Demystifying networking
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Lecture - 95
Trouble shooting challenge 2

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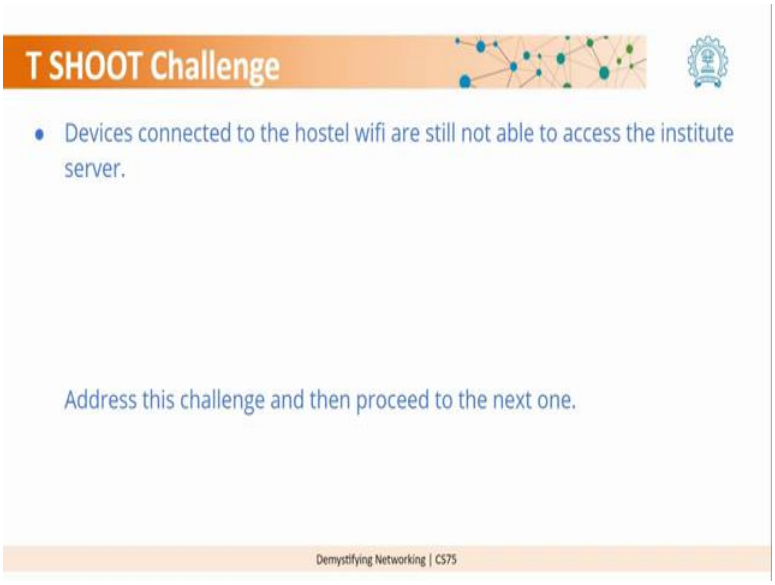

So, the next challenge that we have is that the device is connected to the hostel Wi-Fi are still not able to access the institute server ok. So, we did not check the other devices.

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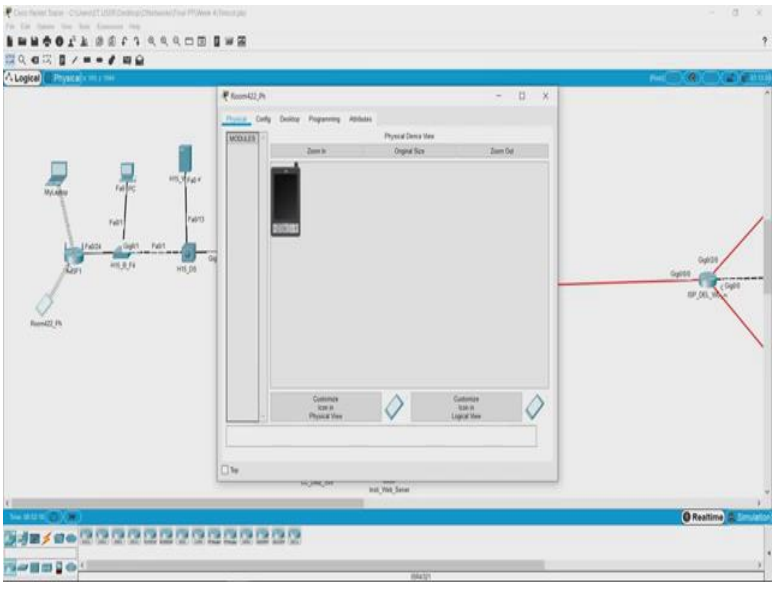

So, let us go back to a packet tracer file and see what is up with the network devices. So, let me take this one. So, the device that we are looking at is a phone which is connected to the Wi-Fi network ok.

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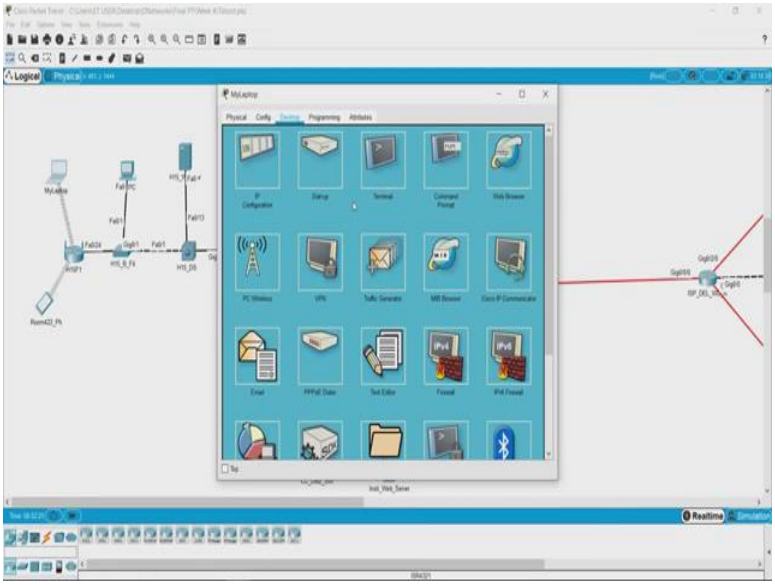

And there is another laptop that is connected to the Wi-Fi network.

