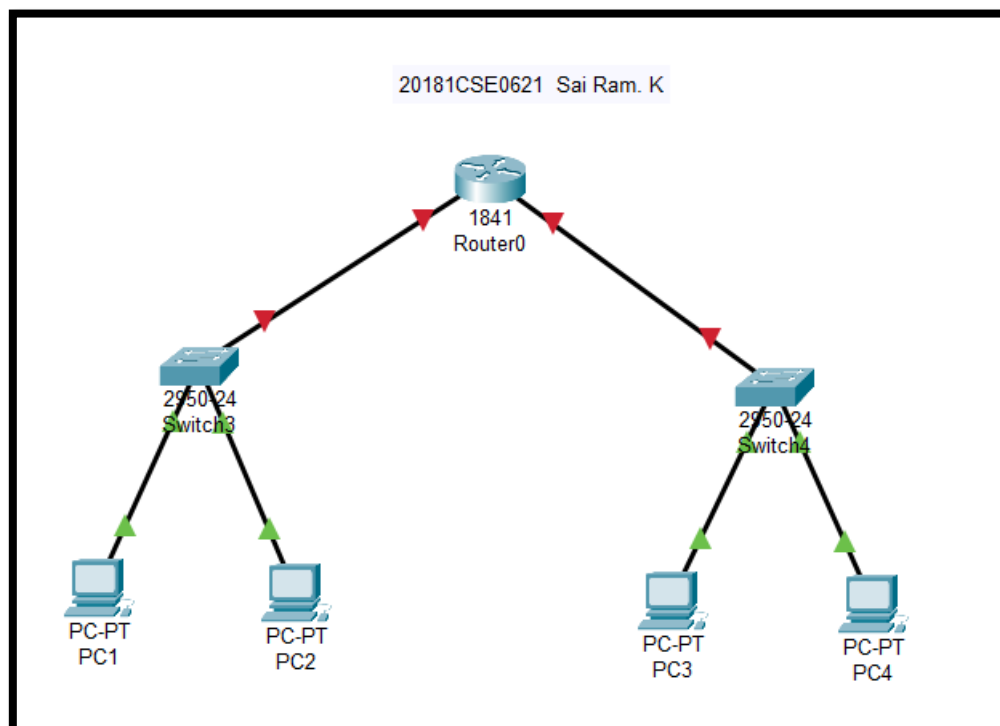
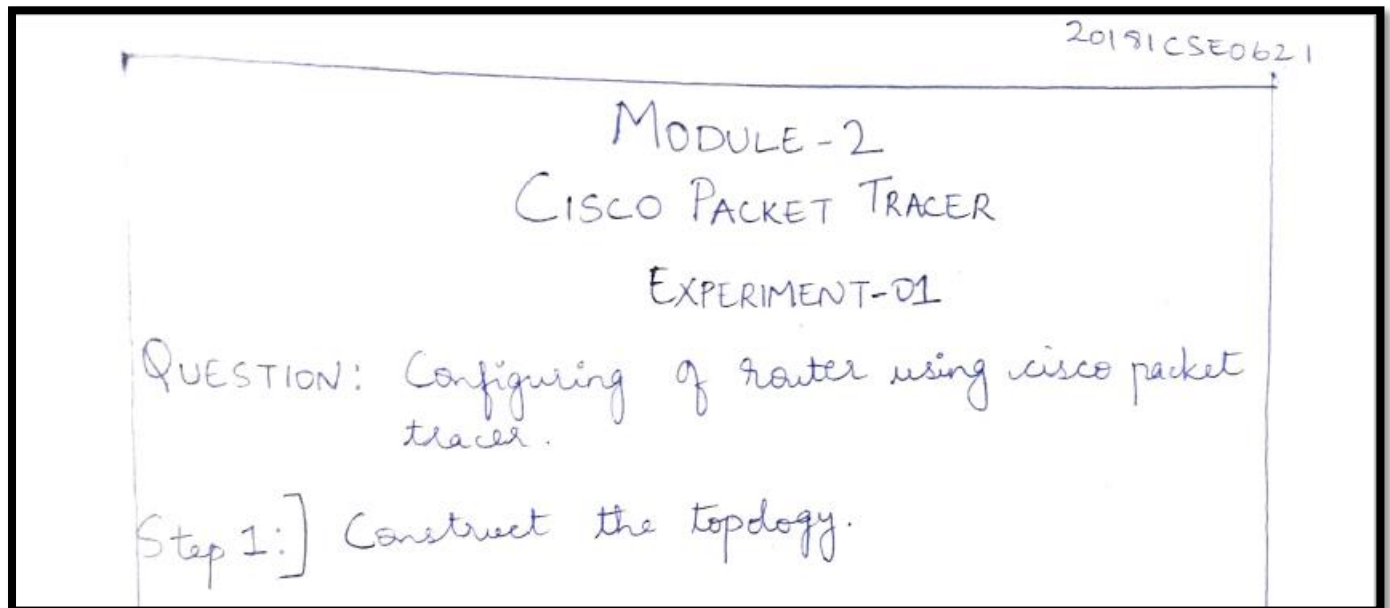


Module – 2

Cisco Packet Tracer

Experiment – 1

Step 1.



Step 2.

Step 2:] Assign IP addresses to all PC's.
• Use another network for second network.

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PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.0.2

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::201:97FF:FEEC:C0BC

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

☐ Top

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PC2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.0.3

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::290:CFF:FED0:9DD6

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

☐ Top

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PC3

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.2

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2D0:D3FF:FEE6:70B3

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

☐ Top

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PC4

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.3

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::201:96FF:FEC2:5B02

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

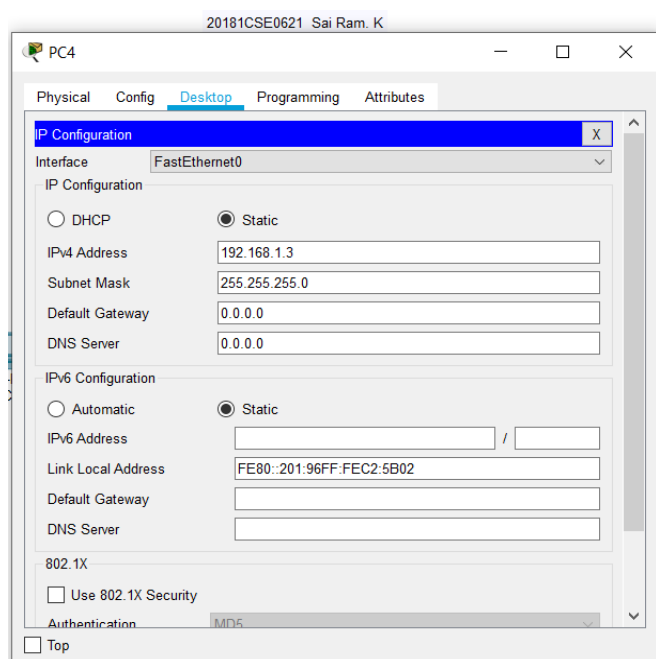
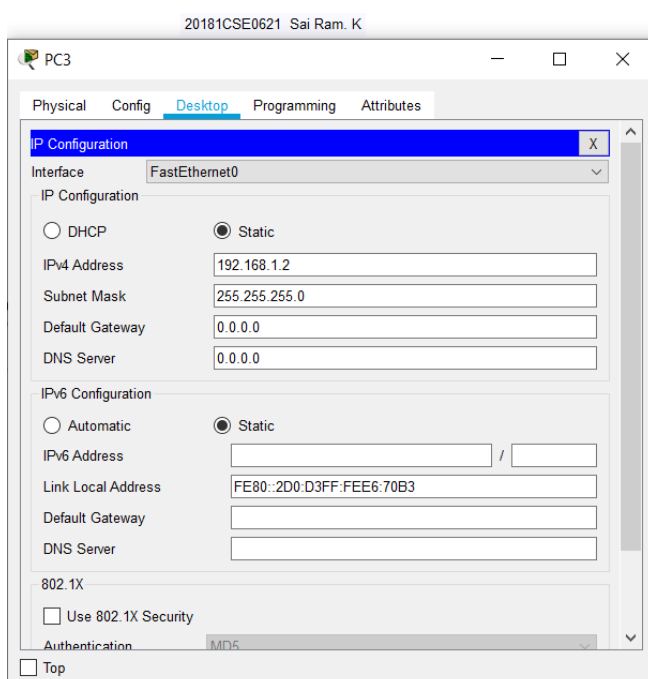
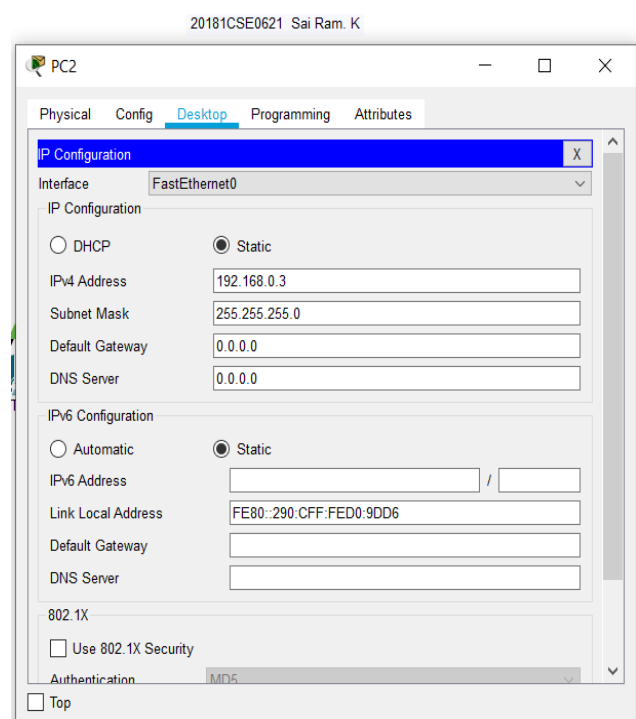
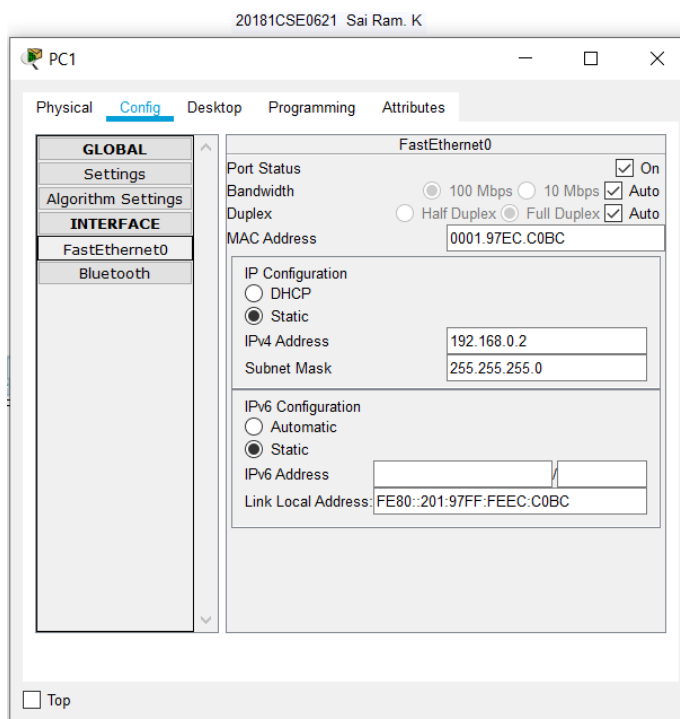
Authentication MD5

☐ Top

Step 3.

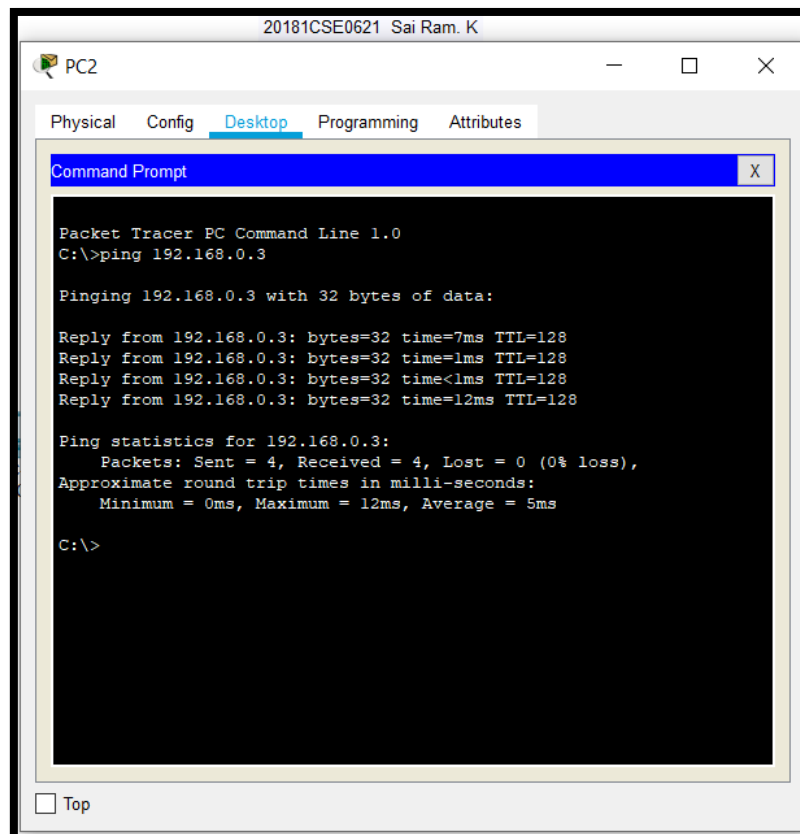
Step 3:] Assign the IP address for router.

- Assign the gateway address of 1st network and don't forget to turn on the port status.
- Assign the gateway address of 2nd address for FastEthernet 0/1 interface.



Step 4.

Step 4:] Check the connectivity from one network to other.
• Select any PC from 1st network go to desktop tab >
Command Prompt > execute ping command for 2nd network



Step 5 & 6.

Step 5:] Send simple PDU.

Step 6:] Check in simulation mode.

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 506, y: 408

[Root] 07:48:00

Sairam.K.20181CSE0621

1841 Router0

2650-14 Switch0

2650-14 Switch1

PC-PT PC0

PC-PT PC1

PC-PT PC2

PC-PT PC3

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Router0	ICMP
	0.003	Router0	Switch1	ICMP
	0.004	Switch1	PC3	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.004 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:14:31.311 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Ed

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Ed
In Progress		PC0	PC3	ICMP		0.000	N	0	(e

Go to Settings to activate Windows.

11:40 19-03-2021

Experiment – 2

Configuration of Switch using cisco packet tracer

Step 1.

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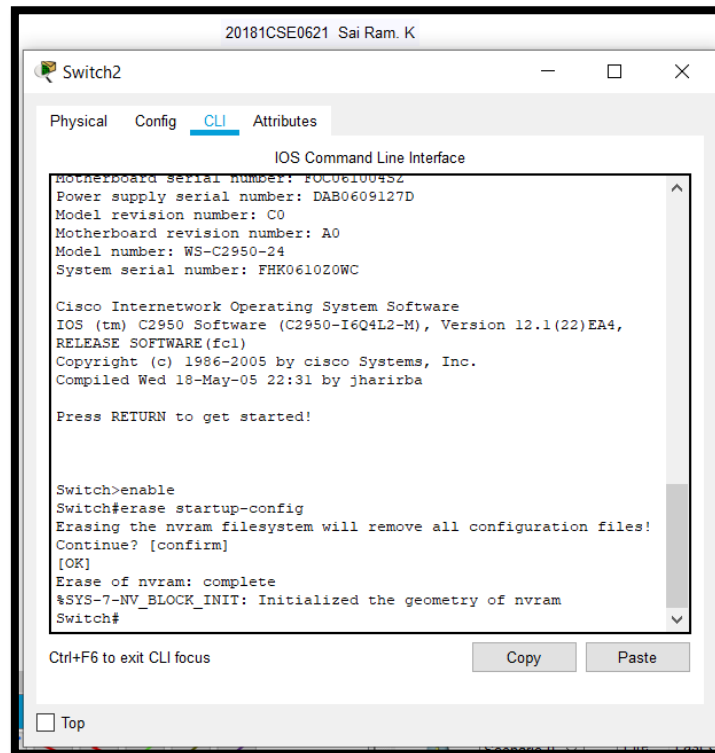
EXPERIMENT-02

QUESTION : Configuration of switch using cisco packet tracer.

