Objective:
Prototype a network using Packet Tracer

Background
A client has requested that you set up a simple network with two PCs connected to a switch. Verify that the hardware, along with the given configurations, meet the requirements of the client. Verify that the hardware, along with the given configurations, meet the requirements of the client.

Switches facilitate the sharing of resources by connecting together all the devices, including computers, printers, and servers, in a small business network. It connects devices on a computer network by using packet switching to receive and forward data to the destination device. A network switch is a multiport network bridge that uses MAC addresses to forward data at the data link layer of the OSI model.

Router connects multiple switches, and their respective networks, to form an even larger network. It works as a dispatcher, directing traffic and choosing the most efficient route for information, in the form of data packets, to travel across a network.

Step 1: Set up the network topology

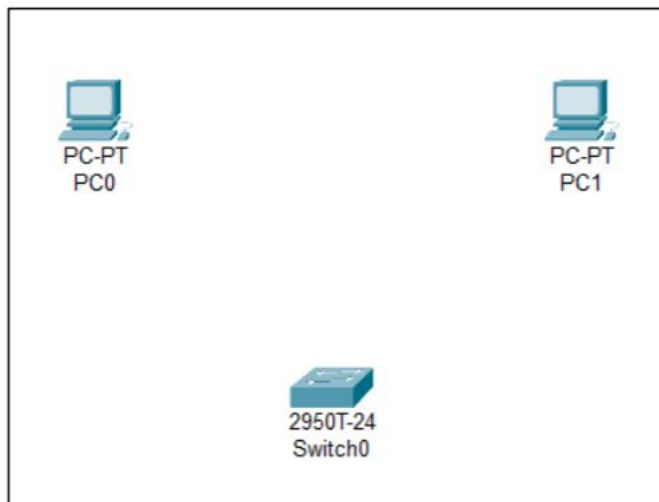a) Add two PCs and a Cisco 2950T switch

Fig4.1 Shows 2 PC's i.e. PC-1 and PC-2 and a switch 2950T

b) Using straight-through cables, connect **PC0** to interface **Fa0/1** on **Switch0** and **PC1** to interface **Fa0/2** on **Switch0**.
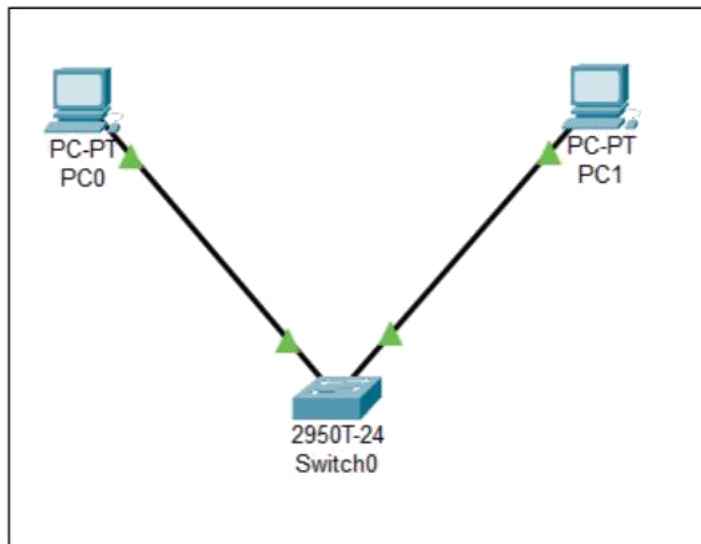
Fig4.2 Shows 2 PC's i.e. PC-1 and PC-2 connected to switch via copper straight-cable

c) Configure PC0 using the **Config** tab in the PC0 configuration window:

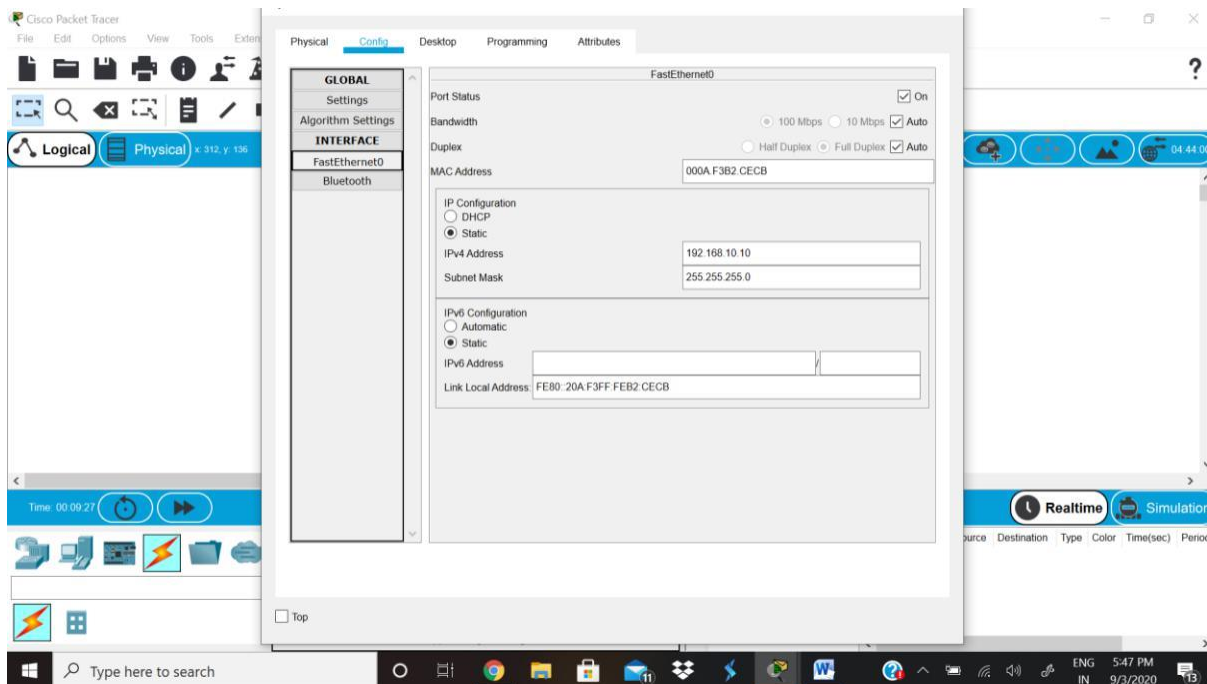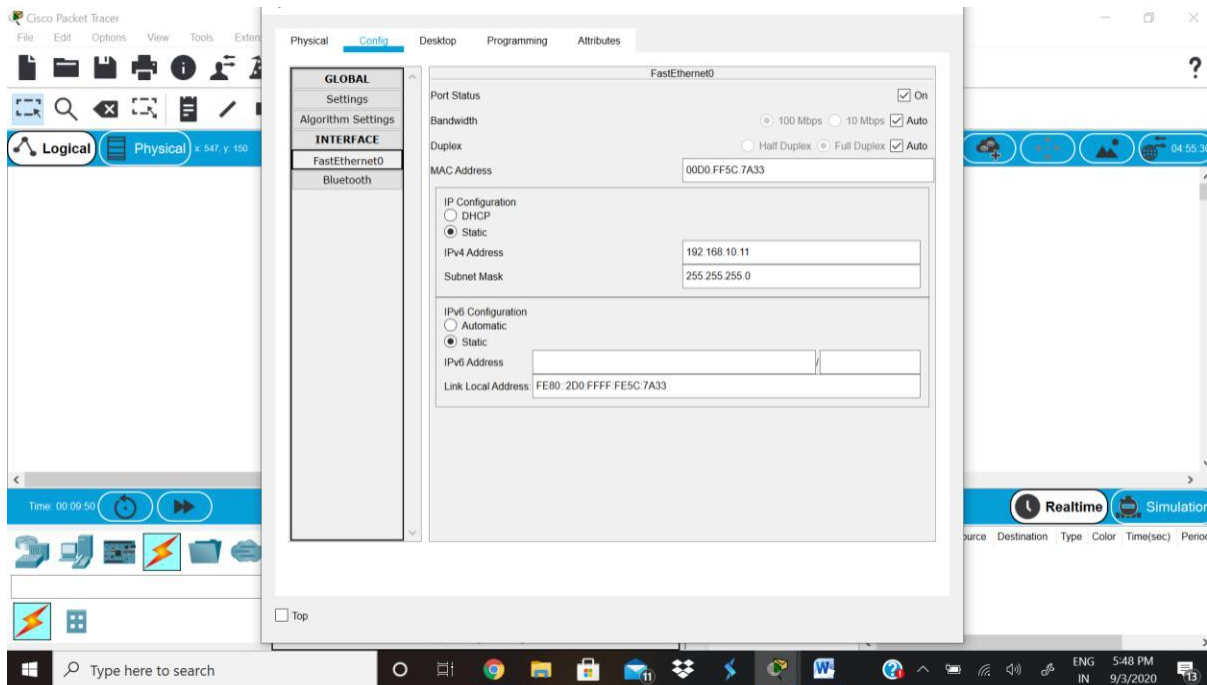   a. IP address: 192.168.10.10
      b. Subnet Mask 255.255.255.0

Fig 4.3 shows the config tab of PC-0 with fast ethernet settings.The ip address and subnet mask have been added as 192.168.10.10 and 255.255.255.0 respectively
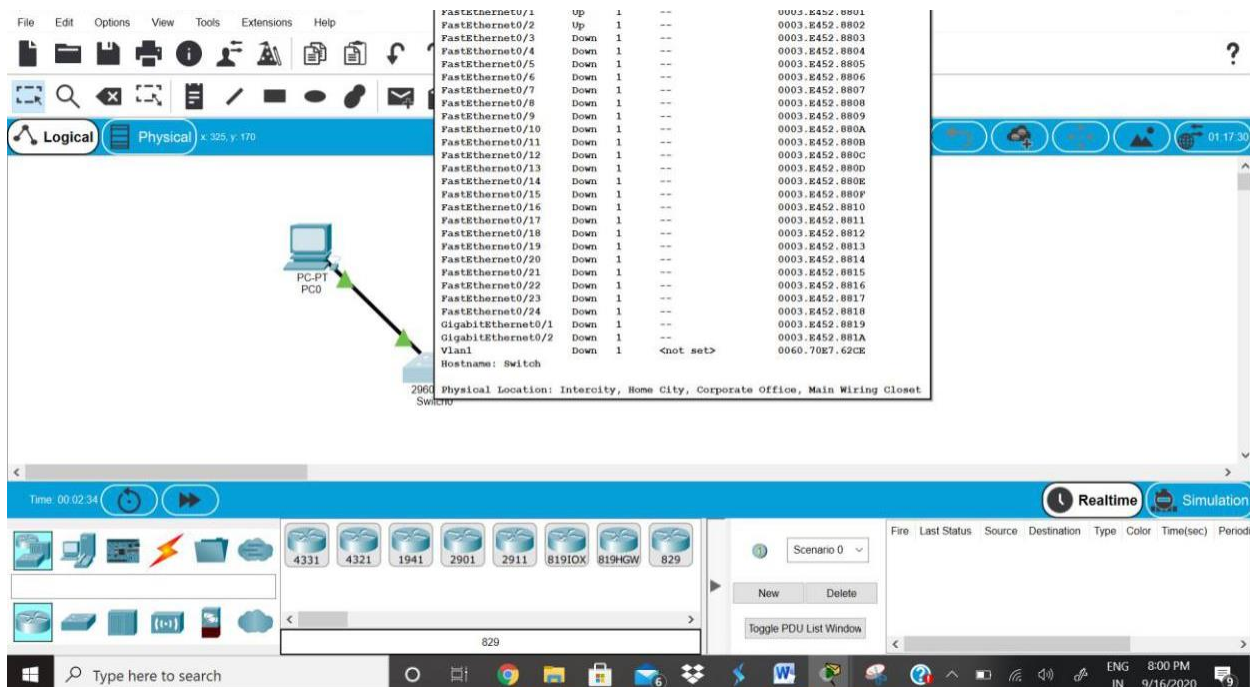
d) Configure PC1 using the **Config** tab in the PC1 configuration window
   a. IP address: 192.168.10.11
   b. Subnet Mask 255.255.255.0

Fig 4.4 shows the config tab of PC-1 with fast ethernet settings.The ip address and subnet mask have been added as 192.168.10.11 and 255.255.255.0 respectively

