Pragati Engineering College

#CISCO VIRTUAL INTERNSHIP PROGRAM 2024#

VIP- 2024 INDUSTRY PROBLEM STATEMENT

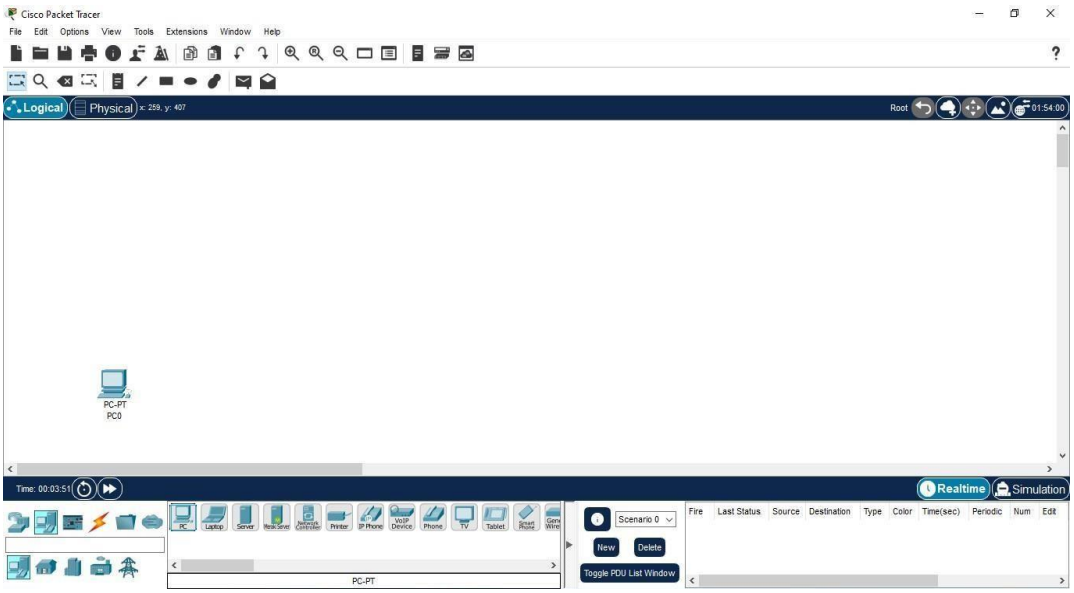
Student Details: My Self Surya Teja Yellaboyina of ECE department of Section-'C' in Pragati Engineering College, bearing a Roll no 22A31A04F5. I have done VIP-2024 Industry Problem Statement of Regarding our college Wi-fi Networking System Design and deployment of network Infrastructure how it works by using "Cisco Packet Tracer".

Project Overview: The overview of the Project is about Effective design and deployment of network infrastructure is essential to the effective operation of numerous institutions, including universities, in today's fast-expanding digital landscape. Strong and scalable network design is essential as universities become more and more reliant on technology for communication, research, and administrative procedures. In an effort to full fill this need, the project uses Cisco Packet Tracer simulations to give an in-depth analysis of the Three-Tier Hierarchical Network Model as it is used in the context of a university network. so I designed Our College Wi-fi networking design of different blocks of different departments. In Cisco Packet Tracer we can design and build any type of Networking design.

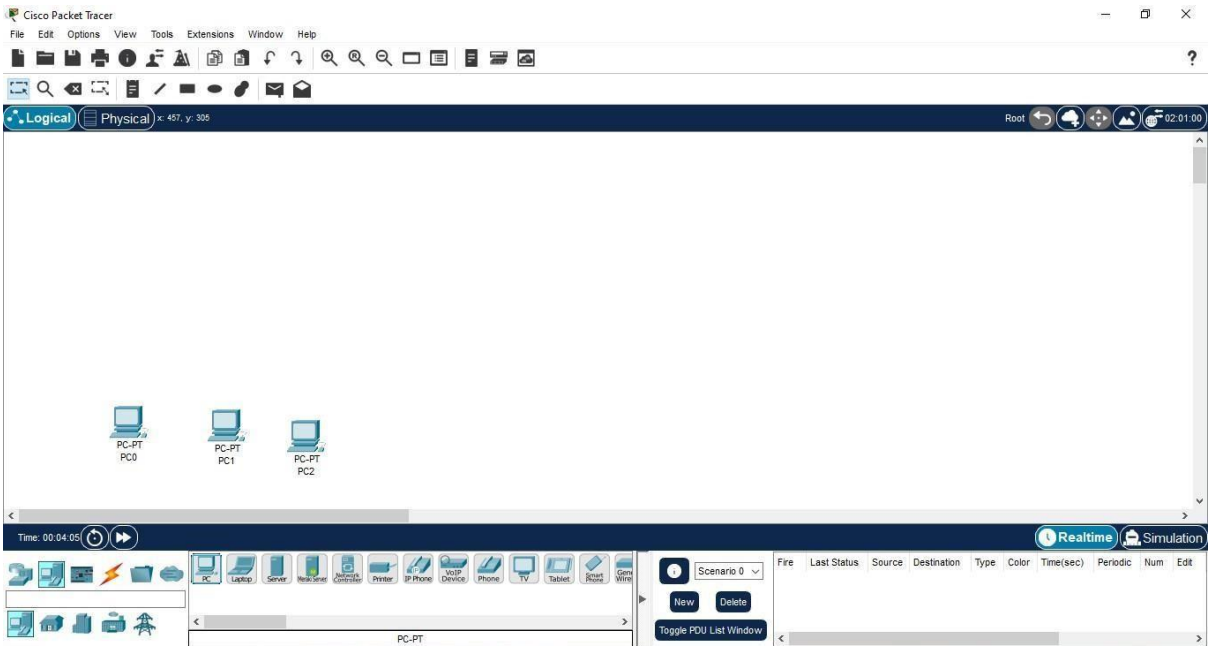
A wi-fi networking model is a proven architectural framework that enhances the efficiency, scalability, and management of complex network infrastructures. In this project, I demonstrate the model's design and implementation of a college network in a simulated environment using Cisco Packet Tracer. This project's main goals are to build a strong network structure that can serve the college various needs and to use Cisco Packet Tracer to show how networking ideas can be used in real-world situations.

Process of Problem Statement:

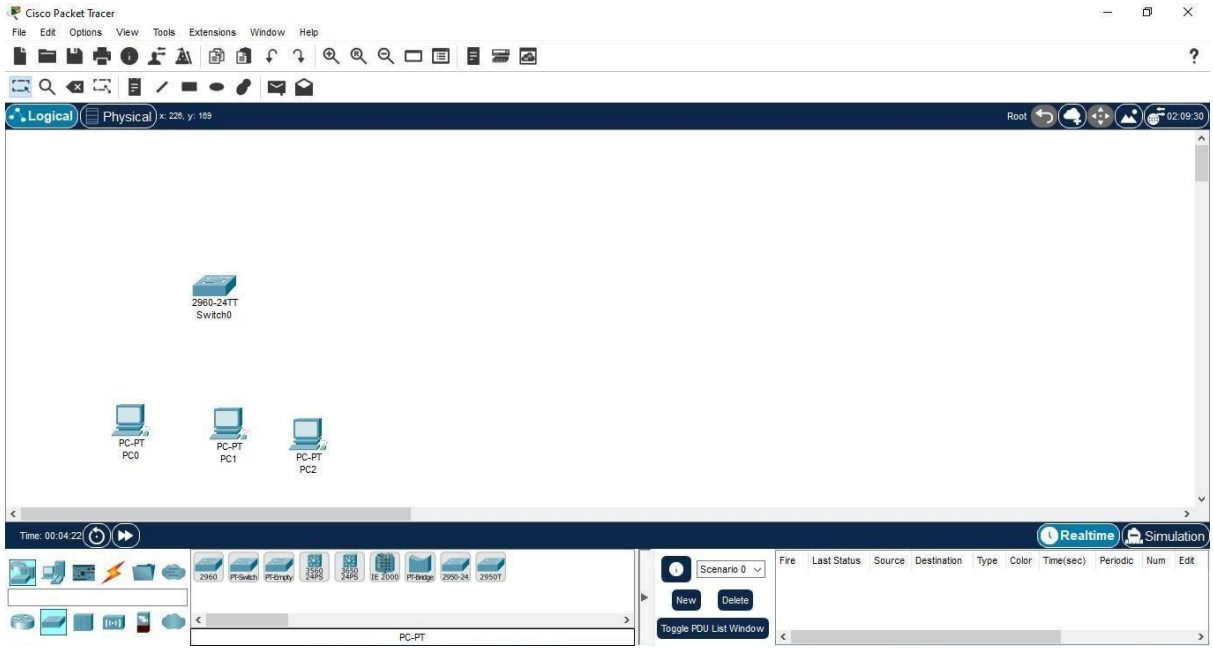
1). Open the Bundle Tracer and select the organization gadgets in that take one PC that, right off the bat, is named as PC-PT PC0.