→ Basic commands :

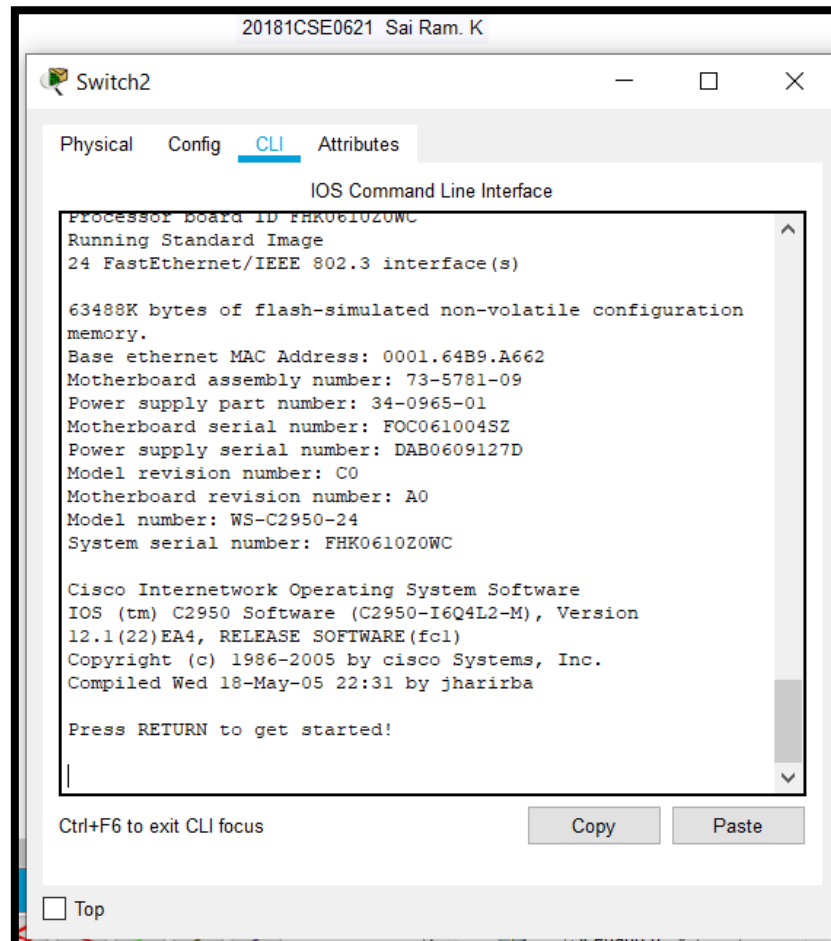
- switch > User mode
- switch > enable --> Enters privilege mode.
- switch # --> Privilege mode
- switch # configure terminal --> Enable configuration mode.
- switch (config)# --> Configuration mode..
- switch > ? --> Help

Step1) Erase the startup configuration file from NVRAM.
Type the erase startup-config to remove the startup configuration from non volatile RAM.
[OK]
Erase of nvram : complete.
router#

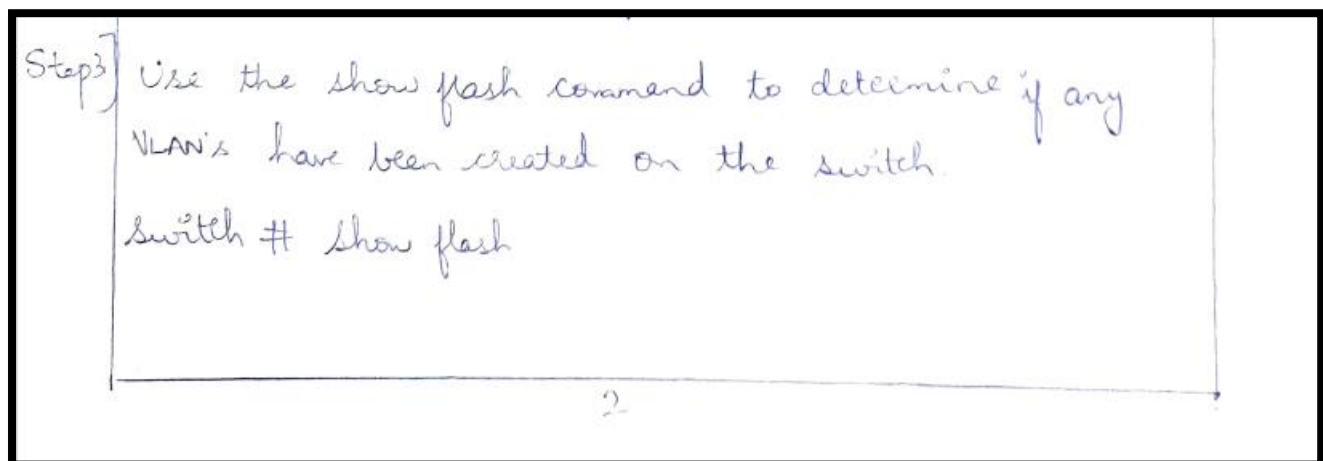


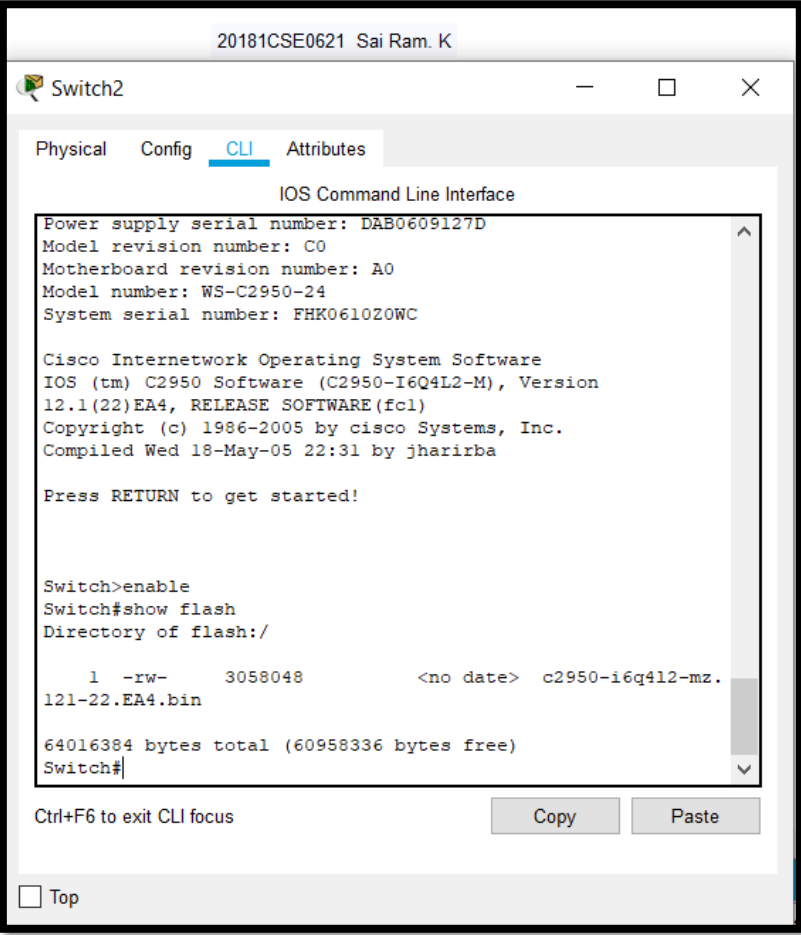
Step 2.

Step 2] Reload the switch.
Issue the reload command to remove an old configuration from memory. When prompted to proceed with reload press enter to confirm.
switch# reload
proceed with reload? [confirm]



Step 3.





The screenshot shows a window titled "Switch2" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The output of the "show flash" command is shown, including hardware details, software version (12.1(22)EA4), and the directory of the flash file system.

```
Power supply serial number: DAB0609127D
Model revision number: C0
Motherboard revision number: A0
Model number: WS-C2950-24
System serial number: FHK061020WC

Cisco Internetwork Operating System Software
IOS (tm) C2950 Software (C2950-I6Q4L2-M), Version
12.1(22)EA4, RELEASE SOFTWARE(fcl)
Copyright (c) 1986-2005 by cisco Systems, Inc.
Compiled Wed 18-May-05 22:31 by jharirba

Press RETURN to get started!

Switch>enable
Switch#show flash
Directory of flash:/

   1  -rw-     3058048      <no date>  c2950-i6q4l2-mz.
121-22.EA4.bin

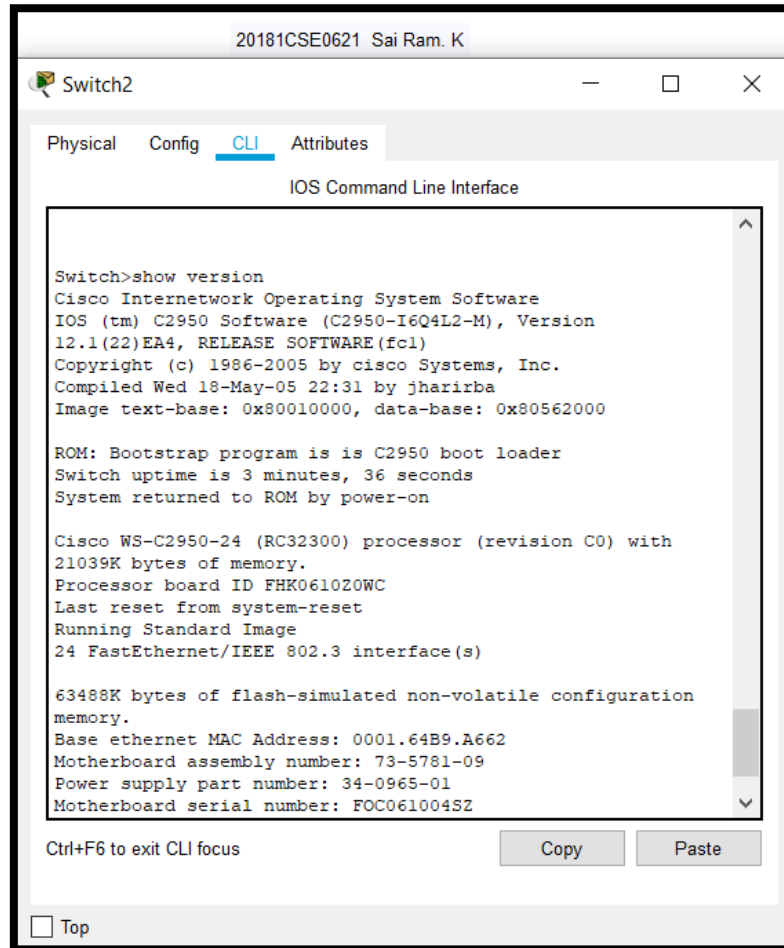
64016384 bytes total (60958336 bytes free)
Switch#
```

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

Step 4.

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Step 4] switch#
switch > show version



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Switch2

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Switch>show version
Cisco Internetwork Operating System Software
IOS (tm) C2950 Software (C2950-I6Q4L2-M), Version
12.1(22)EA4, RELEASE SOFTWARE(fcl)
Copyright (c) 1986-2005 by cisco Systems, Inc.
Compiled Wed 18-May-05 22:31 by jharirba
Image text-base: 0x80010000, data-base: 0x80562000

ROM: Bootstrap program is is C2950 boot loader
Switch uptime is 3 minutes, 36 seconds
System returned to ROM by power-on

Cisco WS-C2950-24 (RC32300) processor (revision C0) with
21039K bytes of memory.
Processor board ID FHK061020WC
Last reset from system-reset
Running Standard Image
24 FastEthernet/IEEE 802.3 interface(s)

63488K bytes of flash-simulated non-volatile configuration
memory.
Base ethernet MAC Address: 0001.64B9.A662
Motherboard assembly number: 73-5781-09
Power supply part number: 34-0965-01
Motherboard serial number: FOC061004SZ
```

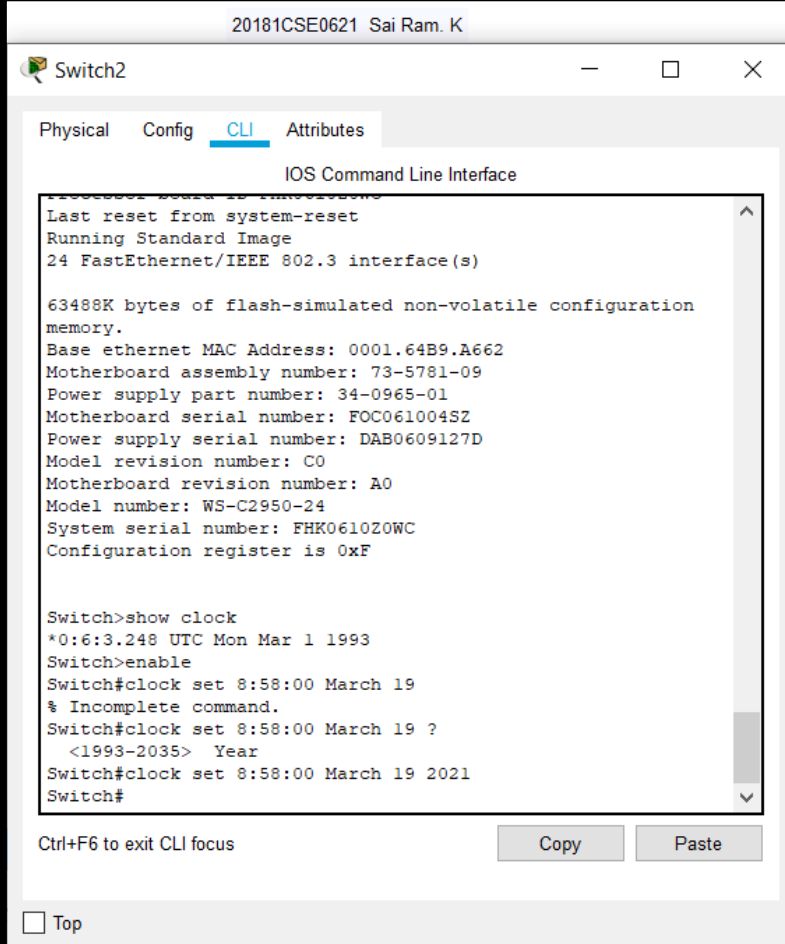
Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Step 5.

- Steps)
- Configure the clock
- As you learn more about networking you will see that configuring the correct time on a cisco switch can be helpful when you are troubleshooting the problems.
- Display current clock settings
switch> show clock.
 - Configure the clock settings
switch# clock set 15:08:00



The screenshot shows a window titled "Switch2" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The output of the "show" command is as follows:

```
Switch>show
Last reset from system-reset
Running Standard Image
24 FastEthernet/IEEE 802.3 interface(s)

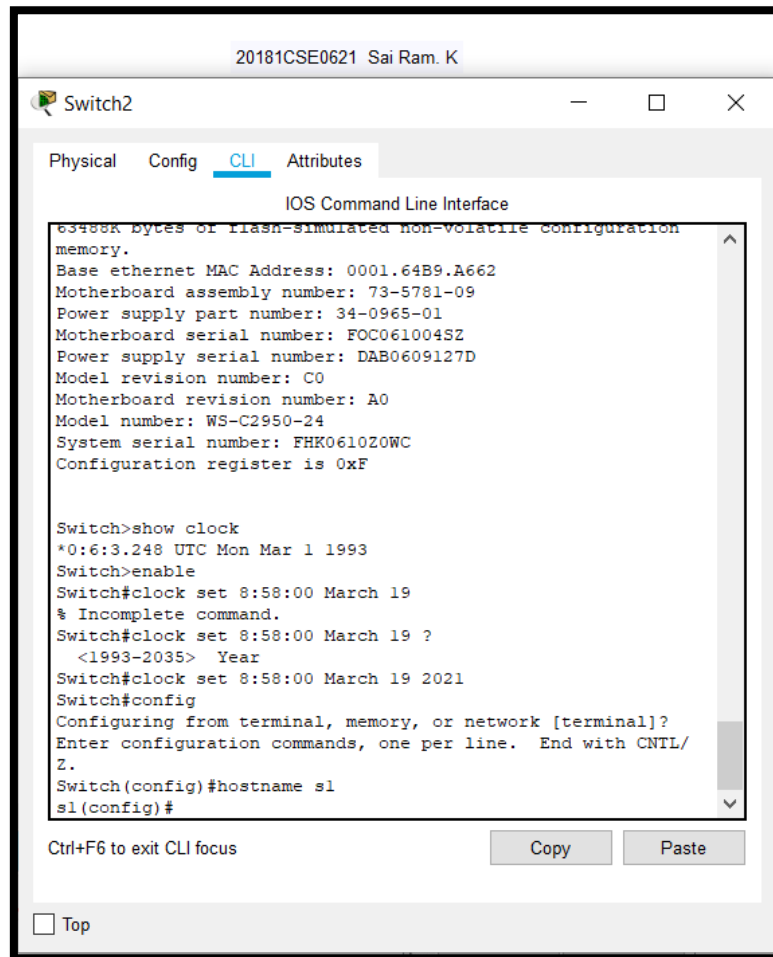
63488K bytes of flash-simulated non-volatile configuration
memory.
Base ethernet MAC Address: 0001.64B9.A662
Motherboard assembly number: 73-5781-09
Power supply part number: 34-0965-01
Motherboard serial number: FOC061004SZ
Power supply serial number: DAB0609127D
Model revision number: C0
Motherboard revision number: A0
Model number: WS-C2950-24
System serial number: FHK061020WC
Configuration register is 0xF

Switch>show clock
*0:6:3.248 UTC Mon Mar 1 1993
Switch>enable
Switch#clock set 8:58:00 March 19
% Incomplete command.
Switch#clock set 8:58:00 March 19 ?
<1993-2035> Year
Switch#clock set 8:58:00 March 19 2021
Switch#
```

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

Step 6.

Step 6) Give the switch a name.
Use the hostname command to change switch name to S1.
switch(config)# hostname S1
S1(config)#



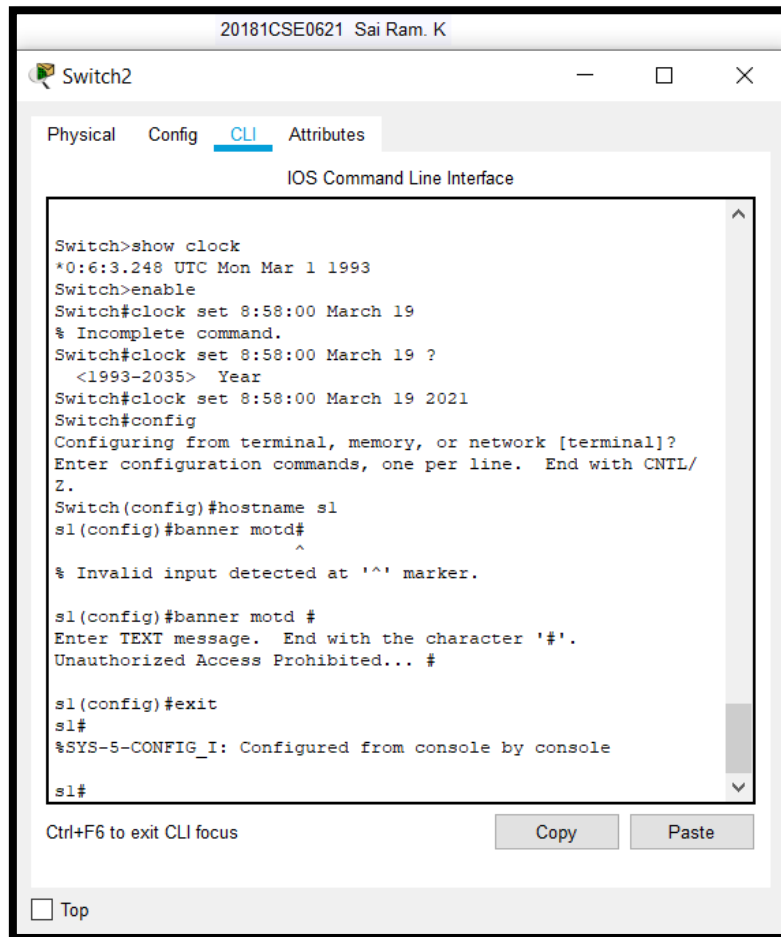
Step 7.

Step 7] Enter a login MOTD banner.

A login banner should be configured to warn anyone accessing the switch that unauthorized access will not be tolerated. The delimiting can be any character as long as it does not occur in the message.

