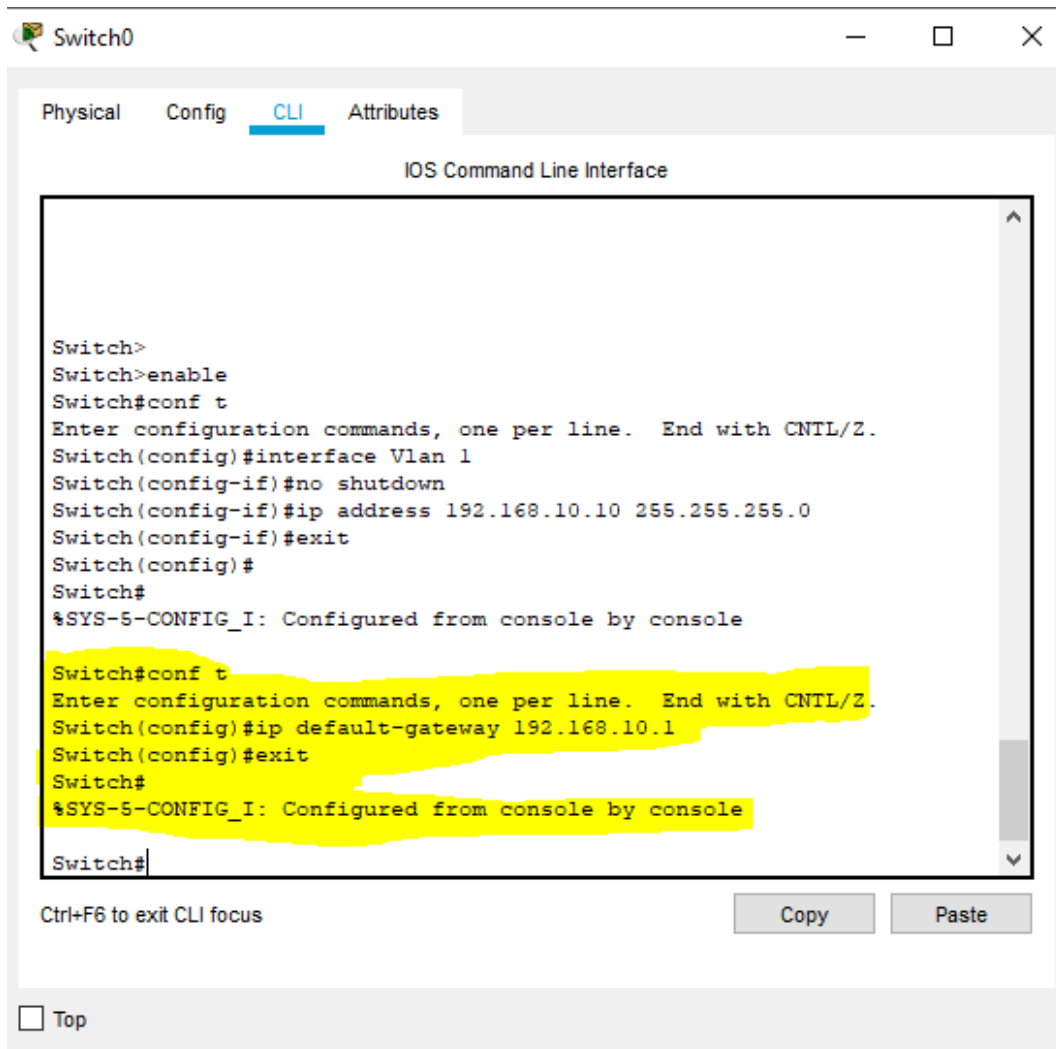


The screenshot shows a window titled "Switch0" with a tabbed interface. The "CLI" tab is selected, displaying the "IOS Command Line Interface". The terminal output shows the following commands and responses:

```
Switch>
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface Vlan 1
Switch(config-if)#no shutdown
Switch(config-if)#ip address 192.168.10.10 255.255.255.0
Switch(config-if)#exit
Switch(config)#
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Below the terminal window, there is a "Ctrl+F6 to exit CLI focus" message and "Copy" and "Paste" buttons. At the bottom left, there is a "Top" button.

- for switch0 gateway, using the following command,



The screenshot shows a window titled "Switch0" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and responses:

```
Switch>
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface Vlan 1
Switch(config-if)#no shutdown
Switch(config-if)#ip address 192.168.10.10 255.255.255.0
Switch(config-if)#exit
Switch(config)#
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#ip default-gateway 192.168.10.1
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
```

Below the terminal window, there is a "Ctrl+F6 to exit CLI focus" label and "Copy" and "Paste" buttons. At the bottom left, there is a "Top" button.

## For Switch1:

- the IP address, Default gateway and subnet mask for switch1 are assigned as,

```
Switch1
Physical Config CLI Attributes
IOS Command Line Interface

Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface Vlan 1
Switch(config-if)#no shutdown
Switch(config-if)#ip address 192.168.20.20 255.255.255.0
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#ip default-gateway 192.168.20.1
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

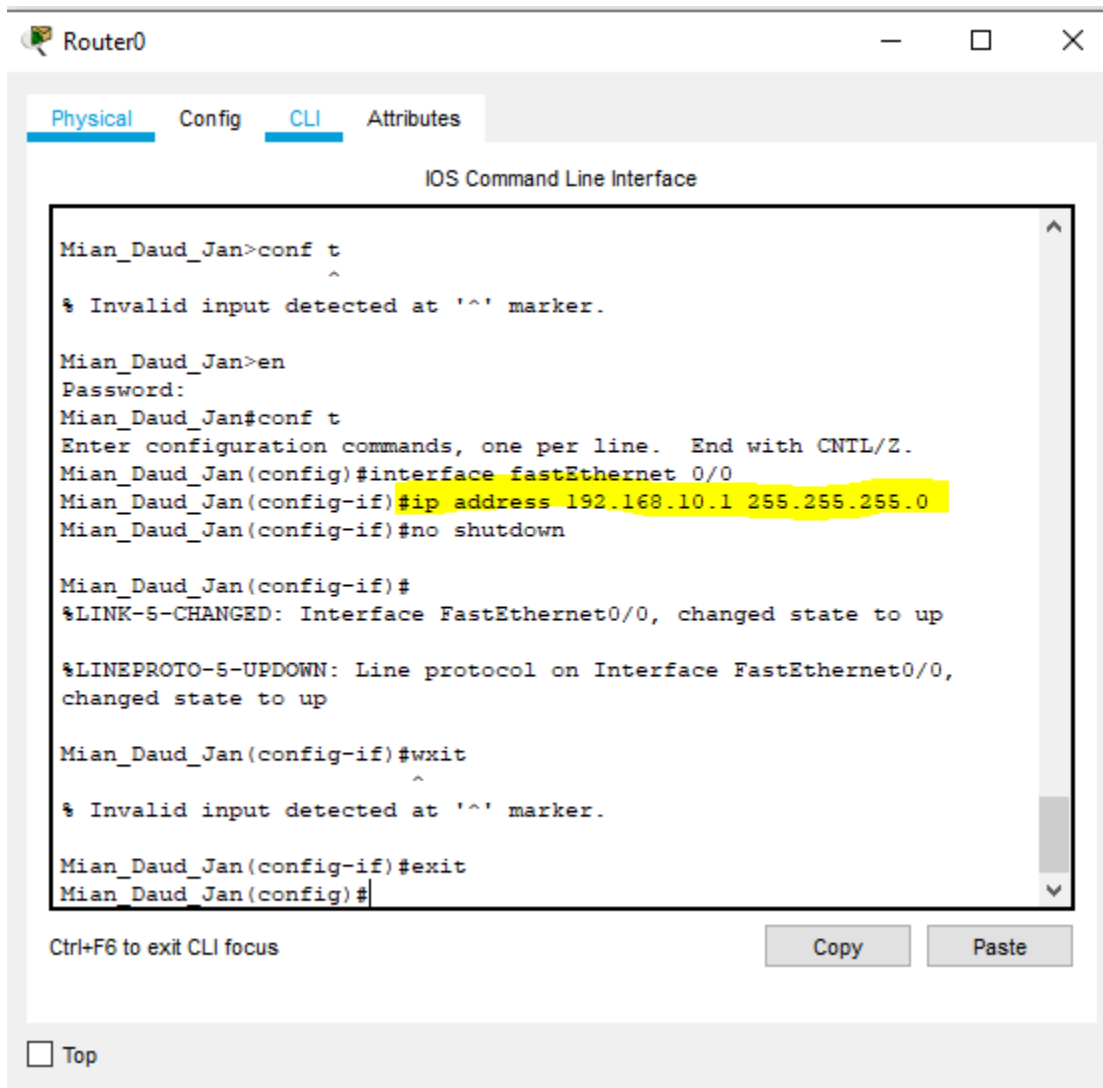
Ctrl+F6 to exit CLI focus Copy Paste
 Top
```

## For Router0:

- The configuration of router is done using the Command line interface (CLI)

## For Interface fastEthernet 0/0:

This will establish connection with switch0.



The screenshot shows a window titled "Router0" with a tabbed interface. The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and responses:

```
Mian_Daud_Jan>conf t
^
% Invalid input detected at '^' marker.

Mian_Daud_Jan>en
Password:
Mian_Daud_Jan#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Mian_Daud_Jan(config)#interface fastEthernet 0/0
Mian_Daud_Jan(config-if)#ip address 192.168.10.1 255.255.255.0
Mian_Daud_Jan(config-if)#no shutdown

Mian_Daud_Jan(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

Mian_Daud_Jan(config-if)#wxit
^
% Invalid input detected at '^' marker.

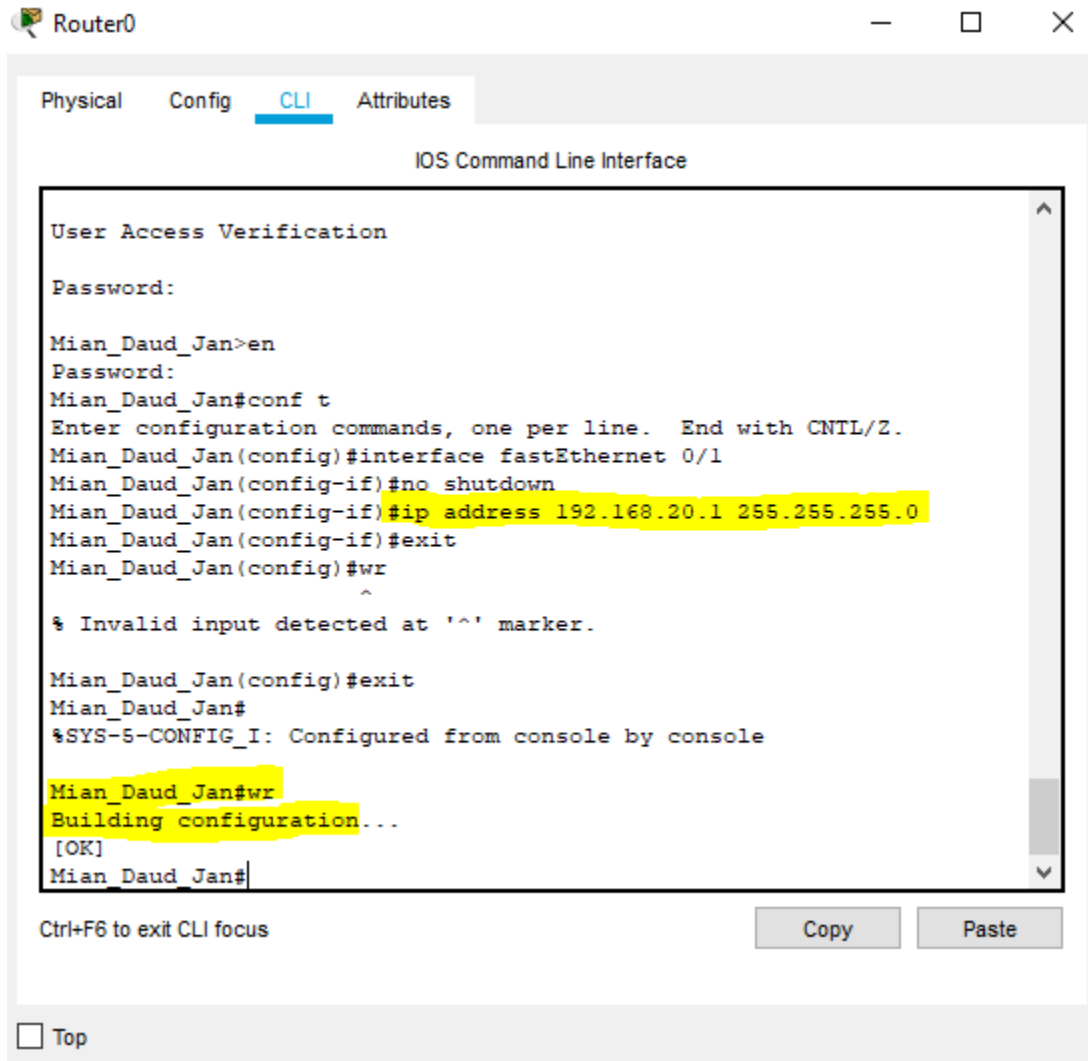
Mian_Daud_Jan(config-if)#exit
Mian_Daud_Jan(config)#
```

At the bottom of the CLI window, there is a "Ctrl+F6 to exit CLI focus" message and two buttons: "Copy" and "Paste". A "Top" button is also visible at the bottom left of the window.

- Using saving configuration command #wr to save router0 configuration.

## For Interface fastEthernet 0/1:

- This will establish connections with switch1.
- Using the following CLI,



The screenshot shows a window titled "Router0" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and responses:

```
User Access Verification
Password:
Mian_Daud_Jan>en
Password:
Mian_Daud_Jan#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Mian_Daud_Jan(config)#interface fastEthernet 0/1
Mian_Daud_Jan(config-if)#no shutdown
Mian_Daud_Jan(config-if)#ip address 192.168.20.1 255.255.255.0
Mian_Daud_Jan(config-if)#exit
Mian_Daud_Jan(config)#wr
^
% Invalid input detected at '^' marker.

Mian_Daud_Jan(config)#exit
Mian_Daud_Jan#
%SYS-5-CONFIG_I: Configured from console by console

Mian_Daud_Jan#wr
Building configuration...
[OK]
Mian_Daud_Jan#
```

Below the terminal window, there is a "Ctrl+F6 to exit CLI focus" label and two buttons: "Copy" and "Paste". At the bottom left, there is a "Top" button with a checkbox.

- Using command #wr to save the configuration

## Results for Router0:

The results for the router are given as,

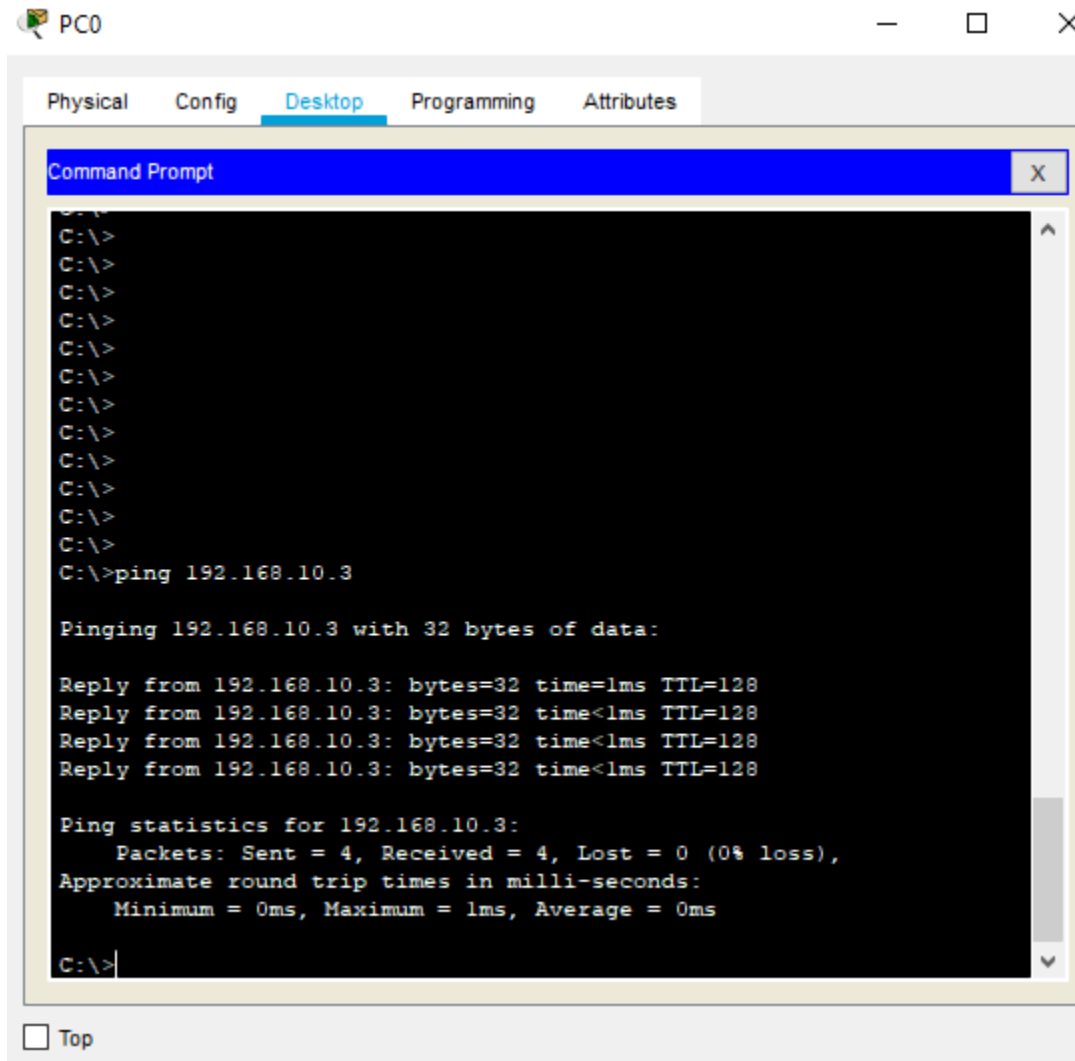


The screenshot shows a window titled "Router0" with a standard Windows-style title bar (minimize, maximize, close). The window has four tabs: "Physical", "Config", "CLI" (which is selected and highlighted in blue), and "Attributes". The main content area is titled "IOS Command Line Interface" and contains a scrollable text area with the following configuration commands:

```
!
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 192.168.10.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 192.168.20.1 255.255.255.0
 duplex auto
 speed auto
!
```

Below the text area, there is a prompt "Ctrl+F6 to exit CLI focus" and two buttons labeled "Copy" and "Paste". At the bottom left of the window, there is a checkbox labeled "Top" which is currently unchecked.

## Ping from PC0 to PC1:



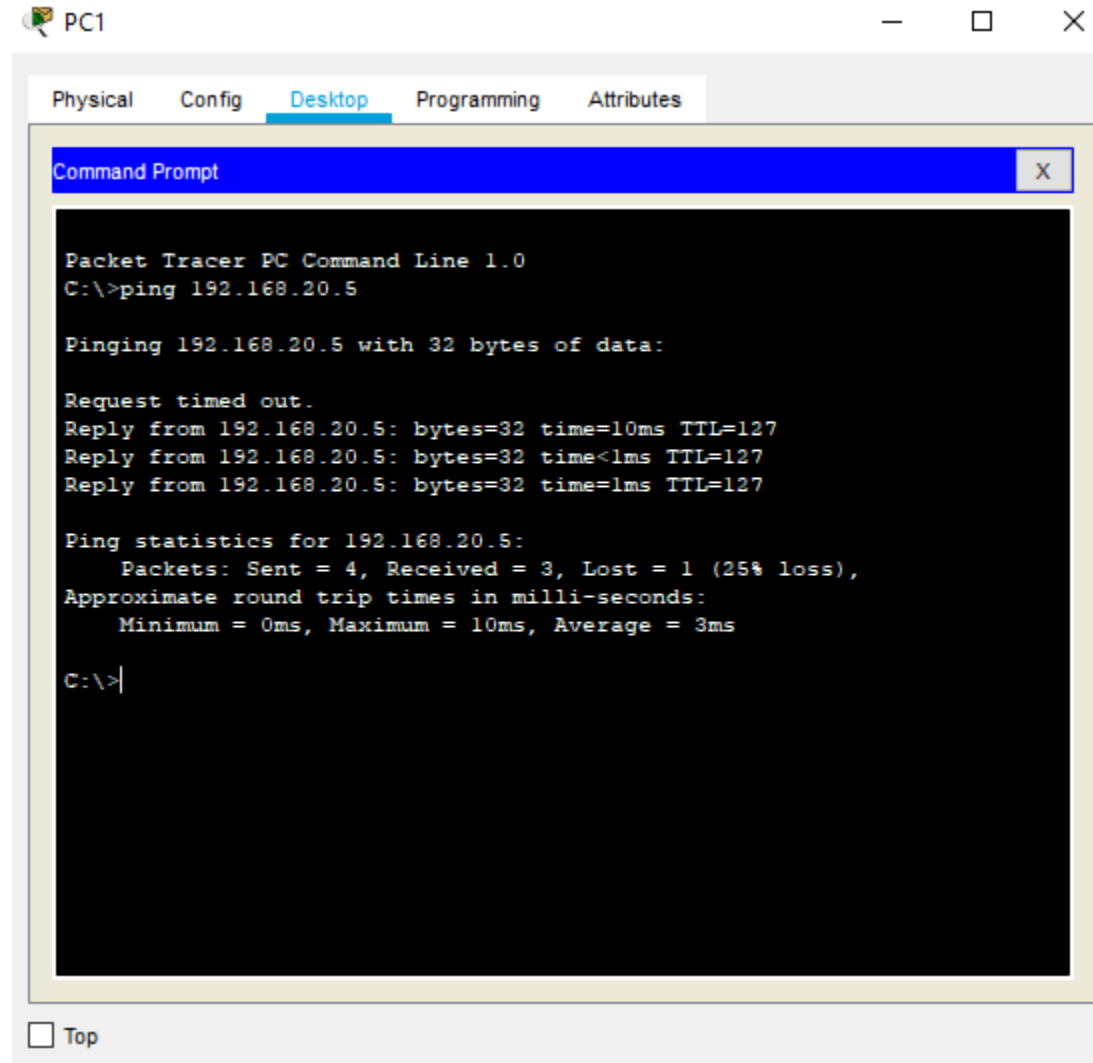
The screenshot shows a desktop environment for PC0 with a window titled 'PC0'. The window has tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, and a 'Command Prompt' window is open. The Command Prompt shows the following text:

```
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>ping 192.168.10.3  
  
Pinging 192.168.10.3 with 32 bytes of data:  
  
Reply from 192.168.10.3: bytes=32 time=1ms TTL=128  
Reply from 192.168.10.3: bytes=32 time<1ms TTL=128  
Reply from 192.168.10.3: bytes=32 time<1ms TTL=128  
Reply from 192.168.10.3: bytes=32 time<1ms TTL=128  
  
Ping statistics for 192.168.10.3:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
    Approximate round trip times in milli-seconds:  
        Minimum = 0ms, Maximum = 1ms, Average = 0ms  
  