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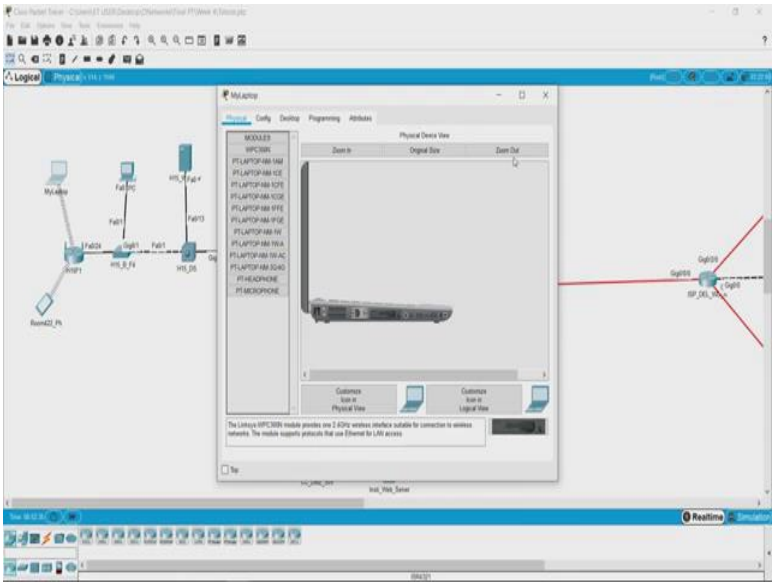

So, this is it ok. So, let us check if it is, So, this is off now let us switch it on. So, physically we have checked that the laptop is on. So, the connection is established with the Wi-Fi router that is fine. So, now let us try to open the web page ok.

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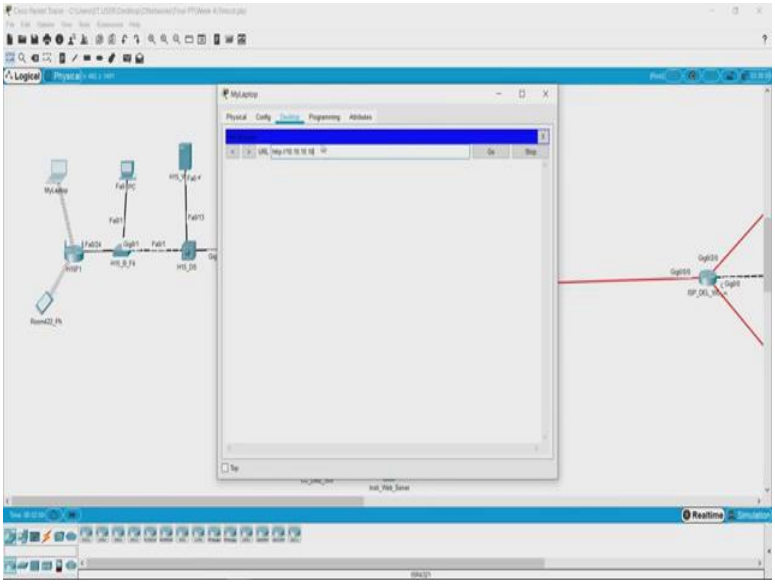

So, let us just try to open a web page first and see what happens. 10.10.10.10 enter ok. It is taking some time; that means, there is some issue. So, let us go back and try to troubleshoot it. So, let us now try to see if we can connect to the web server via the ping commands ok.

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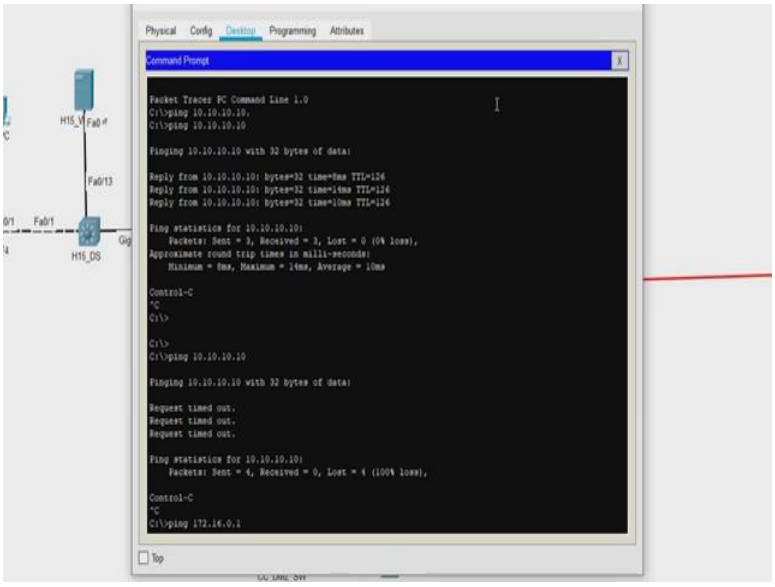

So, let us type here ping 10.10.10.10. Again we do not have any response here. Now we remember from the previous scenario that what we were trying to do is trying to connect

to the gateway and the gateway was 172.16.0.1 So, let us try and see if we can at least get to that. So, that is ping 172.16.0.1 ping.

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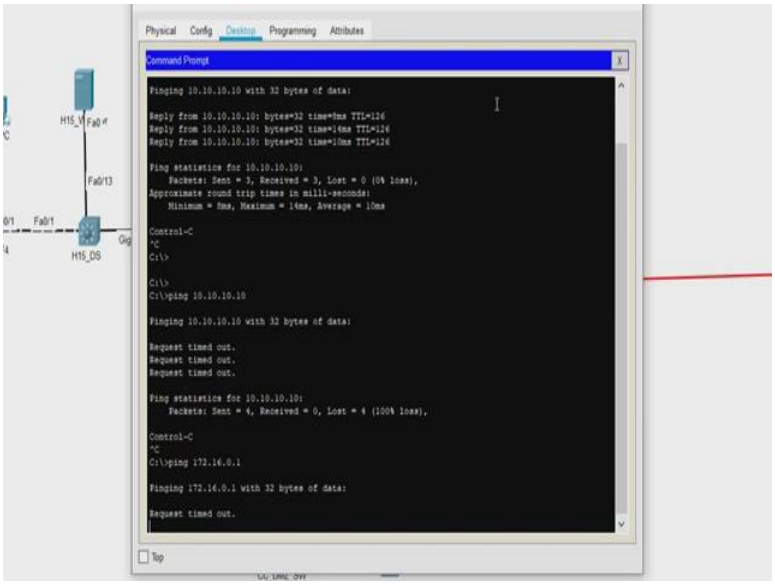

No we are not even able to connect to the gateway; that means, there is a problem on a much lower layer. So, let us go and check where are the problem lies.

