AMITY UNIVERSITY

UTTAR PRADESH

INTRODUCTION TO NETWORKING

LAB PRACTICAL FILE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

AMITY SCHOOL OF ENGINEERING AND TECHNOLOGY

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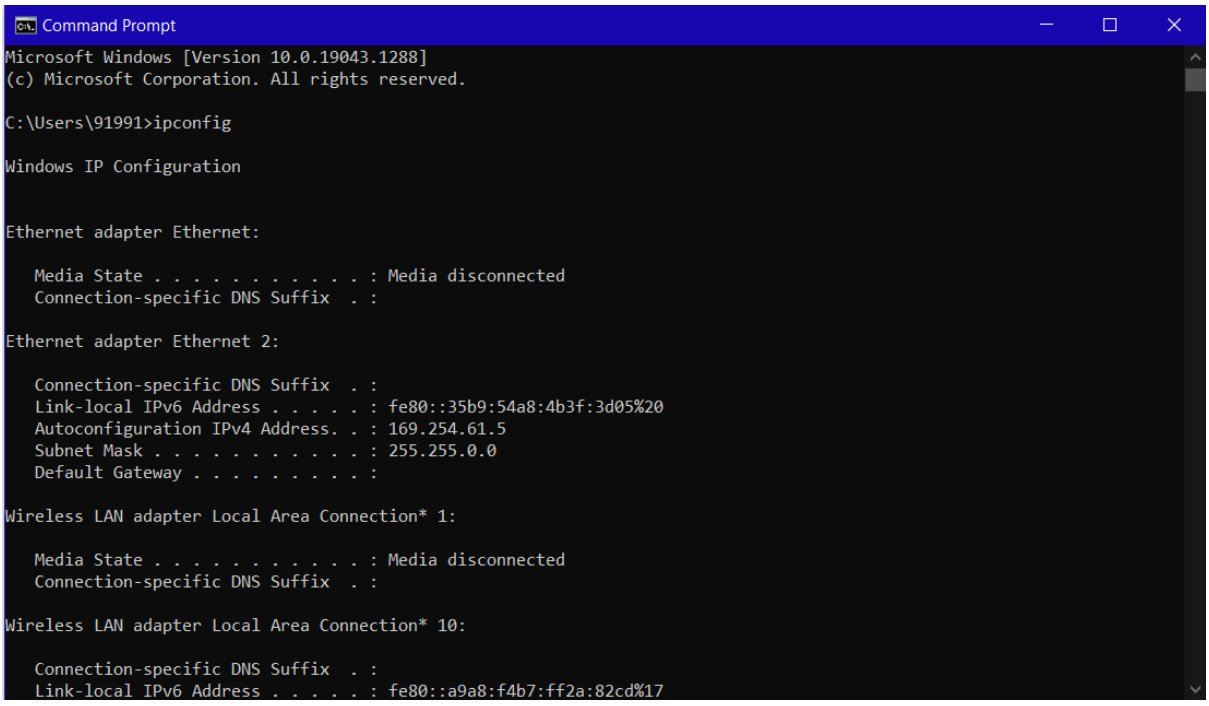
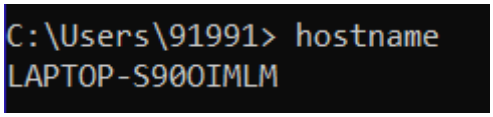
Experiment 1

Aim: Basic Networking Commands

Ipconfig: (internet protocol configuration) is a console application of some operating systems that displays all current TCP/IP network configuration values and refresh Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) settings.



hostname: The hostname command is used to show or set a computer's host name and domain name.



ping: A **ping** is a signal sent to a host that requests a response.

Option: -

-t: - ping the specified host until stopped.

-a: - resolve address to hostname.

```
C:\Users\91991>ping 192.168.137.1

Pinging 192.168.137.1 with 32 bytes of data:
Reply from 192.168.137.1: bytes=32 time<1ms TTL=128
Reply from 192.168.137.1: bytes=32 time<1ms TTL=128
Reply from 192.168.137.1: bytes=32 time<1ms TTL=128
Reply from 192.168.137.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.137.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

tracert: The **tracert command** is a **Command** Prompt **command** that's used to show several details about the path that a packet takes from the computer or device you're on to whatever destination you specify.

```
C:\Users\91991>tracert 192.168.137.1

Tracing route to LAPTOP-S90OIMLM.mshome.net [192.168.137.1]
over a maximum of 30 hops:

  1    <1 ms    <1 ms    <1 ms  LAPTOP-S90OIMLM.mshome.net [192.168.137.1]

Trace complete.
```

pathping: The **PathPing command** is a **command**-line network utility that combines the functionality of ping with that of tracert. It is used to locate spots that have network latency and network loss.

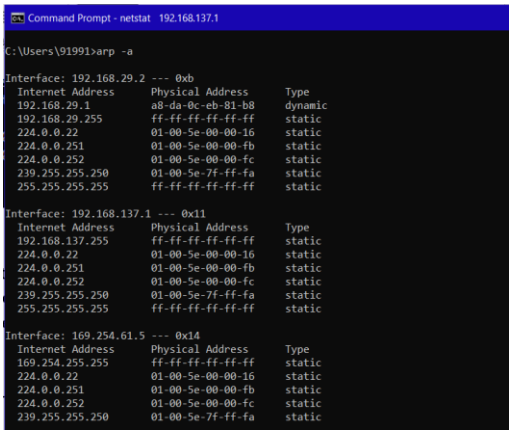
```
C:\Users\91991>pathping 192.168.137.1

Tracing route to LAPTOP-S90OIMLM.mshome.net [192.168.137.1]
over a maximum of 30 hops:
  0  LAPTOP-S90OIMLM.mshome.net [192.168.137.1]
  1  LAPTOP-S90OIMLM.mshome.net [192.168.137.1]

Computing statistics for 25 seconds...
            Source to Here   This Node/Link
Hop  RTT    Lost/Sent = Pct  Lost/Sent = Pct  Address
  0                                           LAPTOP-S90OIMLM.mshome.net [192.168.137.1]
                                 0/ 100 =  0%   |
  1    0ms     0/ 100 =  0%     0/ 100 =  0%  LAPTOP-S90OIMLM.mshome.net [192.168.137.1]

Trace complete.
```

arp: ARP Command is a TCP/IP utility and Microsoft Windows **command** for viewing and modifying the local Address Resolution Protocol (**ARP**) cache, which contains recently resolved MAC addresses of Internet Protocol (IP) hosts on the network.

Options: -

-a: - Displays current ARP entries by interrogating the current protocol data.

-g: - Same as –a.



netstat: In computing, **netstat** (network statistics) is a **command**-line network utility that displays network connections for Transmission Control Protocol (both incoming and outgoing), routing tables, and a number of network interface and network protocol statistics.