Fig 4.5 Shows the configuration of switch

Step 2: Test connectivity from PC0 to PC1

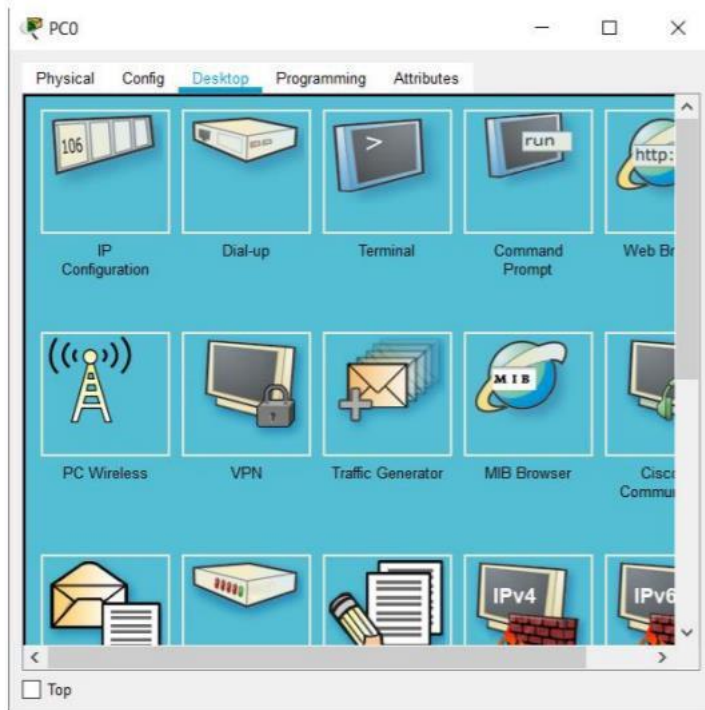a) Use the **ping** command to test connectivity.
   a. Click PC0.
   b. Choose the **Desktop** tab.

Fig 4.6 Shows the Desktop tab of PC-0

   c. Choose **Command Prompt**.
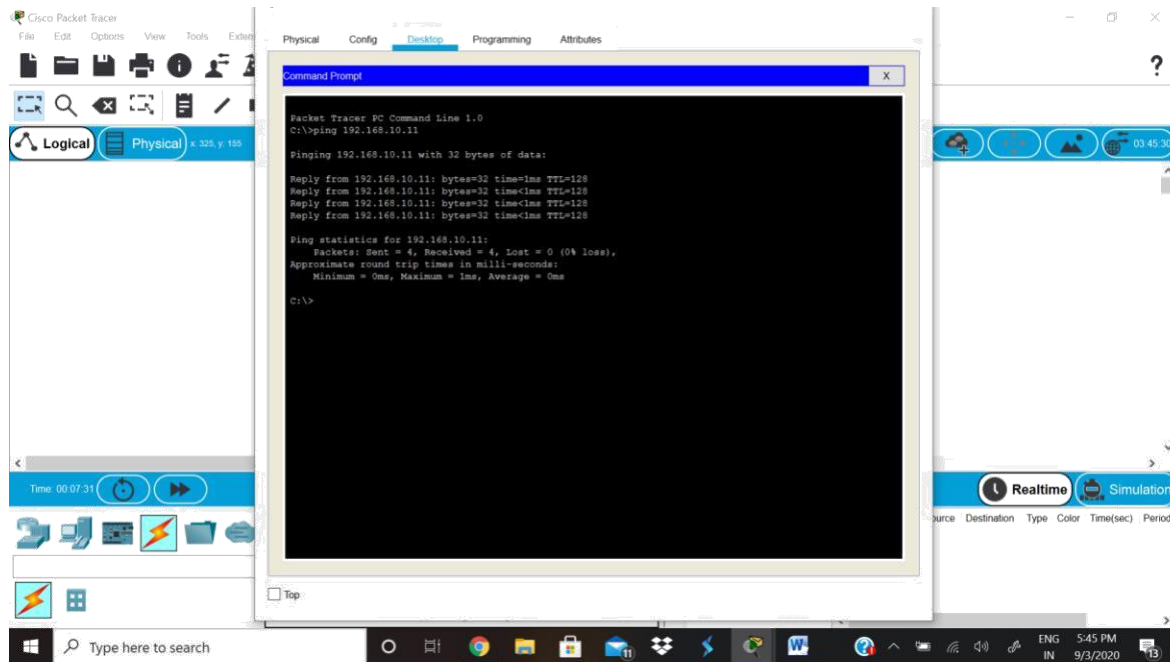   d. Type: **ping 192.168.10.11** and press *enter*.

Fig 4.7 Shows the ping command on ip address 192.168.10.11

b) A successful **ping** indicates the network was configured correctly and the prototype validates the hardware and software configurations. A successful ping should resemble the below output:
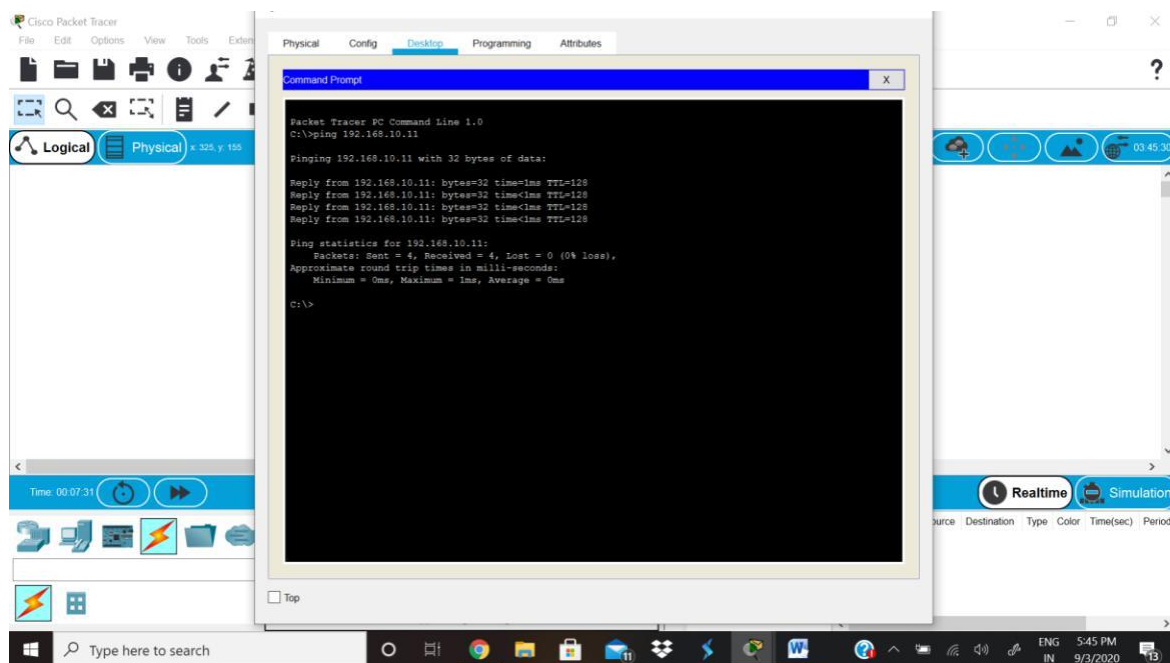

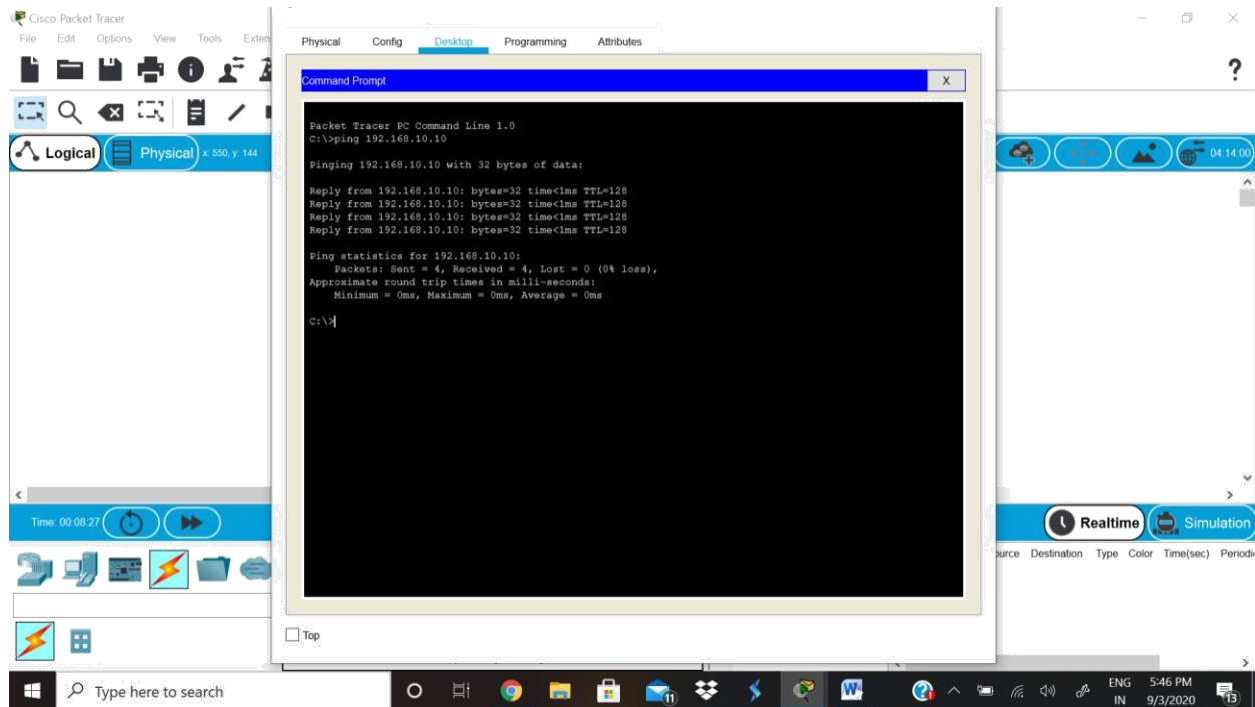**Fig 4.8 Shows the successful ping result on ip address 192.168.10.11**

Fig 4.9 Shows the successful ping result on ip address 192.168.10.10

c) Close the configuration window.
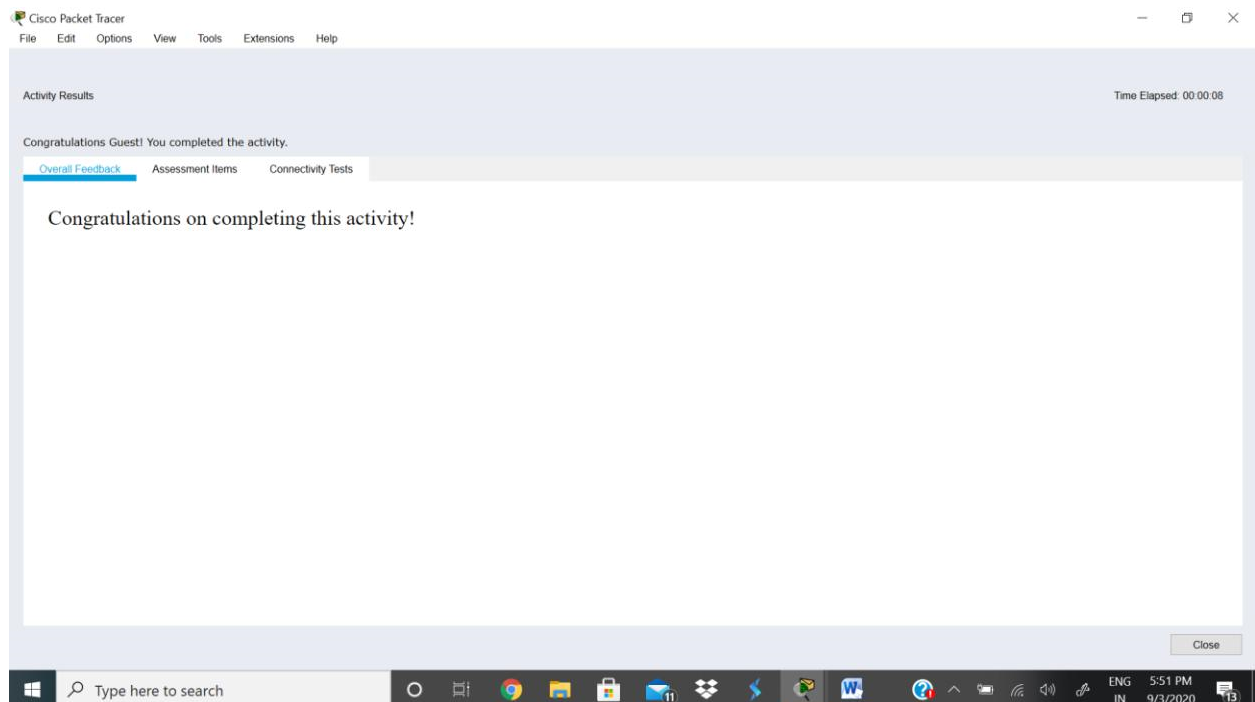d) Click the **Check Results** button at the bottom of the instruction window to check your work..