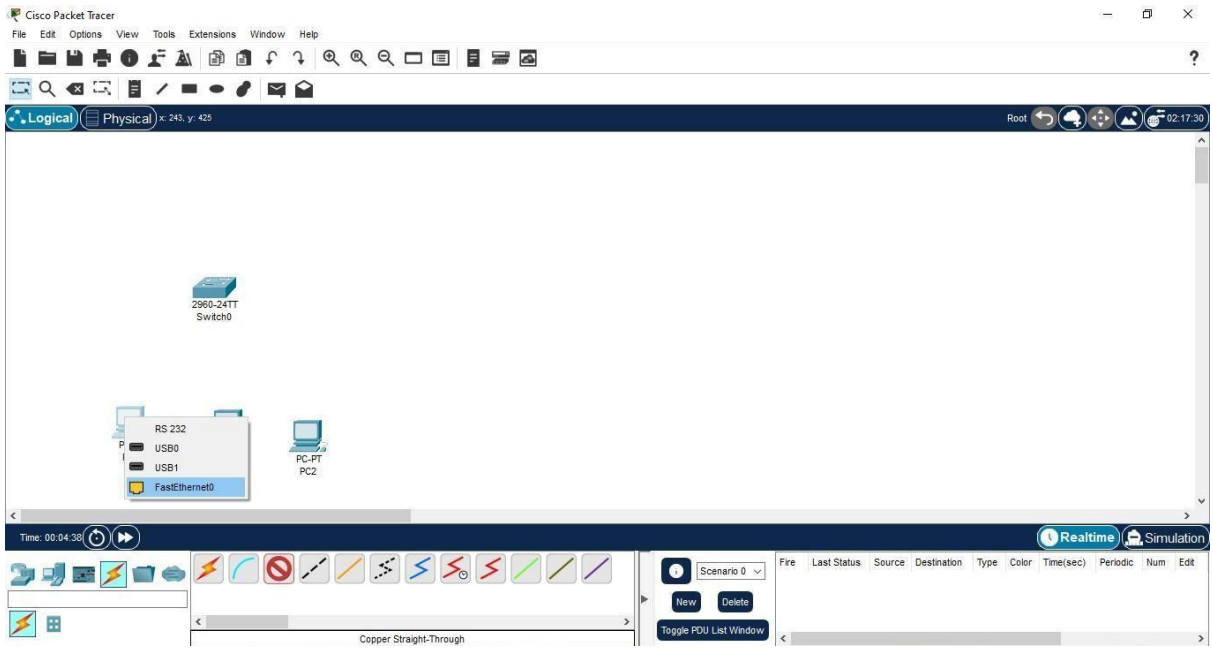
2). Also, later take one more two PC's and the two pieces named as PC-PT PC1 and PC-PT PC2.

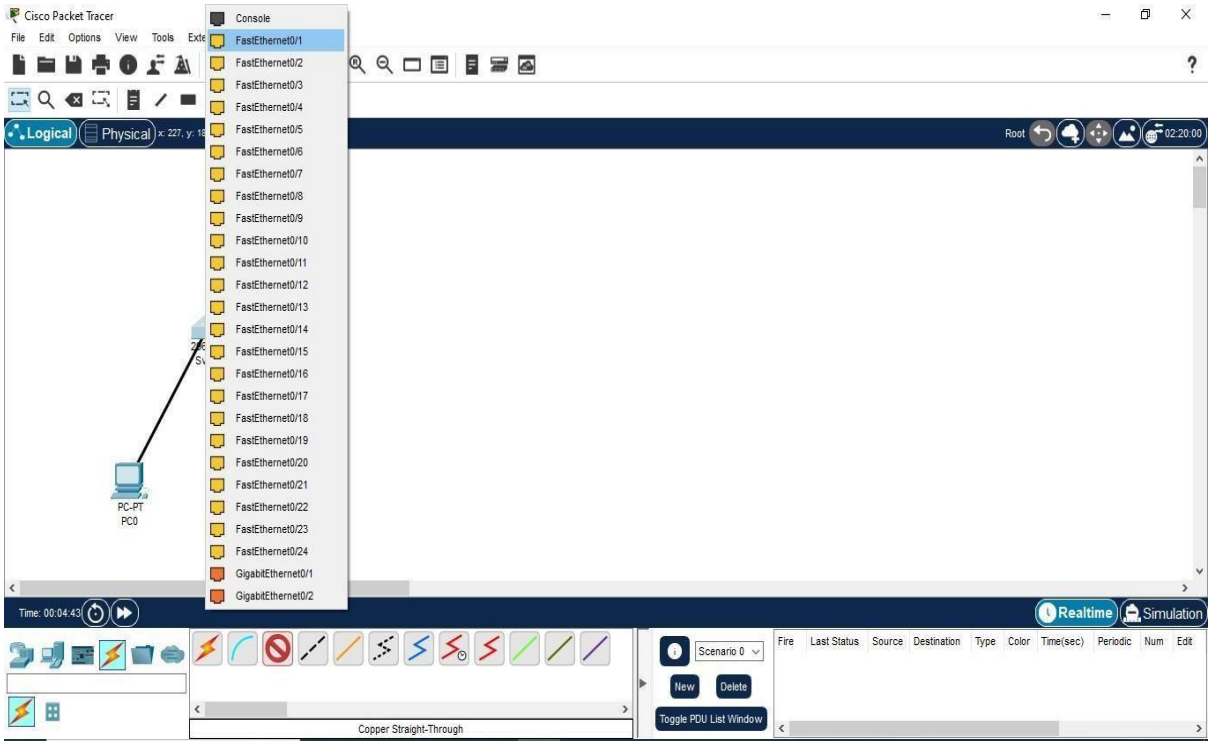


3). Presently open organization gadgets in that open switches and select 2960 24-TT name that switches as switch0



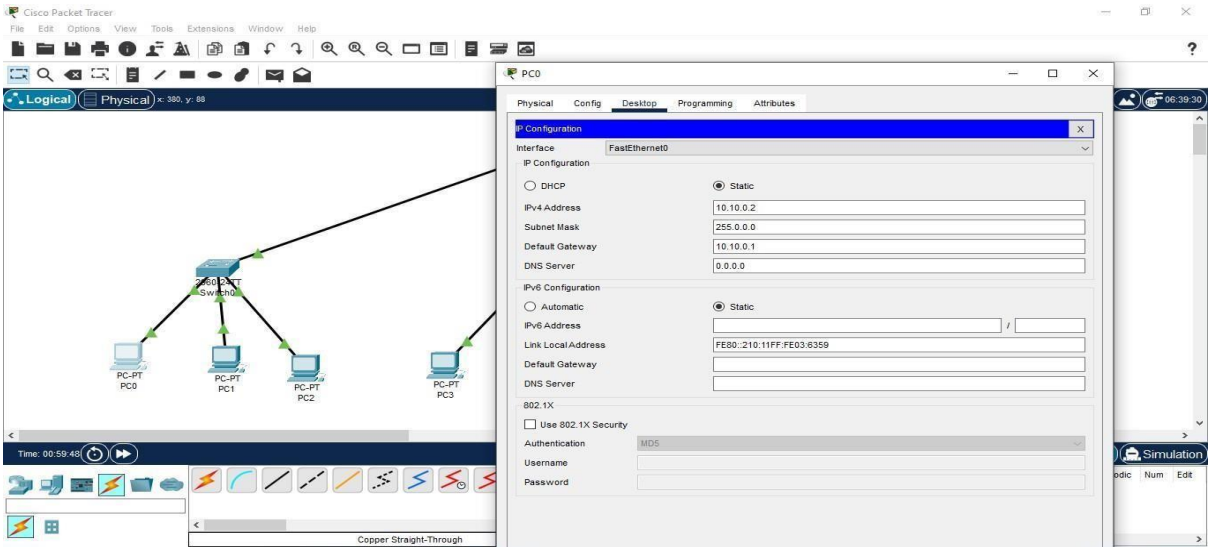
4). Presently take the copper straight-through link to connect 2960 24-TT switch0 and PC_PT PC0, Presently Right click on PC_PT PC0 and click on FastEthernet0 choice on pc side and again click on 2960 24-TT switch0 also, select the FastEthernet0/1.

