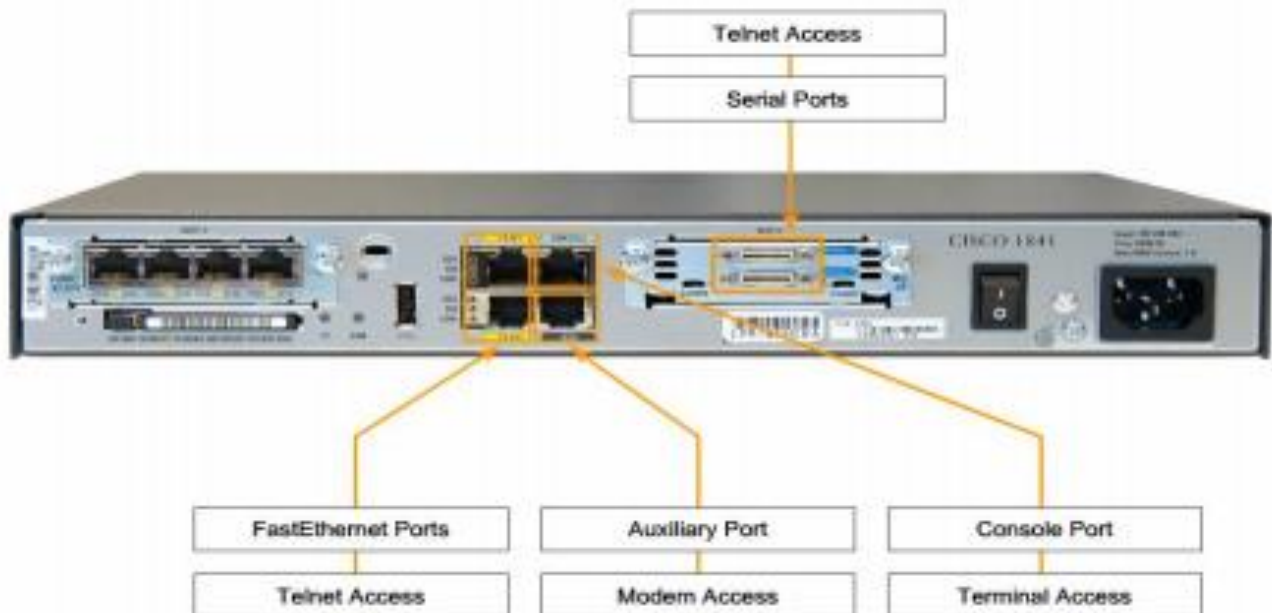Lab 4: Objective:

Part A: Basic Router Configurations
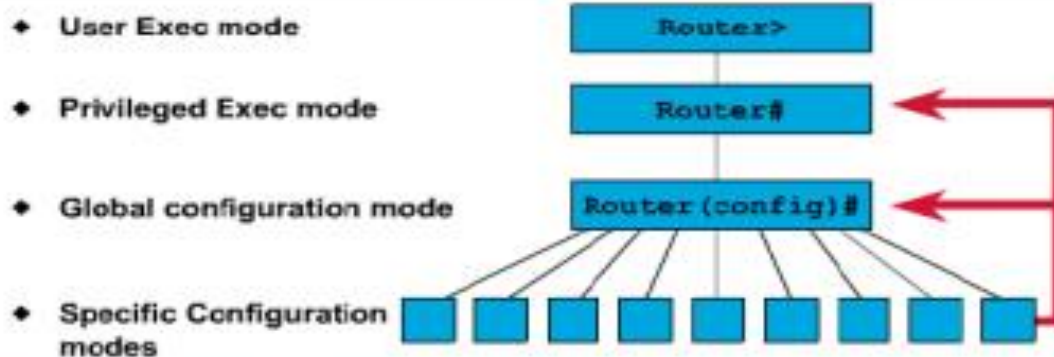
Part B: Assigning the IP Addresses to the Intermediary Devices.