```
S1(config)# banner motd #
Enter TEXT. end with '#'
S1(config)# exit.
```

3



```
Switch2
Physical Config CLI Attributes
IOS Command Line Interface

Switch>show clock
*0:6:3.248 UTC Mon Mar 1 1993
Switch>enable
Switch#clock set 8:58:00 March 19
% Incomplete command.
Switch#clock set 8:58:00 March 19 ?
<1993-2035> Year
Switch#clock set 8:58:00 March 19 2021
Switch#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/
Z.
Switch(config)#hostname s1
s1(config)#banner motd#
^
% Invalid input detected at '^' marker.

s1(config)#banner motd #
Enter TEXT message. End with the character '#'.
Unauthorized Access Prohibited... #

s1(config)#exit
s1#
%SYS-5-CONFIG_I: Configured from console by console
s1#
```

Ctrl+F6 to exit CLI focus

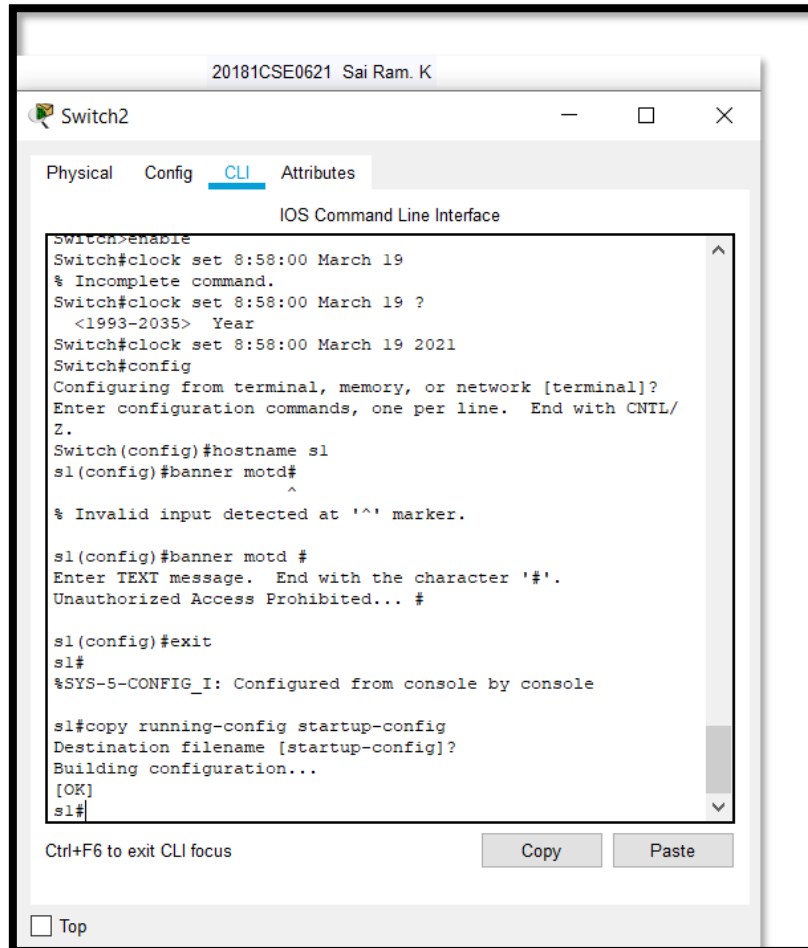
Copy Paste

☐ Top

Step 8.

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Step 8] Save the configuration.
Use the copy command to save the running configuration
to the startup file on NVRAM.
S1# copy running-config startup-config.

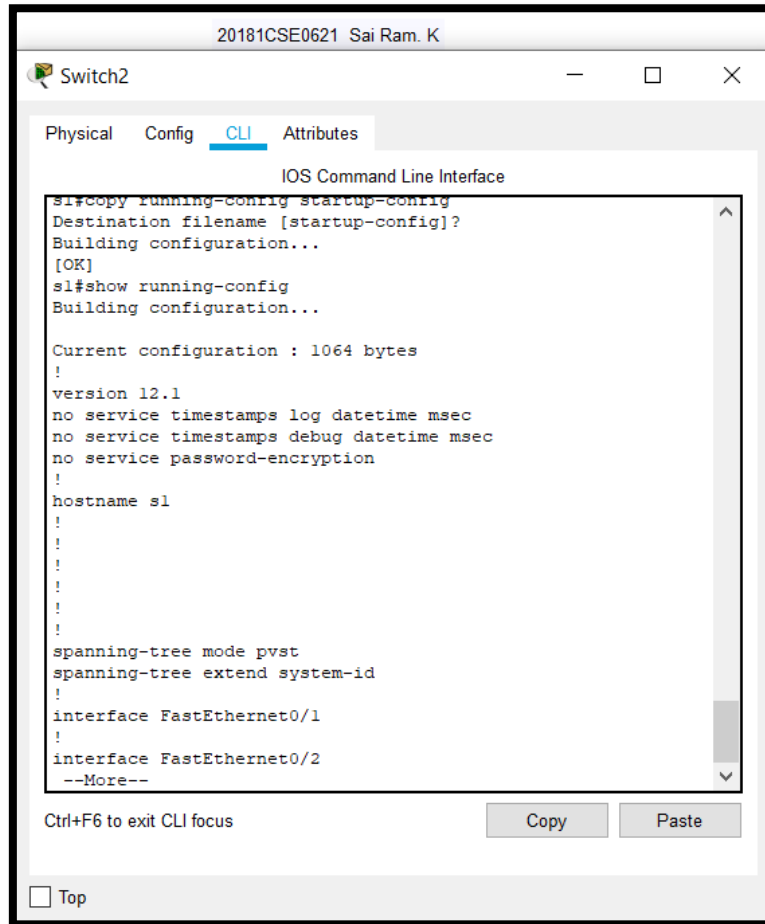


Step 9.

Step 9] Display the current configuration.

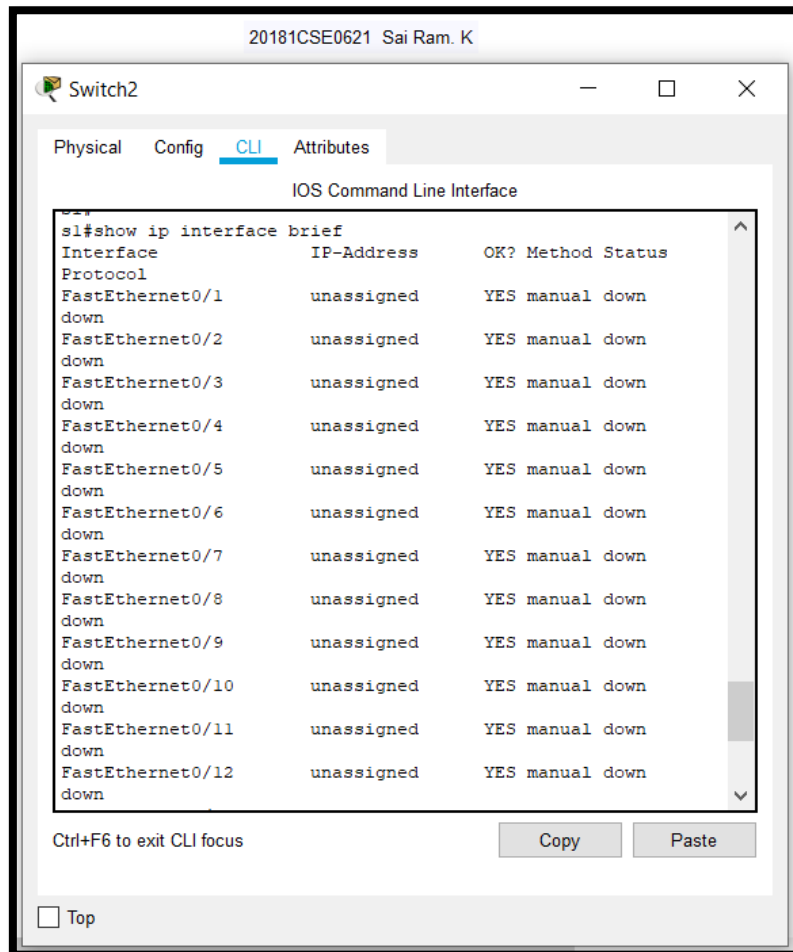
The show running config command displays the entire running configuration, one page at a time. Use the spacebar to advance paging.

S1# show running-config

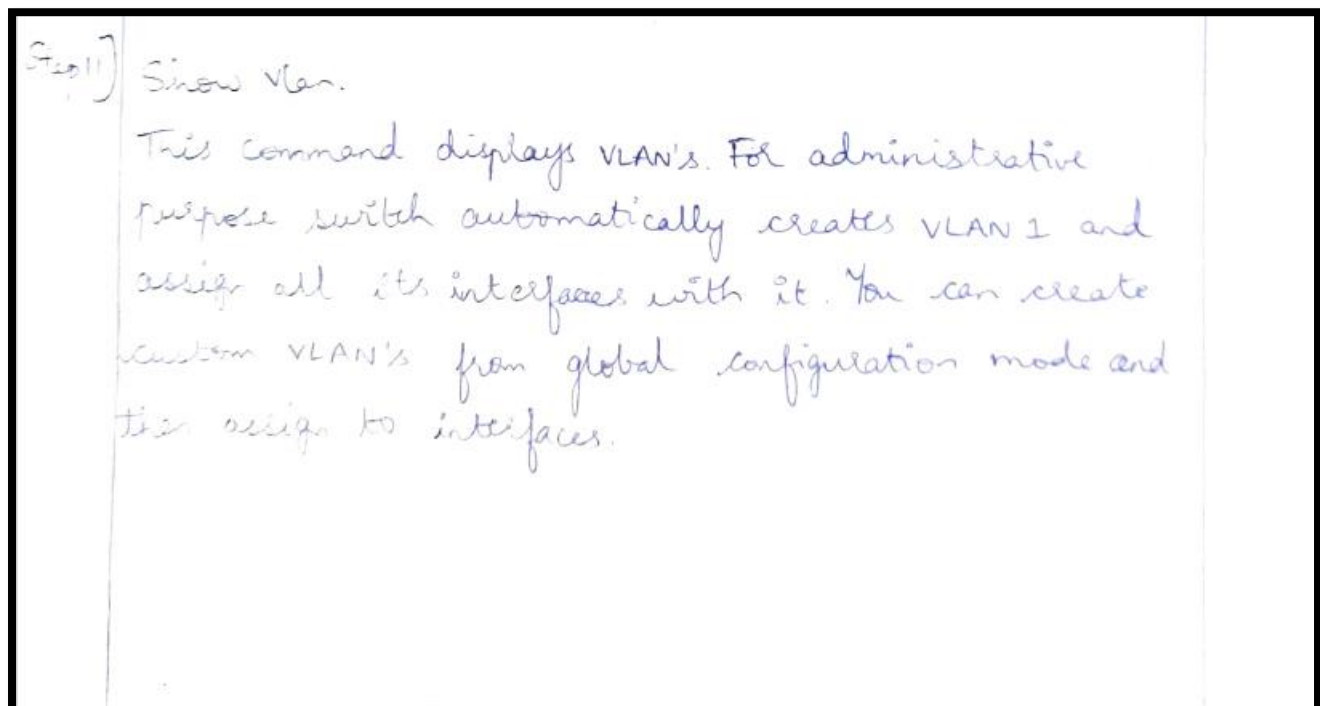


Step 10.

Step 10) Display the status of connected interfaces on switch.
To check status of the connected interfaces use the show ip brief command. Press spacebar to advance to the end of list.
S1 # show ip interface brief.



Step 11.



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Switch2

Physical Config CLI Attributes

IOS Command Line Interface

```
Fa0/10, Fa0/11, Fa0/12
Fa0/14, Fa0/15, Fa0/16
Fa0/18, Fa0/19, Fa0/20
Fa0/22, Fa0/23, Fa0/24
1002 fddi-default          active
1003 token-ring-default    active
1004 fddinet-default       active
1005 trnet-default         active
```

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp
BrdgMode	Trans1	Trans2					
1	enet	100001	1500	-	-	-	-
0	0						
1002	fddi	101002	1500	-	-	-	-
0	0						
1003	tr	101003	1500	-	-	-	-
0	0						
1004	fdnet	101004	1500	-	-	-	ieee -
0	0						
1005	trnet	101005	1500	-	-	-	ibm -
0	0						

--More--

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Experiment – 3

Configure the privilege level password and user authentication in switch.

Step 1.

20181CSE0621

EXPERIMENT-3

QUESTION: Configure the privilege level password & user authentication in switch.

I. Set Hostname & Configure Console Password.

- ① To set hostname
switch(config)# hostname CISCO
- ② To set console password
CISCO(config)#
CISCO(config)# line console 0
CISCO(config-line)# password cisco123
CISCO(config-line)# login
CISCO(config-line)# exit.
CISCO# exit.



The screenshot shows a web-based interface for a network switch named 'Switch0'. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The terminal shows the following sequence of commands and outputs:

```
Switch>enable
Switch#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname cisco
cisco(config)#line console 0
cisco(config-line)#password cisco123
cisco(config-line)#login
cisco(config-line)#exit
cisco(config)#exit
cisco#
%SYS-5-CONFIG_I: Configured from console by console

cisco#exit

cisco con0 is now available

Press RETURN to get started.