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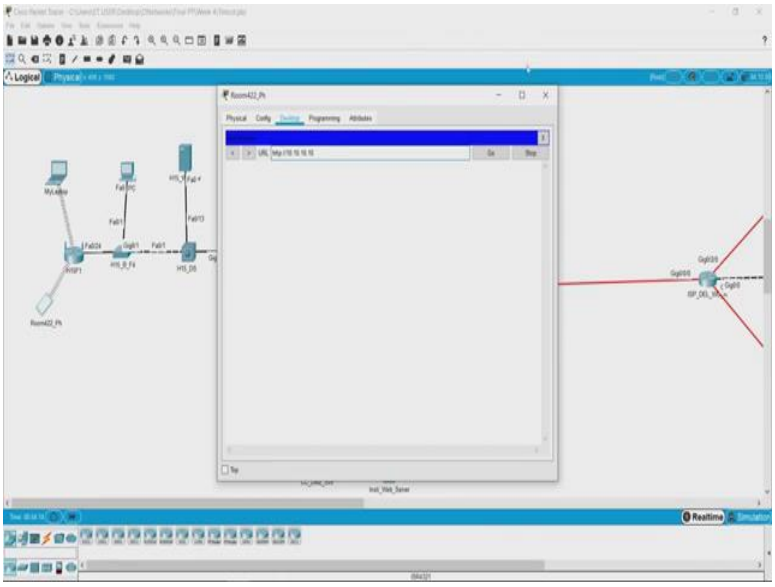

Now, let us do this let us also try to do the same thing from the phone, to see if it is just the issue with the laptop or it is both of them. Now we are still not able to open the webpage from here.

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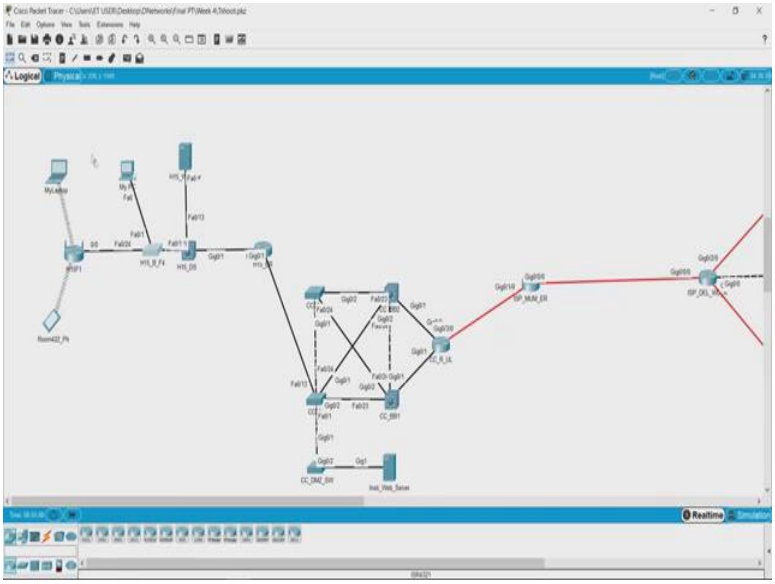

So, just to verify if the server is running fine we will go back to the PC and try to open the webpage.

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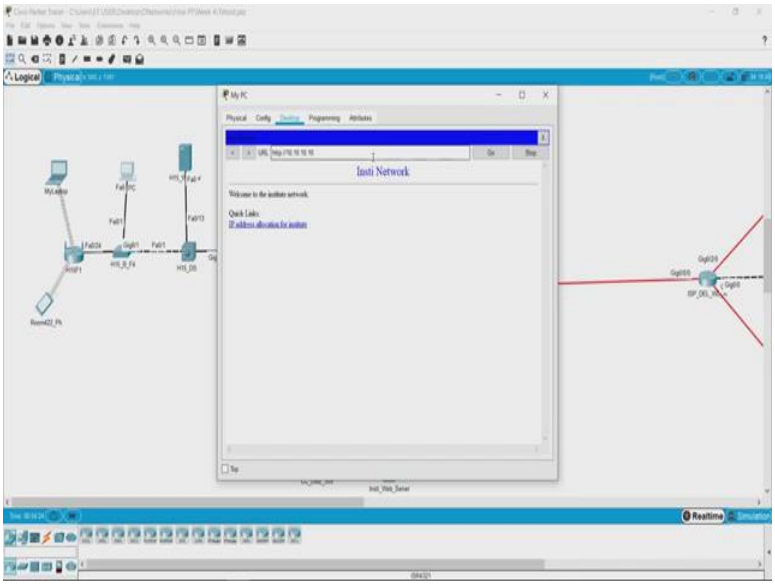

Yes, the webpage is opening from there; that means, this PC is able to connect to the server. Now, the fault must lie somewhere here. So, either the router is not able router either the connection between the router and switch has some issues or the router has some issue. So, let us try to sort it one by one. So, we see that the router is router 0/0

interface is connected to switches Fa 0/24 interface. Now though I can just look like I mean I can just open the switch and check whether the interface is connected on.