Lab 4
Router Configuration

Part A: Basic Router Configurations

Cisco 1841 Router

Configuration Mode	Prompt
Interface	Router(config-if)#
Subinterface	Router(config-subif)#
Controller	Router(config-controller)#
Map-list	Router(config-map-list)#
Map-class	Router(config-map-class]#
Line	Router(config-line)#
Router	Router(config-router)#
IPX-router	Router(config-ipx-router)#
Route-map	Router(config-route-map]#

User EXEC Mode:

When you are connected to the router, you are started in user EXEC mode. The user EXEC commands are a subset of the privileged EXEC commands.

Privileged EXEC Mode:

Privileged commands include the following:

• Configure – Changes the software configuration.

• Debug – Display process and hardware event messages.

• Setup – Enter configuration information at the prompts.
Enter the command disable to exit from the privileged EXEC mode and return toUSER EXEC mode.

Configuration Mode

Configuration mode has a set of sub modes that you use for modifying interface settings, routing protocol settings, line settings, and so forth. Use caution with configuration mode because all changes you enter take effect immediately.

To enter configuration mode, enter the command configure terminal and exit by pressing Ctrl-Z.

Note:

Almost every configuration command also has a no form. In general, use the no form to disable a feature or function. Use the command without the keyword no to re-enable a disabled feature or to enable a feature that is disabled by default.

For example, IP routing is enabled by default. To disable IP routing, enter the no ip routing command and enter ip routing to re-enable it.

Getting Help
In any command mode, you can get a list of available commands by entering a question mark (?).

Router>

To obtain a list of commands that begin with a particular character sequence, type in those characters followed immediately by the question mark (?).

Router#co?

Configure connect copy

To list keywords or arguments, enter a question mark in place of a keyword or argument. Include a space before the question mark.

Router#configure?

Memory (Configure from NV memory)

Network (Configure from a TFTP network host)

Terminal (Configure from the terminal)

You can also abbreviate commands and keywords by entering just enough characters to make the command unique from other commands. For example, you can abbreviate the show command to sh.

Configuration Files

Any time you make changes to the router configuration, you must save the changes to memory because if you do not they will be lost if there is a system reload or power outage. There are two types of configuration files: the running(current operating) configuration and the startup configuration.

Following privileged mode commands to work with configuration files.

• **Router#configure terminal** – modify the running configuration manually from the terminal.

• **Router#show running-config** – display the running configuration.

• **Router#show startup-con**fig – display the startup configuration.

• **Router#copy running-config startup-config** – copy the runningconfiguration to the startup configuration.

• **Router#copy startup-config running-config** – copy the startupconfiguration to the running configuration.

• **Router#erase startup-config** – erase the startup-configuration in NVRAM.

• **Router#copytftp running-config** – load a configuration file stored on a Trivial File Transfer Protocol (TFTP) server into the running configuration.

• **Router#copy running-config tftp** – store the running configuration on aTFTP server.