User Access Verification

Password:
cisco>
```

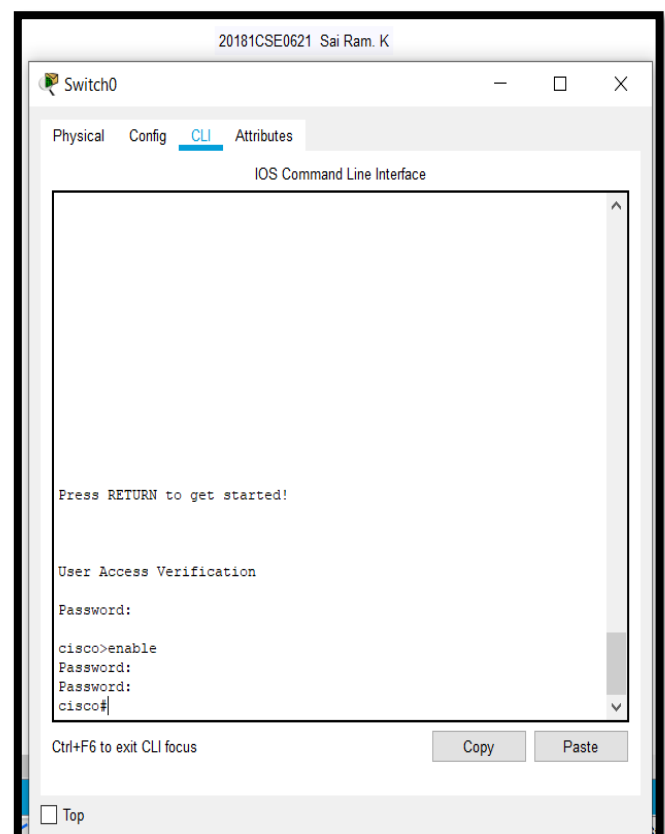
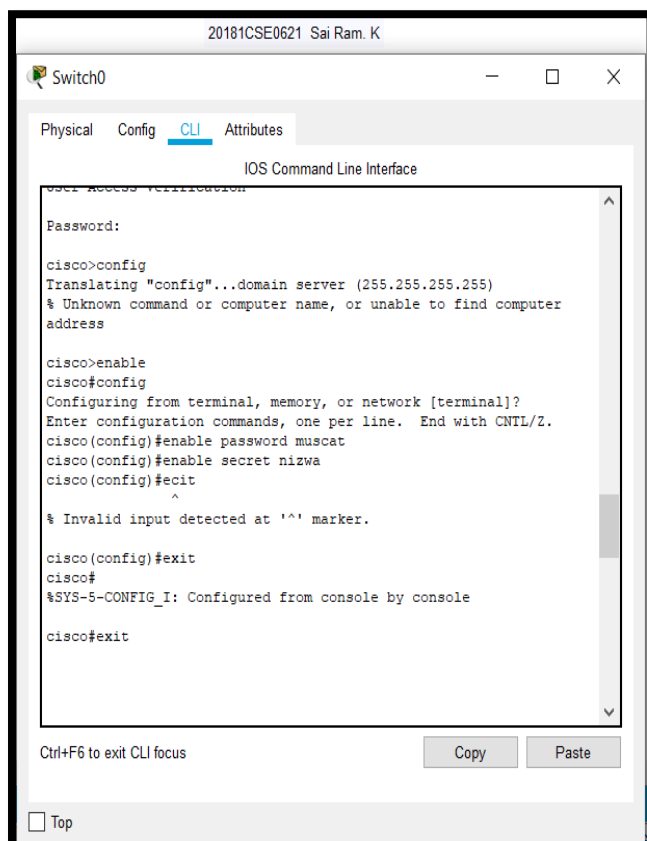
At the bottom of the CLI window, there is a status bar with the text 'Ctrl+F6 to exit CLI focus', 'Copy' and 'Paste' buttons, and a 'Top' link.

Step 2.

II. Set Privilege level Password.

- ① Set a privilege password
!!! clear Text Password not encrypted (less priority)
cisco(config)# enable password muscat
!!! Encrypted password more priority.
cisco(config)# enable secret nizwa.
- ② Verify the privileged password.
cisco# exit
cisco con0 is now available
press return to get started.
User Access Verification
password :
cisco>enable
password :

5



Step 3.

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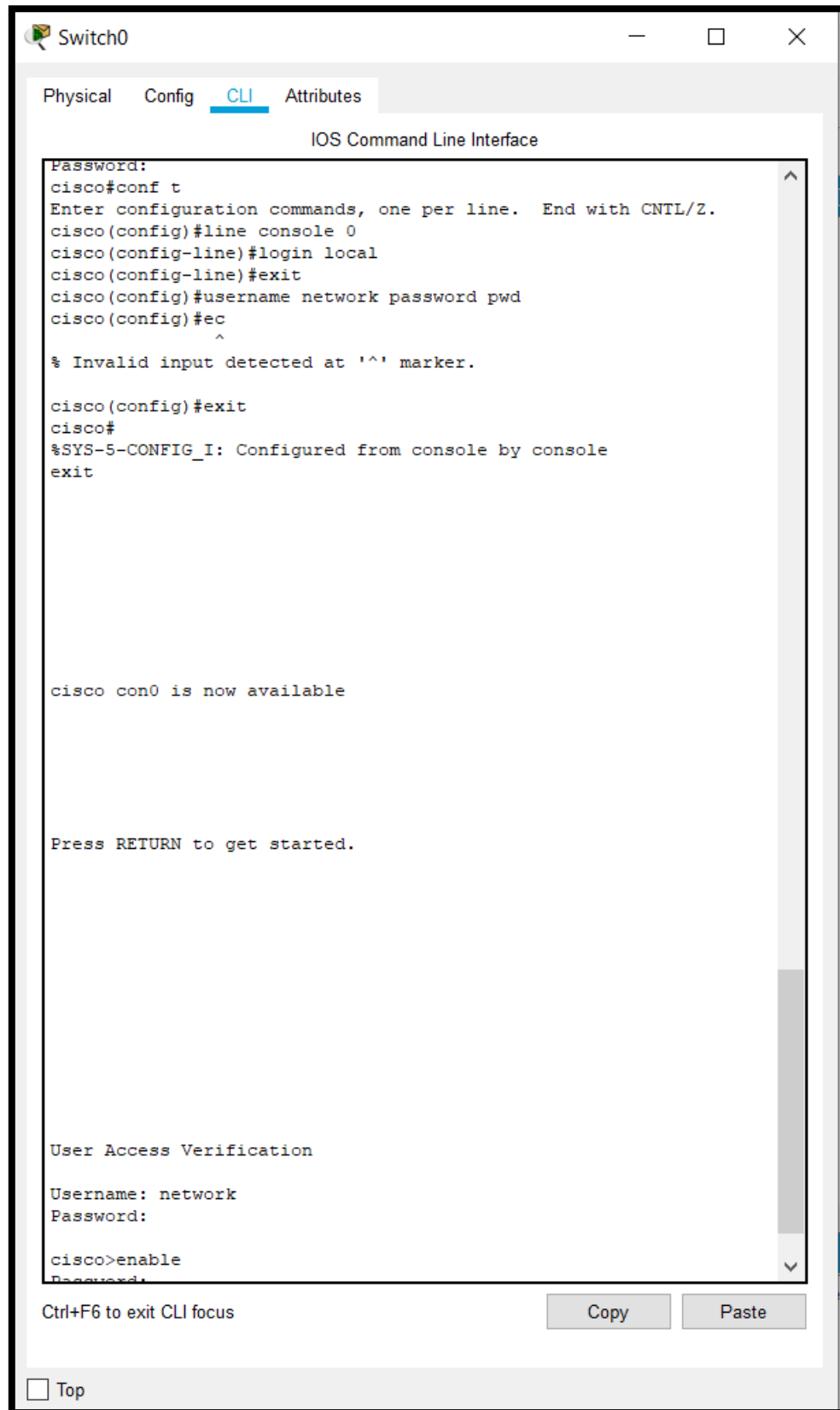
III Set User Authentication in switch.

① Set user Authentication

```
Cisco# conf t
Cisco(config)# line console 0
Cisco(config)# login local
Cisco(config-line)# exit
Cisco(config)# username network password nwd.
```

② Verify the authentication.

```
Cisco(config)# exit
Cisco# exit
User Access Verification
Username: network
Password:
Cisco> enable
Password:
```



```
Switch0
Physical Config CLI Attributes
IOS Command Line Interface
Password:
cisco#conf t
Enter configuration commands, one per line. End with CNTL/Z.
cisco(config)#line console 0
cisco(config-line)#login local
cisco(config-line)#exit
cisco(config)#username network password pwd
cisco(config)#ec
cisco(config)#^
% Invalid input detected at '^' marker.

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

cisco con0 is now available

Press RETURN to get started.

User Access Verification
Username: network
Password:

cisco>enable
Password:
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Experiment – 4

Configure the DHCP Server and wireless router and check the connectivity

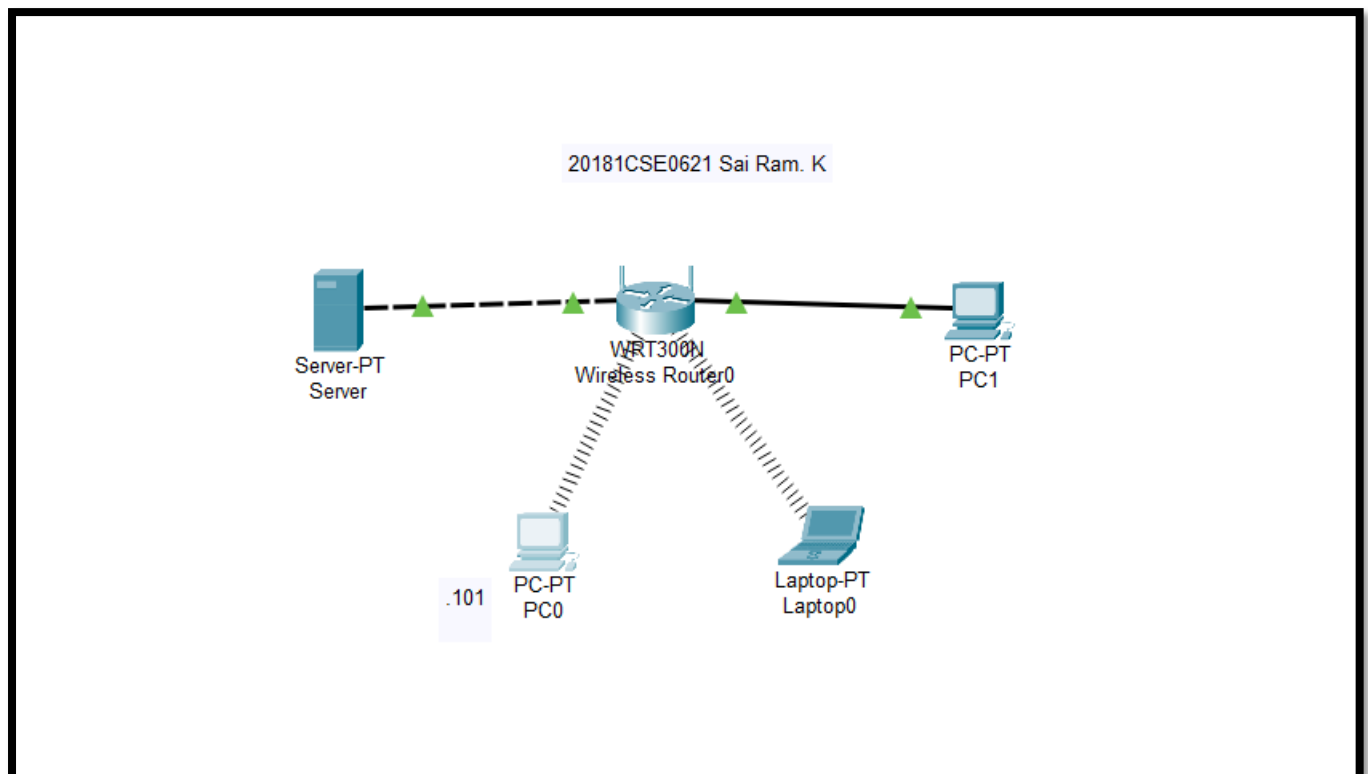
Step 1.

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EXPERIMENT-04

QUESTION: Configure the DHCP server & wireless router & check connectivity.

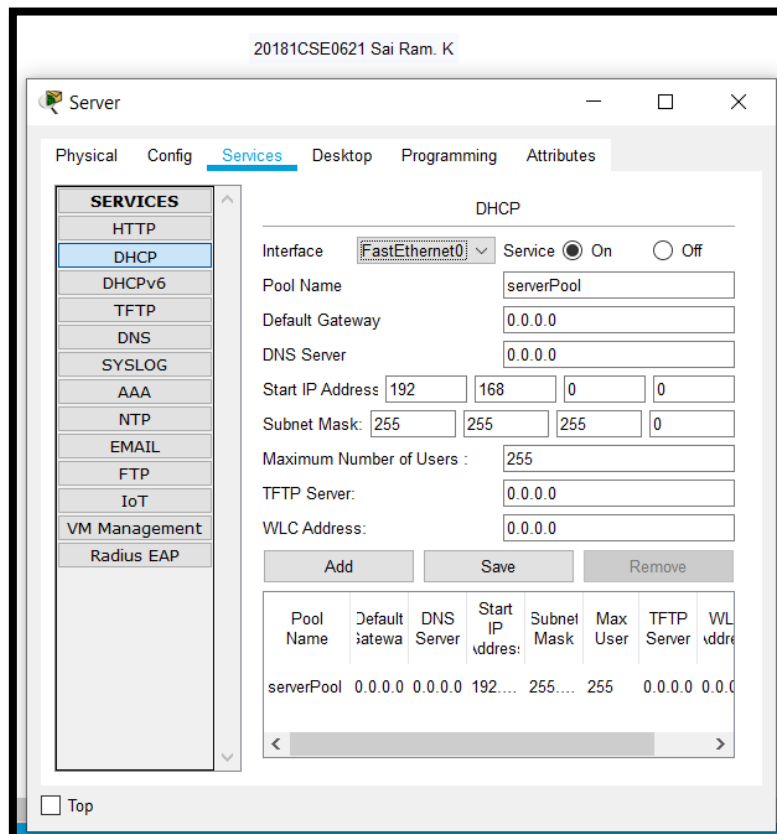
Step1) Configure the DHCP server.



Step 2 & 3.

Step2] In server configure the fast Ethernet.

Step3] Configure the wireless router.

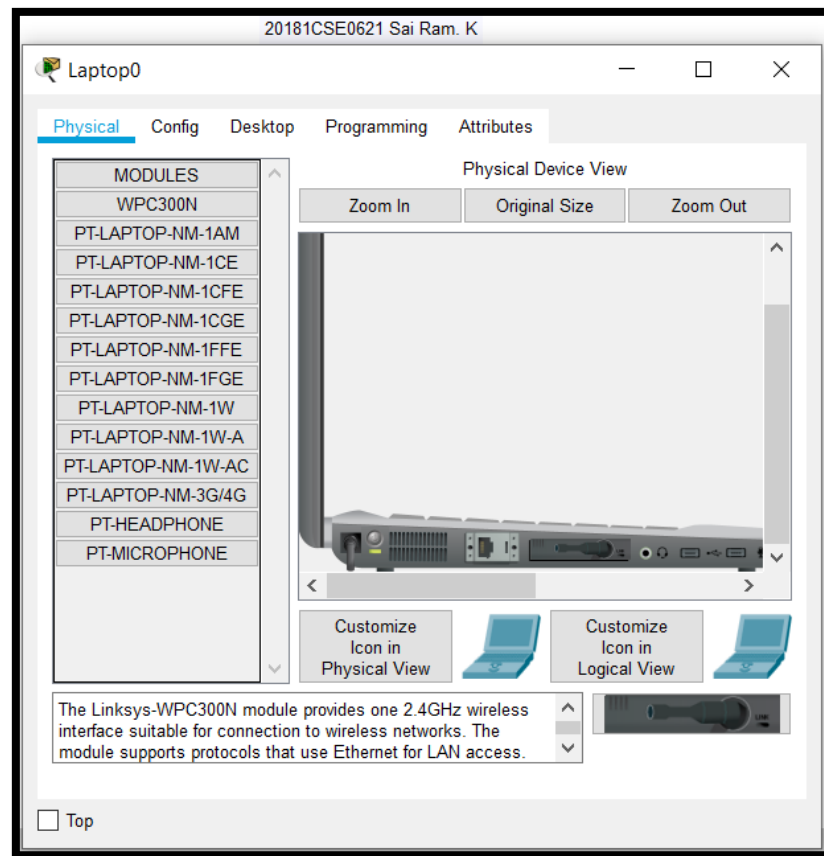


Step 4,5 & 6:

Step4] Laptop remove the wired NIC card to wireless card.

Step5] Laptop connect the wireless.

Step6] Connect laptop with wireless router.



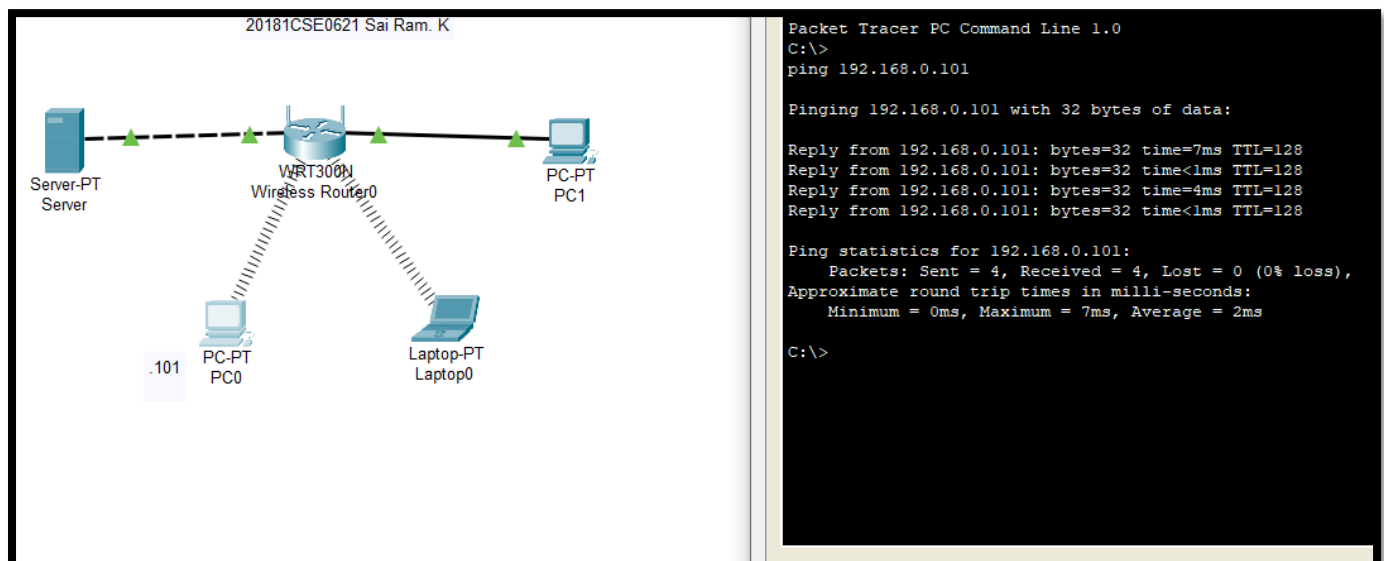
Step 7 & 8.

Step7] Enter the web key.

Step8] PC remove the wired NIC & insert wireless card.
NOTE: repeat 5,6,7



Step 9 &10.



Experiment – 5

Configure the telnet protocol using cisco packet tracer

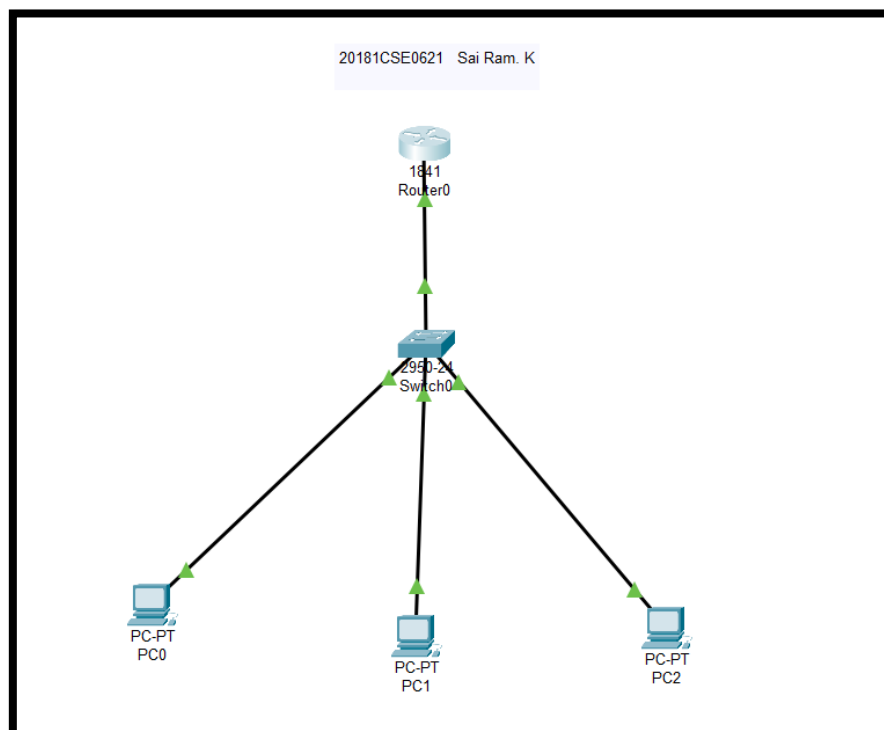
Step 1.