Fig 4.10 Shows the check result tab to check our work

CEL51, DCCN, Monsoon 2020
Lab 4.1: Basic configuration - hostname, motd banner, passwd etc
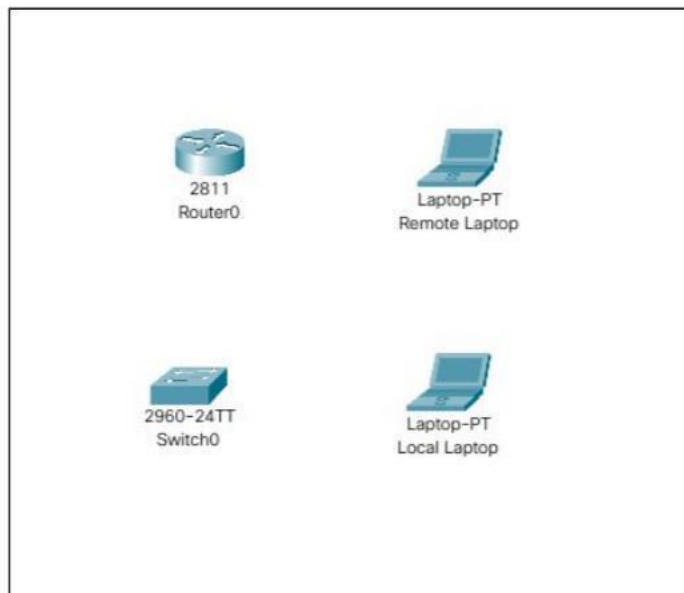
Objective:

This lab will test your ability to configure basic settings such as hostname, motd banner, encrypted passwords, and terminal options on a Packet Tracer 6.2 simulated Cisco Catalyst switch.
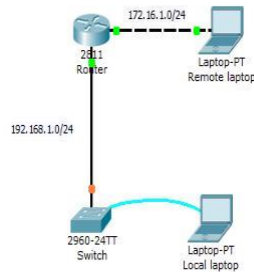
1. Use the local laptop connect to the switch console.

Rename Laptop0 –> Local Laptop
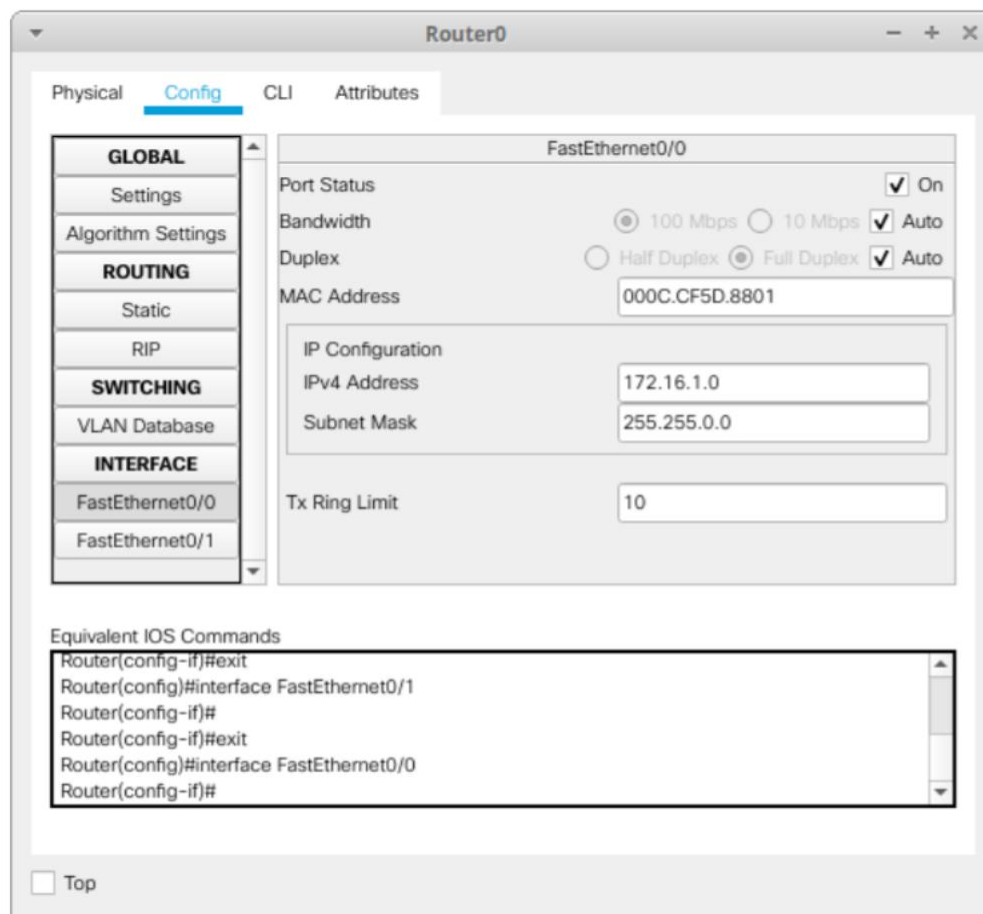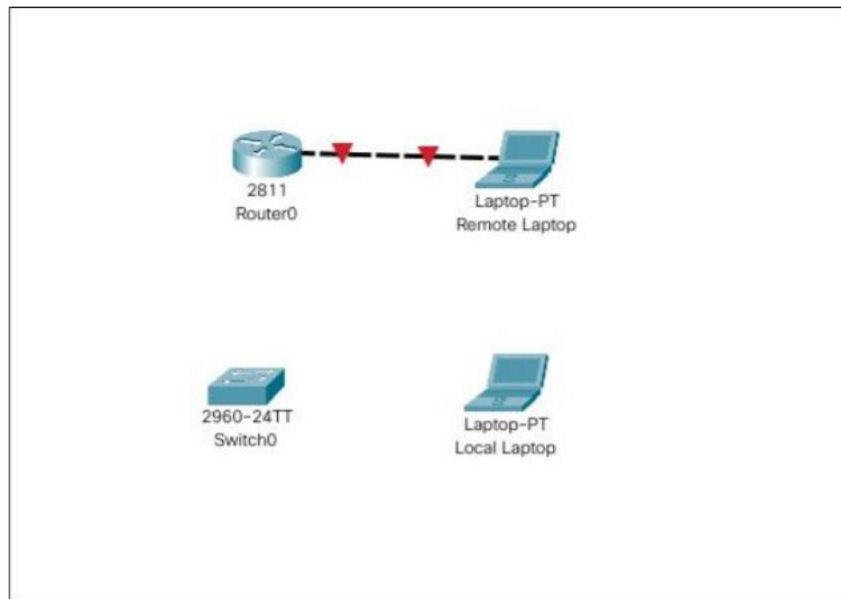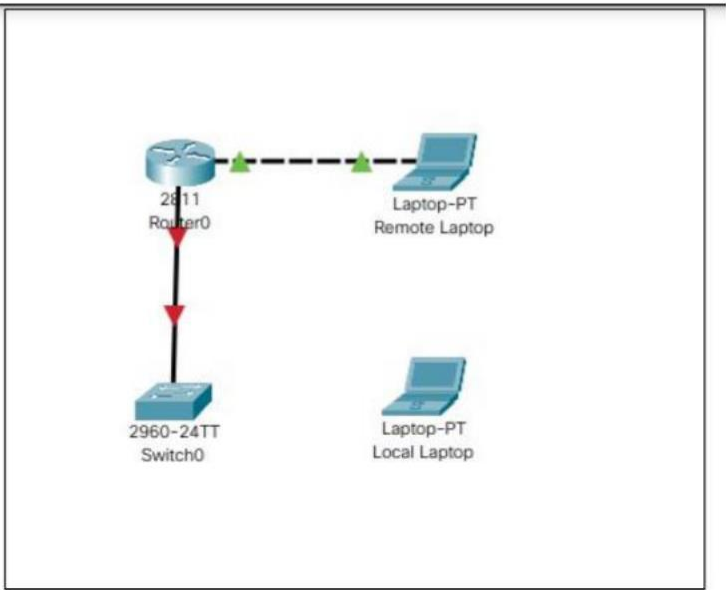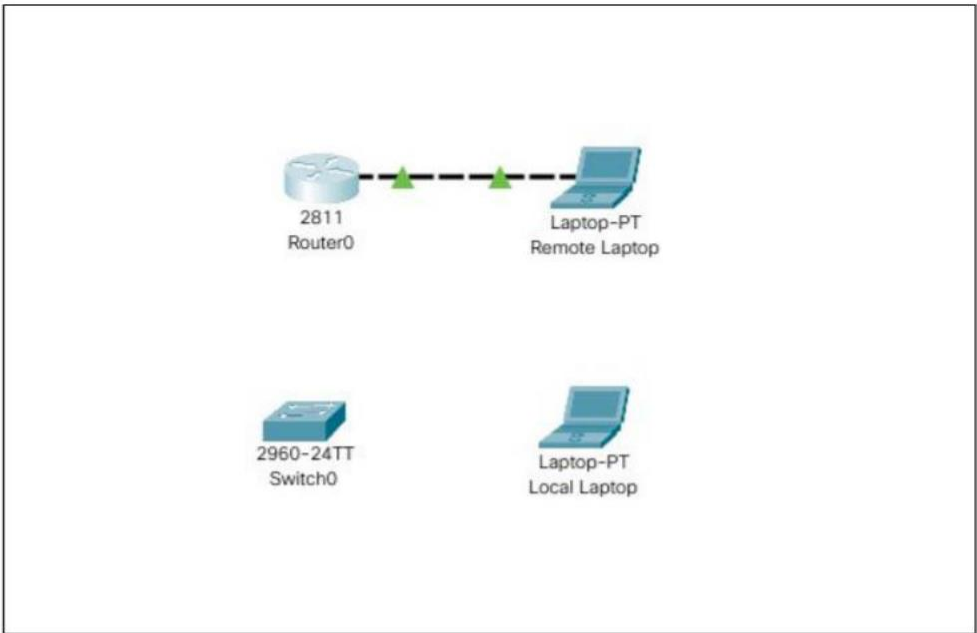Rename Laop1 -> Remote Laptop

Fig 4.1.1 Shows the Fast ethernet Settings of Router connecting the Remote Laptop where we turn the Post Status to ON