Part B: Assigning the IP Addresses to the Intermediary Devices.
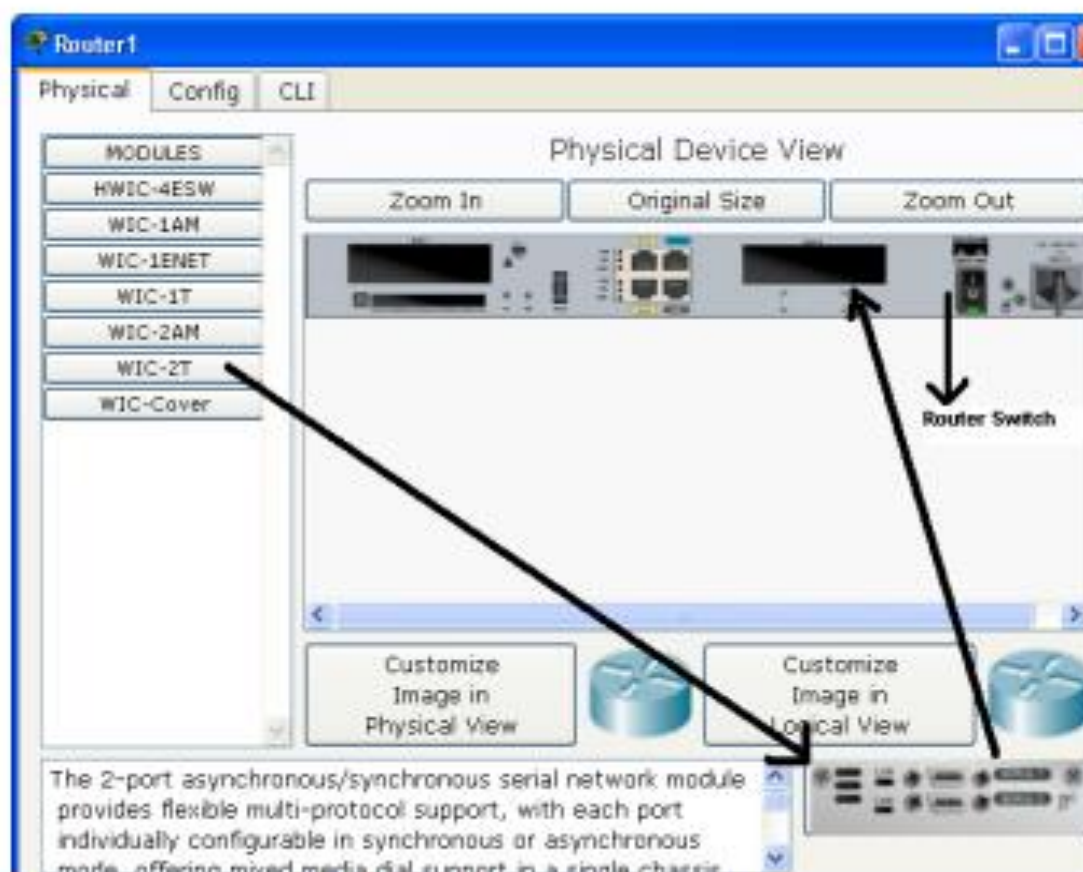
Figure 1: Topology design

Figure 2: Packet Tracer view

Task –1, Drag routers
Drag two routers in the white area of the packet tracer.

Task –2, Place module

NOTE: First power OFF your router then place a WIC-2T , then power ON the router.

Click each router and go the Physical Interface as shown in the (figure 2) Click **WIC-2T** button, which is placed in the left side of the Interface, when you click on **WIC-2T** button, after clicking the button drag the following figure in the above-mentioned panel.

WIC-2T is used when we need to connect two WAN interfaces with each other

Perform the same task with the remaining router.

Task –3, Attach cable

When the WIC-2T is placed properly in the router the next step is to plug the Serial Cable in each router.

Note: Serial Cable must be DCE from one End and DTE from another end otherwise router will not work.

Task –4, Router1 IP

Click on Router 1 Select CLI(command Line interface) Tab & enter the following commands.

 --- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: **N**

Press RETURN to get started! (Press Enter Key)

Router>enable   (Press enter key)
Router#
Router# configure terminal (press Enter)
Enter configuration commands, one per line. End with CNTL/Z.
Router (config)#
Router(config)#interface serial 0/0/0
Router(config-if)#
Router(config-if)#ip address 10.0.0.1 255.255.255.0
Router(config-if)#clock rate 64000   -----------------(First Router is DCE ©Se0/0/0)
Router(config-if)#no shutdown
Router(config-if)#end

Task –5, Router 2 IP

Click on Router 2 Select CLI(command Line interface) Tab & enter the following commands

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: **N**

Press RETURN to get started! (Press Enter Key)

Router>enable   (Press enter key)
Router#
Router# configure terminal (press Enter)
Enter configuration commands, one per line. End with CNTL/Z.
Router (config)#
Router(config)#interface serial 0/0/0
Router(config-if)#
Router(config-if)#ip address 10.0.0.2 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#End

Task –6, PING

Finally ping another router. In the end your ping should be 100%

Router#ping 10.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is **100** percent (5/5), round-trip min/avg/max = 40/42/51 ms

Lab-4 Exercise:

Design a mesh network which consists of 3 routers. Use serial cable between routers. Attach a single PC with each router. Configure IP address on each device. Each student will use the IP address as assigned in lab session.