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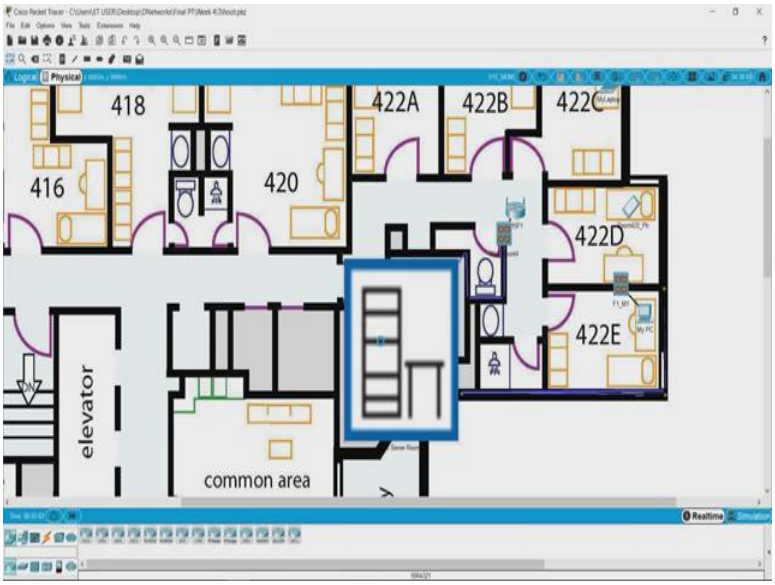

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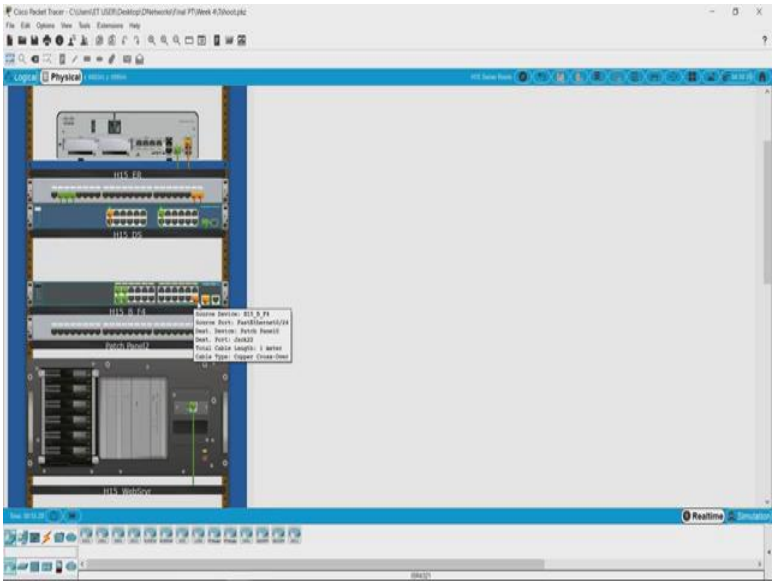

What I will do is I will go to the physical topology and try to see how we can look at the interfaces ok. So, this is one of the switch and this is the other switch. So, this is the switch that we are looking for. So, this is that particular jack, so it looks connected and there is a light over here I do not know if you can see it, but if you look closely there is a

green colored light over here; that means, there the activity is fine. So, this is the port number fastEthernet 0/24 you can see that ok.

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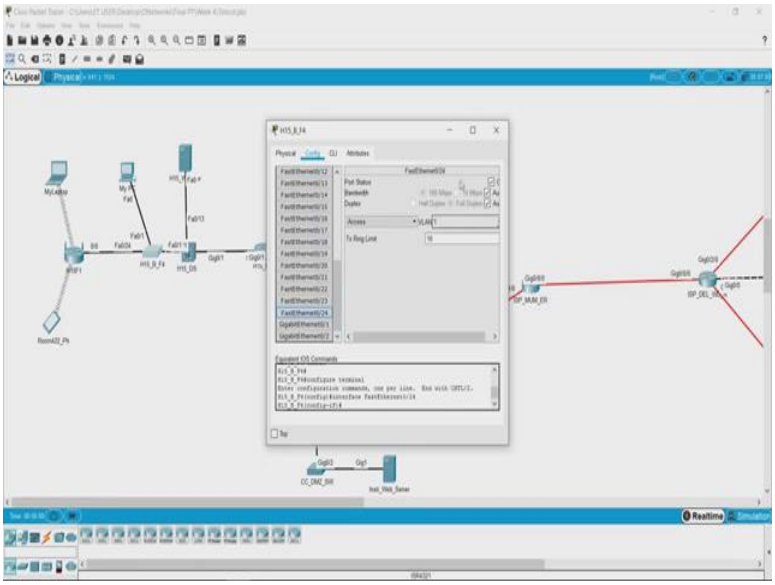

So, the other way of looking at it would be if you can just I mean look at here. So, if you look at number 24 this is on; that means, the port is fine.