```
C:\Users\91991>netstat  192.168.137.1

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    192.168.29.2:56526     20.198.162.76:https    ESTABLISHED
  TCP    192.168.29.2:56677     122.10.255.213:http    CLOSE_WAIT
  TCP    192.168.29.2:56784     52.111.252.2:https     ESTABLISHED
  TCP    192.168.29.2:56811     122.10.255.207:http    CLOSE_WAIT
  TCP    192.168.29.2:56813     122.10.255.207:http    CLOSE_WAIT
  TCP    192.168.29.2:56846     52.109.124.129:https   ESTABLISHED
  TCP    192.168.29.2:56848     20.191.46.211:https    ESTABLISHED
  TCP    192.168.29.2:56849     51.104.162.50:https    ESTABLISHED
  TCP    192.168.29.2:56852     52.168.117.169:https   TIME_WAIT
  TCP    192.168.29.2:56864     131.253.33.254:https   ESTABLISHED
  TCP    192.168.29.2:56865     13.107.3.254:https     ESTABLISHED
  TCP    192.168.29.2:56866     204.79.197.254:https   ESTABLISHED
  TCP    192.168.29.2:56867     204.79.197.222:https   ESTABLISHED
  TCP    192.168.29.2:56869     20.44.239.154:https    TIME_WAIT
  TCP    [2405:201:4003:3bf2:382f:b4de:60d:b7e]:56825  [2603:1046:c04:101a::2]:https  ESTABLISHED
  TCP    [2405:201:4003:3bf2:382f:b4de:60d:b7e]:56847  g2600-140f-dc00-0183-0000-0000-0000-21cc:http  TIME_WAIT
  TCP    [2405:201:4003:3bf2:382f:b4de:60d:b7e]:56850  [2600:1901:1:c36::]:https  TIME_WAIT
  TCP    [2405:201:4003:3bf2:382f:b4de:60d:b7e]:56860  [2a01:111:202c::200]:https  ESTABLISHED
  TCP    [2405:201:4003:3bf2:382f:b4de:60d:b7e]:56861  [2603:1046:c04:1018::2]:https  ESTABLISHED
  TCP    [2405:201:4003:3bf2:382f:b4de:60d:b7e]:56870  [2001:1900:2381:a08::1fe]:http  ESTABLISHED
  TCP    [2405:201:4003:3bf2:382f:b4de:60d:b7e]:56874  [2001:1900:2381:a08::1fe]:http  ESTABLISHED
```

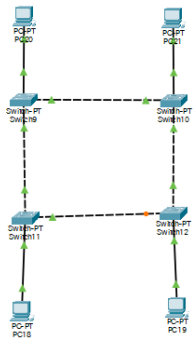
Experiment 2

Aim: To establish the various network topologies.

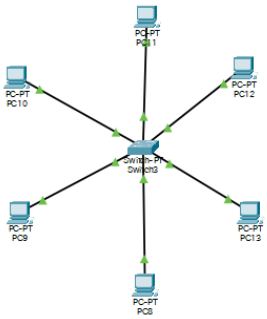
Tool used: Cisco Packet Tracer

Theory: Multiple computers can be connected in a network in several arrangements. These are called Network Topologies. These connections are made possible with the help of network devices called Hubs and Switches. The difference between a Hub and Switch is that a Hub is an unintelligent device, and it does not know where the intended recipient is located, therefore broadcasting any message it receives to all the connected terminals. However, switch, being an intelligent device, only sends the message to the intended recipient.

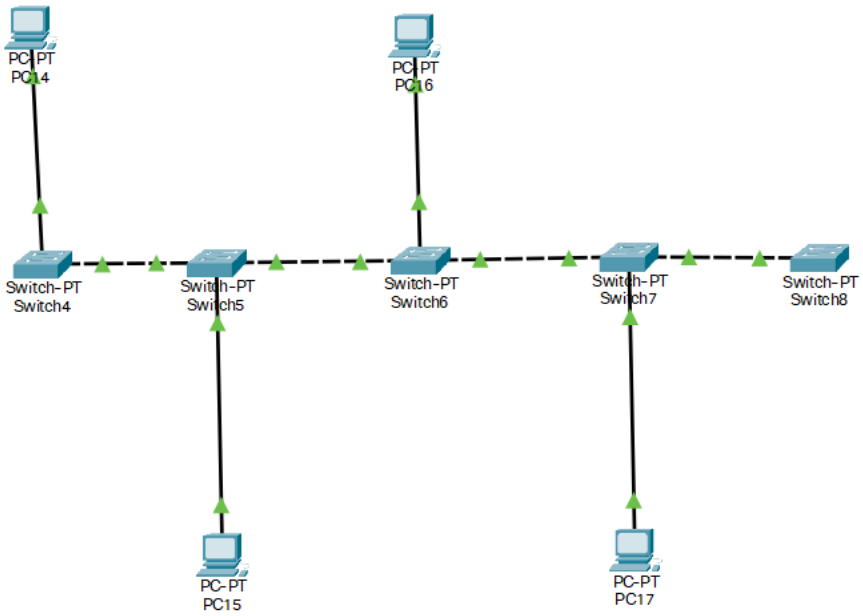
Output:



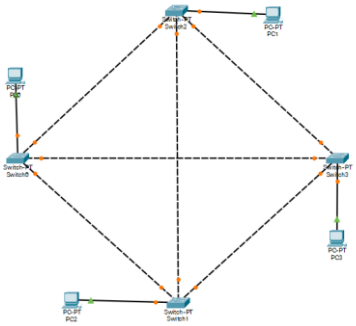
(Ring Topology)



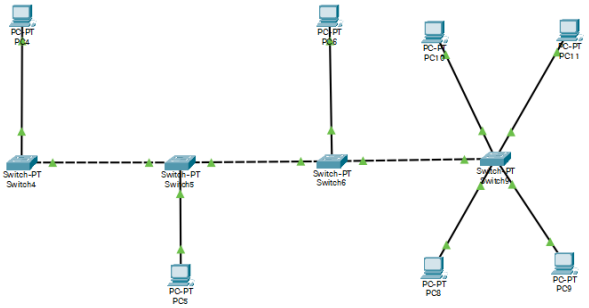
(Star Topology)



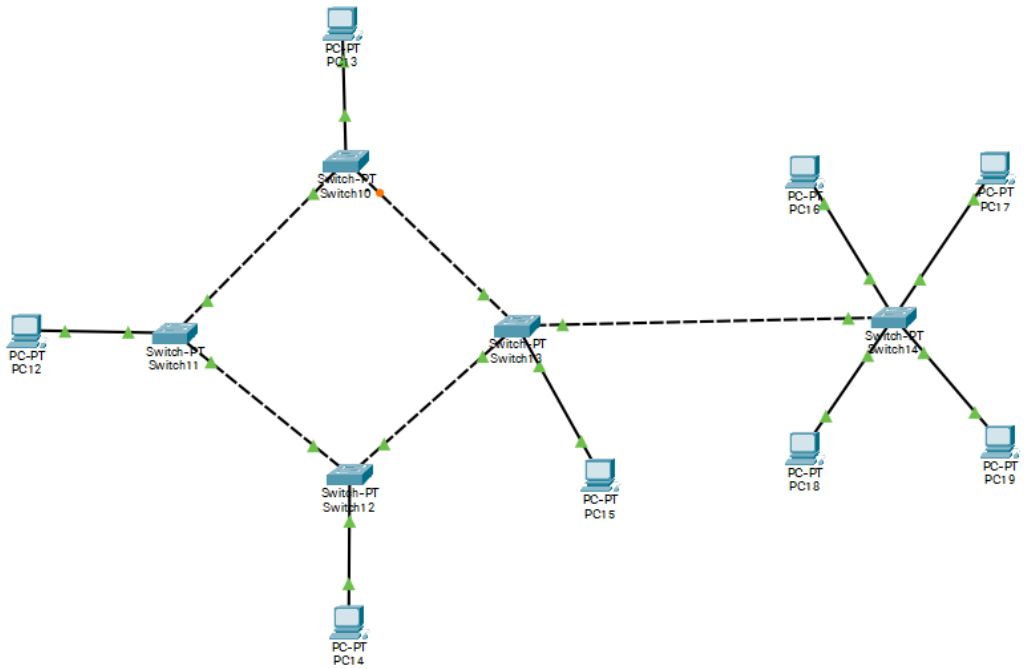
(Bus Topology)



(Mesh Topology)



(Hybrid Topology)



(Hybrid Topology)

Experiment 3

Aim: To configure a switch appropriately with required properties.

TOOL USED: Cisco Packet Tracer

THEORY: The properties of a switch can be configured using CLI, short for Command Line Interface. There are several modes in the CLI and each mode is used to modify certain specific attributes of the switch.

COMMANDS:

1. enable To enter privileged EXEC mode, enter the **enable command**. Privileged EXEC from user EXEC mode, enter the **enable command**.