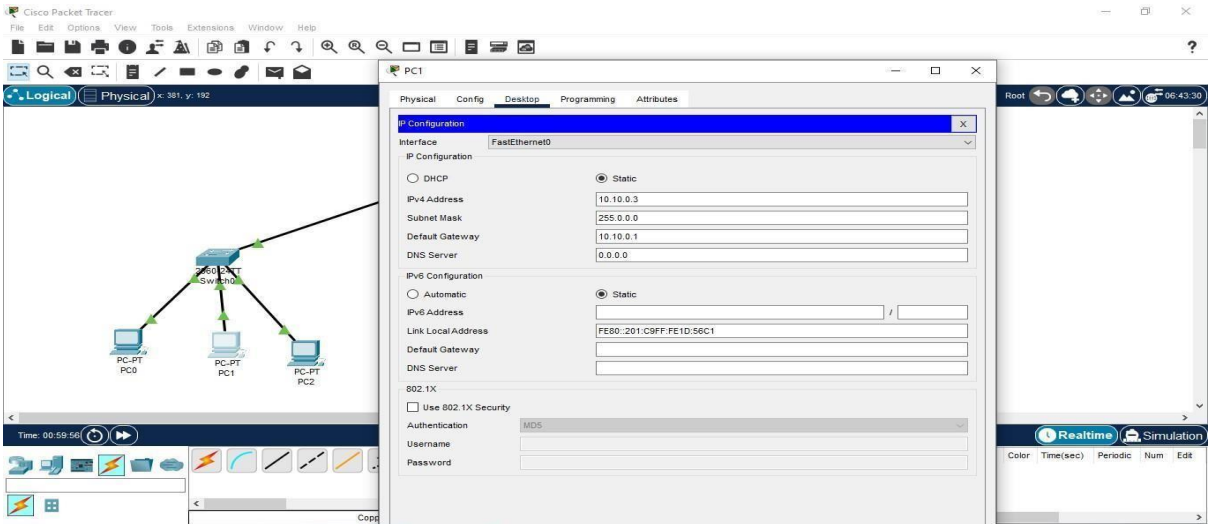


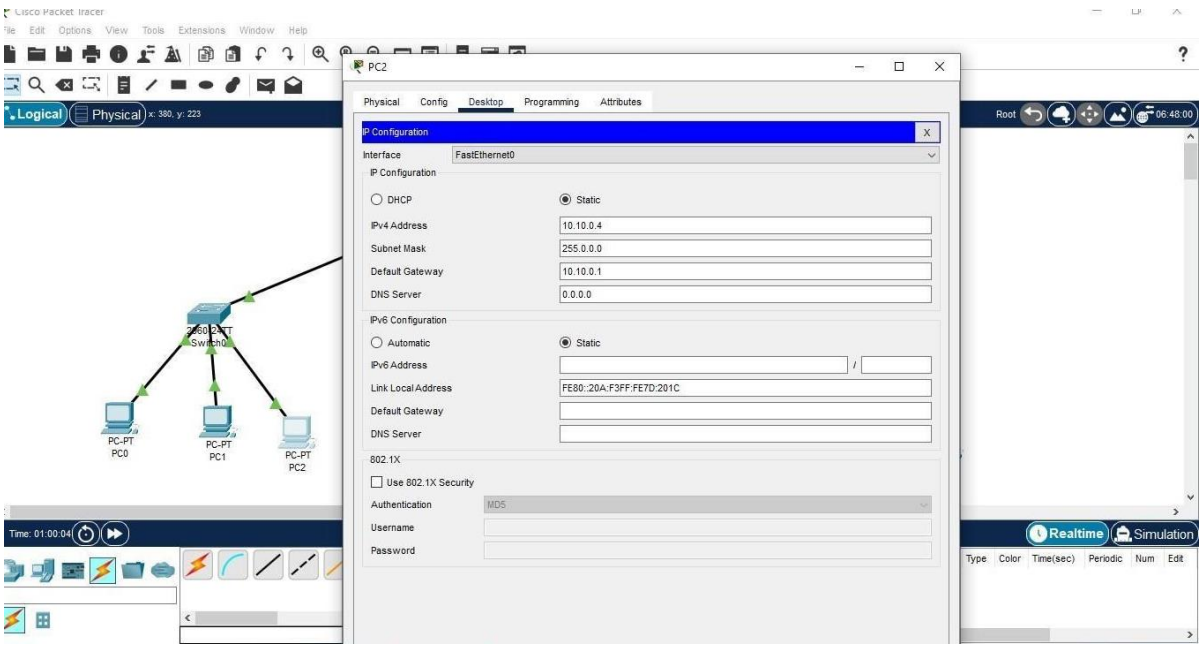


5).Now enter the IPv4 Address for the PC-PT PC0 as 10.10.0.2 and automatically the subnet mask is exists as 255.0.0.0 and Default Gateway is given as router IP configuration is 10.10.0.1.

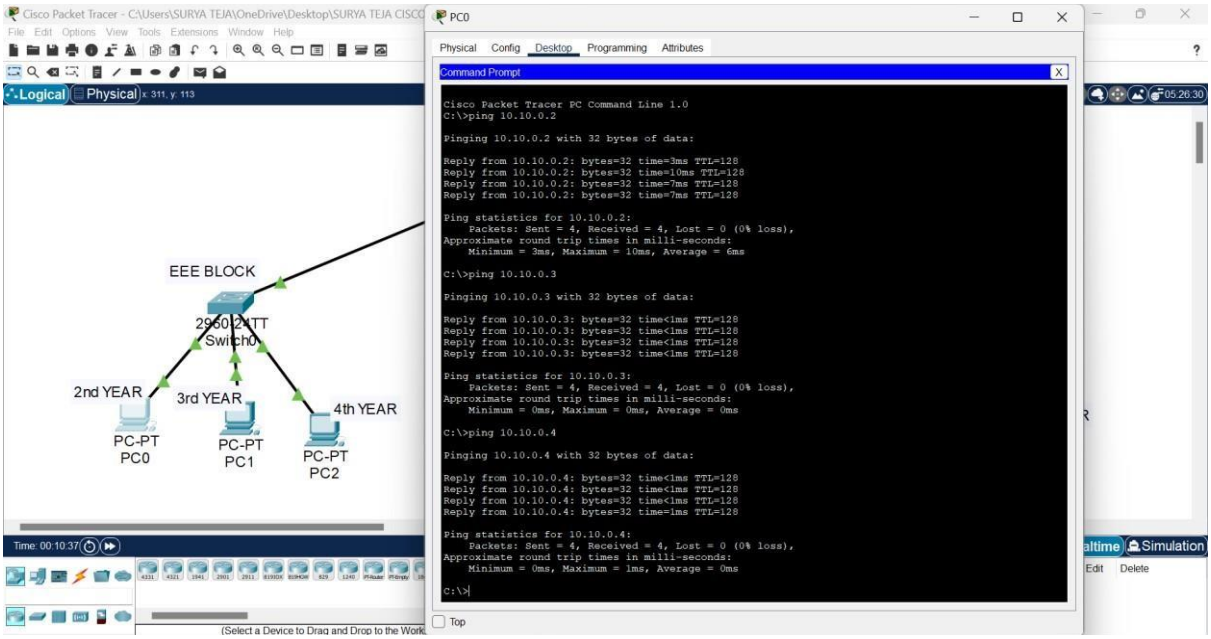
6).Now do the same process for the PC-PT PC1 and enter IPv4 Address as a 10.10.0.3 and automatically the subnet mask is exists as a 255.0.0.0 and Default Gateway is 10.10.0.1 and also same process for PC-PT PC2 and enter the IPv4 Address as a 10.10.0.4 automatically the subnet mask is exits as a 255.0.0.0 and Default Gateway is 10.10.0.1.


Cisco Packet Tracer
PC0
Physical Config Desktop Programming Attributes
IP Configuration
Interface FastEthernet0
DHCP
Static
IPv4 Address 10.10.0.2
Subnet Mask 255.0.0.0
Default Gateway 10.10.0.1
DNS Server 0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::210:11FF:FE03:6359
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password
Logical Physical
Time: 00:59:48
Copper Straight-Through
Simulation