2811
Router0

Laptop-PT
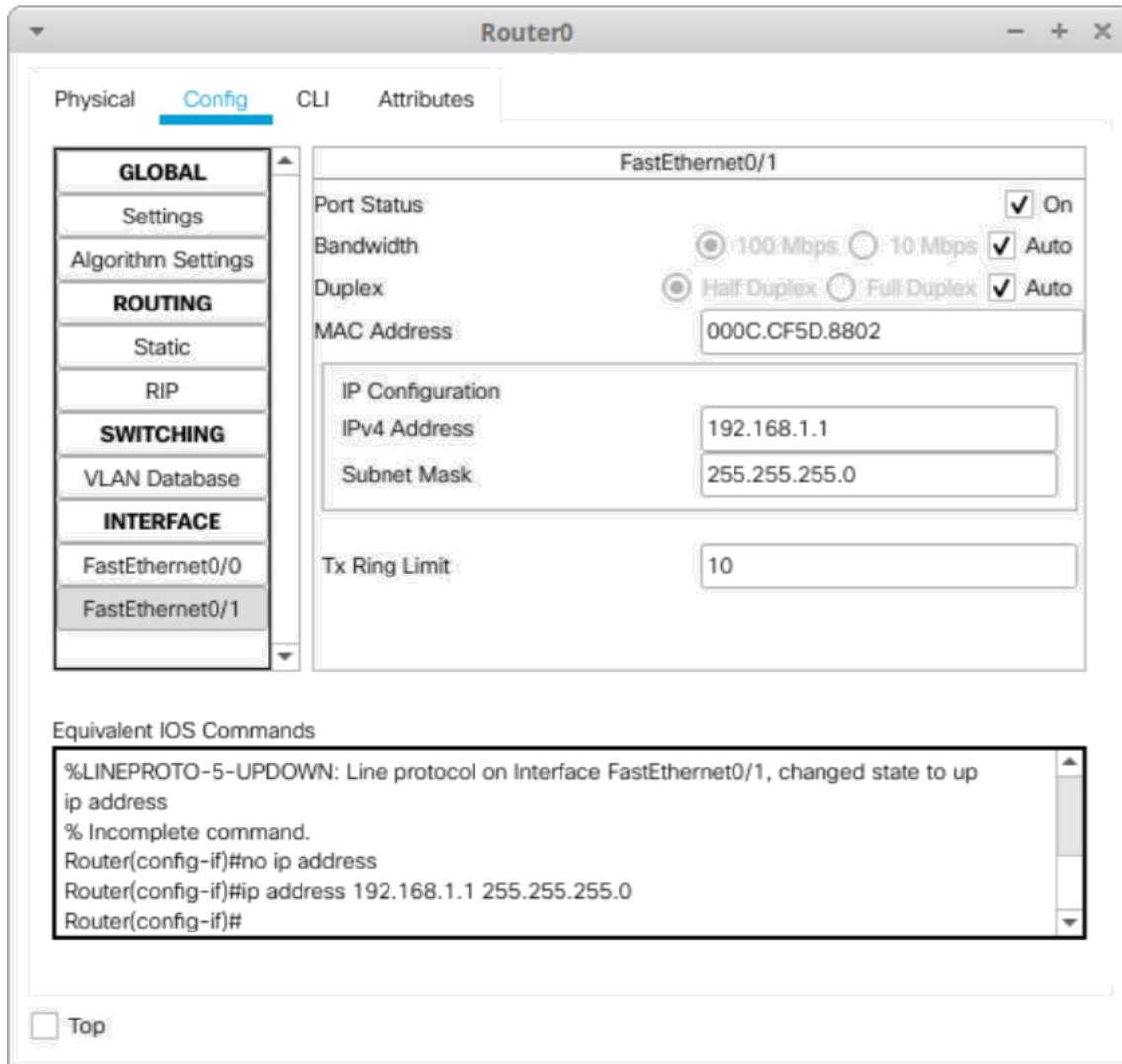Remote Laptop

2960-24TT
Switch0

Laptop-PT
Local Laptop

2811
Router0

Laptop-PT
Remote Laptop

2960-24TT
Switch0
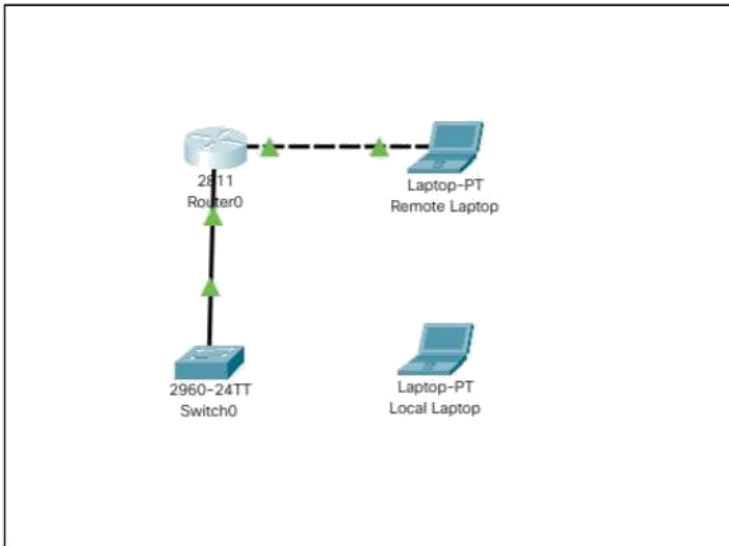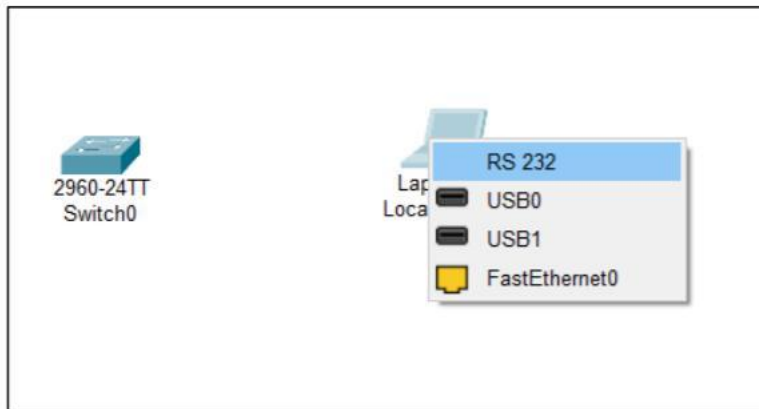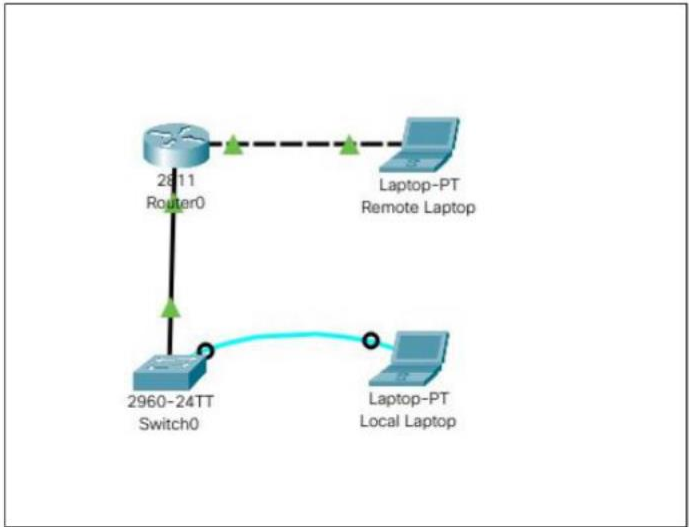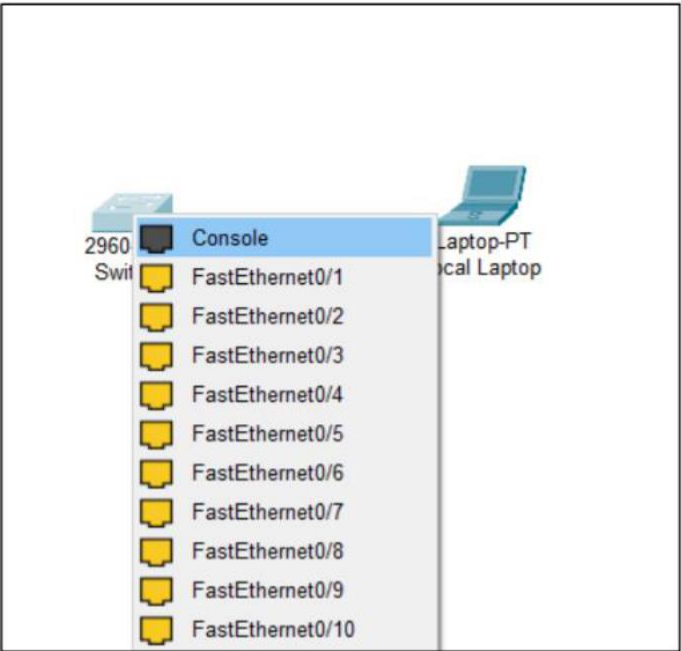
Laptop-PT
Local Laptop

Fig 4.1.2 Shows the Fast ethernet Settings of Router connecting the switch where we turn the Post Status to ON

Connect console connection to RS232 port of Local Laptop and Console port of Switch

2960
Swit

Console
FastEthernet0/1
FastEthernet0/2
FastEthernet0/3
FastEthernet0/4
FastEthernet0/5
FastEthernet0/6
FastEthernet0/7
FastEthernet0/8
FastEthernet0/9
FastEthernet0/10

Laptop-PT
ocal Laptop

2811
Router0

Laptop-PT
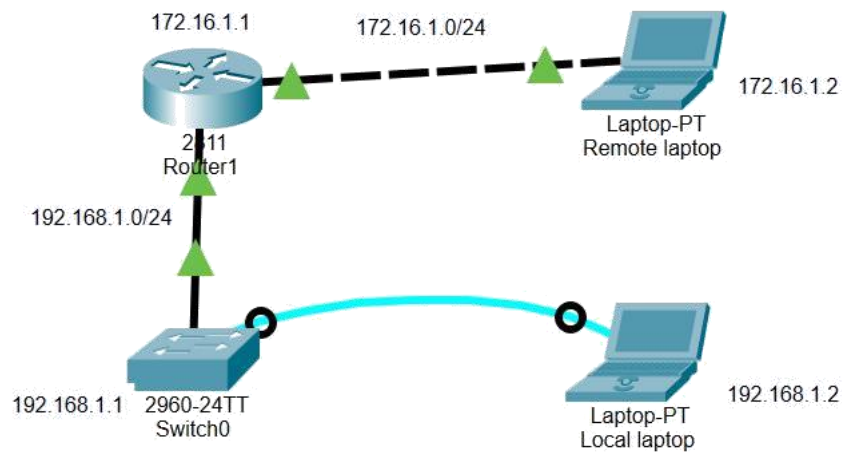Remote Laptop

2960-24TT
Switch0

Laptop-PT
Local Laptop

Fig 4.1.1 Shows 2 Laptops ,Remote Laptop connected to router via copper cross-over wire ,Local Laptop connnected to Switch via console and router is connected to switch via copper straight wire
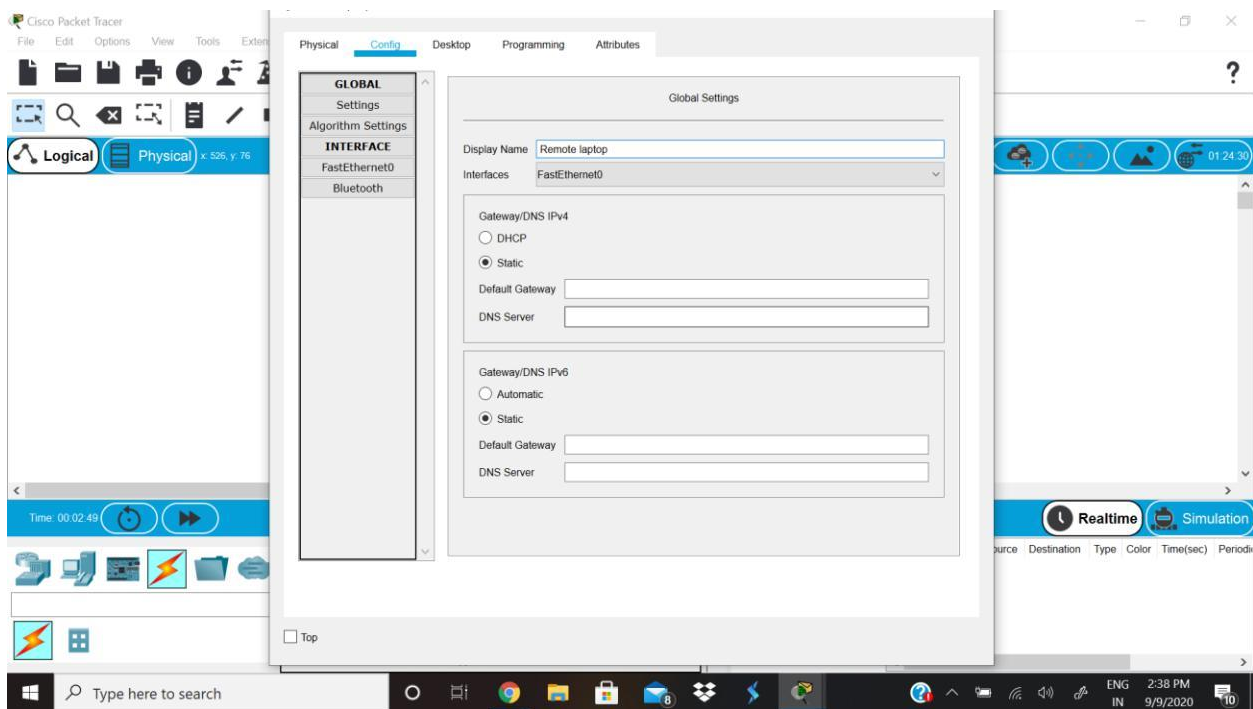