2. conf t After you enter the conf t (*configure terminal command)*, the system prompt changes from *switch*# to *switch*(*config*)#, indicating that the *switch* is in *configuration* mode.

3. ip domain-lookup command: *ip domain-lookup command* is used to enable the *Domain* Name Server (*DNS*) *lookup* feature.

4. interface: Used for switch interface configuration.

5. shutdown: Used to shut down the switch.

6. secret class: Used to enable a *secret* password for a specific privilege level.

7. line con 0: This *console* port is mainly used for local system access using a *console* terminal.

8. password: Configure Basic *Password* Settings Log in to the *switch* console.

9. show running-config: Used to display the current running configuration.

10. host: Used to configure the **hostname** for the **switch**

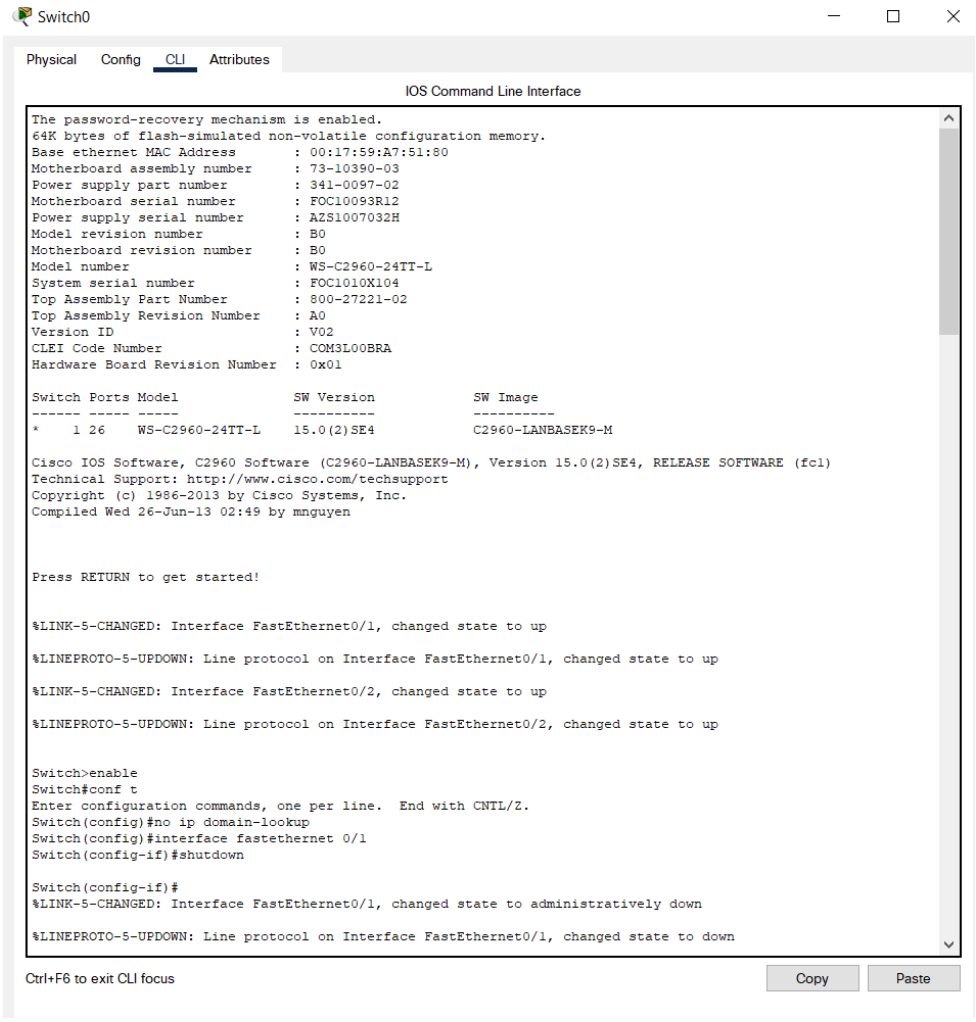
11. ip address: Used to set the switch ip address and subnet mask.

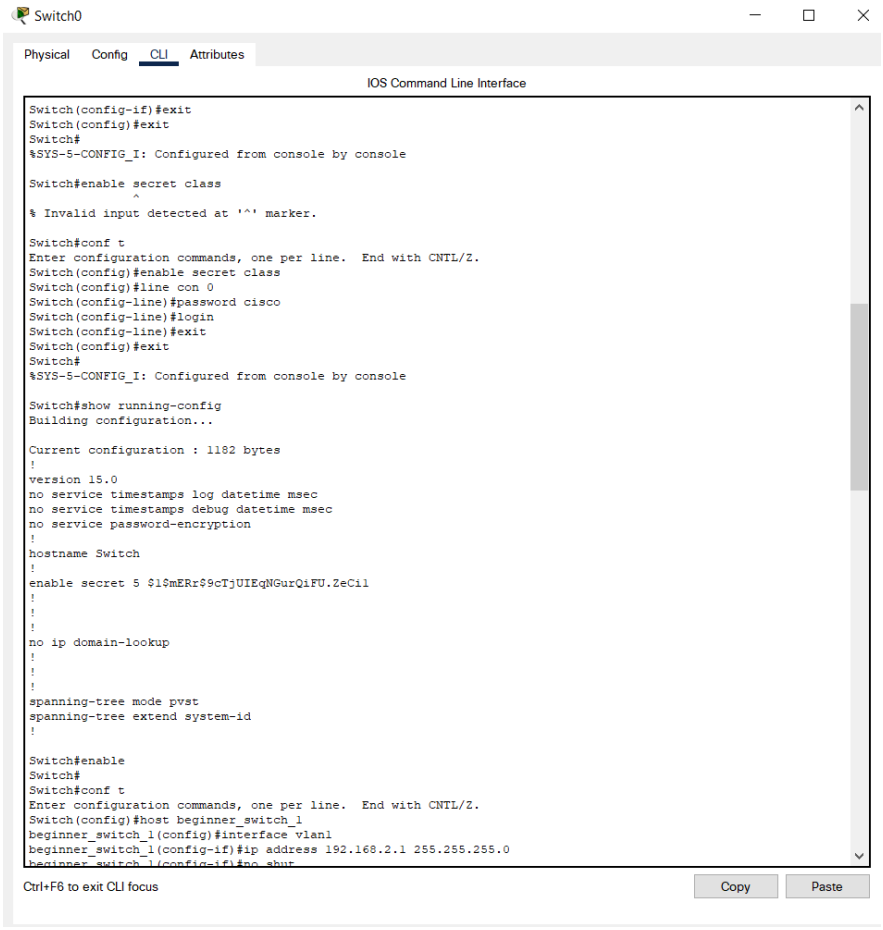
12. copy run-start: This **command** lets you save your **running** configuration to the router's startup configuration (NVRAM) so it will survive a reload.

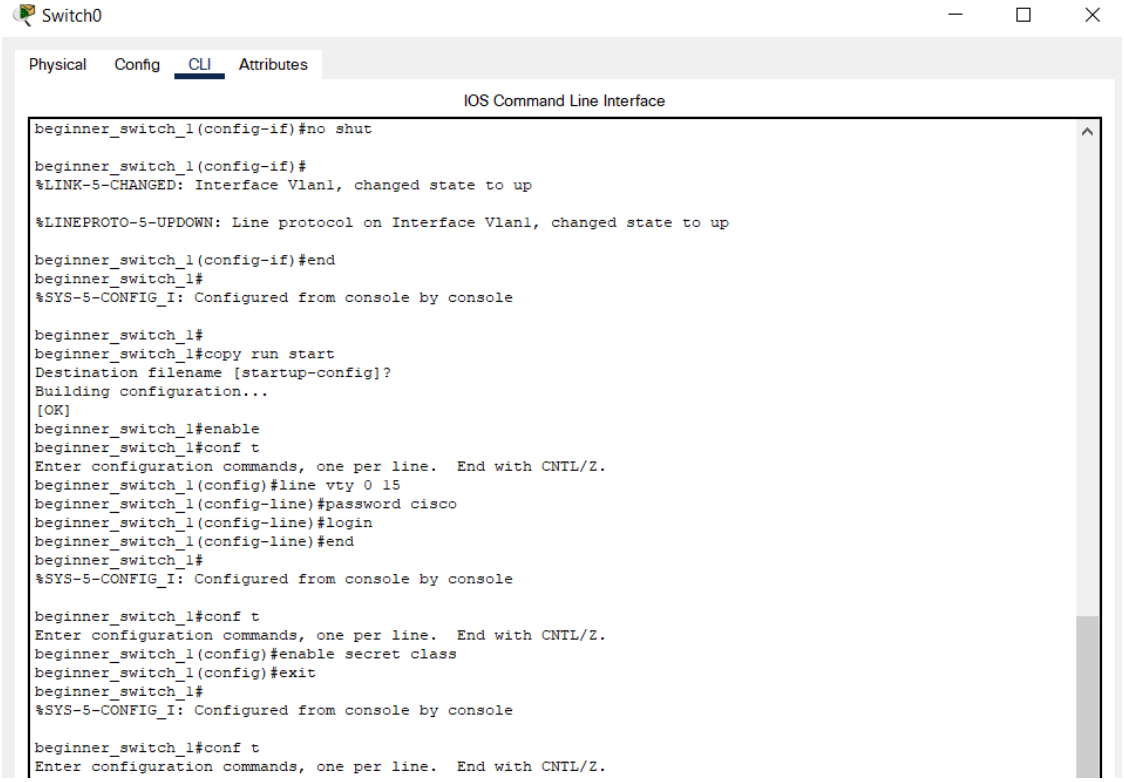
13. line vty 0 15: It is a range **command**, we are giving range of **vty**(virtual terminal **line**) from **0** to **15**

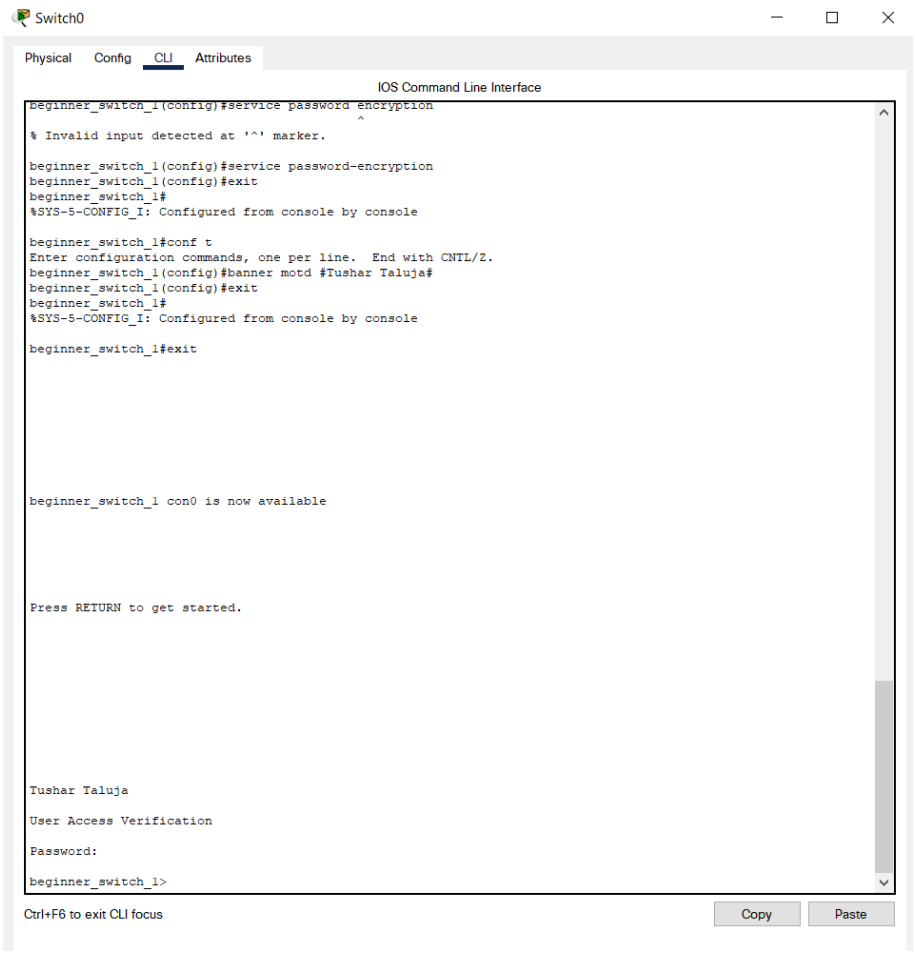
14. banner motd#: To configure a **banner** and message of the day (MOTD).

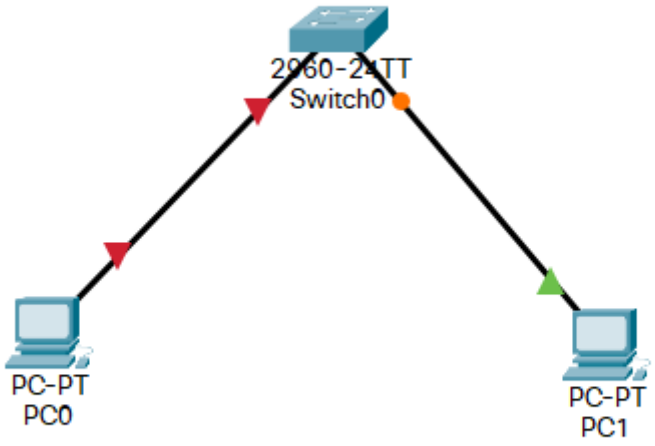
OUTPUT:


Switch0
Physical
Config
CLI
Attributes
IOS Command Line Interface
The password-recovery mechanism is enabled.
64K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address : 00:17:59:A7:51:80
Motherboard assembly number : 73-10390-03
Power supply part number : 341-0097-02
Motherboard serial number : FOC10093R12
Power supply serial number : AZS1007032H
Model revision number : B0
Motherboard revision number : B0
Model number : WS-C2960-24TT-L
System serial number : FOC1010X104
Top Assembly Part Number : 800-27221-02
Top Assembly Revision Number : A0
Version ID : V02
CLEI Code Number : COM3L00BRA
Hardware Board Revision Number : 0x01
Switch Ports Model SW Version SW Image
* 1 26 WS-C2960-24TT-L 15.0(2)SE4 C2960-LANBASEK9-M
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2013 by Cisco Systems, Inc.
Compiled Wed 26-Jun-13 02:49 by mnguyen
Press RETURN to get started!
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#no ip domain-lookup
Switch(config)#interface fastethernet 0/1
Switch(config-if)#shutdown
Switch(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
Ctrl+F6 to exit CLI focus
Copy
Paste


Switch0
Physical
Config
CLI
Attributes
IOS Command Line Interface
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
Switch#enable secret class
^
% Invalid input detected at '^' marker.
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#enable secret class
Switch(config)#line con 0
Switch(config-line)#password cisco
Switch(config-line)#login
Switch(config-line)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
Switch#show running-config
Building configuration...
Current configuration : 1182 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
enable secret 5 1mERr$9cTjUIEqNGurQiFU.ZeCi1
!
!
!
no ip domain-lookup
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