20181CSE0621

EXPERIMENT-05

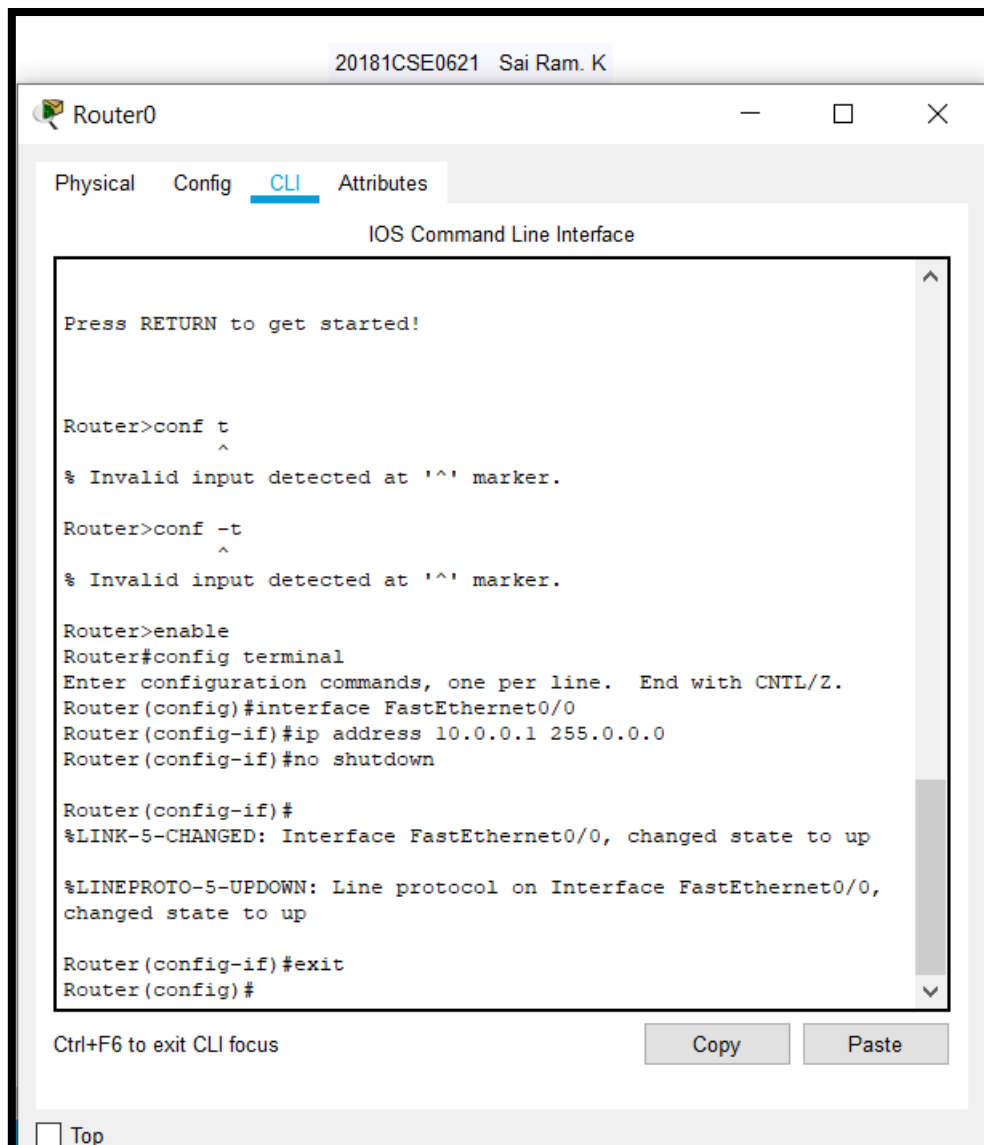
QUESTION: Configure the Telnet protocol using Cisco packet Tracer.

Step1] Draw a topology as shown and assign the IP addresses to all PC's.



Step 2.

Step2] Configure IP address to router.
router(config)# interface fastEthernet 0/0.
router(config-if)# ip address 10.0.0.1 255.0.0.0
router(config-if)# no shutdown.
router(config-if)# exit.



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

```
Press RETURN to get started!

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

Router>conf -t
      ^
% Invalid input detected at '^' marker.

Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shutdown

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

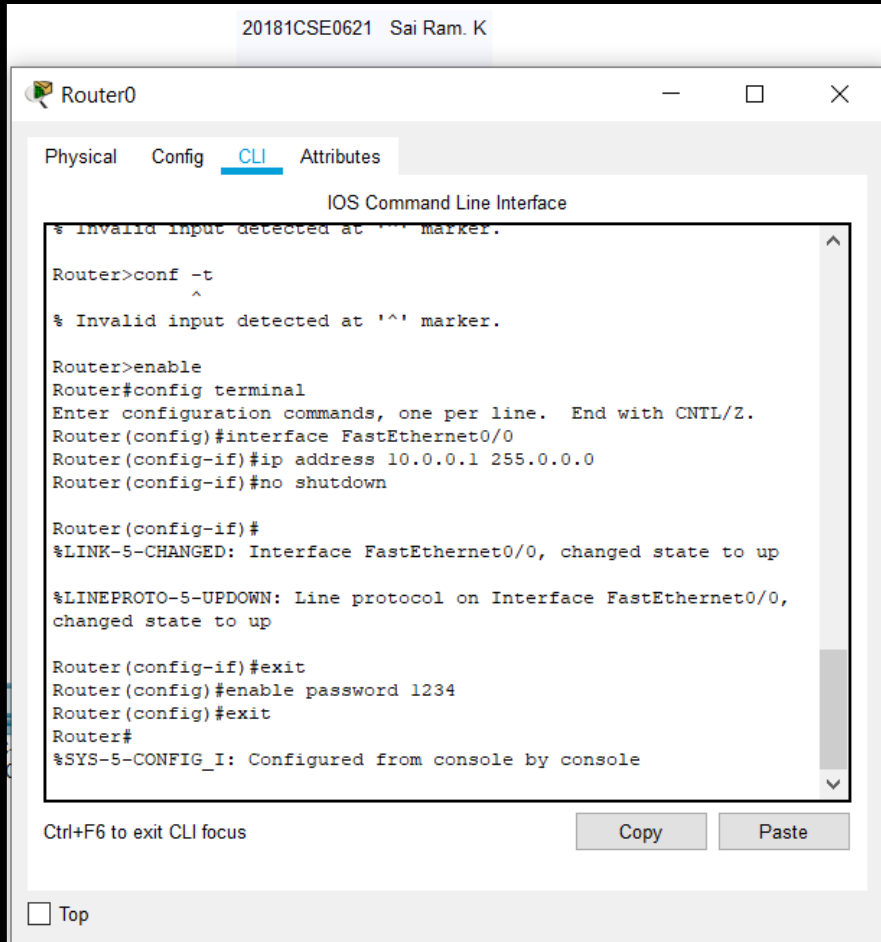
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up

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

At the bottom of the CLI window, there is a status bar with "Ctrl+F6 to exit CLI focus" on the left, and "Copy" and "Paste" buttons on the right. A "Top" button is also visible at the bottom left of the window frame.

Step 3.

Step3] To set privilege mode password.
Click on router and go to CLI tab & type below.
router(config)# enable password 1234
router(config)# exit.



```
Router0
Physical Config CLI Attributes
IOS Command Line Interface
% Invalid input detected at '^' marker.
Router>conf -t
^
% Invalid input detected at '^' marker.
Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
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

Router(config-if)#exit
Router(config)#enable password 1234
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

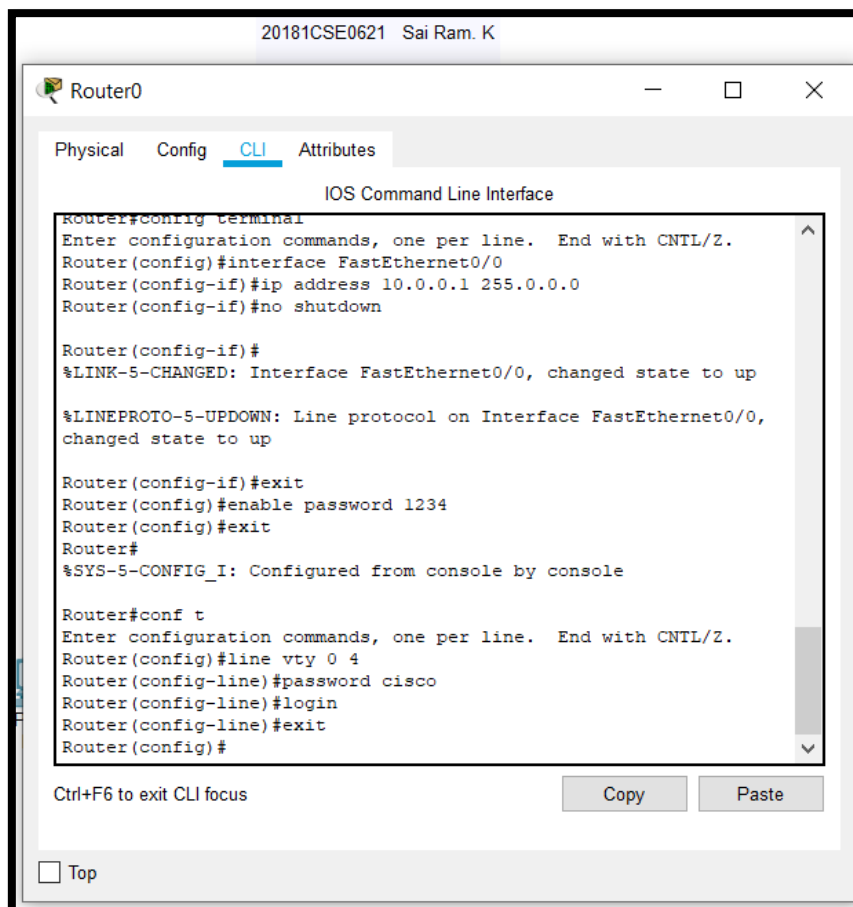
Ctrl+F6 to exit CLI focus
Copy Paste
Top
```

Step 4.

Step 4] To configure Telnet

```
Router# conf t
Enter configuration commands one per line. End with ctrl+z
Router(config)# line vty 0 4
Router(config)# password cisco
Router(config-line)# login
Router(config-line)# exit
```

8



The screenshot shows a Cisco Packet Tracer console window titled "Router0". The window has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The main area displays the "IOS Command Line Interface" with the following commands and output:

```
Router#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
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

Router(config-if)#exit
Router(config)#enable password 1234
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

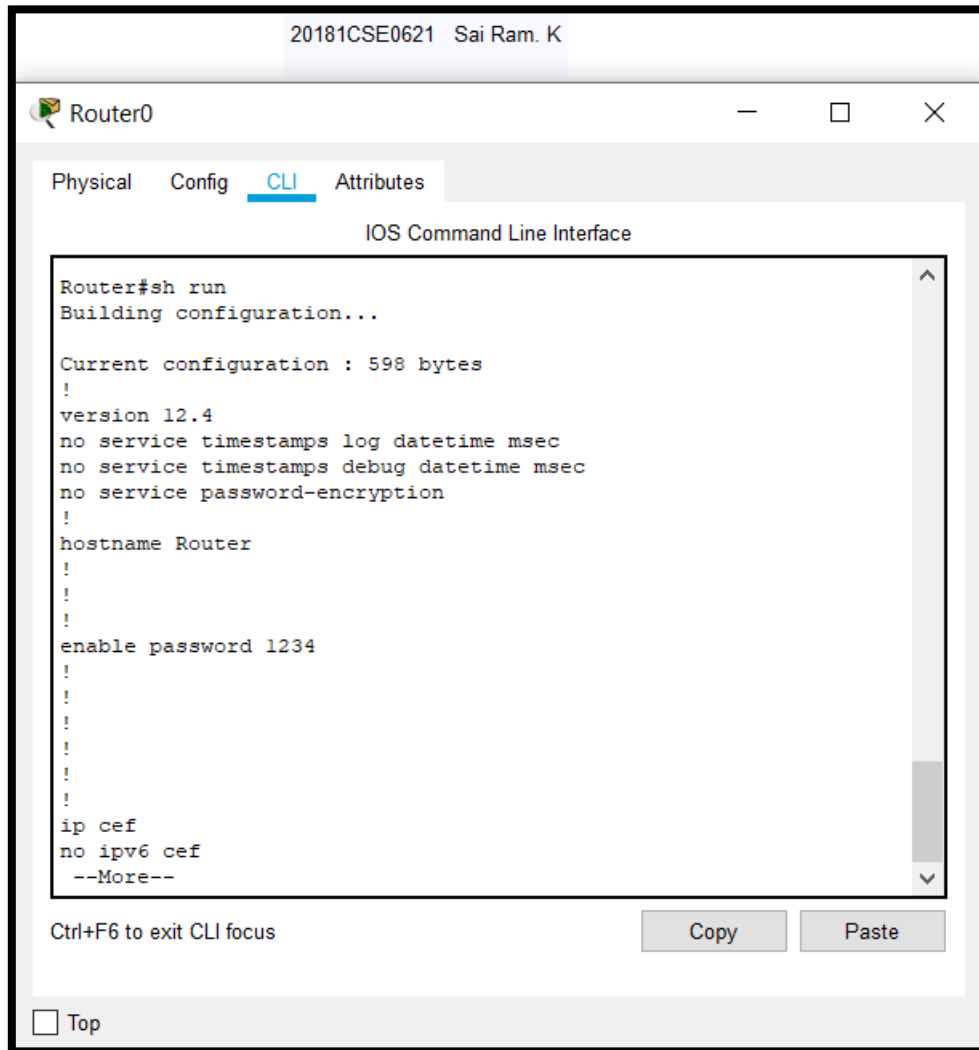
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#line vty 0 4
Router(config-line)#password cisco
Router(config-line)#login
Router(config-line)#exit
Router(config)#
```

At the bottom of the console window, there is a status bar with the text "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste". A "Top" button is also visible in the bottom left corner.

Step 5.

20181CSE0621.

Steps) To check Telnet configuration
Router # sh run.



The screenshot shows a window titled 'Router0' with a tabbed interface. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The output of the 'Router#sh run' command is shown, indicating the current configuration size and listing various settings like version, timestamps, hostname, and password. The output is truncated with '--More--' at the bottom. Below the CLI window, there are buttons for 'Copy' and 'Paste', and a 'Top' link.

```
Router#sh run
Building configuration...