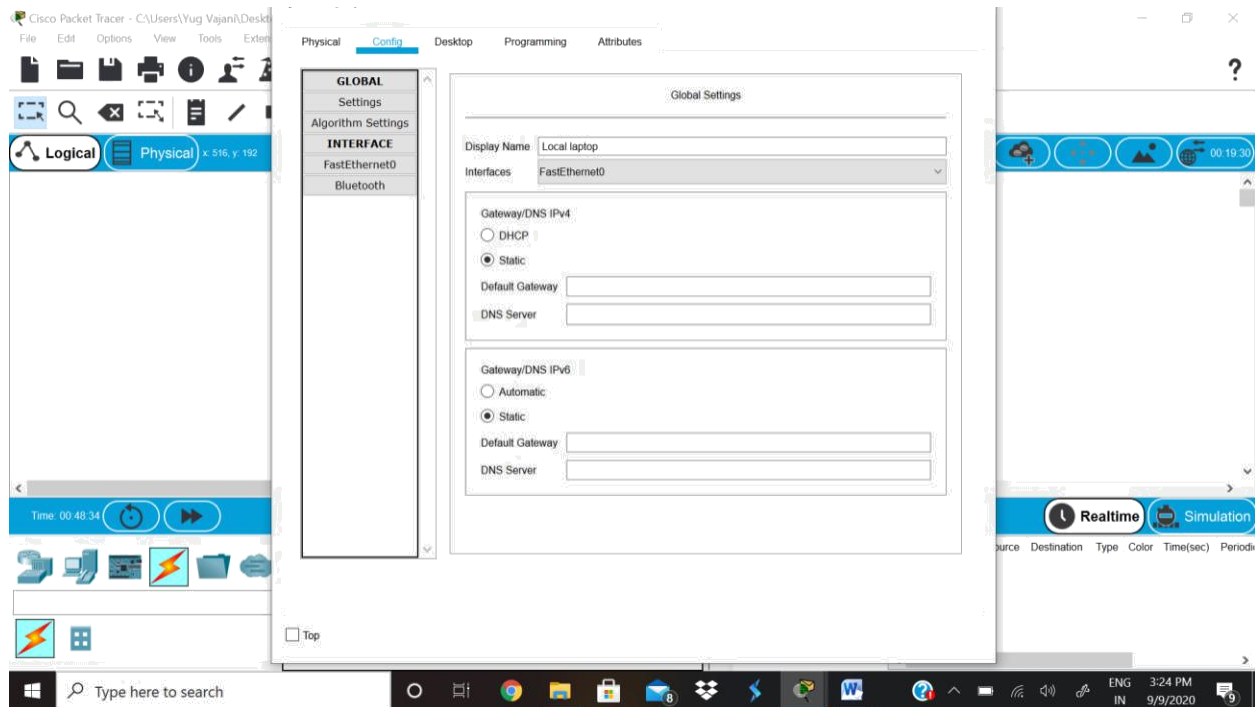**Fig 4.1.3 Shows the config tab of Remote Laptop**

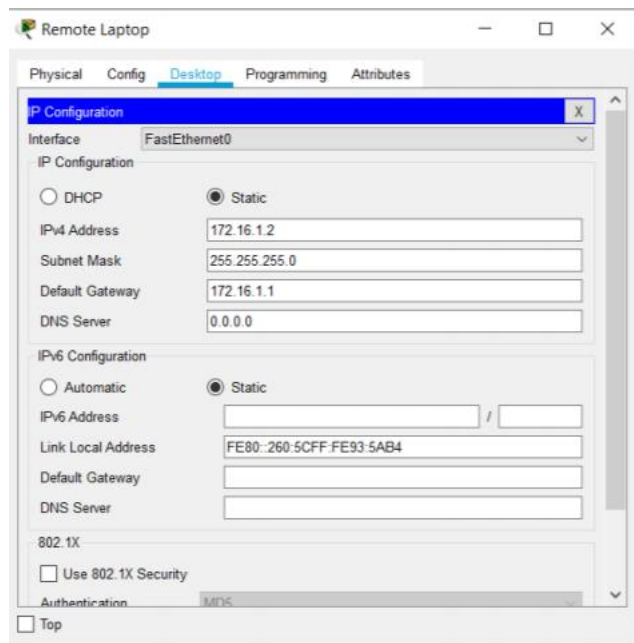**Fig 4.1.3 Shows the config tab of Local Laptop**

Fig 4.1.4 Shows the IP configuration of remote laptop where IP address is 172.16.1.2 and Default Gateway is 172.16.1.1

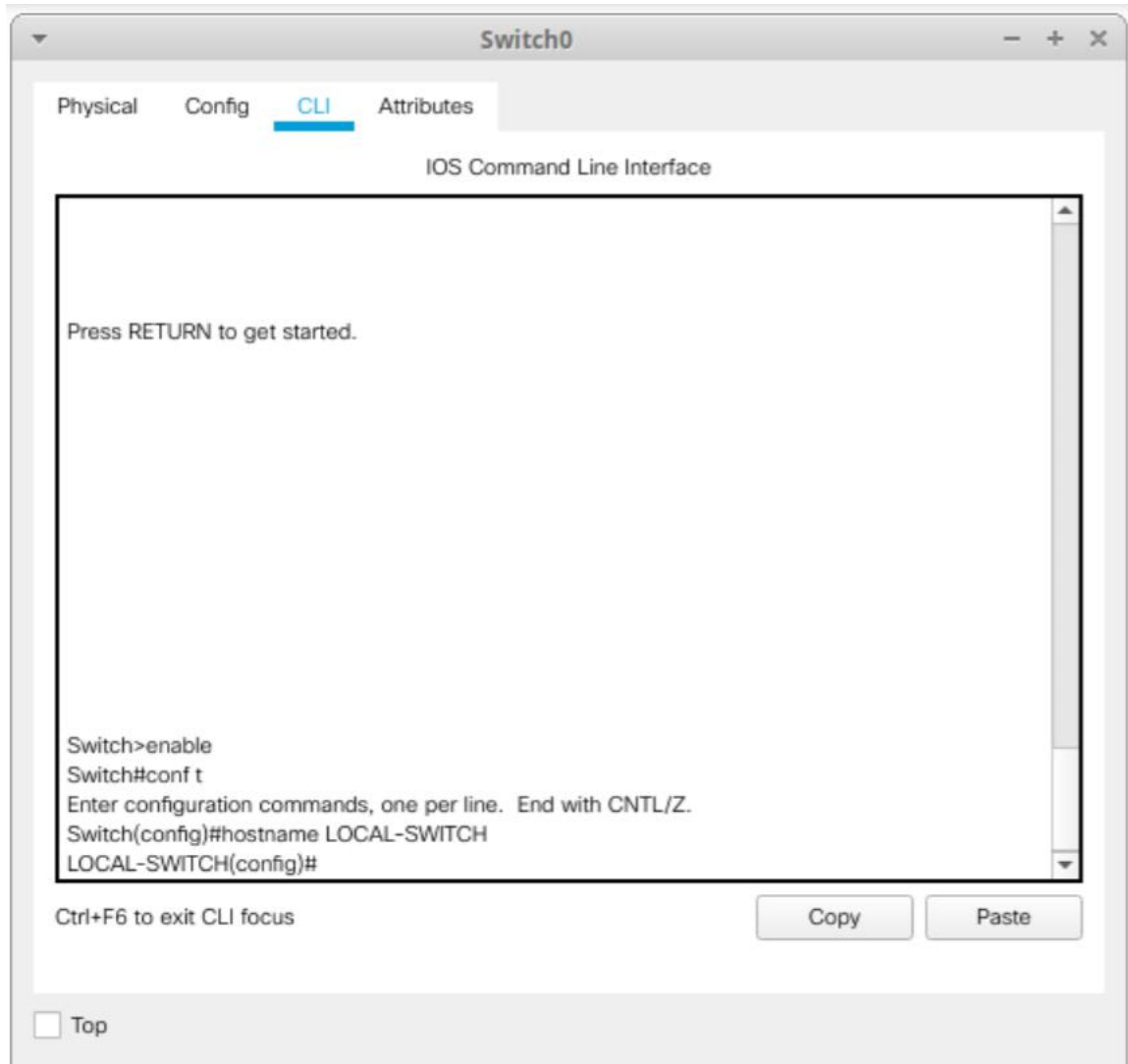2. Configure Switch hostname as LOCAL-SWITCH

Fig 4.1.5 Shows the CLI of switch where we configure switch hostname as LOCAL-SWITCH

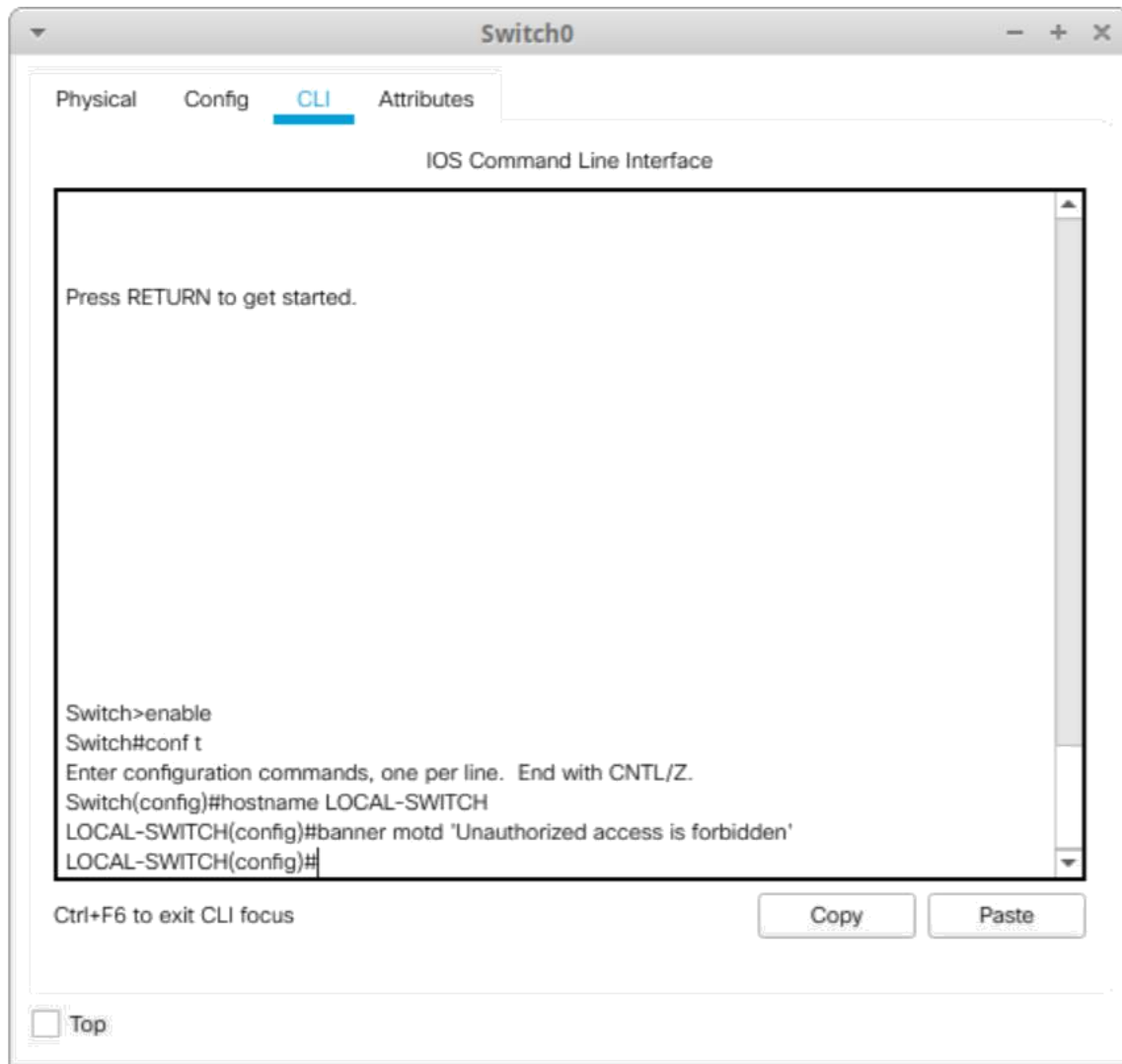3. Configure the message of the day as "Unauthorized access is forbidden"