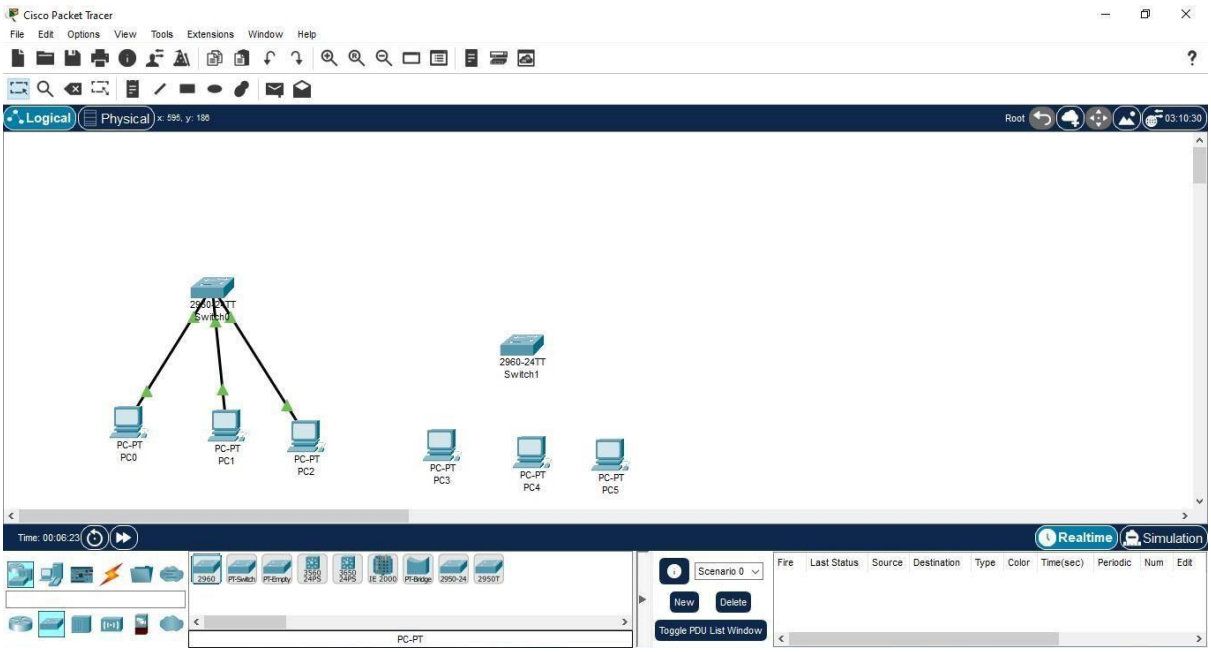

Cisco Packet Tracer
PC1
Physical Config Desktop Programming Attributes
IP Configuration
Interface FastEthernet0
DHCP
Static
IPv4 Address 10.10.0.3
Subnet Mask 255.0.0.0
Default Gateway 10.10.0.1
DNS Server 0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::201:C9FF:FE1D:56C1
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password
Logical Physical
Time: 00:59:56
Realtime
Simulation

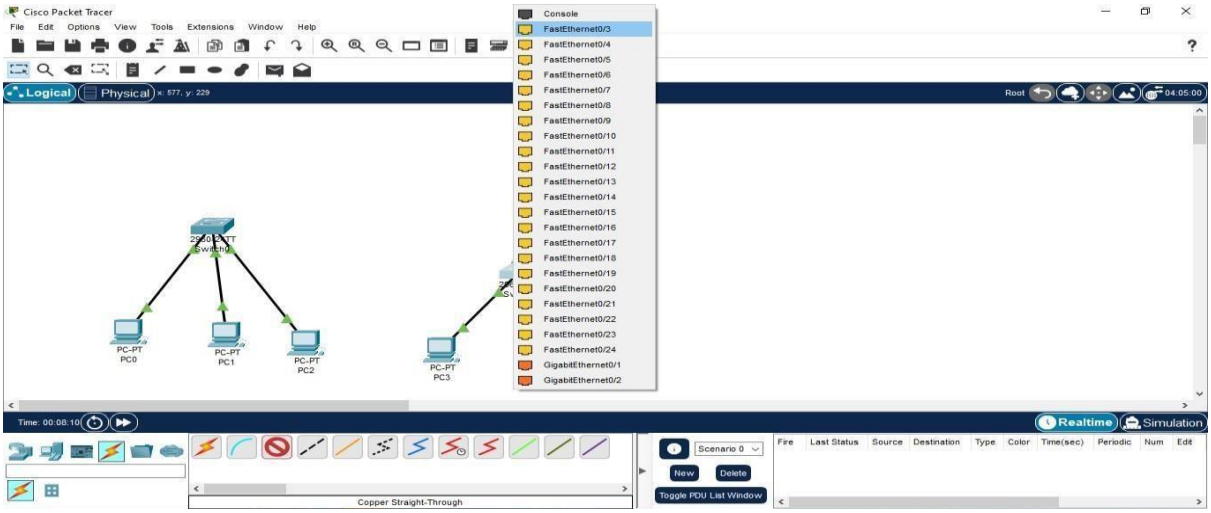

Cisco Packet Tracer
PC2
Physical Config Desktop Programming Attributes
IP Configuration
Interface FastEthernet0
DHCP
Static
IPv4 Address 10.10.0.4
Subnet Mask 255.0.0.0
Default Gateway 10.10.0.1
DNS Server 0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::20A:F3FF:FE7D:201C
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password
Logical Physical
Time: 01:00:04
Realtime
Simulation

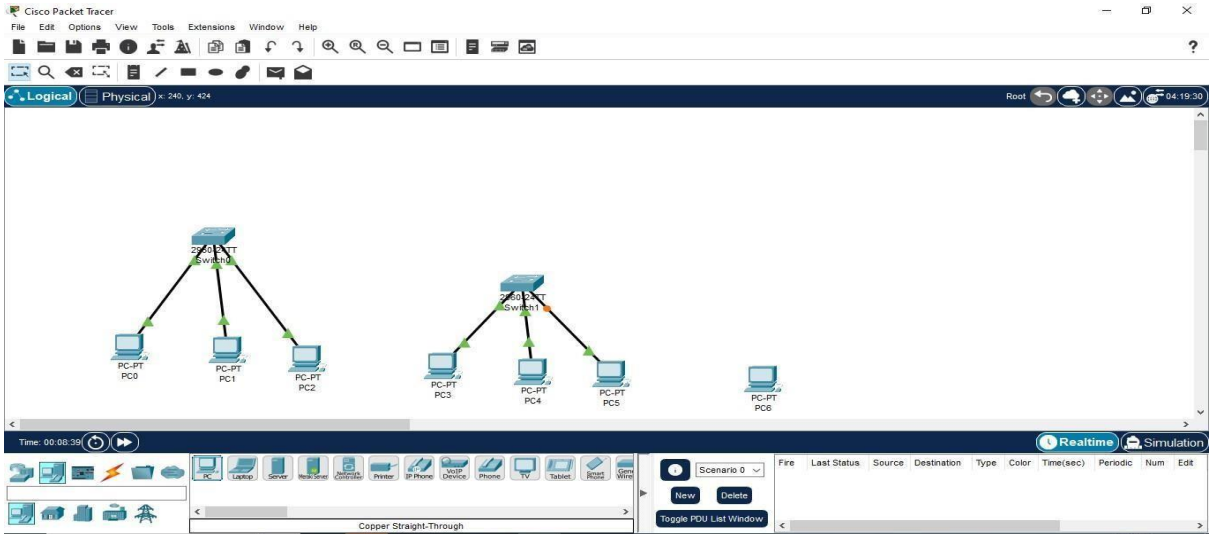
7). Presently select PC-PT PC0 and open command prompt enter ping 10.10.0.2 and the order brief will run and also repeat the process for the PC-PT PC1 as 10.10.0.3 and for PC-PT PC2 as 10.10.0.4.



8). Presently again click on End gadgets and snap on PC and accept 3PC's and name them as a , PC-PT PC3 , PC-PT PC4 , PC-PT PC5, and take 2920-24TT switch1 and interface the PC's with the copper straight through link.