Current configuration : 598 bytes
!
version 12.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
enable password 1234
!
!
!
!
!
ip cef
no ipv6 cef
--More--
```

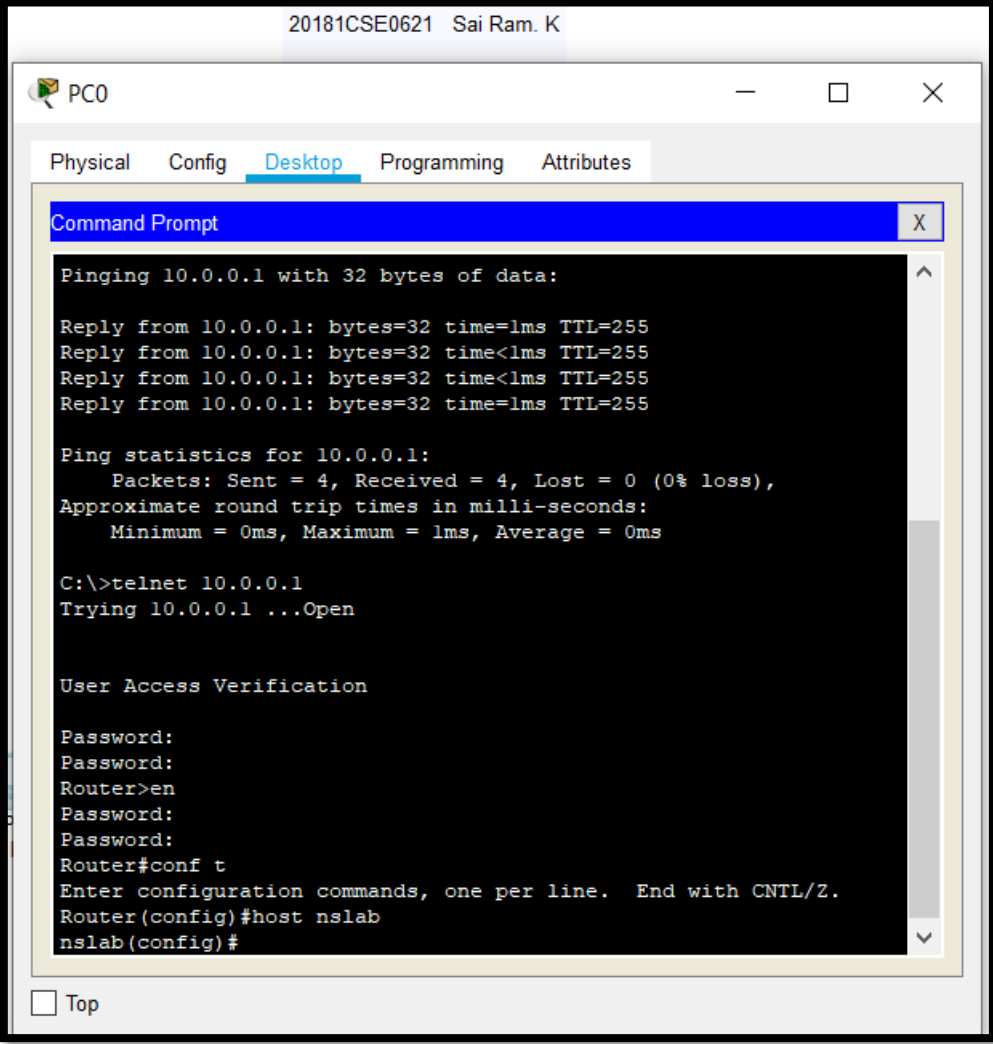
Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Step 6.

Step 6] To access cisco router via telnet connection from any PC.
Click on any PC
Click on desktop
Select command prompt & type the following commands
PC > ping 10.0.0.1
PC > telnet 10.0.0.1



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PC0

Physical Config **Desktop** Programming Attributes

Command Prompt

```
Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time=1ms TTL=255

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open

User Access Verification

Password:
Password:
Router>en
Password:
Password:
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#host nslab
nslab(config)#
```

☐ Top

Experiment – 6

Configure Static routing using Cisco Packet Tracer.

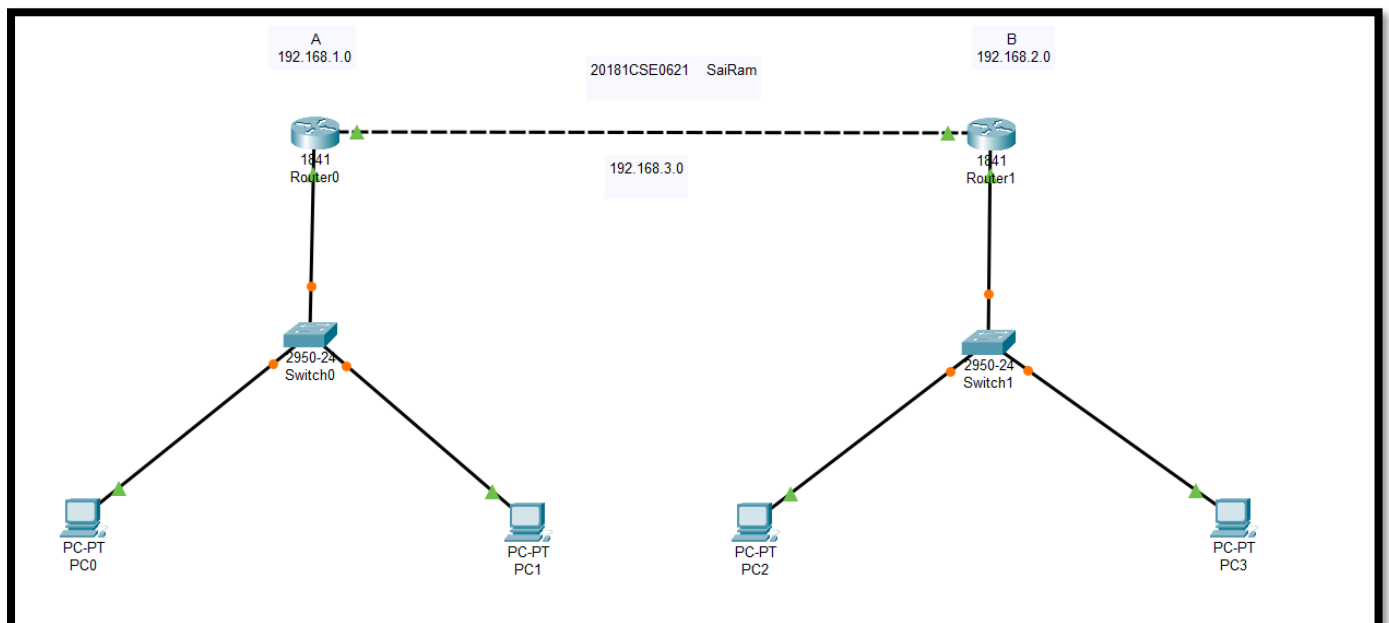
Step 1.

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EXPERIMENT-06

QUESTION: Configure the static routing using Cisco Packet Tracer.

Step 1] Draw the topology as shown below and assign IP addresses to all PC's.



Step 2.

Step 2] Configure IP address to router 1.
For Fast Ethernet 0/0, and
For Fast Ethernet 0/1.

Router0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0030.F2D5.5001

IP Configuration

IPv4 Address 192.168.1.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

20181CSE0621 SaiRam 192.168.2.0

Router0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/1

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0030.F2D5.5002

IP Configuration

IPv4 Address 192.168.3.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

☐ Top

Step 3.

Step3] Configure IP address to router2
For Fast Ethernet 0/0, and
For Fast Ethernet 0/1.

20181CSE0621 SaiRam 192.168.2.0

Router1

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- SWITCHING**
- VLAN Database
- INTERFACE**
- FastEthernet0/0
- FastEthernet0/1

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0060.2F85.AD01

IP Configuration

IPv4 Address 192.168.2.1

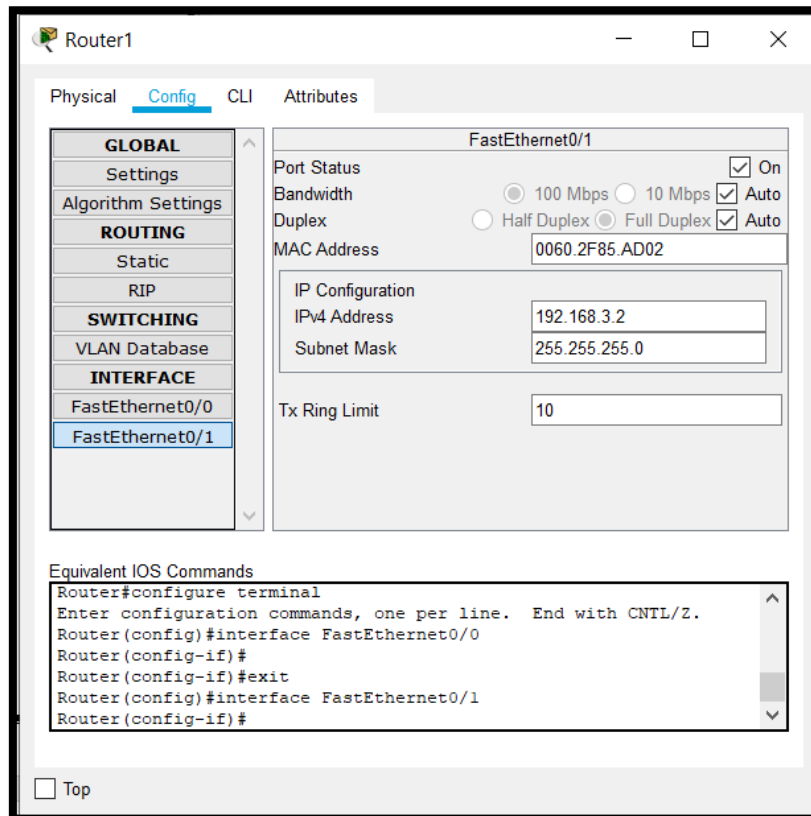
Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top



Step 4.

Step 4) To set up static routing
For router 1:-
In CLI
router(config)#
router(config)# ip route 192.168.2.0 255.255.255.0 192.168.3.2
In config window:
click on static
Then add opposite network address 192.168.2.0 and
next hop address 192.168.3.1 along with subnet
mask address 255.255.255.0

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For router 2:

In CLI:-

router(config)#

router(config)# ip route 192.168.1.0 255.255.255.0 192.168.3.1

In config window:

click on static. Add opposite Network address 192.168.3.0
& next hop address 192.168.3.1 along with subnet
mask address 255.255.255.0.

Router1

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

RIP Routing

Network

Add

Network Address

192.168.1.0

192.168.3.0

Remove

Equivalent IOS Commands

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

```
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#
```

☐ Top

Router1

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

RIP Routing

Network

Add

Network Address

192.168.1.0

192.168.3.0

Remove

Equivalent IOS Commands

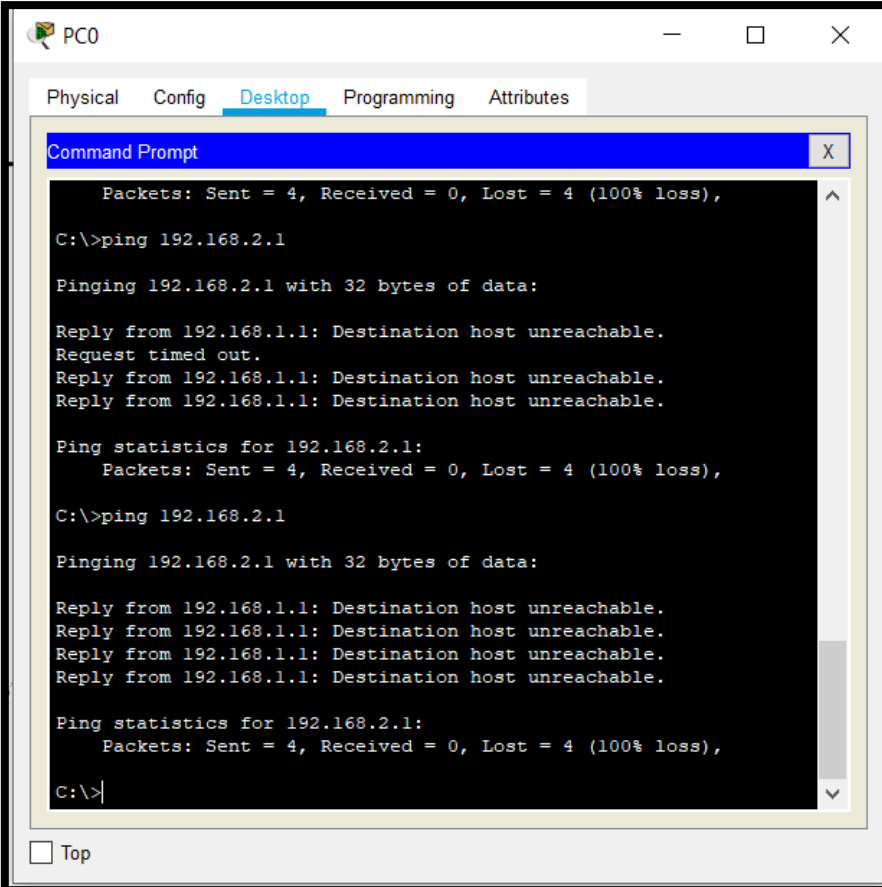
Enter configuration commands, one per line. End with CNTL/Z.

```
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#
```

☐ Top

Step 5.

Steps] To check connectivity between the networks using static routing.
Click on any PC > desktop > select command prompt
type the following.
PC > ping 192.168.2.1.



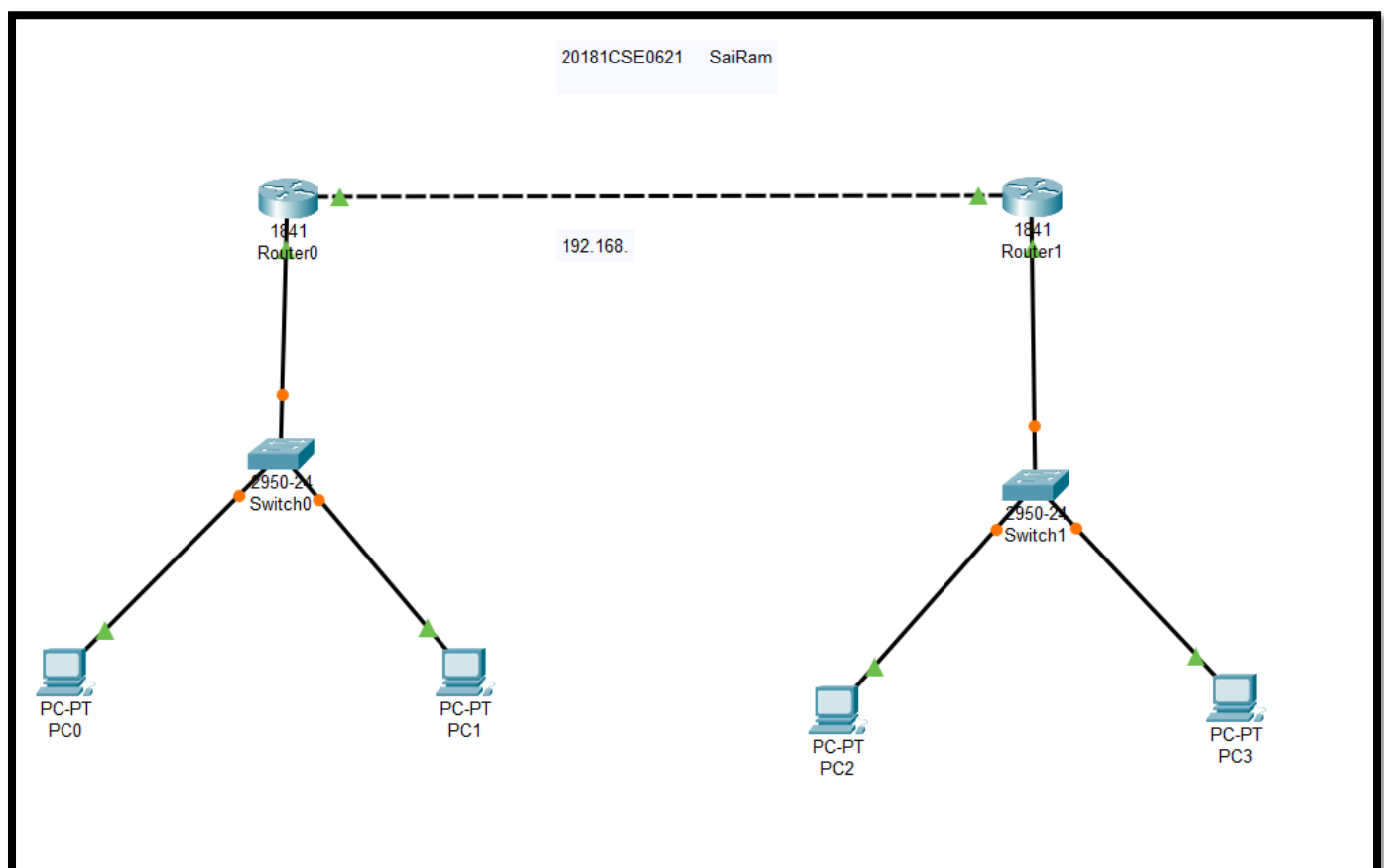
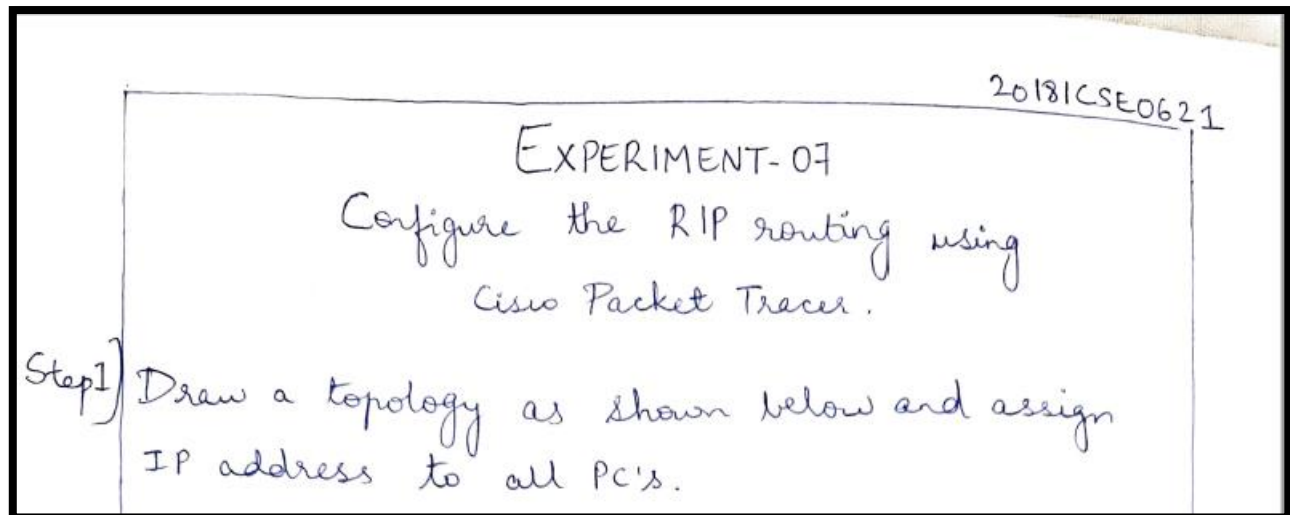
The screenshot shows a PC0 desktop environment with a taskbar at the top. The 'Desktop' tab is selected in the top navigation bar. A 'Command Prompt' window is open, displaying the results of a ping command to 192.168.2.1. The output shows 100% packet loss for both attempts.

```
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
C:\>ping 192.168.2.1  
  
Pinging 192.168.2.1 with 32 bytes of data:  
  
Reply from 192.168.1.1: Destination host unreachable.  
Request timed out.  
Reply from 192.168.1.1: Destination host unreachable.  
Reply from 192.168.1.1: Destination host unreachable.  
  
Ping statistics for 192.168.2.1:  
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
C:\>ping 192.168.2.1  
  
Pinging 192.168.2.1 with 32 bytes of data:  
  
Reply from 192.168.1.1: Destination host unreachable.  
Reply from 192.168.1.1: Destination host unreachable.  
Reply from 192.168.1.1: Destination host unreachable.  
Reply from 192.168.1.1: Destination host unreachable.  
  