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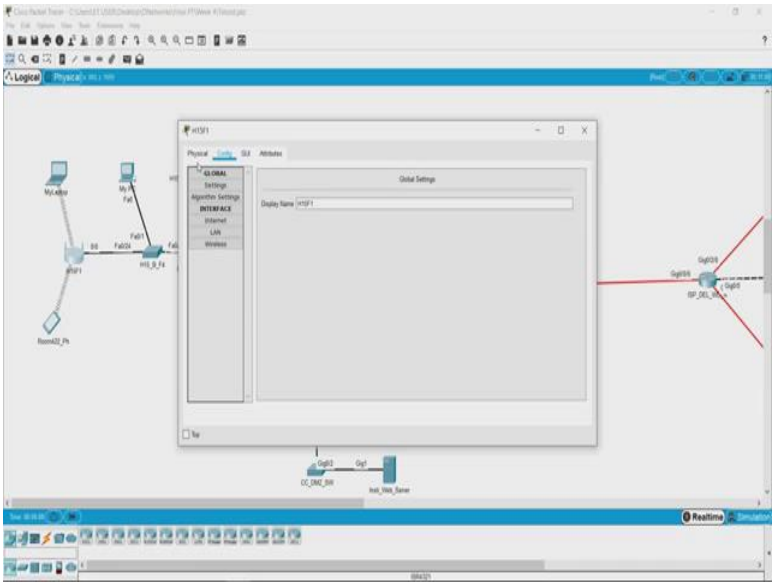

So, we what we can do is check the connectivity on the Wi-Fi router let us go to the physical port.

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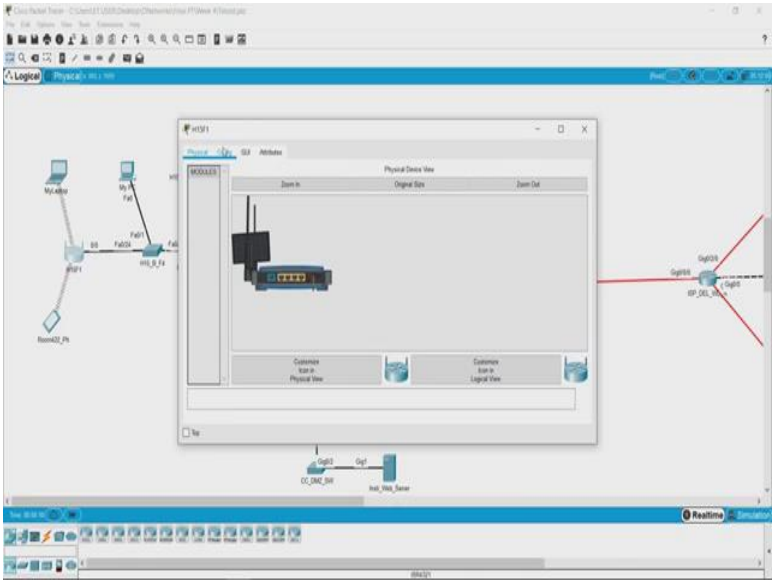

Though you cannot check it here in the way we saw on the physical interface.

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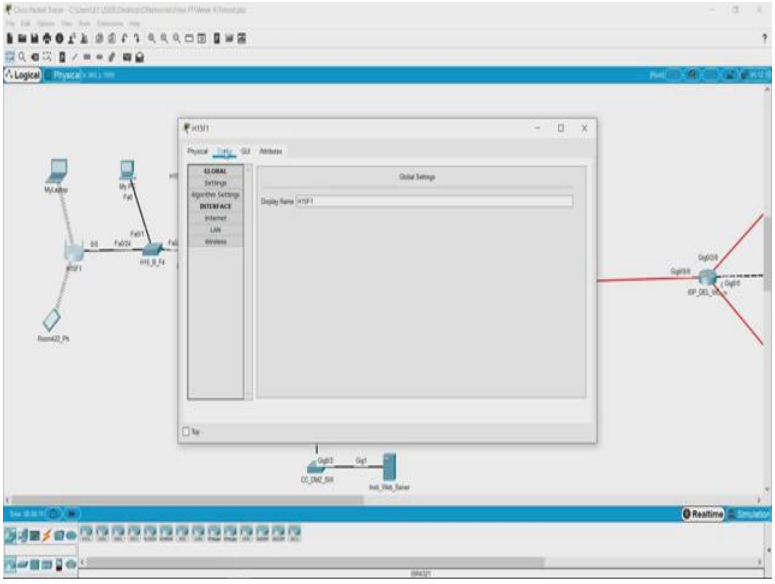

So, what we will have to do is just look at this. So, it is static there is IP address.

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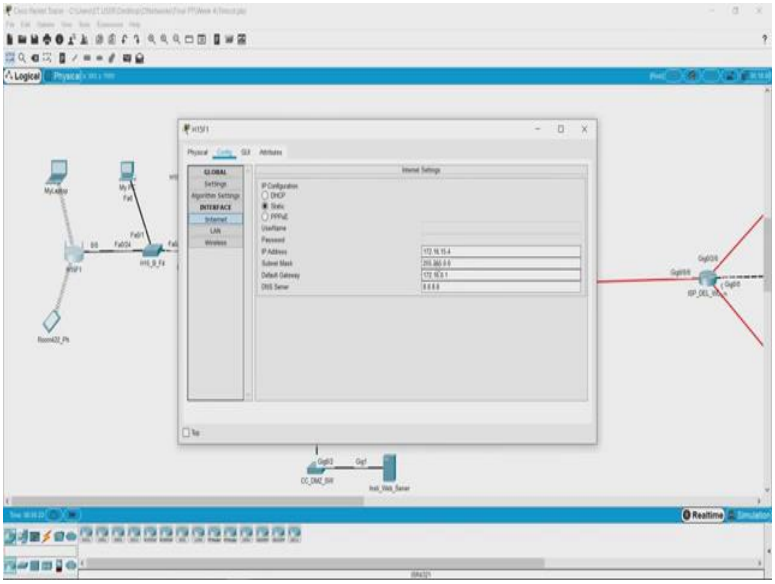

This is there it is connected to the gateway that is it.