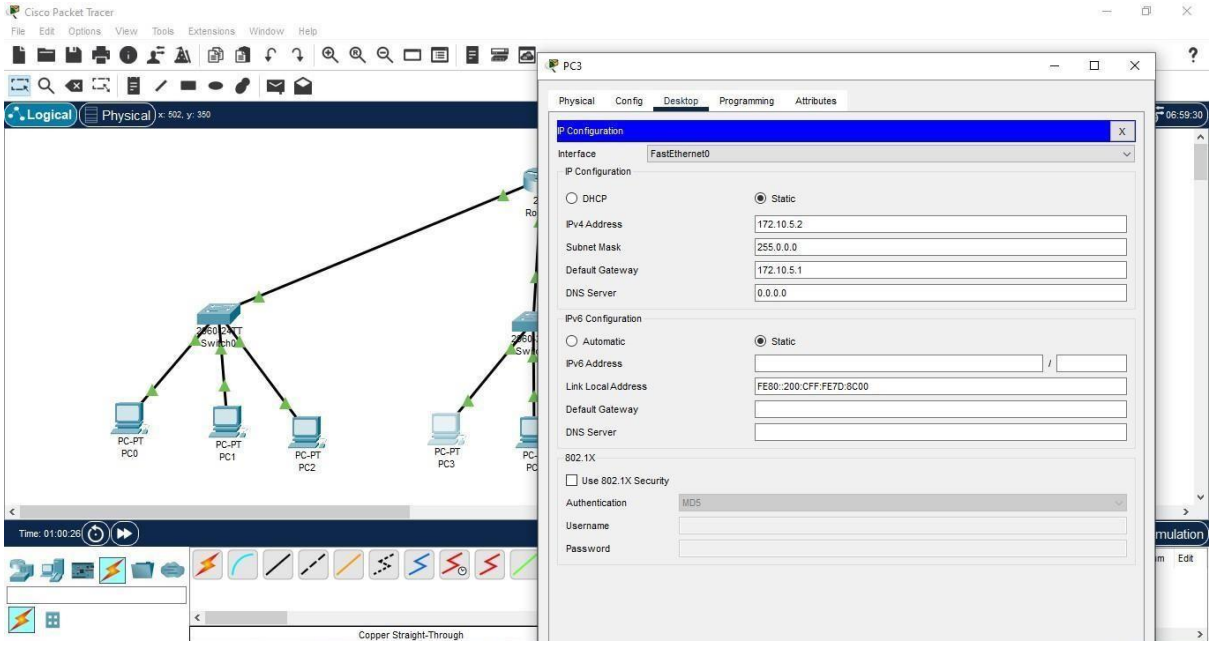


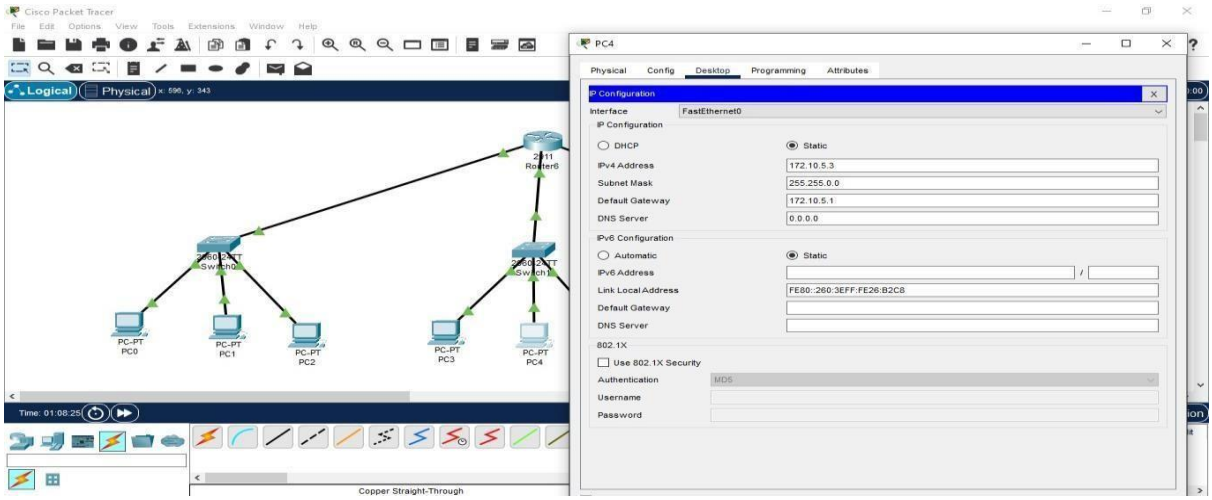


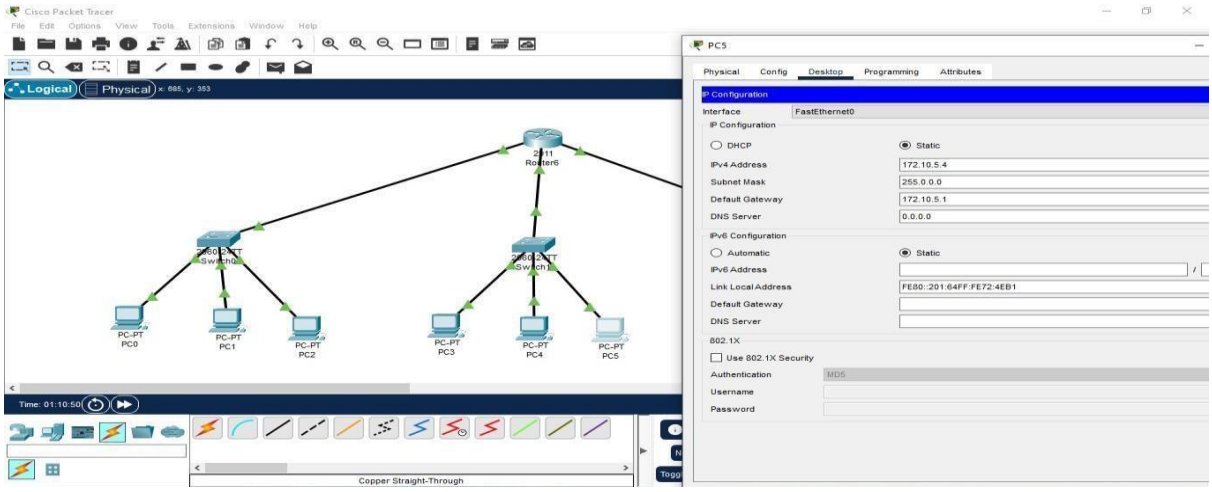


9). Presently enter the IPv4 Address for the framework PC named as a PC_PT PC3 is 172.10.5.2 . and automatically the subnet mask is exists as 255.255.0.0 and Default Gateway is given as router IP configuration is 172.10.5.1 .

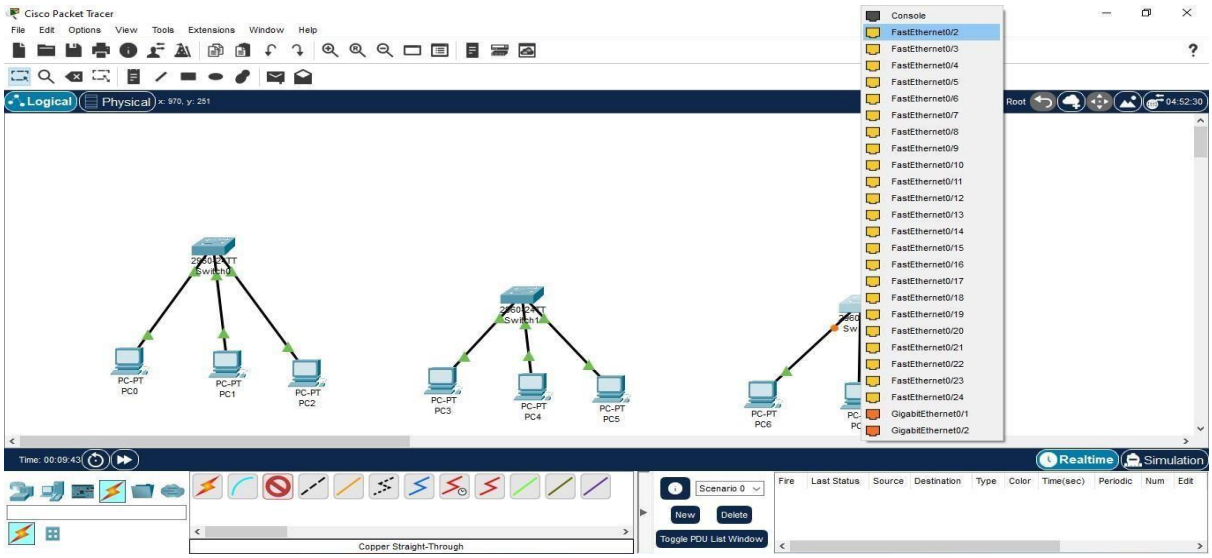
10). And a similar strategy IPv4 Address for the PC_PT PC4 is 172.10.5.3 and automatically the subnet mask is exists as 255.255.0.0 and Default Gateway is given as router IP configuration is 172.10.5.1 . and IPv4 Address for the framework PC_PT PC5 is 172.10.5.4 and automatically the subnet mask is exists as 255.255.0.0 and Default Gateway is given as router IP configuration is 172.10.5.1 .

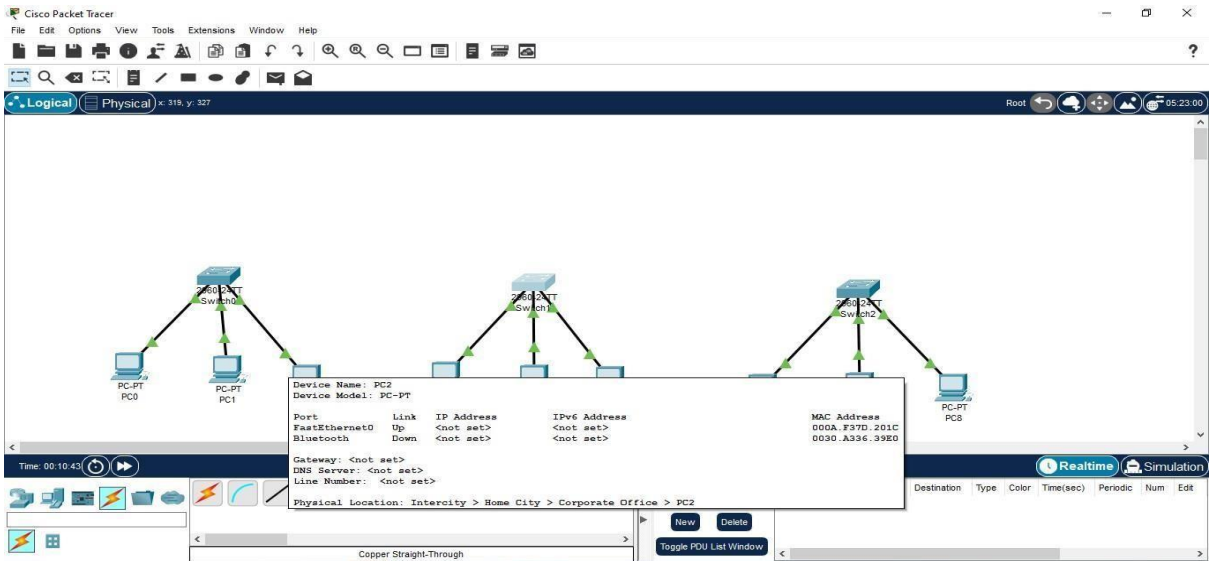

Cisco Packet Tracer
PC3
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
172.10.5.2
Subnet Mask
255.0.0.0
Default Gateway
172.10.5.1
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::200:CFF:FE7D:8C00
802.1X
Use 802.1X Security
Authentication
Username
Password
Logical
Physical
Time: 01:00:26
Copper Straight-Through