Fig 4.1.6 Shows the CLI of switch to configure the message of the day as Unauthorized access is forbidden
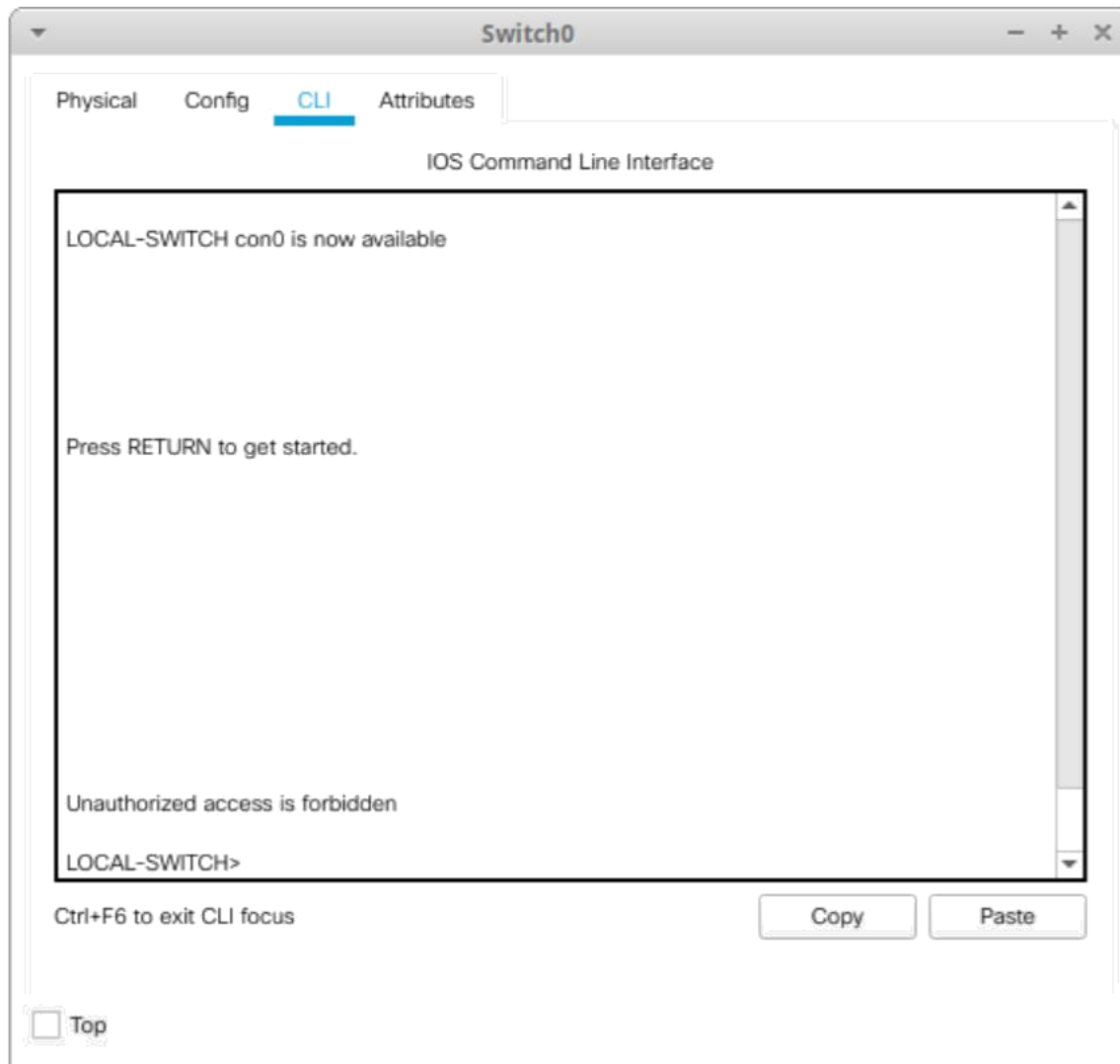
Fig 4.1.7 Shows the Message on using the show run command

4. Configure the password for privileged mode access as "cisco". The password must be md5 encrypted

Physical   Config   CLI   Attributes

IOS Command Line Interface

LOCAL-SWITCH con0 is now available

Press RETURN to get started.

Unauthorized access is forbidden

LOCAL-SWITCH>enable
LOCAL-SWITCH#conf t
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#enable secret cisco
LOCAL-SWITCH(config)#

Ctrl+F6 to exit CLI focus   Copy   Paste

Top

Fig 4.1.8 Shows the CLI to configure the password for privileged mode access as cisco

5. Configure password encryption on the switch using the global configuration command
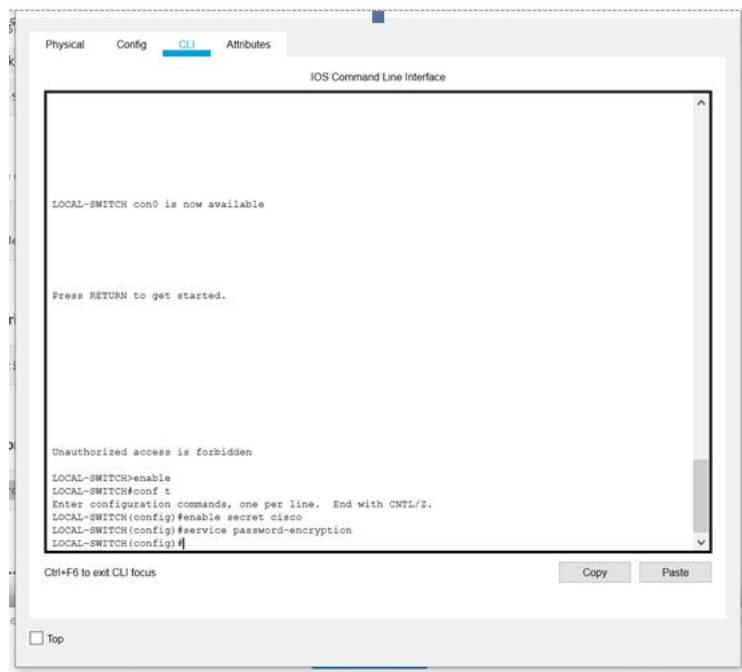

Physical   Config   CLI   Attributes

IOS Command Line Interface

LOCAL-SWITCH con0 is now available

Press RETURN to get started.

Unauthorized access is forbidden

LOCAL-SWITCH>enable
LOCAL-SWITCH#conf t
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#enable secret cisco
LOCAL-SWITCH(config)#service password-encryption
LOCAL-SWITCH(config)#

Ctrl+F6 to exit CLI focus   Copy   Paste

Top

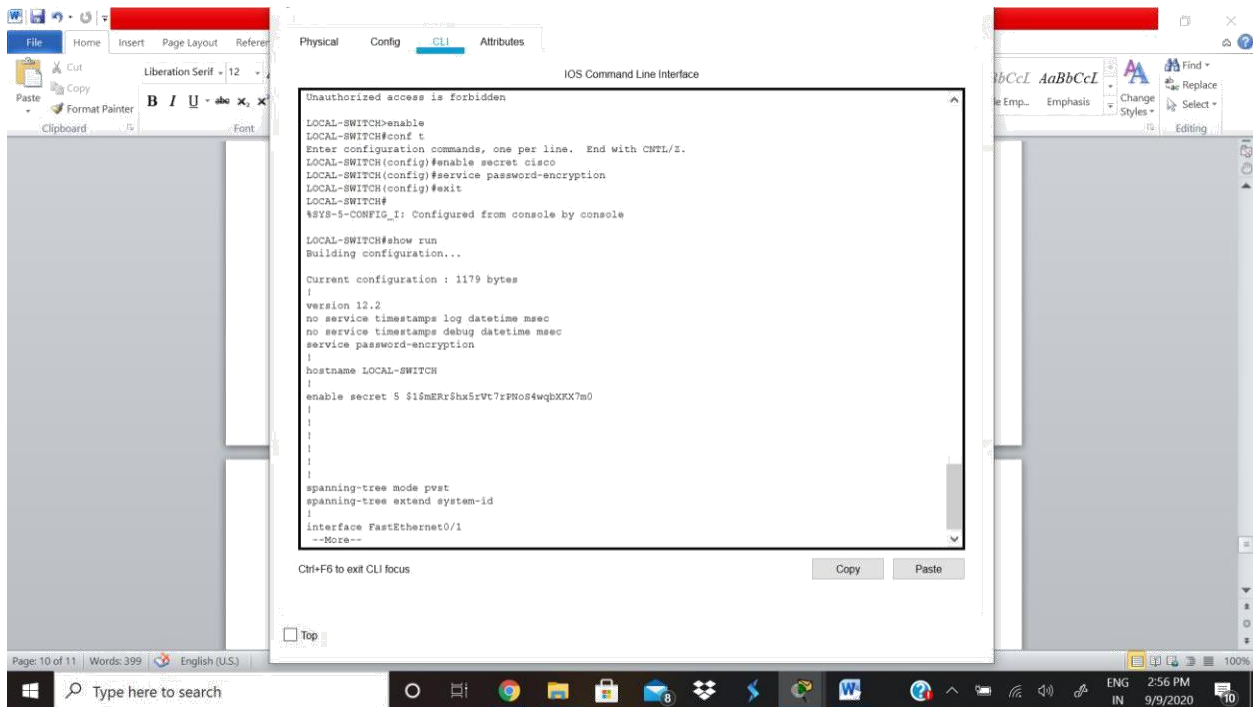**Fig 4.1.9 Shows the CLI to configure password encryption on the switch**

Fig 4.1.10 Shows the encrypted password when I use the show run command
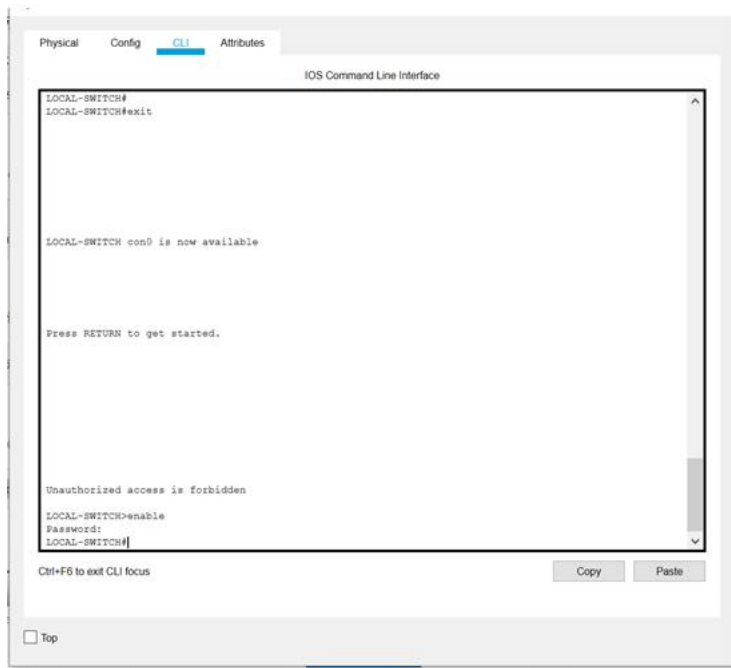

Fig 4.1.11 Shows that the CLI asks for password when I try to go to privileged mode