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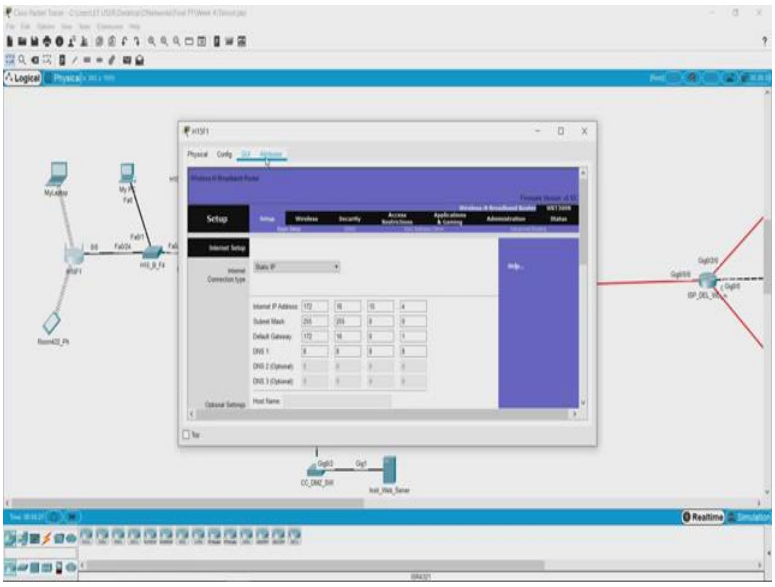

So, but there is no way we can ping from this kind of a device to the other side, but anyways this is a switch. So, it does not have an IP address. So, now, the issue lies somewhere. So, this can this connection is fine. So, now, what will have to see is if there is a issue between this mobile device and the laptop and the Wi-Fi router ok. So, how do we check that now?

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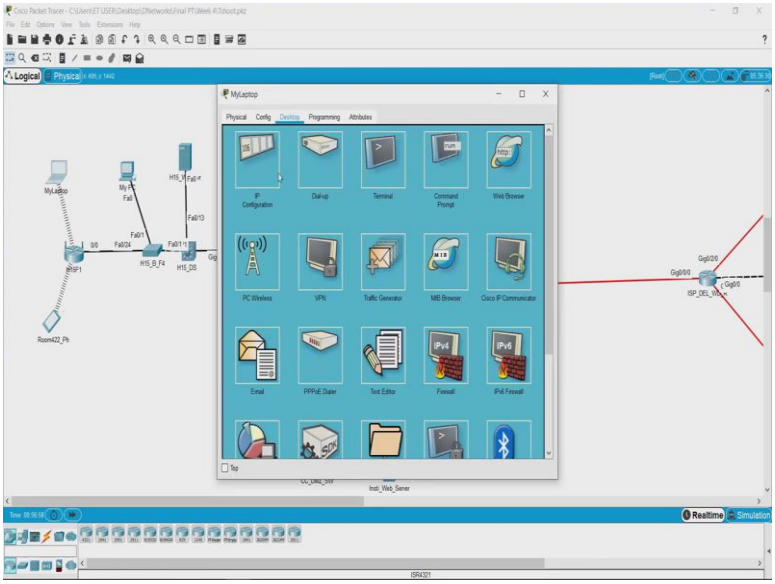

So, let us go to the laptop and see if the laptop is able to communicate to the Wi-Fi router. So, if you open the Wi-Fi router let us look at the address at the Wi-Fi router has that is 192 168 0 1. So, what we will try to do is try to ping the Wi-Fi router from here.

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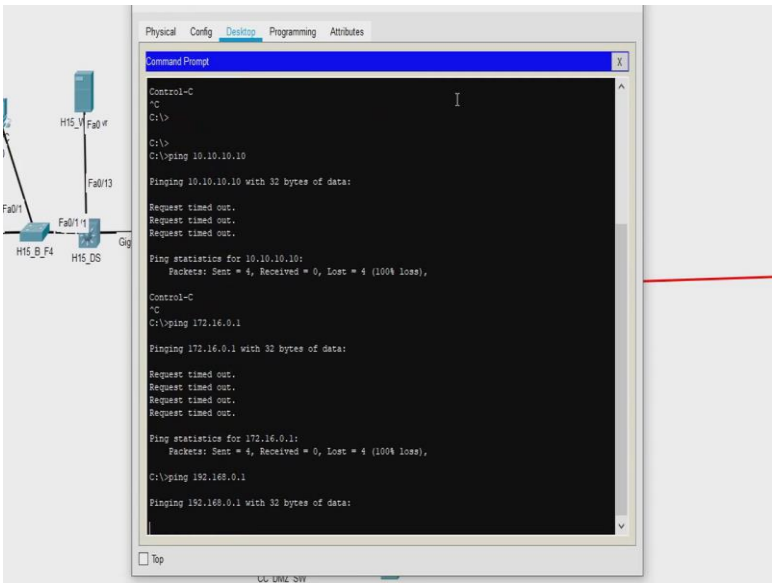

So, we will again use a ping command 192.168.0.1. No we are still not able to connect to the router; that means, the connectivity between the laptop and the router has some issue ok. So, now, let us look at what are the settings here 192.168.0.1 and does the laptop what is the IP address of the laptop? So, you can check it over here.