Switch#enable
Switch#
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#host beginner_switch_1
beginner_switch_1(config)#interface vlan1
beginner_switch_1(config-if)#ip address 192.168.2.1 255.255.255.0
beginner_switch_1(config-if)#no shut
Ctrl+F6 to exit CLI focus
Copy
Paste


Switch0
Physical
Config
CLI
Attributes
IOS Command Line Interface
beginner_switch_1(config-if)#no shut
beginner_switch_1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up
beginner_switch_1(config-if)#end
beginner_switch_1#
%SYS-5-CONFIG_I: Configured from console by console
beginner_switch_1#
beginner_switch_1#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
beginner_switch_1#enable
beginner_switch_1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
beginner_switch_1(config)#line vty 0 15
beginner_switch_1(config-line)#password cisco
beginner_switch_1(config-line)#login
beginner_switch_1(config-line)#end
beginner_switch_1#
%SYS-5-CONFIG_I: Configured from console by console
beginner_switch_1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
beginner_switch_1(config)#enable secret class
beginner_switch_1(config)#exit
beginner_switch_1#
%SYS-5-CONFIG_I: Configured from console by console
beginner_switch_1#conf t
Enter configuration commands, one per line. End with CNTL/Z.





RESULT: The switch was successfully configured.

Experiment 4

Aim: Router configuration.

TOOL USED: Cisco Packet Tracer 7.3.1

THEORY: A router is a networking device that forwards data packets between computer networks. Routers perform the traffic directing functions on the Internet. Data sent through the internet, such as a web page or email, is in the form of data packets. A packet is typically forwarded from one router to another router through the networks that constitute an internetwork (e.g. the Internet) until it reaches its destination node.

A router is connected to two or more data lines from different IP networks. When a data packet comes in on one of the lines, the router reads the network address information in the packet header to determine the ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its journey.

The most familiar type of IP routers are home and small office routers that simply forward IP packets between the home computers and the Internet. More sophisticated routers, such as enterprise routers, connect large business or ISP networks up to the powerful core routers that forward data at high speed along the optical fiber lines of the Internet backbone.

Commands:

Router> **enable**

Router# **conf t**

Router(config)# **host Router1**

Router1(config)# **interface g0/0/0**

Router1(config-if)# **ip address 192.168.1.100 255.255.255.0**

Router1(config-if)# **no shut**

Router1(config-if)# **interface g0/0/1**

Router1(config-if)# **ip address 192.168.2.100 255.255.255.0**

Router1(config-if)# **no shut**

Router1(config-if)# **interface loopback 0**

Router1(config-if)# **ip address 100.0.0.1 255.255.255.0**

Router1(config-if)# **interface loopback 1**

Router1(config-if)# **ip address 200.0.0.1 255.255.255.0**

Router1(config-if)# **end**

Router1# **show ip interface brief**

Router1# **copy run start**

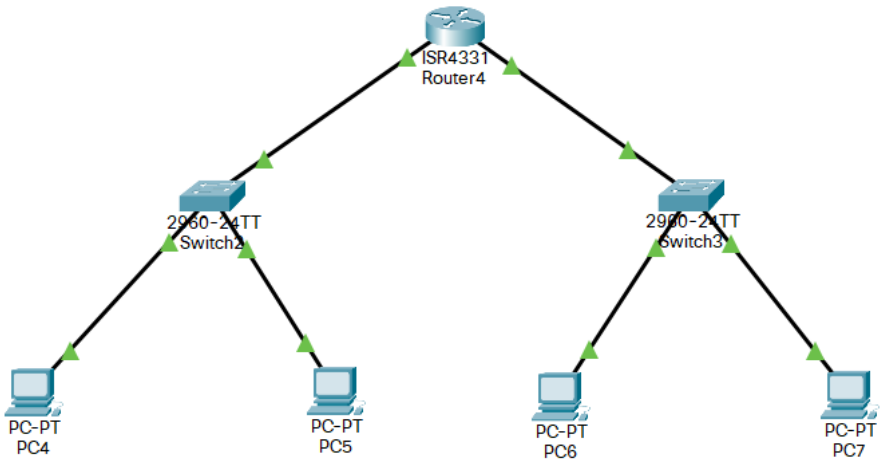
IOS Command Line Interface