6. Configure CONSOLE access with the following settings
: - Login enabled
- Password : whatever you like

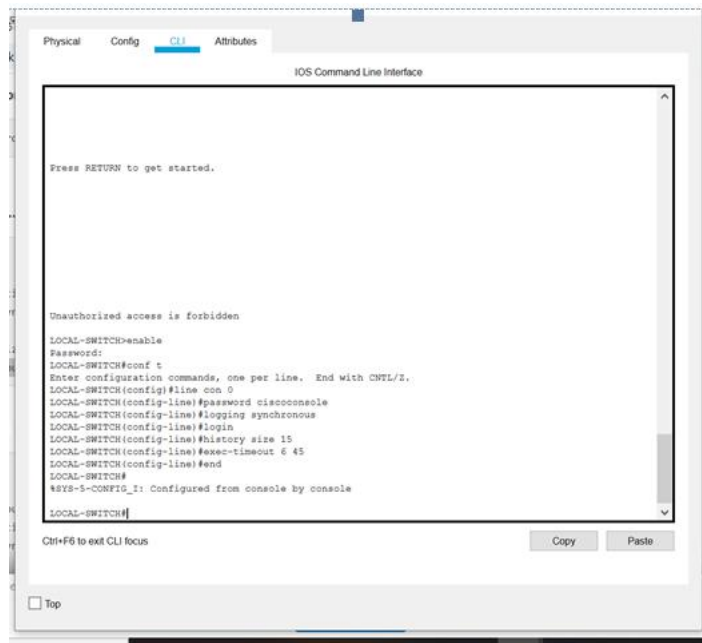- History size : 15 commands
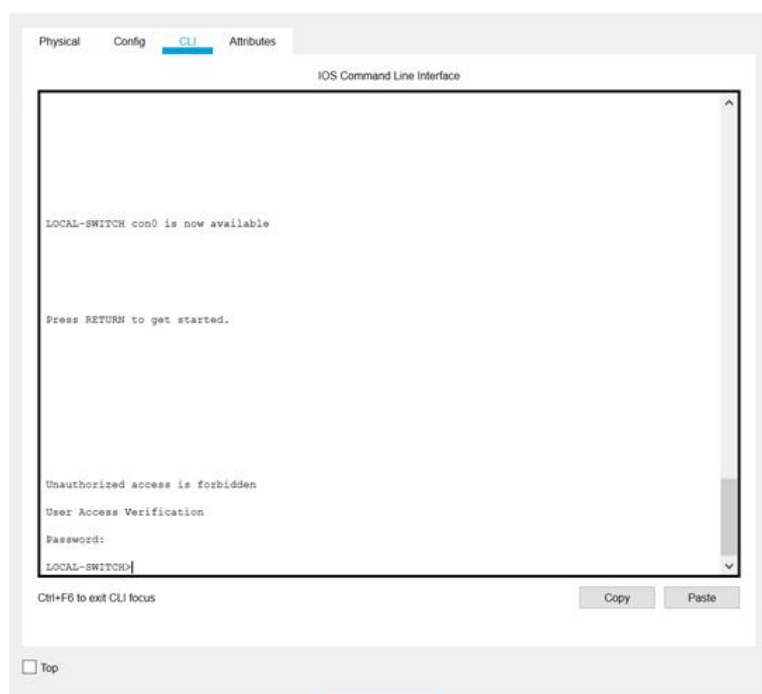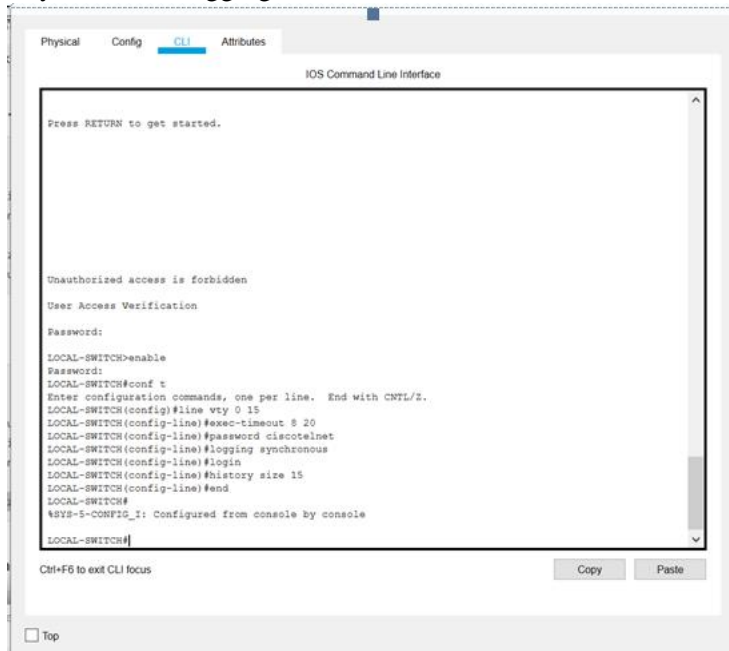- Timeout : 6'45"
- Synchronous logging

Fig 4.1.12 Shows to configure console access with following settings- Login enabled, Password : whatever you like,History size : 15 commands,Timeout : 6'45'',Synchronous logging

Fig 4.1.13 Shows that the CLI asks for password before it goes to console

6. Configure TELNET access with the following settings :

- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 8'20"
- Synchronous logging

Fig 4.1.14 Shows to configure Telnet access with following settings- Login enabled, Password : whatever you like, History size : 15 commands, Timeout : 8'20'',Synchronous logging

7. Configure the IP address of the switch as 192.168.1.2/24 and it's default gateway IP (192.168.1.1).
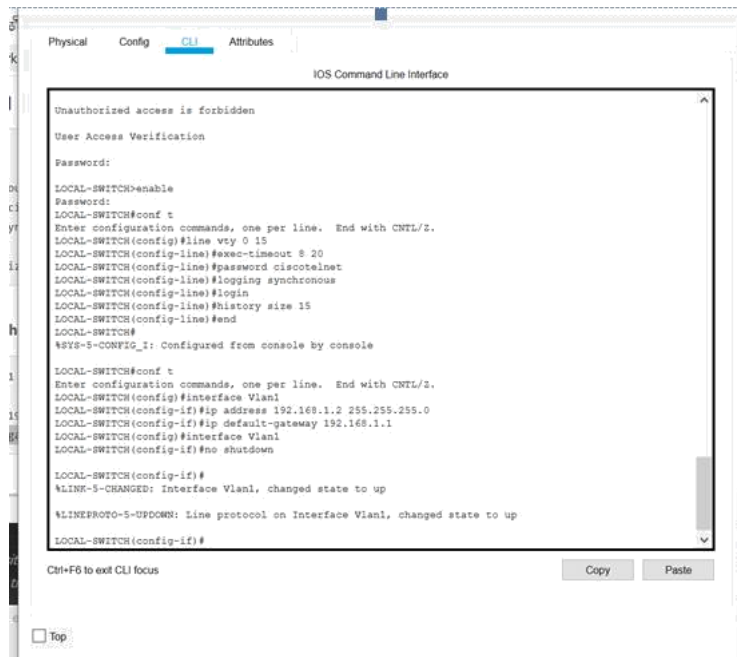
Fig 4.1.15 Shows the CLI to configure the IP address of the switch as 192.168.1.2/24 and it's default gateway IP (192.168.1.1).

8. Test telnet connectivity from the Remote Laptop using the telnet client.

Fig 4.1.16 Shows configuration of Remote Laptop
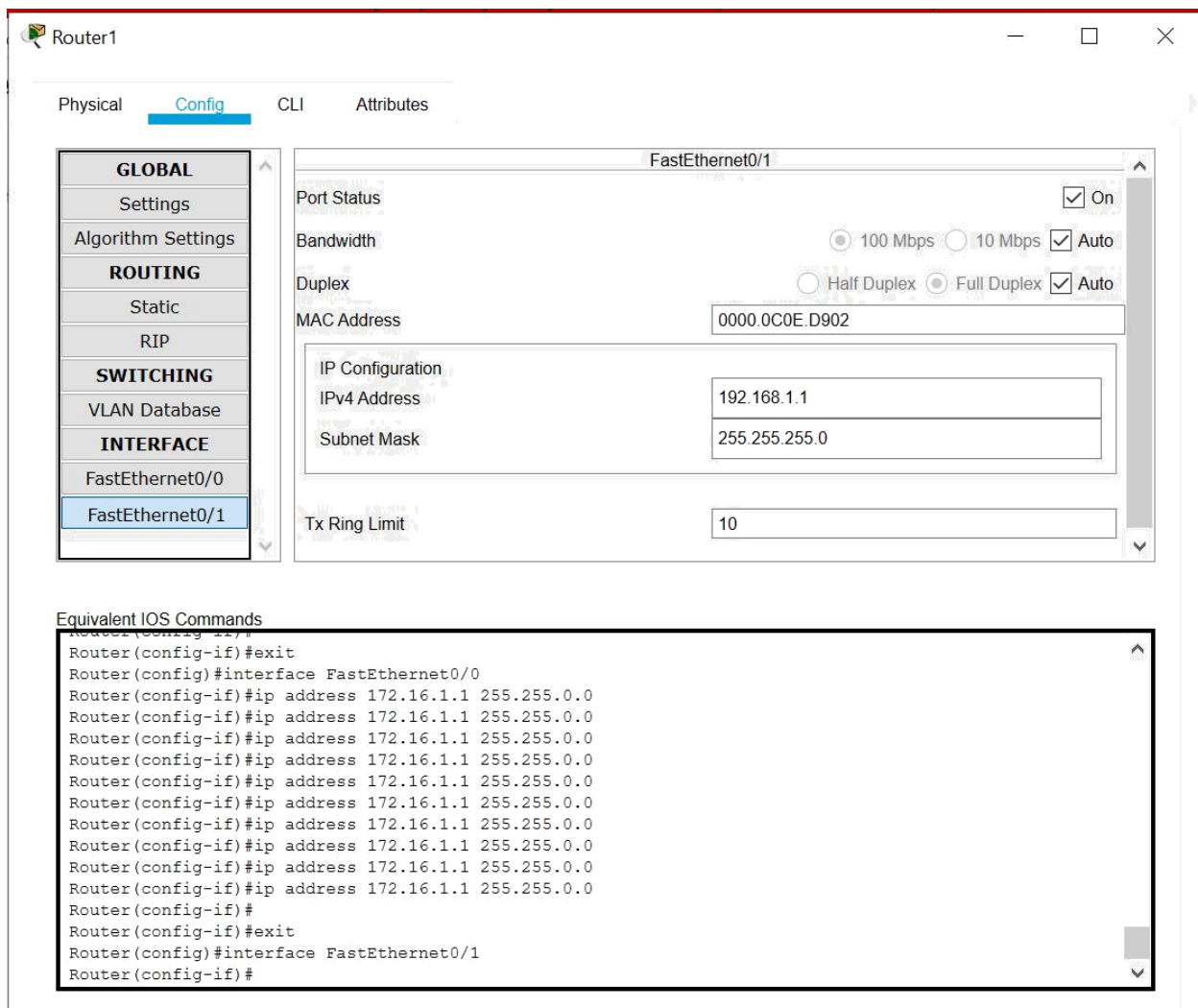
Fig 4.1.17 Shows Configuration of Router