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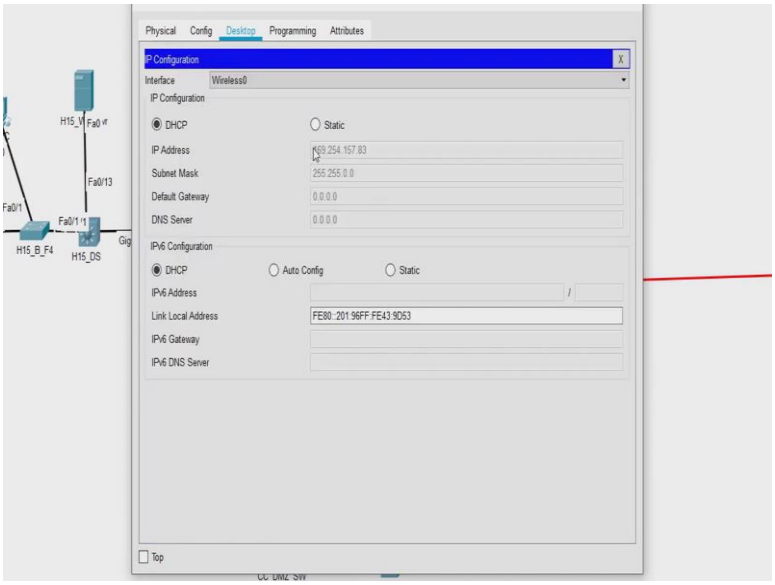

So, now, you can see here there is a IP address 169.254.157.83 the point to note here is if you see this series of IP addresses; that means, your system is not able to obtain a IP address using DHCP and the system itself assigns it IP address of this with the subnet mask of this.

So, if you have two systems which are connected to each other and do not assign you do not assign them any IP address they will still be able to communicate because they automatically take an address of this network and both of them will have eventually happened to be on the same network. So, this if you ever see this address as a IP address on your system; that means, your system is not able to obtain a DHCP address ok.

Let us put it to static and try to get an IP address back, now we are still not able we are still not able to do this. So, APIPA is basically the term used for this address now let us see watch the condition on the phone. So, we will go here and yes even the phone is not able to get an IP address that definitely means that there is some issue with the DHCP.

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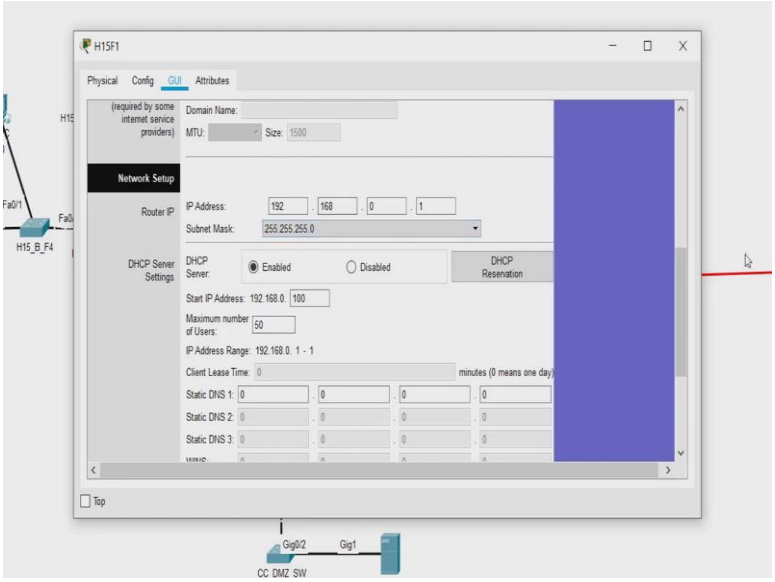

Now, let us go and check the DHCP settings ok. So, we have this and now here what we can see is there is a wrong subnet mask. So, take some time and tell me how many IP addresses will be available if the subnet mask is 252. I mean you can actually see the answer here it says maximum number of user is 1. Because actually 252 will give you just two IP address which will be their network and the broadcast address. So, you have no usable IP addresses in this.

So, this is a very common thing which happens because this has a tendency, when you given you are using the scroll mouse you might have configured the wrong subnet mask by mistake and saved it and hence it is not working. So, let us reconfigure the subnet mask and see. So, now, this is this and we can say let us keep the starting IP address as 100 and we can have some 50 IP addresses that you can assign. So, here you can see starting IP address 192.168.0.100, you can assign IP address two 50 users and this is all set.

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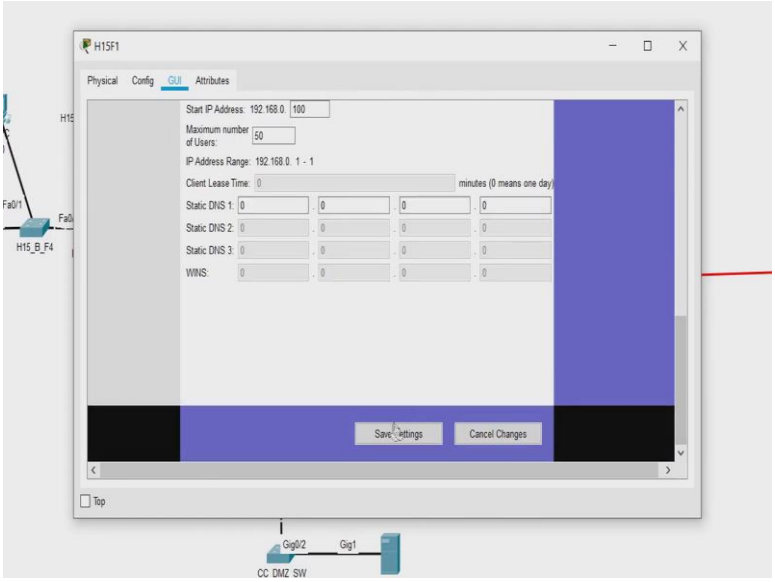

So, let us go back save these settings, the settings have been saved we will close this and go back to the laptop. Now let us again try to get our IP address using DHCP. Yes, now we can get out we have got a 192.168.0.105 And our gateway is 192.168.0.1 Let us check if we are getting an IP address on the phone as well. yes 192.168.0.106 ok.