Ping statistics for 192.168.2.1:  
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
C:\>
```

Experiment – 7

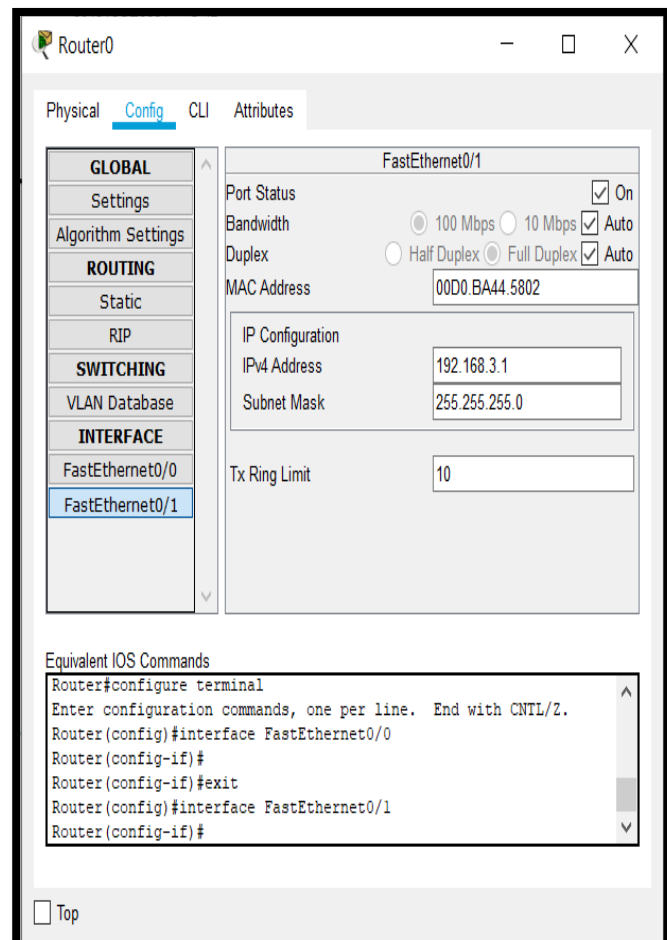
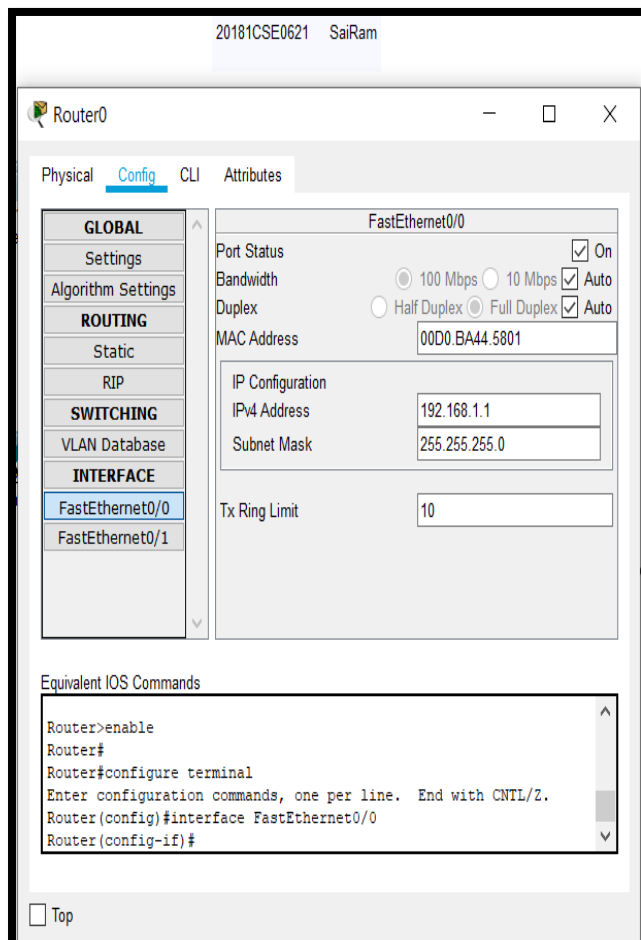
Configure RIP routing using Cisco Packet Tracer

Step 1.



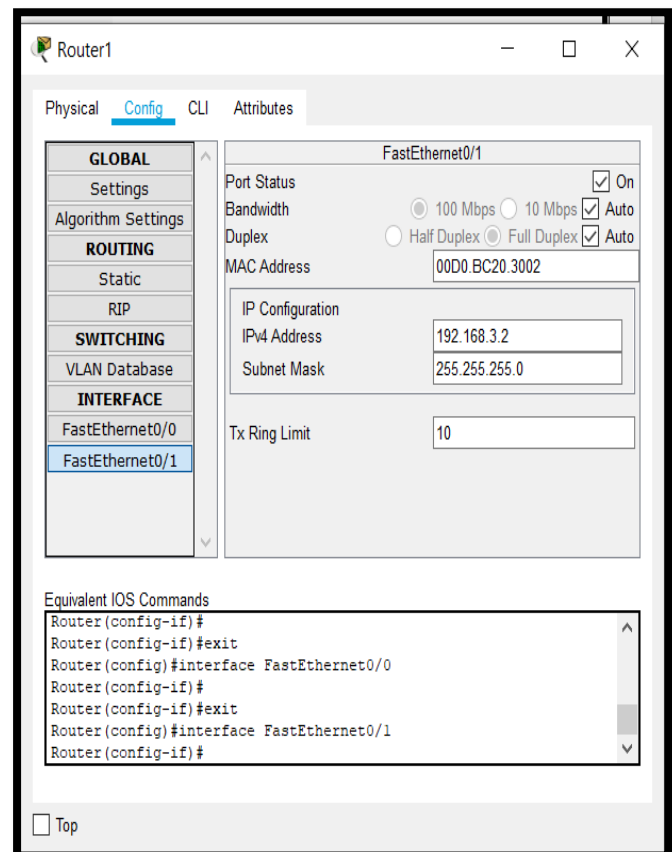
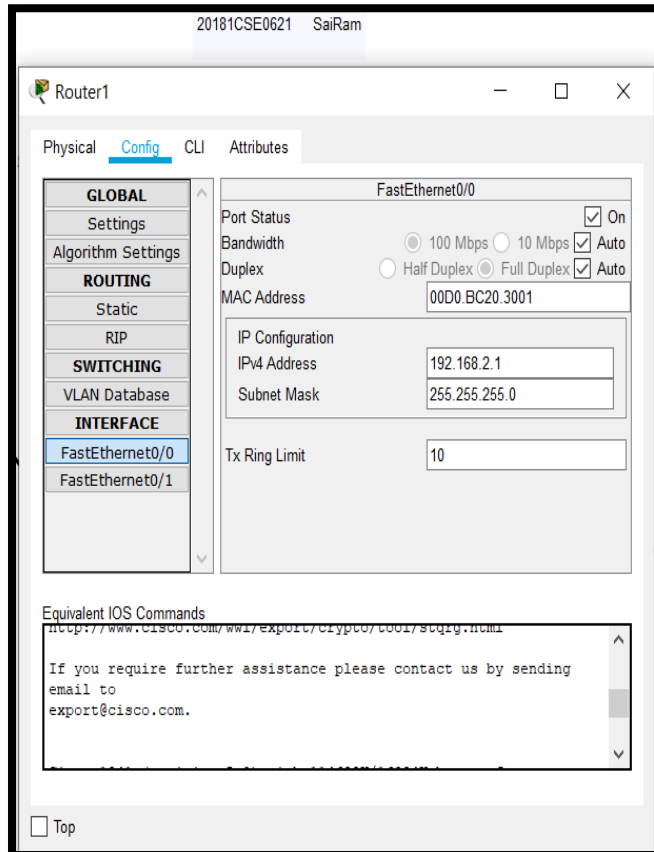
Step 2.

Step2) Configure IP address to router1.
For Fast Ethernet 0/0, and
For Fast Ethernet 0/1



Step 3.

Step3) Configure IP address for router 2
For Fast Ethernet 0/0 and
for Fast Ethernet 0/1.



Step 4.

Step4) To set up Dynamic Routing.
 For router 1:
 In CLI:
 router(config)# router rip
 Router(config)# network 192.168.3.0
 Router(config-router)# network 192.168.2.0
 In config window:
 click on RIP
 Then add opposite Network address 192.168.2.0 and 192.168.3.0.

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For router 2:

In CLI :-

Router (config) # router rip

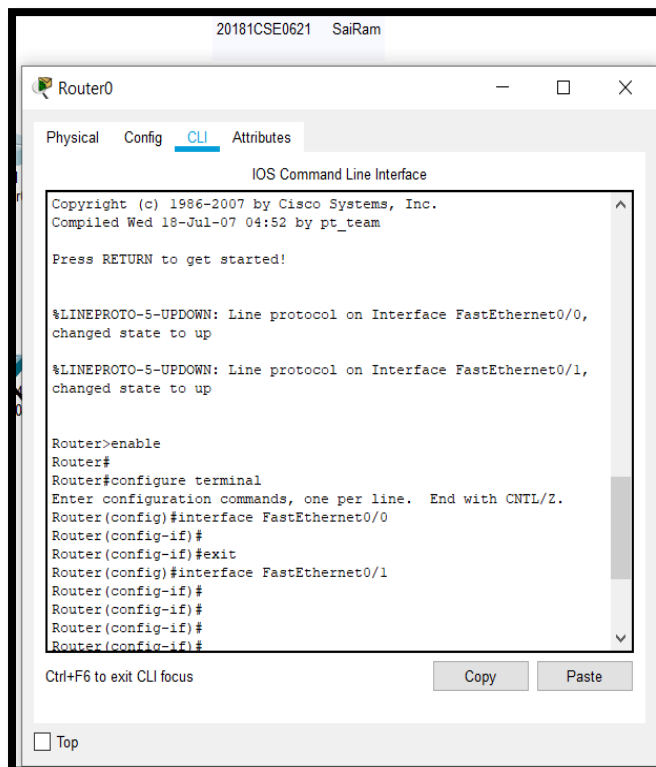
Router (config-router) # network 192.168.3.0

Router (config-router) # network 192.168.1.0

In config window:

click on RIP

Then add opposite networks 192.168.1.0 & 192.168.3.0



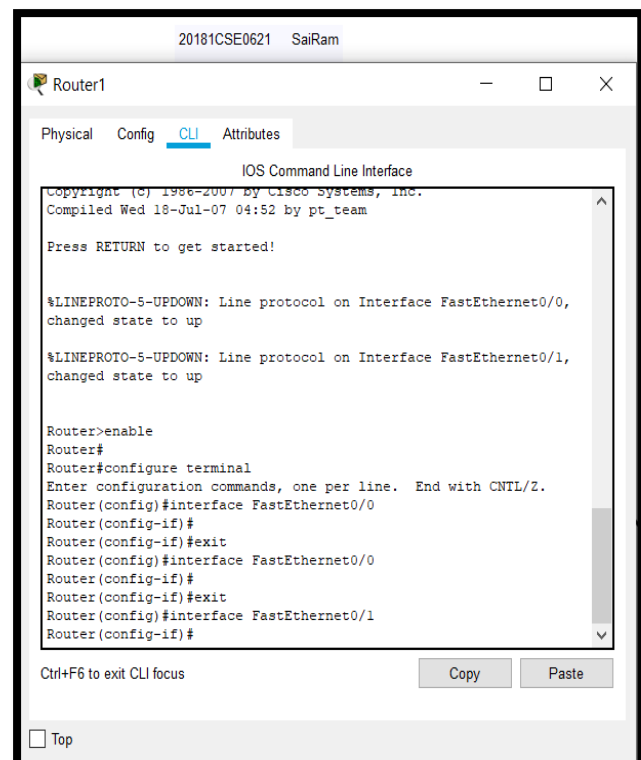
```
Router0
Physical Config CLI Attributes
IOS Command Line Interface
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
```



```
Router1
Physical Config CLI Attributes
IOS Command Line Interface
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

Press RETURN to get started!

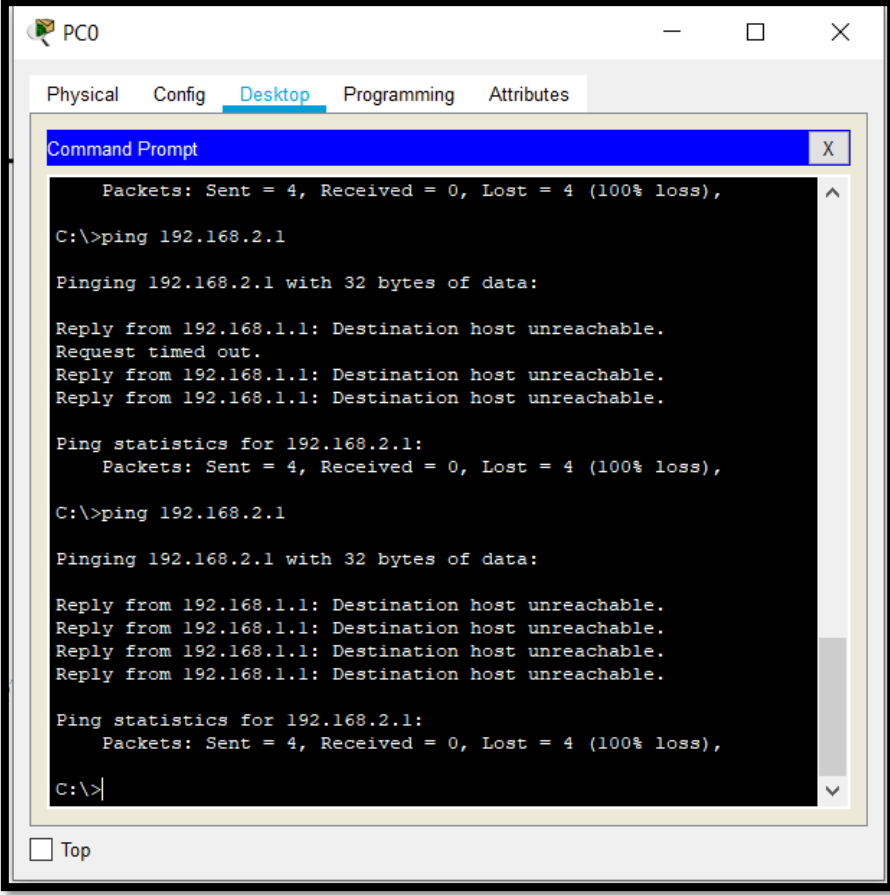
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

Step 5.

Steps] To check connectivity between two networks using RIP routing
click on any PC > Desktop > Select command prompt and type below commands.
PC > ping 192.168.2.1.



The screenshot shows a window titled 'PC0' with tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the execution of the 'ping 192.168.2.1' command twice. Both attempts result in a 100% loss of packets, with the message 'Destination host unreachable' and 'Request timed out'.

```
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
C:\>ping 192.168.2.1  
  
Pinging 192.168.2.1 with 32 bytes of data:  
  
Reply from 192.168.1.1: Destination host unreachable.  
Request timed out.  
Reply from 192.168.1.1: Destination host unreachable.  
Reply from 192.168.1.1: Destination host unreachable.  
  
Ping statistics for 192.168.2.1:  
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
C:\>ping 192.168.2.1  
  
Pinging 192.168.2.1 with 32 bytes of data:  
  
Reply from 192.168.1.1: Destination host unreachable.  
Reply from 192.168.1.1: Destination host unreachable.  
Reply from 192.168.1.1: Destination host unreachable.  
Reply from 192.168.1.1: Destination host unreachable.  
  
Ping statistics for 192.168.2.1:  
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
C:\>
```

Experiment – 8

Configure the Static NAT using cisco packet tracer.

Step 1.

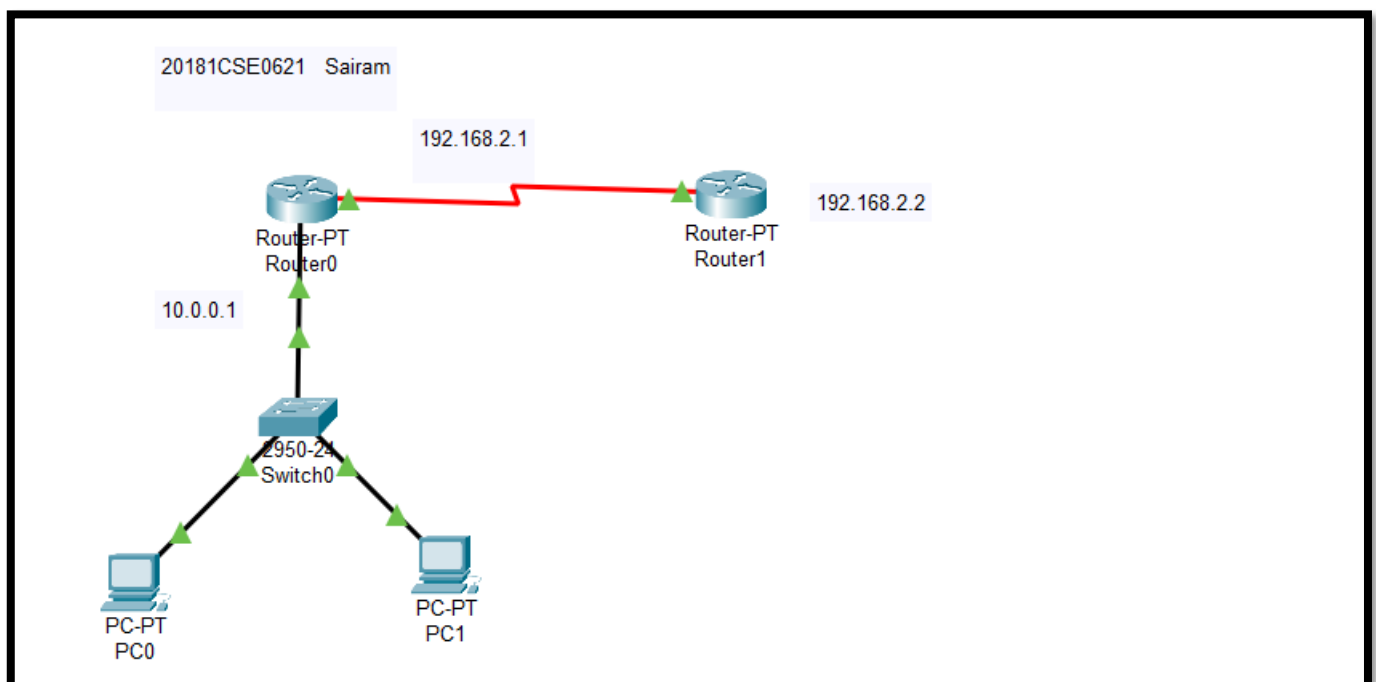
20181CSE0621

EXPERIMENT-08

QUESTION: Configure the static NAT using Cisco Packet Tracer.