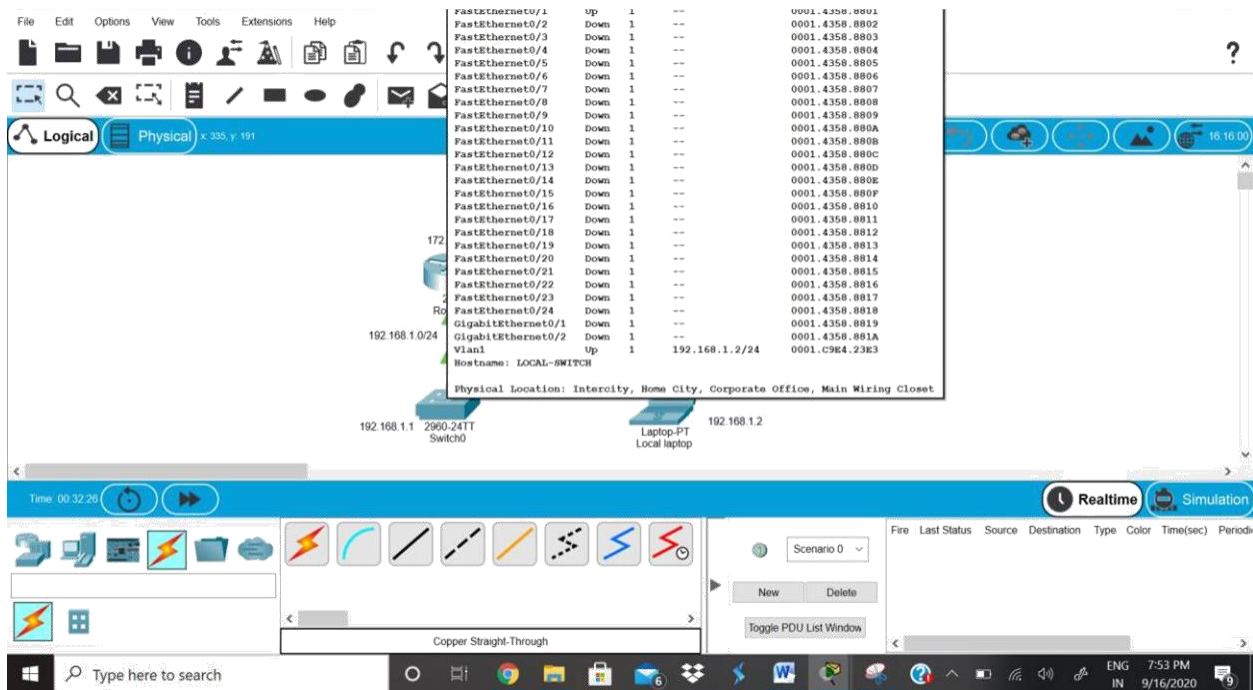**Fig 4.1.18 Shows Configuration of Router**

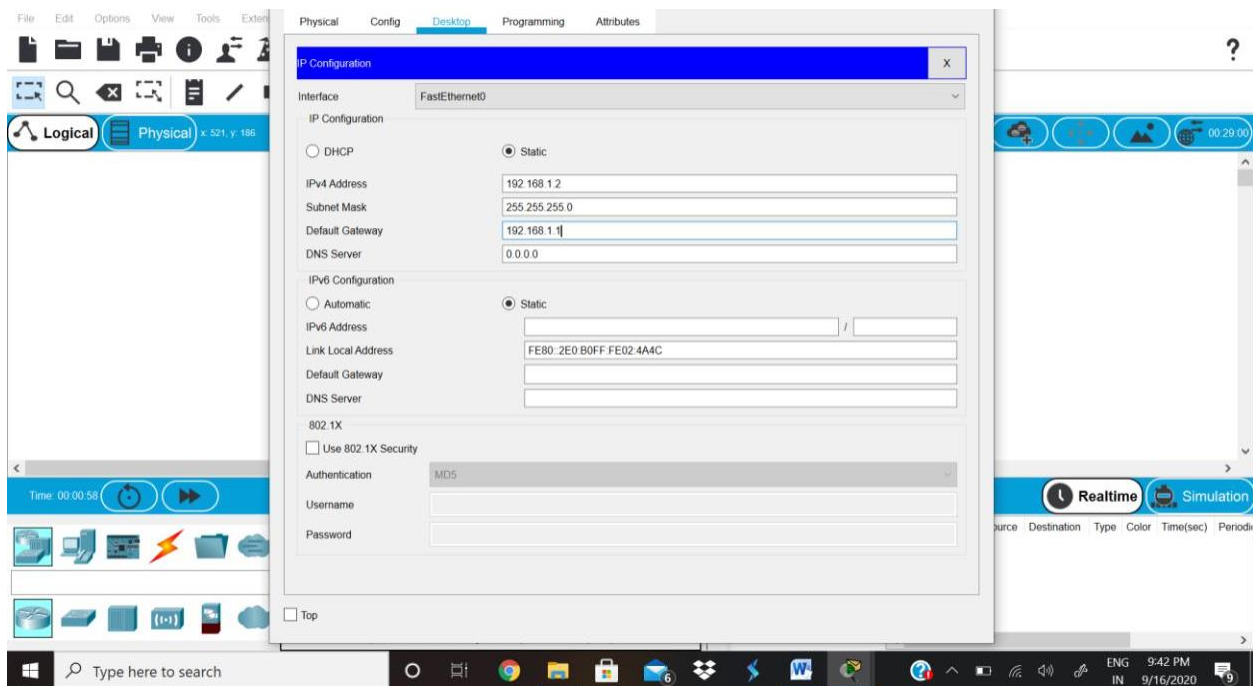**Fig 4.1.19 Shows Configuration of Switch**

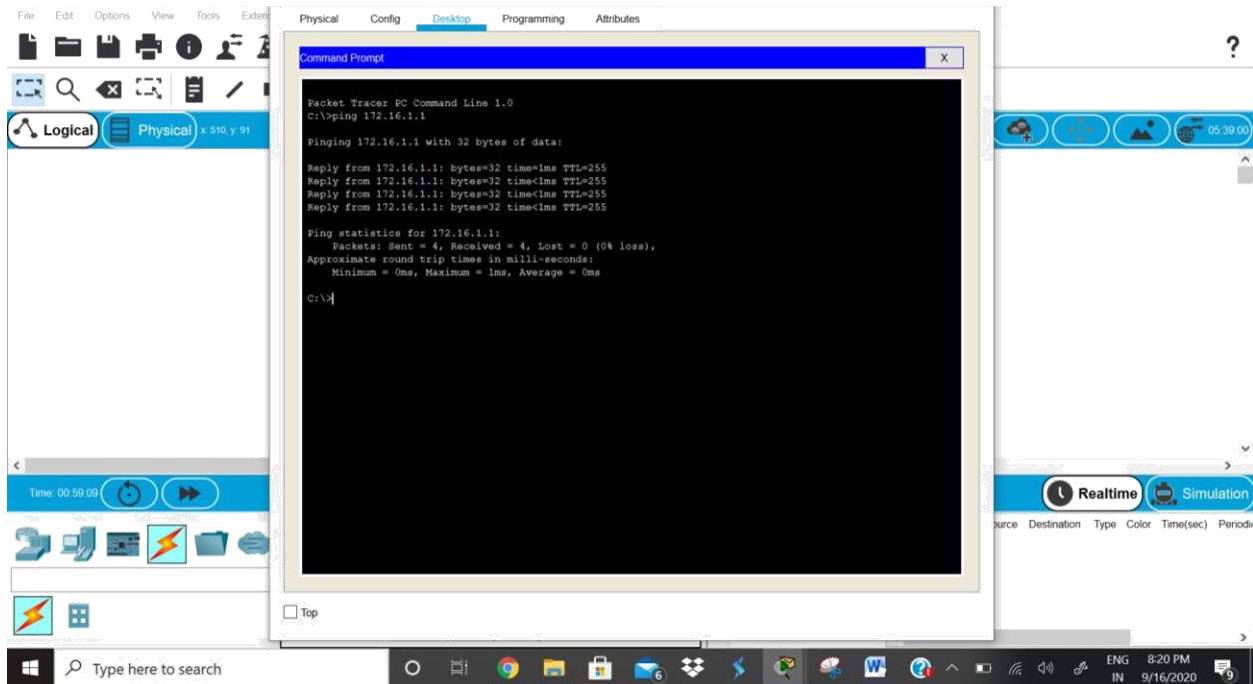**Fig 4.1.20 Shows Configuration of Local Laptop**

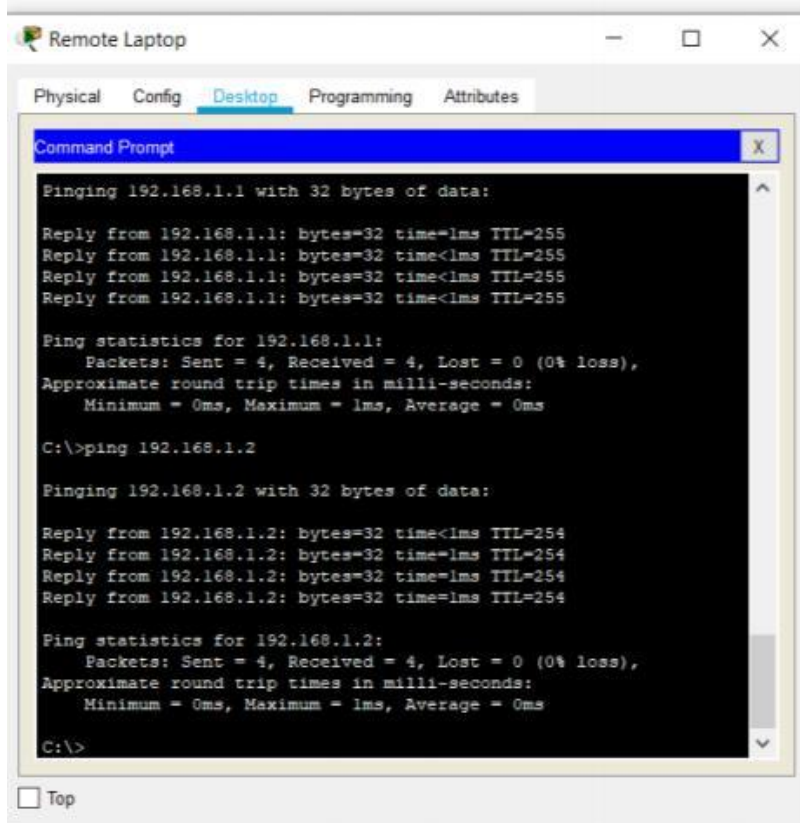**Fig 4.1.21 Shows Pinging Router from Remote Laptop**

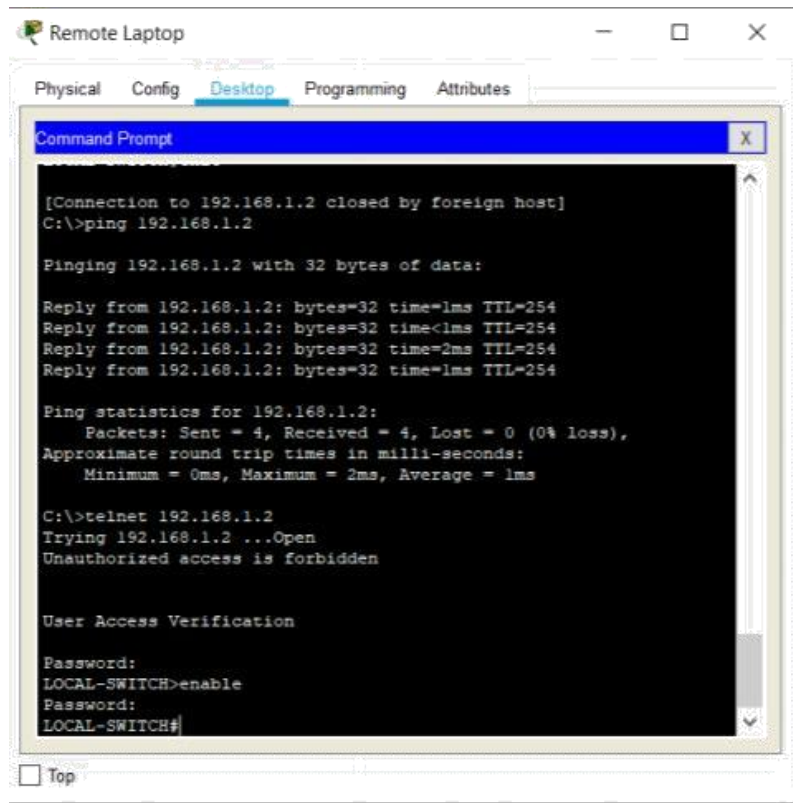**Fig 4.1.22 Shows Pinging Switch from Remote Laptop**

Fig 4.1.23 Telnet Switch from Remote Laptop after enterting the password for telnet and enabling switch from Remote Laptop

CONCLUSION: In this experiment, I learned about setting up network with Router and Switch. I learned to configure Switch using CLI. I understood how to configure terminal. I configured telnet for switch and checked its connectivity from remote laptop