So, now let us try and see if we are able to connect to the Wi-Fi router first. So, we will go to the desktop I have to close this go back to command prompt 192.168.0.1 enter yes we are able to communicate with the Wi-Fi router and are we able to communicate with the gateway, yes the hostel gateway is also connected and let us even try to communicate with the web server.

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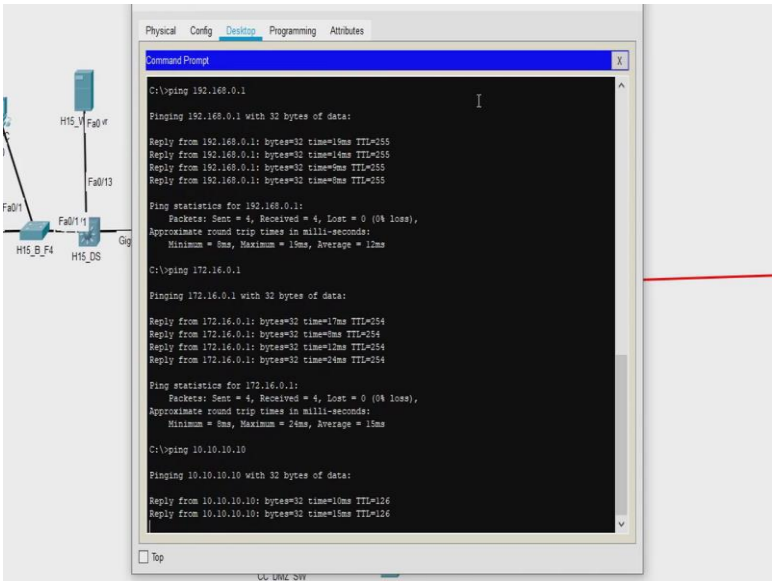

So, 10.10.10.10 yes we are able to connect to the web server also. Now, let us try to open the web site.

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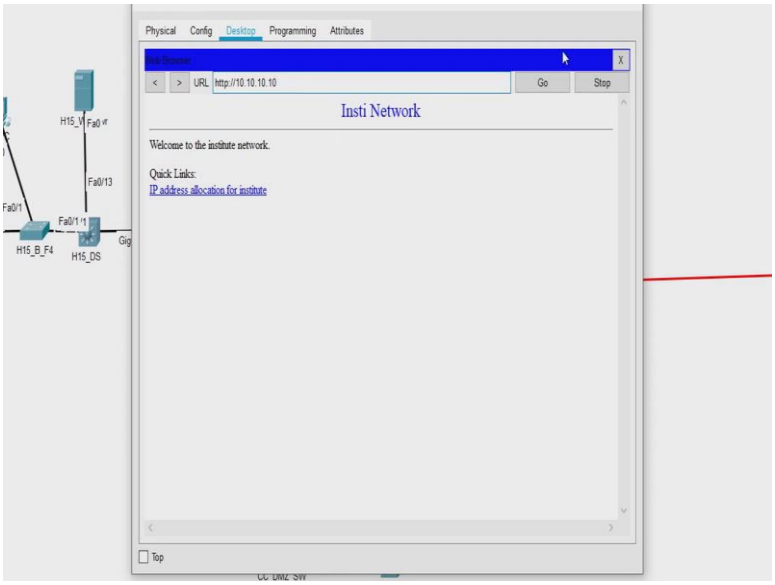

So, we will close the terminal sorry command prompt, open the web browser, then click 10.10.10.10 and yes we are able to open the institute network website. So, we have also fixed the second issue which was with the settings of the DHCP server in the Wi-Fi router. Let us go ahead and check it on the, type it is able to get an IP address, I am sure it will also be able to open the website we can straightaway go and check that. So,

10.10.10.10 yes it is able to check. So, now, what we saw is. So, in this in this particular scenario our approach was.

So, in this scenario what our approach was, we first try to check the physical connectivity. So, we were able to first create a subsystem. So, which was our subsystem? So, what we have is this PC is working and it is connected to the switch; that means, if we disconnect the network from here I mean this, So, the switch the PC and the rest of the network are able to communicate hence the problem lies over this part of the network.

So, then we try to look at the physical connectivity between these two and the wire was connected and we could see the light; that means, the connectivity was fine and then we try to check the connectivity between these two. So, as I said. So, sometimes checking the wires becomes tedious or especially when you connected by a Wi-Fi, it becomes difficult to check if your laptop is connected or not all you can do is look at the network status on your laptop or say phone.

So, one of the best ways is to ping your Wi-Fi router. So, when we tried pinging the Wi-Fi router we realized that the router was not responding hence there was a issue between the connectivity of these two. So, when we looked at the IP address of the laptop we saw it had got an APIPA series of an IP address that IP address is only obtained when your laptop is not able to get an IP address from the DHCP server.

So, when we checked the DHCP server settings there was a wrong gateway that was configured hence the laptop was not able to connect to the Wi-Fi router. So, with this now we have been able to successfully fix the second challenge now let us go towards our third challenge.