```
Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#host Router4
Router4(config)#interface g0/0/0
Router4(config-if)#ip address 192.168.1.100 255.255.255.0
Router4(config-if)#no shut

Router4(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

Router4(config-if)#interface loopback 0

Router4(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

Router4(config-if)#ip address 100.0.0.1 255.255.255.0
Router4(config-if)#interface loopback 1

Router4(config-if)#
%LINK-5-CHANGED: Interface Loopback1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to up

Router4(config-if)#ip address 200.0.0.1 255.255.255.0
Router4(config-if)#end
Router4#
%SYS-5-CONFIG_I: Configured from console by console

Router4#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.1.100   YES manual up                    down
GigabitEthernet0/0/1   unassigned      YES unset  administratively down down
GigabitEthernet0/0/2   unassigned      YES unset  administratively down down
Loopback0              100.0.0.1       YES manual up                    up
Loopback1              200.0.0.1       YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
Router4#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
Router4#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up
```

Ctrl+F6 to exit CLI focus

Copy Paste

```
Router4>enable
Router4#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router4(config)#interface g0/0/1
Router4(config-if)#ip address 192.168.1.100 255.255.255.0
% 192.168.1.0 overlaps with GigabitEthernet0/0/0
Router4(config-if)#address 192.168.1.200 255.255.255.0
                   ^
% Invalid input detected at '^' marker.

Router4(config-if)#ip address 192.168.1.200 255.255.255.0
% 192.168.1.0 overlaps with GigabitEthernet0/0/0
Router4(config-if)#ip address 192.168.2.100 255.255.255.0
Router4(config-if)#no shut