Cisco Packet Tracer
PC4
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
172.10.5.3
Subnet Mask
255.255.0.0
Default Gateway
172.10.5.1
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::260:3EFF:FE26:B2C8
802.1X
Use 802.1X Security
Authentication
Username
Password
Logical
Physical
Time: 01:08:25
Copper Straight-Through


Cisco Packet Tracer
PC5
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
IPv4 Address
172.10.5.4
Subnet Mask
255.0.0.0
Default Gateway
172.10.5.1
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::201:64FF:FE72:4EB1
802.1X
Use 802.1X Security
Authentication
Username
Password
Logical
Physical
Time: 01:10:50
Copper Straight-Through

11).Presently again click on End gadgets and snap on PC and accept 3PC's and name them as a , PC-PT PC6 , PC-PT PC7 , PC-PT PC8 and take 2920-24TT switch2 and interface the PC's with the copper straight through link

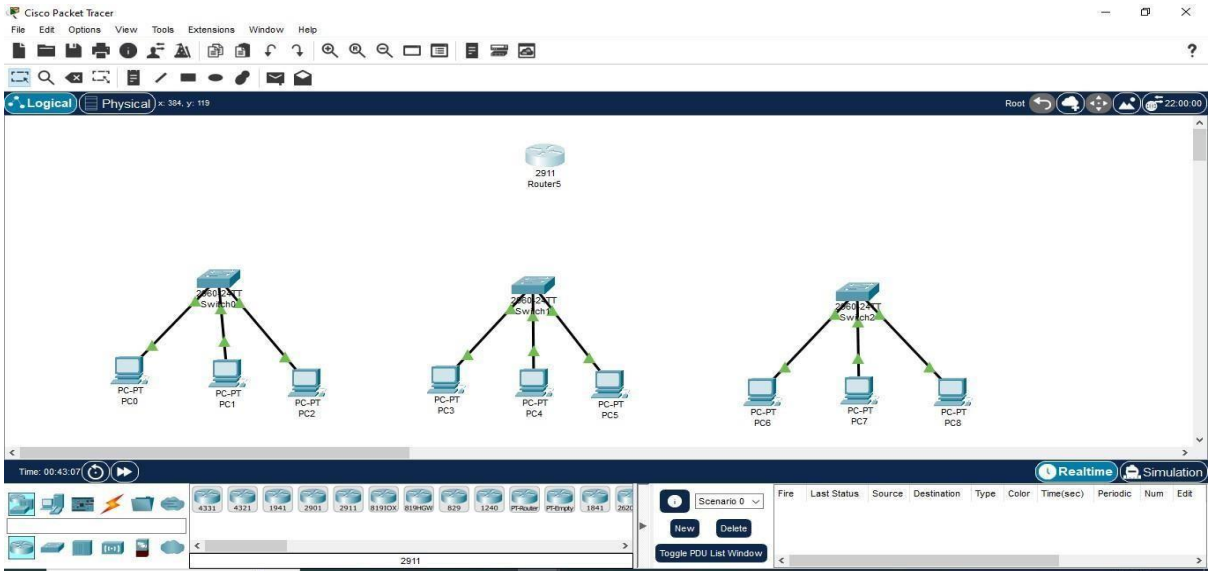




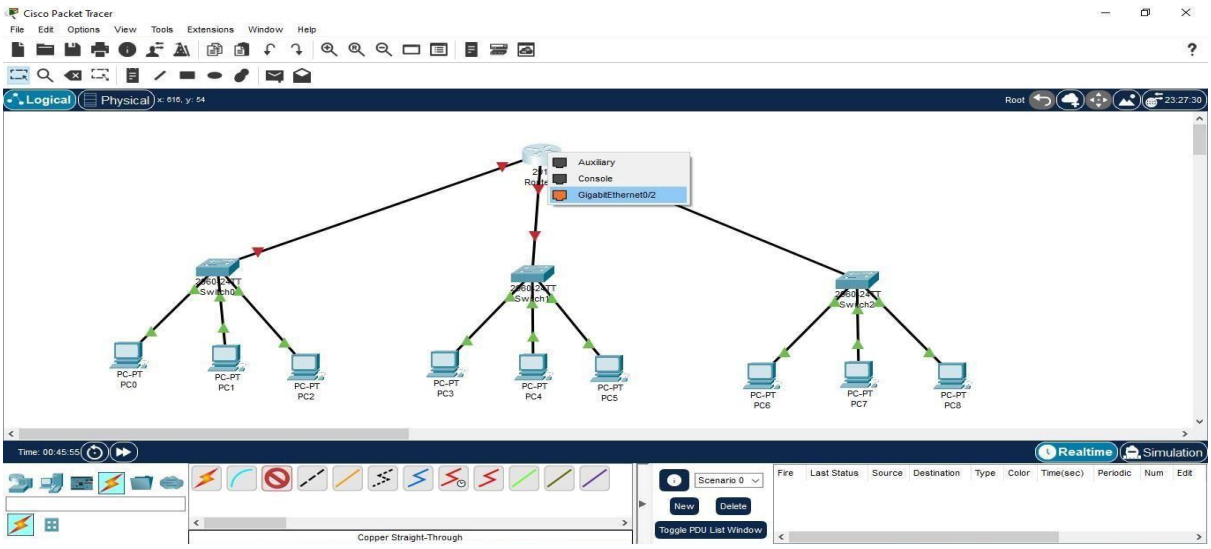
12). Presently enter the IPv4 Address for the framework PC named as a PC-PT PC6 is 192.168.5.2 . and automatically the subnet mask is exists as 255.0.0.0 and Default Gateway is given as router IP configuration is 192.168.5.1.

13). And a similar strategy IPv4 Address for the PC-PT PC7 is 192.168.5.3 and automatically the subnet mask is exists as 255.0.0.0 and Default Gateway is given as router IP configuration is 192.168.5.1 . and IPv4 Address for the framework PC-PT PC8 is 192.168.5.4 and automatically the subnet mask is exists as 255.0.0.0 and Default Gateway is given as router IP configuration is 192.168.5.1 .

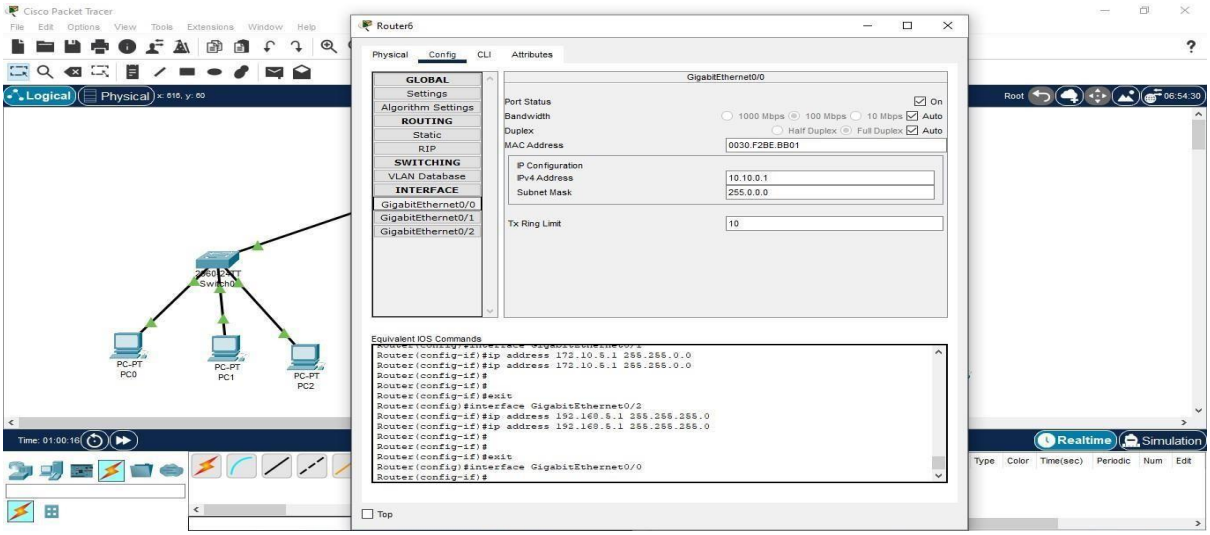
14). Now router is taken from the network device it's name is 2911 router.