- NAT: It is a process in which one or more local IP address is translated into global IP or vice versa. It allows multiple devices to access internet through single public IP address.

Step1] Draw a topology as shown below & assign IP addresses to all PC's.



Step 2.

Step 2] Configure IP address to router 1
For FastEthernet 0/0
For Serial 2/0

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Router0

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings

ROUTING

- Static
- RIP

INTERFACE

- FastEthernet0/0**
- FastEthernet1/0
- Serial2/0
- Serial3/0
- FastEthernet4/0
- FastEthernet5/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0009.7C67.843E

IP Configuration

IPv4 Address 10.0.0.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

Router0

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings

ROUTING

- Static
- RIP

INTERFACE

- FastEthernet0/0
- FastEthernet1/0
- Serial2/0**
- Serial3/0
- FastEthernet4/0
- FastEthernet5/0

Serial2/0

Port Status ☒ On

Duplex ☒ Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 192.168.2.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
```

☐ Top

Step 3.

Step3] Configure IP address to router2
For serial 2/0.

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Router1

Physical **Config** CLI Attributes

GLOBAL	Serial2/0
Settings	Port Status <input checked="" type="checkbox"/> On
Algorithm Settings	Duplex <input type="radio"/> Full Duplex
ROUTING	Clock Rate 2000000
Static	IP Configuration
RIP	IPv4 Address 192.168.2.2
INTERFACE	Subnet Mask 255.255.255.0
FastEthernet0/0	Tx Ring Limit 10
FastEthernet1/0	
Serial2/0	
Serial3/0	
FastEthernet4/0	
FastEthernet5/0	

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Serial2/0
Router(config-if)#
```

☐ Top

Step 4.

Step4) To setup static NAT
Router# sh ip nat translation
Router# config t
Router(config)# ip nat inside source static 10.0.0.2 192.168.1.3
Provide interface for NAT cable
Router(config)# int fa0/0
Router(config-if)# ip nat inside
exit

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Router(config)# int serial 2/0
Router(config-if)# ip nat outside
exit
exit
Router# sh ip nat translation

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Router0

Physical Config CLI Attributes

IOS Command Line Interface

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Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#

Ctrl+F6 to exit CLI focus

Copy Paste

Top

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Router1

Physical Config CLI Attributes

IOS Command Line Interface

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Compiled Wed 18-Jul-07 04:52 by pt_team

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#

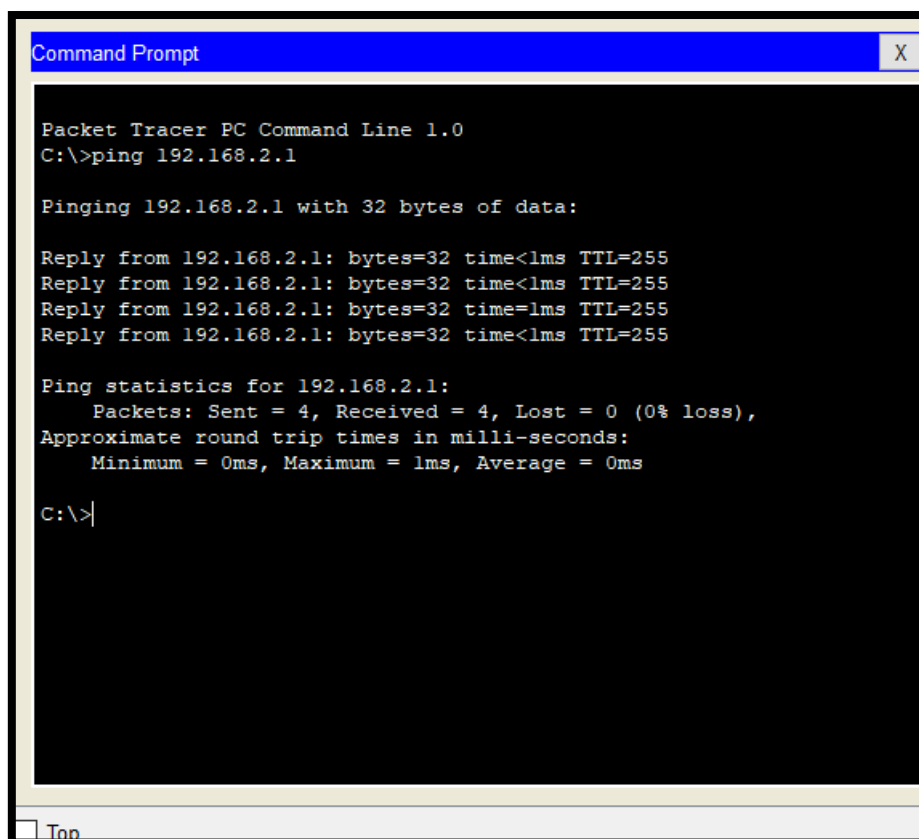
Ctrl+F6 to exit CLI focus

Copy Paste

Top

Step 5.

Steps] To check connectivity between two network
Click on any PC > Desktop > select command prompt
PC > ping 192.168.2.1.



```
Command Prompt X

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 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time=1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Experiment – 9

Configure the Dynamic NAT using cisco packet tracer.

Step 1.

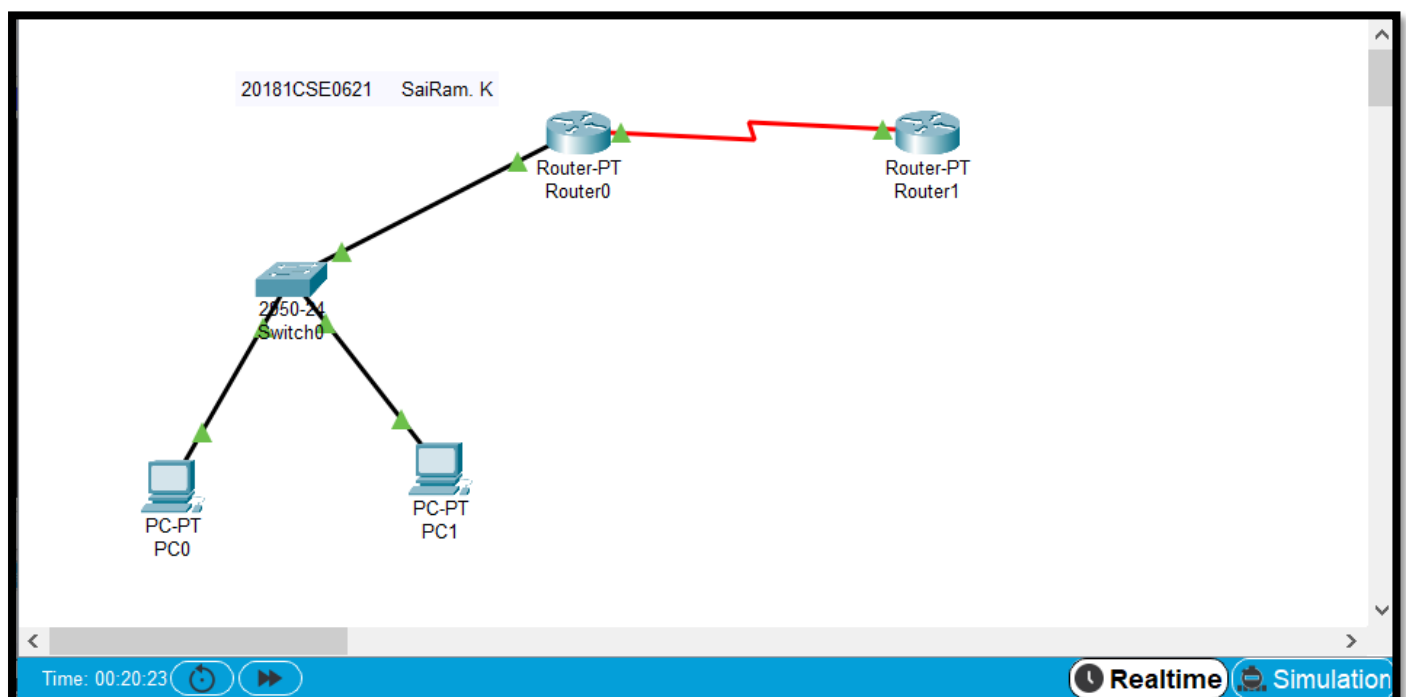
20181CSE0621.

EXPERIMENT-09

QUESTION: Configure Dynamic NAT using Cisco Packet Tracer.

— NAT : It is a process in which one or more local IP addresses is translated into global IP or vice versa.
It allows multiple devices to access internet through single IP address.

Step1] Draw a topology as shown below and assign IP addresses to all PC's.



Step 2.

Step 2] Configure IP address for router 1.
For Fast Ethernet 0/0.
For Serial 2/0.

The screenshot shows the configuration window for the FastEthernet0/0 interface on Router0. The 'Config' tab is active. The 'INTERFACE' section is expanded, showing the 'FastEthernet0/0' interface. The 'IP Configuration' section is visible, with the 'IPv4 Address' set to 10.0.0.1 and the 'Subnet Mask' set to 255.0.0.0. The 'Tx Ring Limit' is set to 10. The 'Equivalent IOS Commands' section at the bottom shows the following commands:

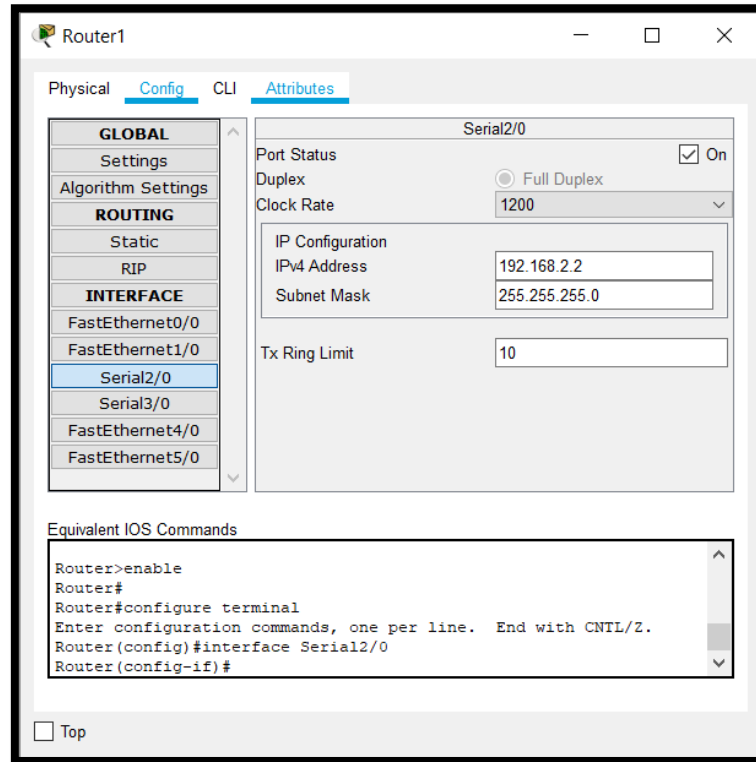
```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

The screenshot shows the configuration window for the Serial2/0 interface on Router0. The 'Config' tab is active. The 'INTERFACE' section is expanded, showing the 'Serial2/0' interface. The 'IP Configuration' section is visible, with the 'IPv4 Address' set to 192.168.2.1 and the 'Subnet Mask' set to 255.255.255.0. The 'Tx Ring Limit' is set to 10. The 'Equivalent IOS Commands' section at the bottom shows the following commands:

```
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
```

Step 3.

Step 3] Configure IP address for router 2.
For Serial 2/0.



Step 4.

Step 4] To setup Dynamic NAT

```

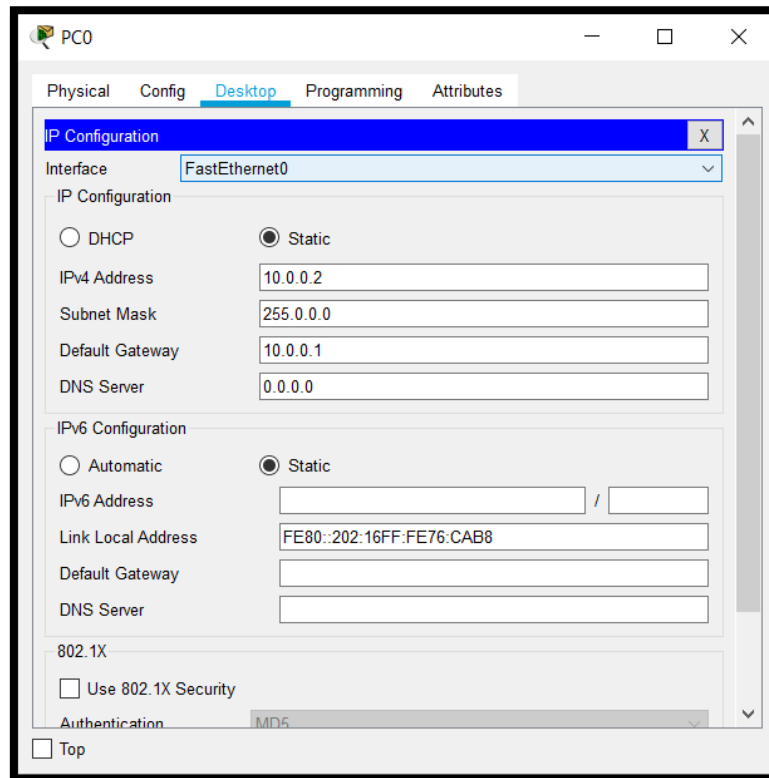
router(config)# access-list 1 permit 10.0.0.2 0.0.0.0
router(config)# access-list 1 permit 10.0.0.3 0.0.0.0
router(config)# ip nat pool nslab 192.168.2.3 192.168.2.4
netmask 255.255.255.0
router(config)# ip nat inside source list 1 pool nslab
  
```

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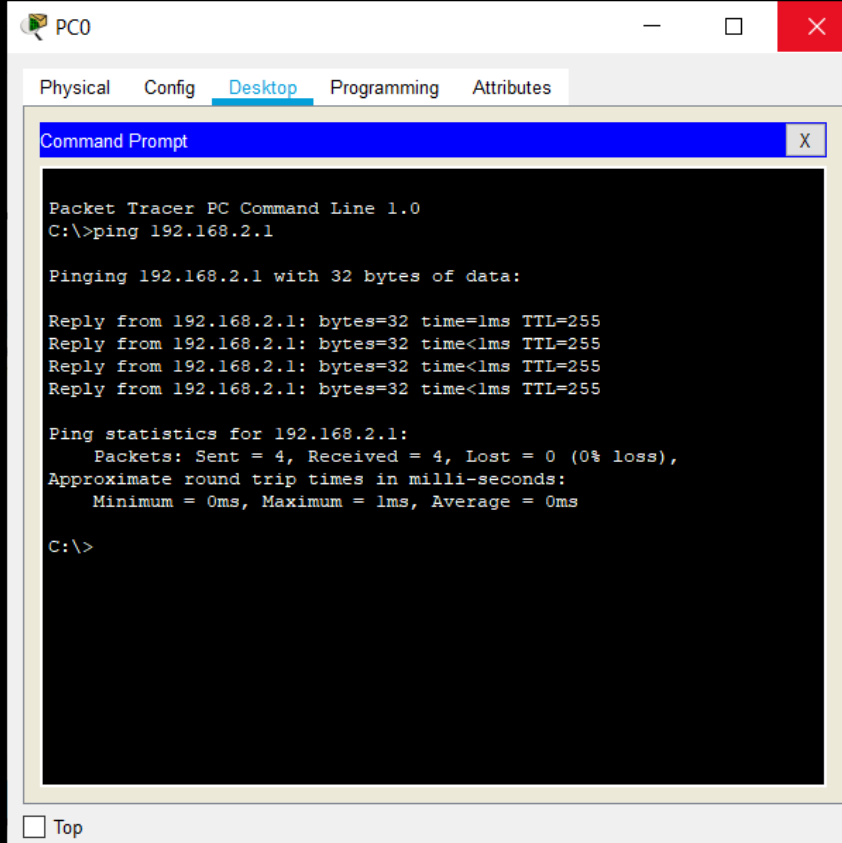
```

router(config)# int fa0/0
router(config-if)# ip nat inside
router(config-if)# exit
router(config)# int serial 2/0
router(config-if)# ip nat outside
router# sh ip nat translation
  
```



Step 5.

Steps) To check connectivity between 2 networks
click on any PC > click on desktop > command prompt
& type
PC > ping 192.168.2.1.



The screenshot shows a Packet Tracer PC Command Line window for PC0. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the execution of the command 'ping 192.168.2.1'. The output indicates that the ping was successful, with 4 packets sent, 4 received, and 0% loss. The round trip times are all less than 1ms.

```
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 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```