Router4(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up
```



RESULT: The Router was successfully configured.

Experiment 5

AIM: VLAN configuration.

TOOL USED: Cisco Packet Tracer 7.3.1

THEORY: A Virtual LAN (or VLAN) is a domain that is partitioned and isolated in a computer network at the data link layer. Although physically, the terminals are connected to the same switch, logically they are separated and no communication is possible between them unless provisions are made.

Commands:

1. enable: To enter privileged EXEC mode, enter the **enable command**. Privileged EXEC from user EXEC mode, enter the **enable command**.

2. conf t: After you enter the conf t (*configure terminal command)*, the system prompt changes from *switch*# to *switch*(*config*)#, indicating that the *switch* is in *configuration* mode.

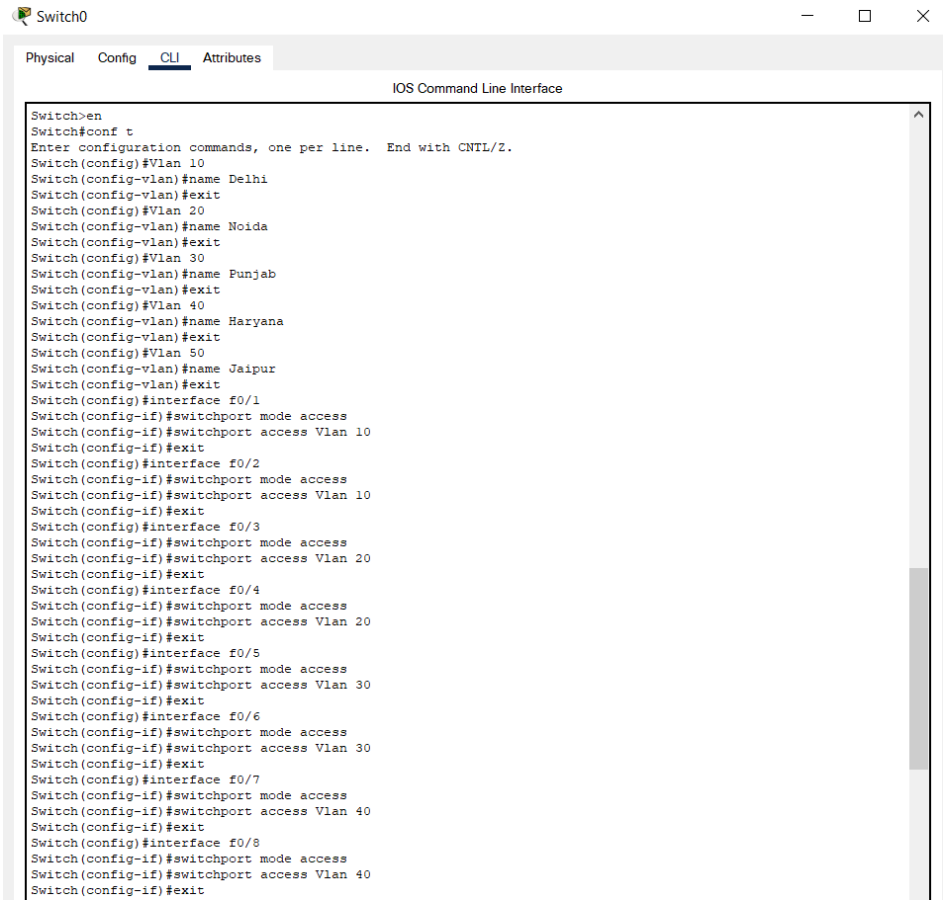
3. vlan: To enable switch VLAN configuration.

4. name: To name VLAN on a switch.

5. interface: Used for switch interface configuration.

6. switchport mode: Used to set the interface type in interface configuration mode.

7. switchport access vlan: Used to set the VLAN when the interface is in access mode.


Switch0
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)#Vlan 10
Switch(config-vlan)#name Delhi
Switch(config-vlan)#exit
Switch(config)#Vlan 20
Switch(config-vlan)#name Noida
Switch(config-vlan)#exit
Switch(config)#Vlan 30
Switch(config-vlan)#name Punjab
Switch(config-vlan)#exit
Switch(config)#Vlan 40
Switch(config-vlan)#name Haryana
Switch(config-vlan)#exit
Switch(config)#Vlan 50
Switch(config-vlan)#name Jaipur
Switch(config-vlan)#exit
Switch(config)#interface f0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 10
Switch(config-if)#exit
Switch(config)#interface f0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 10
Switch(config-if)#exit
Switch(config)#interface f0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 20
Switch(config-if)#exit
Switch(config)#interface f0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 20
Switch(config-if)#exit
Switch(config)#interface f0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 30
Switch(config-if)#exit
Switch(config)#interface f0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 30
Switch(config-if)#exit
Switch(config)#interface f0/7
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 40
Switch(config-if)#exit
Switch(config)#interface f0/8
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 40
Switch(config-if)#exit

Switch0

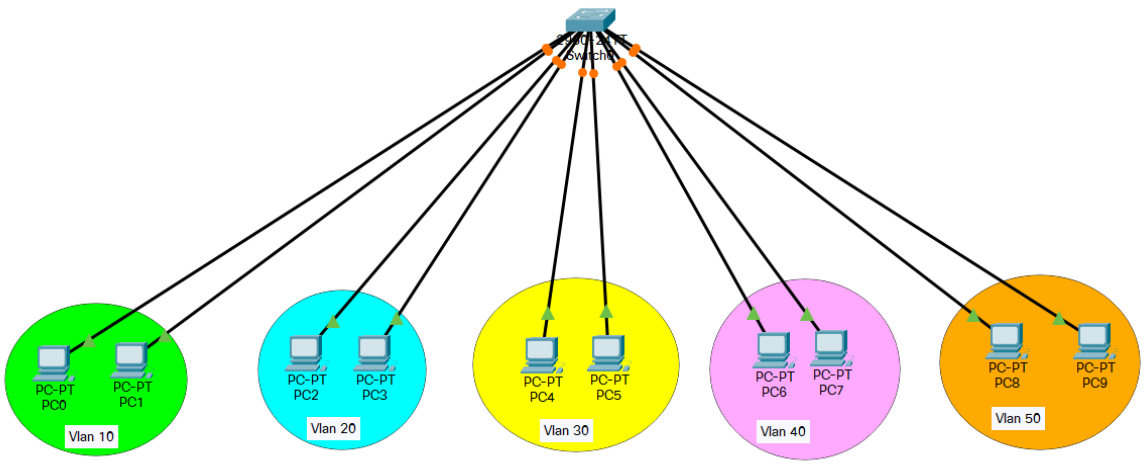
Physical | Config | CLI | Attributes

IOS Command Line Interface