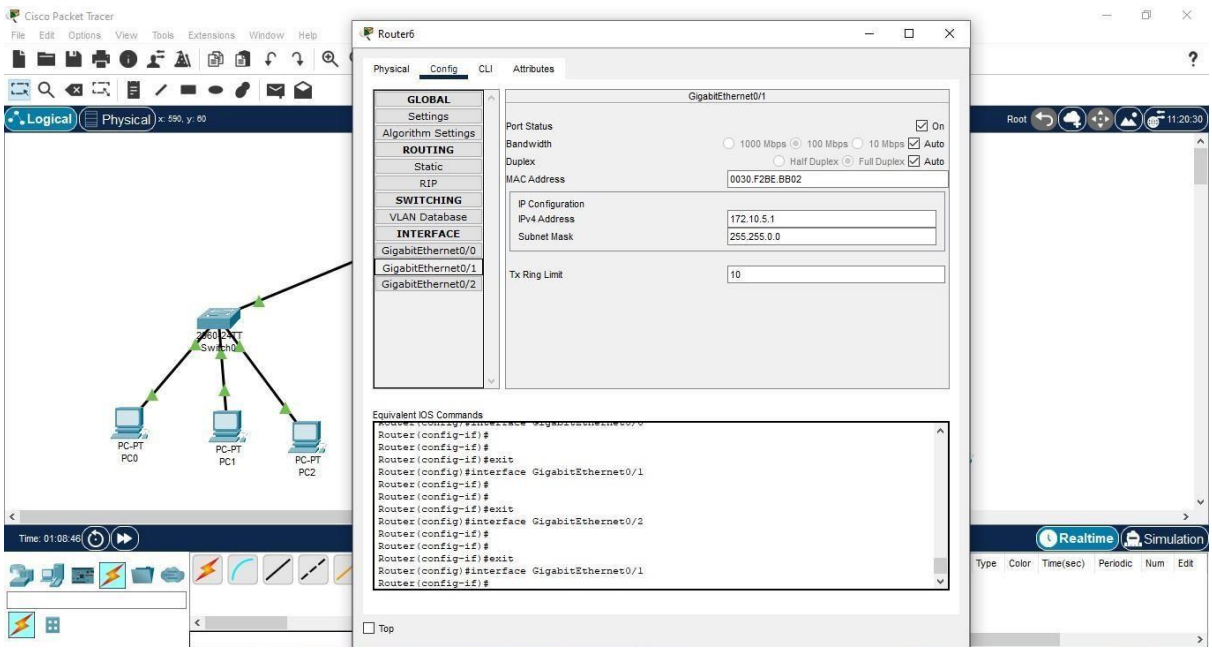
15).Now Connect the Router(2911) with the switch0,switch1 and switch2 and interface the PC's with the copper straight through link.



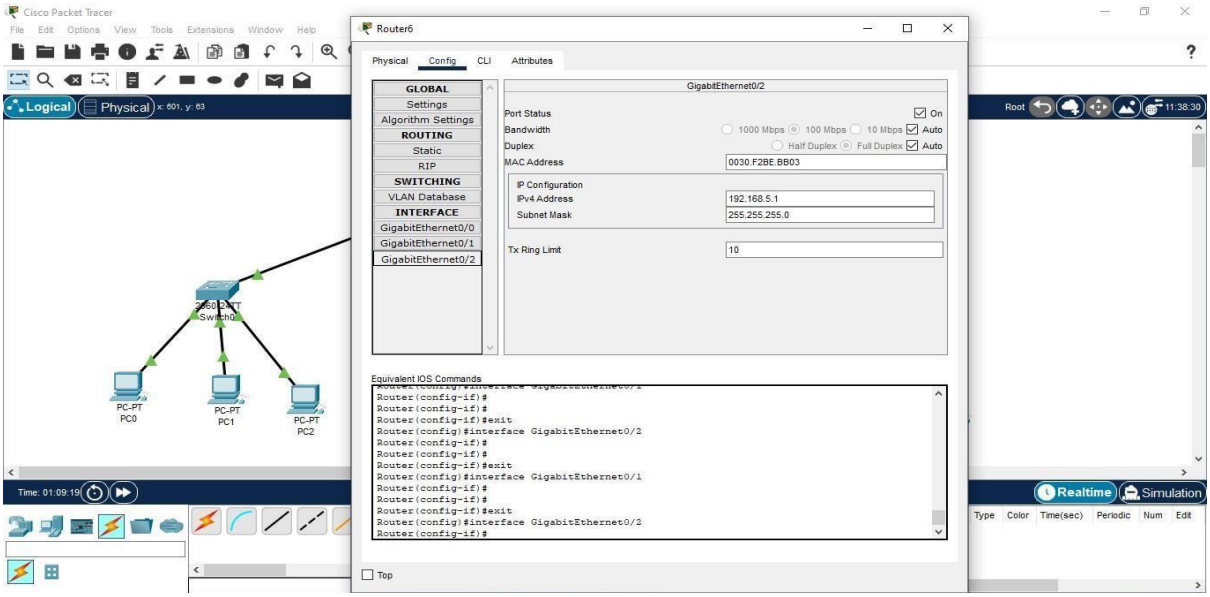
16). Presently router is taken from the organization gadget it's name is 2911 router the pc's of PC-PT PC0 , PC-PT PC1 and PC-PT PC2 of Default Gateway is 10.10.0.1 entered in IP Configuration of IPv4 Address of selecting router IP Configuration in configuration of GigabitEthernet0/0.



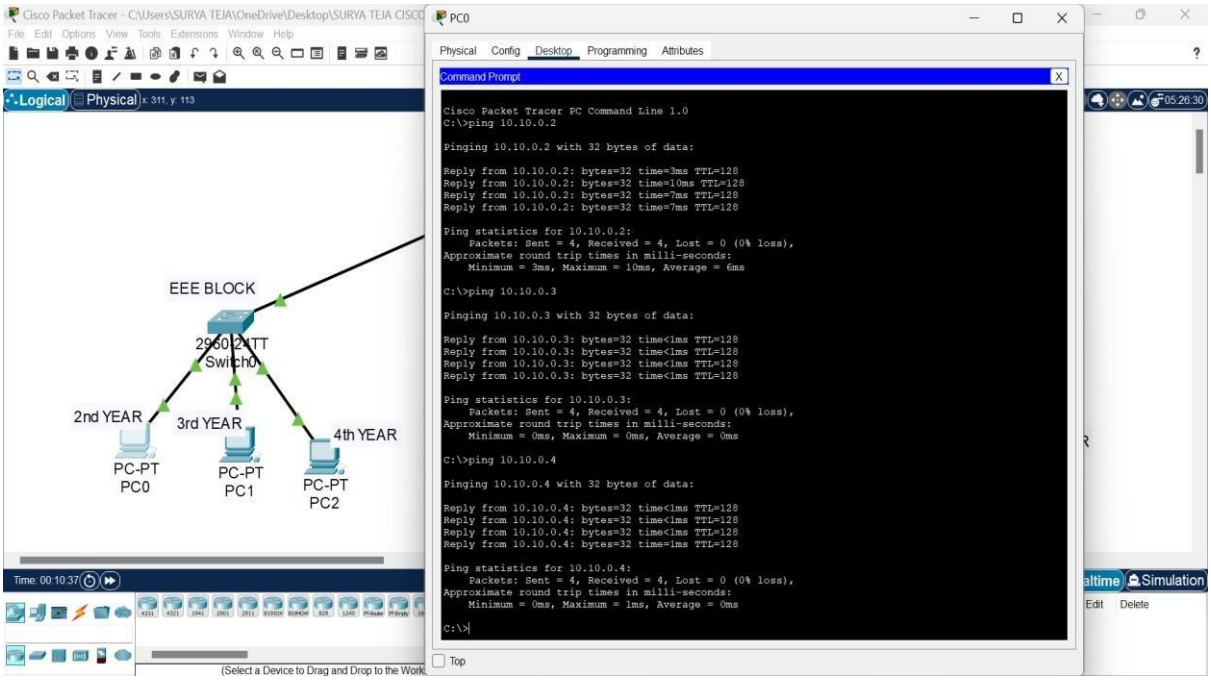
17). And router is taken from the organization gadget it's name is 2911 router the pc's of PC-PT PC3 , PC-PT PC4 and PC-PT PC5 of Default Gateway 172.10.5.1 is entered in IP Configuration of IPv4 Address of selecting router IP Configuration in configuration of GigabitEthernet0/1.