C:\>
```

At the bottom left of the Command Prompt window, there is a checkbox labeled 'Top' which is currently unchecked.



## Ping PC1 to PC3:



The screenshot shows a Packet Tracer PC Command Prompt window titled "PC1". The window has tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes", with "Desktop" selected. The Command Prompt window is titled "Command Prompt" and contains the following text:

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.5

Pinging 192.168.20.5 with 32 bytes of data:

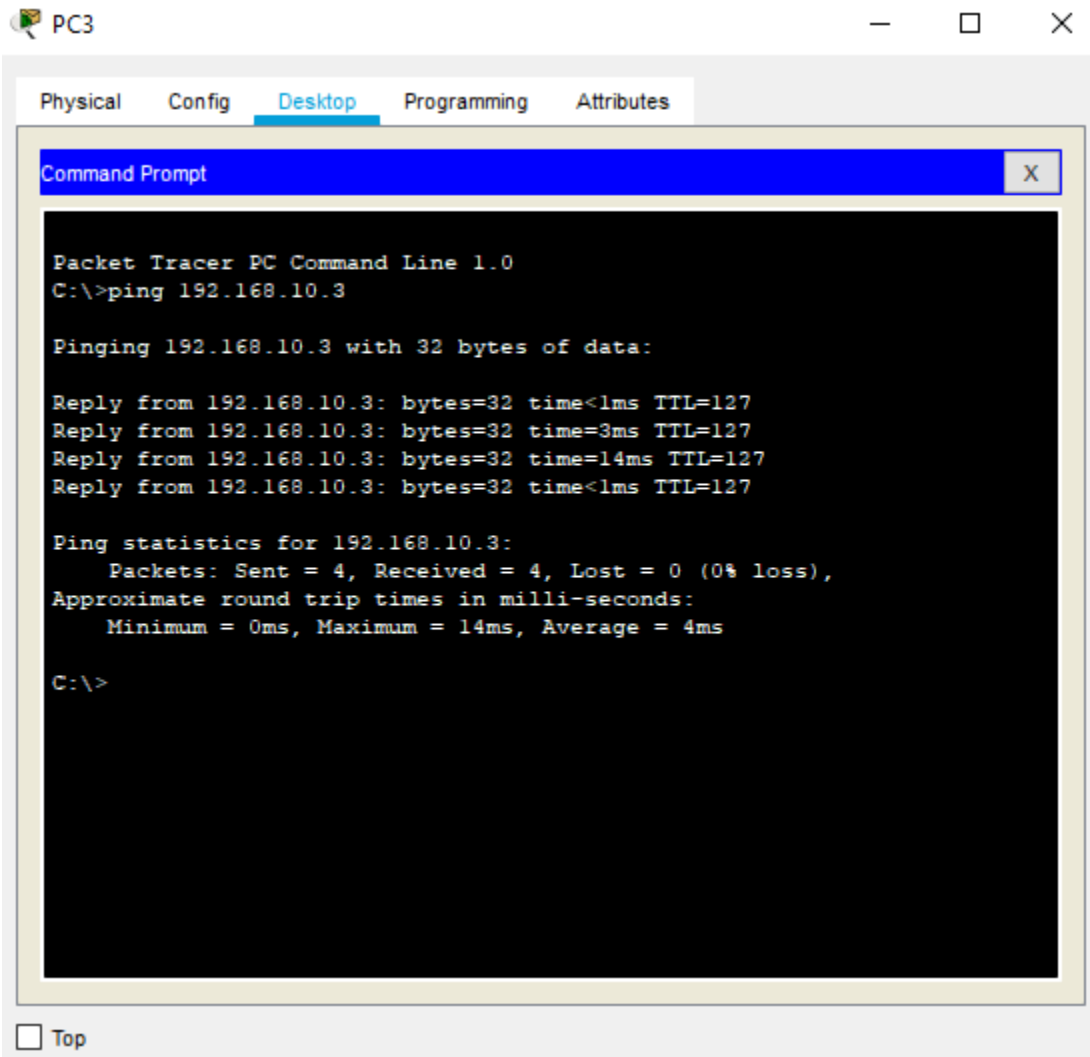
Request timed out.
Reply from 192.168.20.5: bytes=32 time=10ms TTL=127
Reply from 192.168.20.5: bytes=32 time<1ms TTL=127
Reply from 192.168.20.5: bytes=32 time=1ms TTL=127

Ping statistics for 192.168.20.5:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 3ms

C:\>
```

At the bottom left of the Command Prompt window, there is a checkbox labeled "Top".

## Ping PC3 to PC1:



The screenshot shows a Packet Tracer PC3 desktop environment. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The window title is 'Command Prompt' with a close button (X). The text inside the window is as follows:

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.3

Pinging 192.168.10.3 with 32 bytes of data:

Reply from 192.168.10.3: bytes=32 time<1ms TTL=127
Reply from 192.168.10.3: bytes=32 time=3ms TTL=127
Reply from 192.168.10.3: bytes=32 time=14ms TTL=127
Reply from 192.168.10.3: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 14ms, Average = 4ms

C:\>
```

Below the Command Prompt window, there is a checkbox labeled 'Top' which is currently unchecked.

## The final topology network is shown as,