```
Switch(config)#interface f0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 30
Switch(config-if)#exit
Switch(config)#interface f0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 30
Switch(config-if)#exit
Switch(config)#interface f0/7
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 40
Switch(config-if)#exit
Switch(config)#interface f0/8
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 40
Switch(config-if)#exit
Switch(config)#interface f0/9
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 50
Switch(config-if)#exit
Switch(config)#interface f0/10
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access Vlan 50
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/11, Fa0/12, Fa0/13, Fa0/14
                                                 Fa0/15, Fa0/16, Fa0/17, Fa0/18
                                                 Fa0/19, Fa0/20, Fa0/21, Fa0/22
                                                 Fa0/23, Fa0/24, Gig0/1, Gig0/2
10   Delhi                             active    Fa0/1, Fa0/2
20   Noida                             active    Fa0/3, Fa0/4
30   Punjab                            active    Fa0/5, Fa0/6
40   Haryana                           active    Fa0/7, Fa0/8
50   Jaipur                            active    Fa0/9, Fa0/10
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
10   enet  100010     1500  -      -      -        -    -        0      0
20   enet  100020     1500  -      -      -        -    -        0      0
 --More--
```

Ctrl+F6 to exit CLI focus | Copy | Paste

OUTPUT:



RESULT: The network satisfying requirements was made.

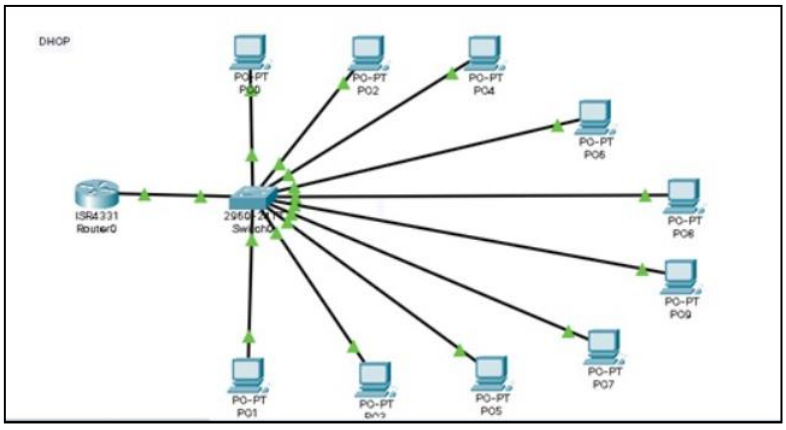
Experiment 6

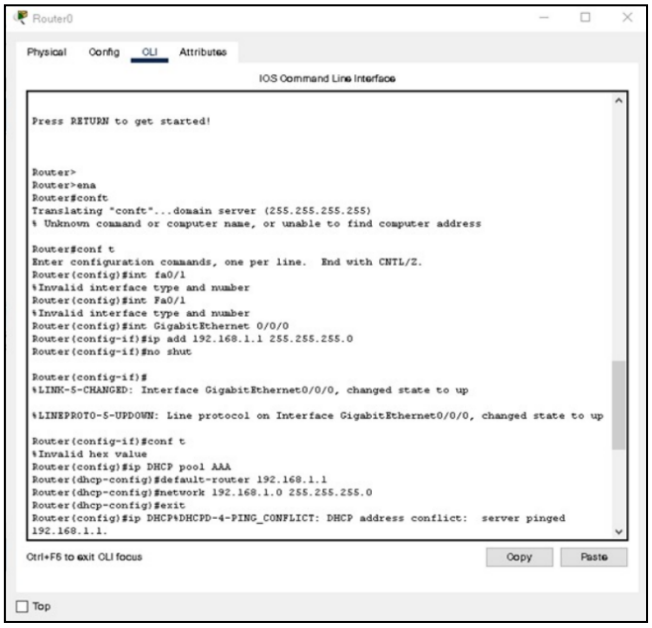
AIM: DHCP Configuration

SOFTWARE USED: Cisco Packet Tracer

THEORY: Dynamic Host Configuration Protocol (DHCP) is a network management protocol used to automate the process of configuring devices on IP networks, thus allowing them to use network services such as DNS, NTP, and any communication protocol based on UDP or TCP. A DHCP server dynamically assigns an IP address and other network configuration parameters to each device on a network so they can communicate with other IP networks.

OUTPUT:





RESULT: DHCP was configured**.**

Experiment 7

Aim: Wireless router configuration.

Tool used: Cisco Packet Tracer.

Theory: Wireless network configuration encompasses several potential variances across environments. Even in a complex single site, the network configuration basics required for a successful implementation can vary from one wireless network to another running on the same hardware as part of the overall wireless LAN environment.

Commands:

Router> **enable**

Router# **conf t**

Router(config)# **host Router1**

Router1(config)# **interface g0/0/0**