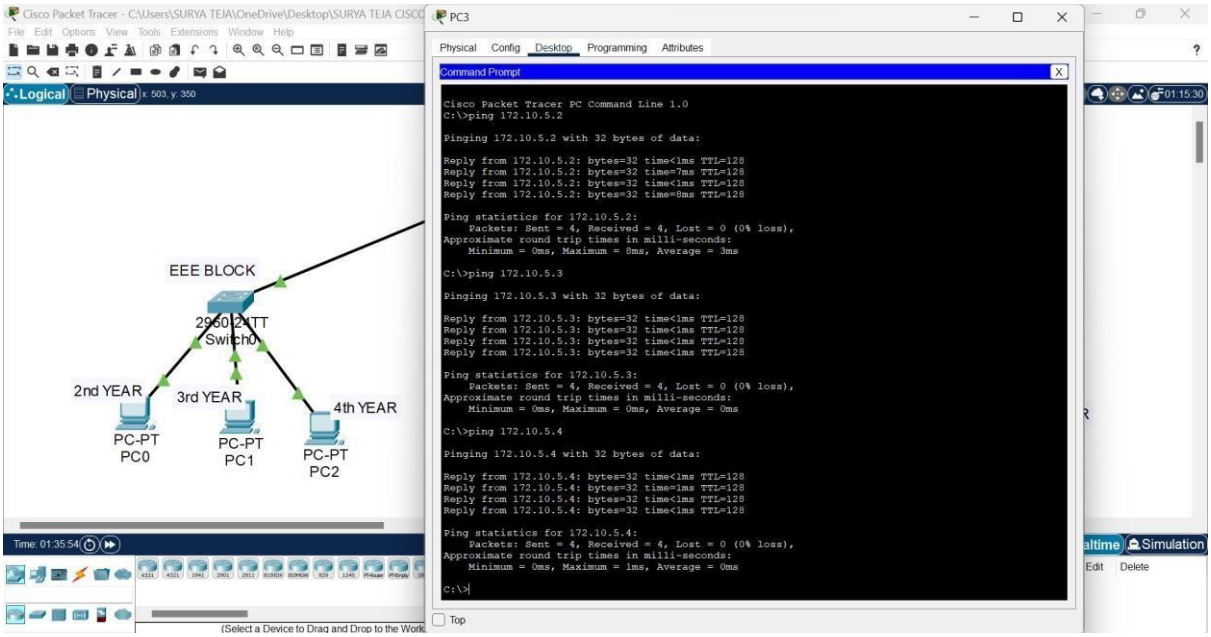
18). And router is taken from the organization gadget it's name is 2911 router the pc's of PC-PT PC6 , PC-PT PC7 and PC-PT PC8 of Default Gateway 192.168.5.1 is entered in IP Configuration of IPv4 Address of selecting router IP Configuration in configuration of GigabitEthernet0/2.



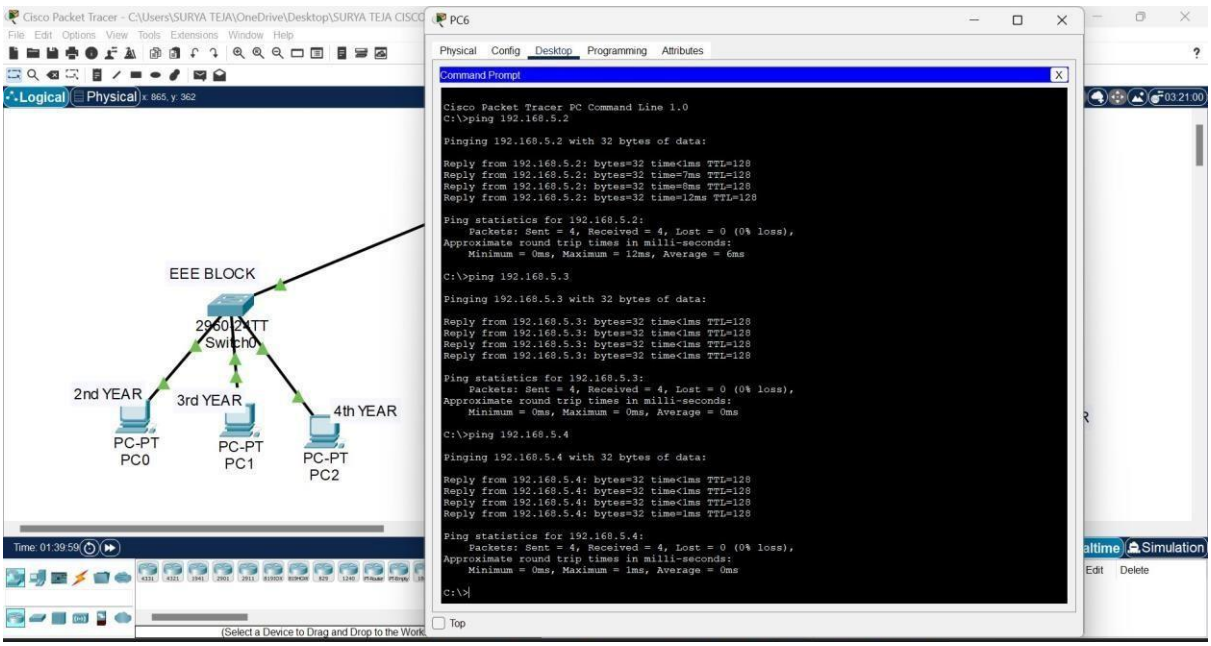
19). Presently select PC-PT PC0 and open command prompt enter ping 10.10.0.2 and the order brief will run and also repeat the process for the PC-PT PC1 as 10.10.0.3 and for PC-PT PC2 as 10.10.0.4.



20).Next select PC-PT PC3 and open command prompt enter ping 172.10.5.2 and the order brief will run and also repeat the process for the PC-PT PC4 as 172.10.5.3 and for PC-PT PC5 as 172.10.5.4 .

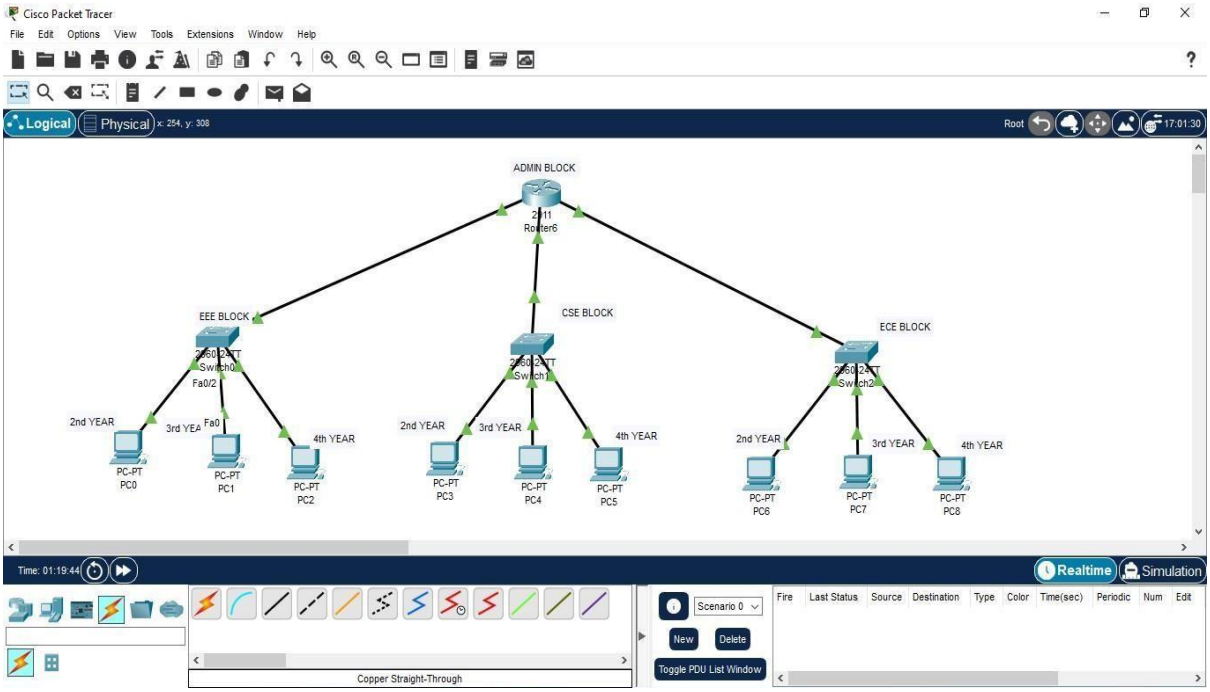


21). Next select PC-PT PC6 and open command prompt enter ping 192.168.5.2 and the order brief will run and also repeat the process for the PC-PT PC7 as 192.168.5.3 and for PC-PT PC8 as 192.168.5.4 .



22). Before switching on the device in the Cisco Packet tracer we should check the IPv4 address, Subnet mask and Default Gateway IP configuration is given correctly or not ,because if the details not given properly means the Error will occur the Problem.

And Finally, Here is the organization topology for the industry problem statement this organization is planned by me .I had done topology by designing my entire College wi-fi networking design by "Cisco Packet Tracer" by name the blocks as EEE BLOCK ,CSE BLOCK and ECE BLOCK of ADMIN BLOCK .



------Thank you------