Router1(config-if)# **ip address 192.168.1.100 255.255.255.0**

Router1(config-if)# **no shut**

Router1(config-if)# **interface g0/0/1**

Router1(config-if)# **ip address 192.168.2.100 255.255.255.0**

Router1(config-if)# **no shut**

Router1(config-if)# **interface loopback 0**

Router1(config-if)# **ip address 100.0.0.1 255.255.255.0**

Router1(config-if)# **interface loopback 1**

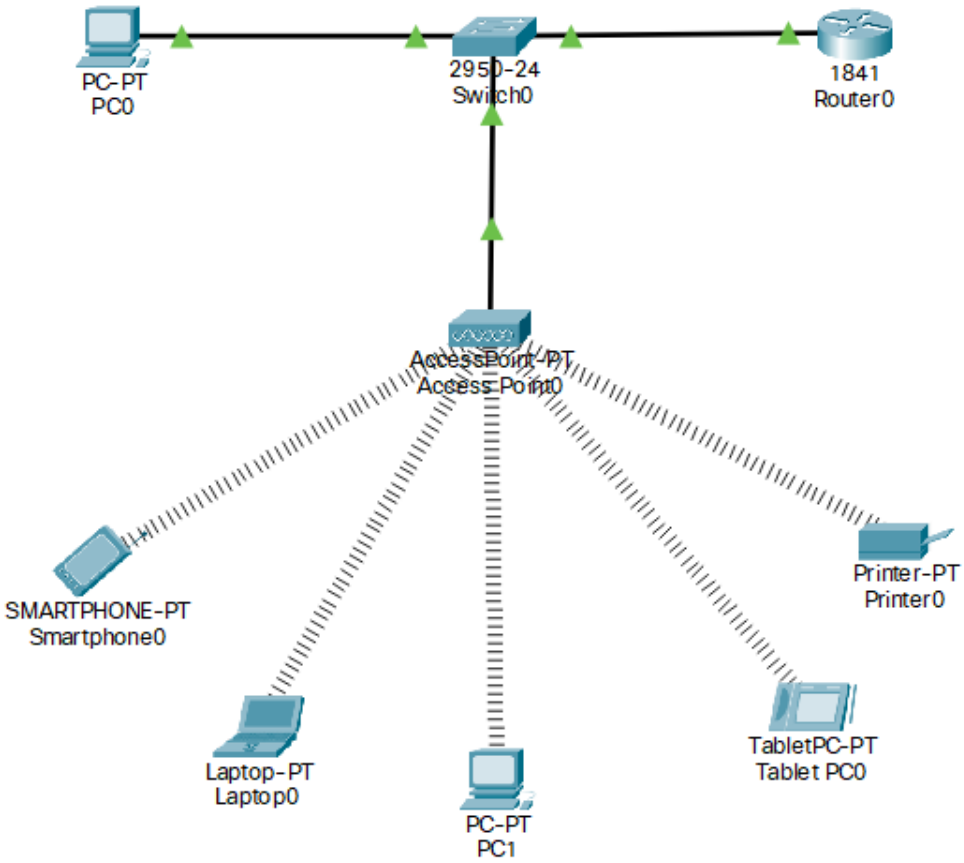
Router1(config-if)# **ip address 200.0.0.1 255.255.255.0**

Router1(config-if)# **end**

Router1# **show ip interface brief**

Router1# **copy run start**

OUTPUT:


PC-PT
PC0
2950-24
Switch0
1841
Router0
AccessPoint-PT
Access Point0
SMARTPHONE-PT
Smartphone0
Printer-PT
Printer0
Laptop-PT
Laptop0
PC-PT
PC1
TabletPC-PT
Tablet PC0

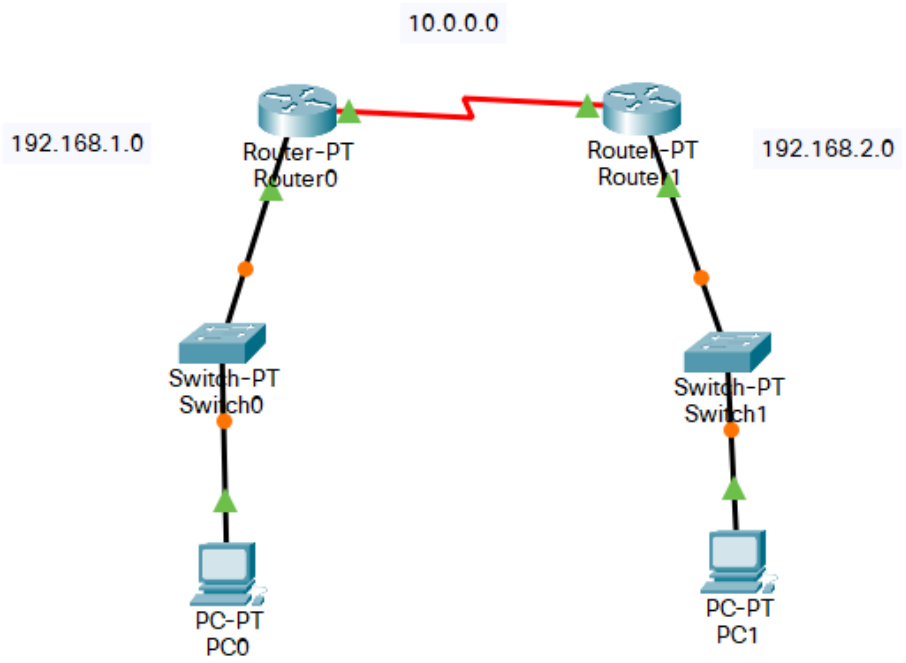
Experiment 8

Aim: RIP configuration.

Tool used: Cisco Packet Tracer.

Theory: RIP stands for Routing Information Protocol. RIP is an intra-domain routing protocol used within an autonomous system. Here, intra-domain means routing the packets in a defined domain, for example, web browsing within an institutional area.

OUTPUT:



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
	Successful	PC0	Router0	ICMP		0.000	N	0
	Successful	PC1	Router1	ICMP		0.000	N	1
	Successful	PC0	PC1	ICMP		0.000	N	2

RESULT: RIP was successfully configured.

Experiment 9

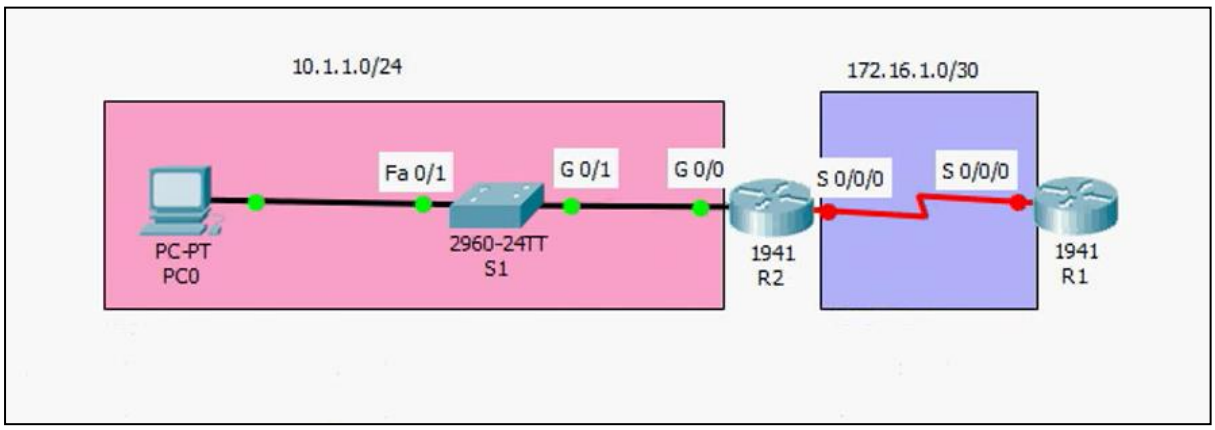
Aim: IPv4 configuration.

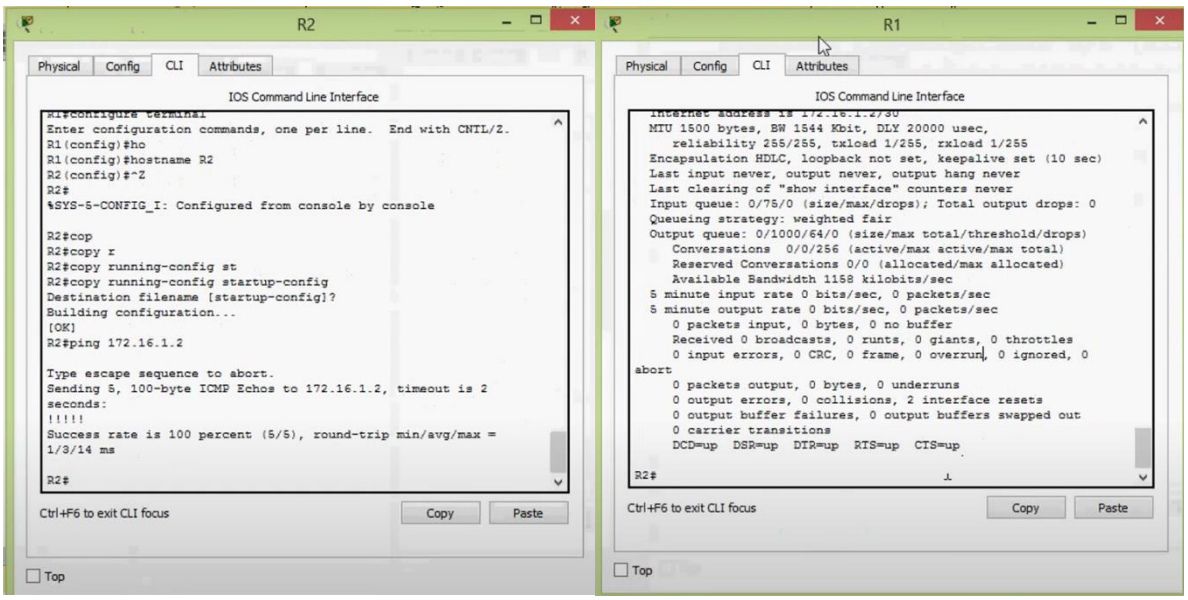
Tool used: Cisco Packet Tracer.

Theory: IPv4 uses a 32-bit address scheme allowing a total of 2 to the power of 32 addresses or just over 4 billion addresses.[2] This is based on the best-effort model. The model makes sure that there is the avoidance of duplicate delivery. All these aspects are handled by the upper layer of transport.

IPv4 functions on the network layer of the TCP or IP protocol stack. Its main task is mainly to transfer the data blocks from the sending host to the destination host, where the senders and the receivers are computers that are uniquely identified by the Internet Protocol addresses

OUTPUT:





Result: IPv4 was configured.

Experiment 10

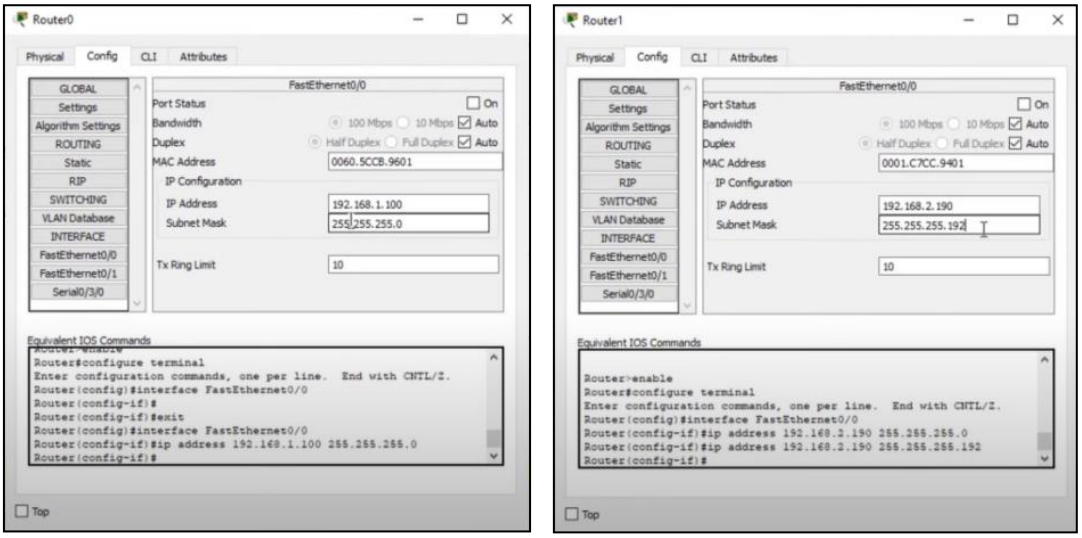
Aim: IPv4 subnetting.

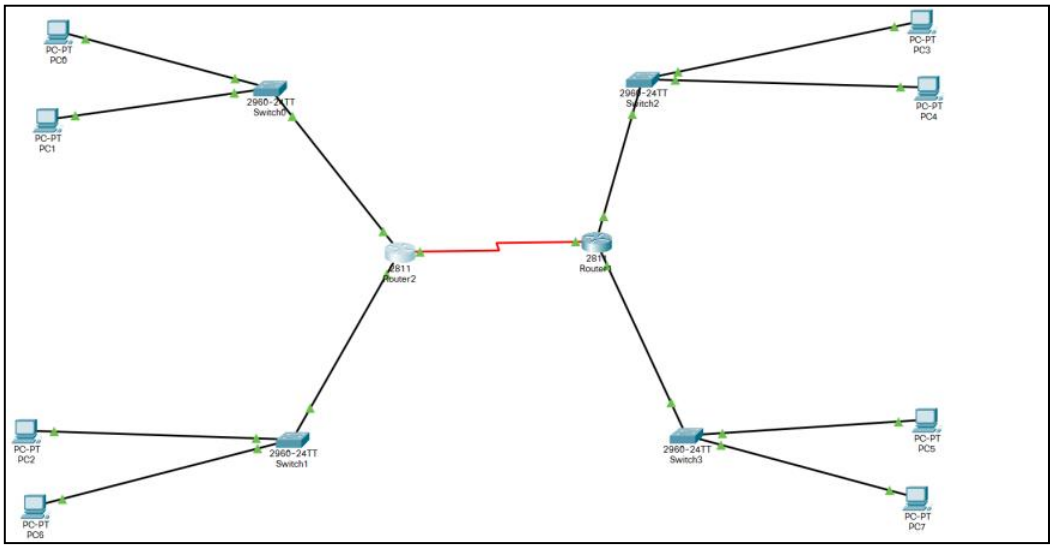
Tool used: Cisco Packet Tracer.

Theory: Subnetting is the process of taking a network and splitting it into smaller networks, known as subnets.

It's used to free up more public IPv4 addresses and segment networks for security and easier management. A subnet defines the number of bits, out of 32, used for the "network portion" of the address. Subnet masks can also be defined in a more common 'slash' representation, known as CIDR notation.

OUTPUT:





RESULT: IPv4 Subnetting performed successfully**.**