

Name : Sajawal Khan

Department: BS(CS)

Semester : 4th

ID : #14756

Paper Subject : Data Communication and Networks (LAB)

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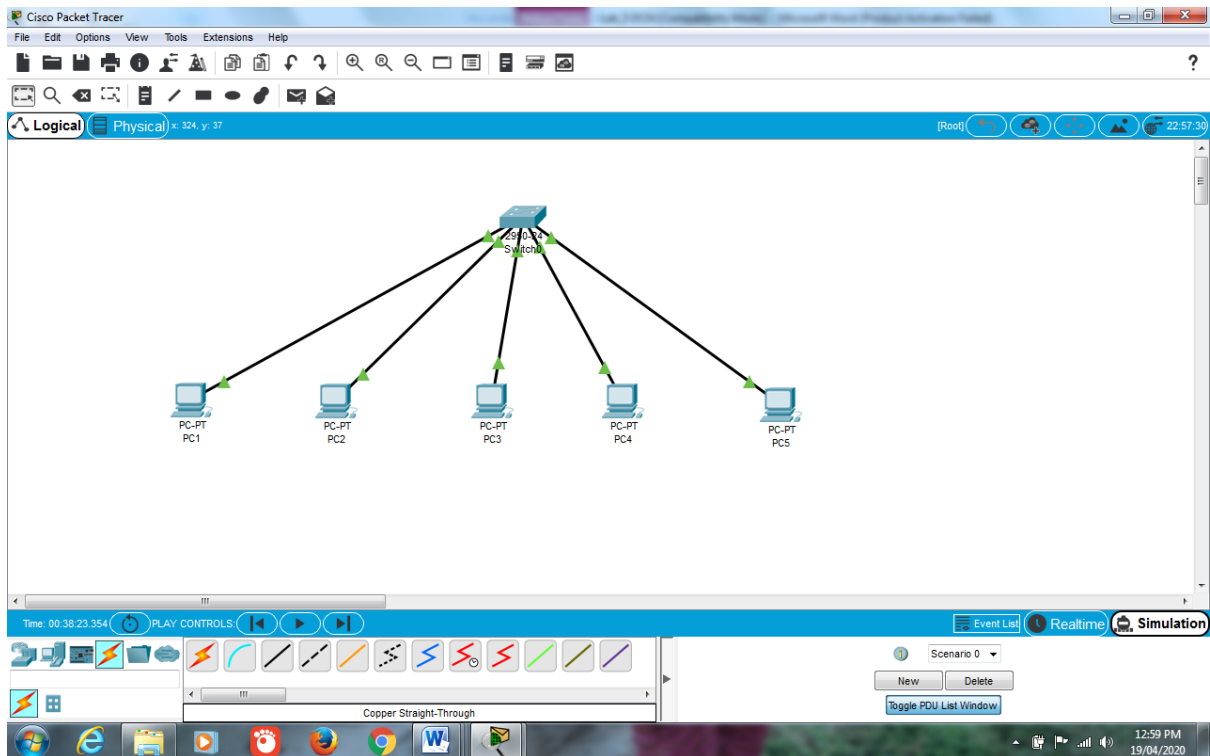
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### Task 1:

**Construct a network topology having one switch with connected with 5 PC's with Fast Ethernet Cable, assign them proper IP addresses, subnet mask and default gateways and send message from PC5 to PC1 and demonstrate the simulation.**

### Answer

#### Construction:



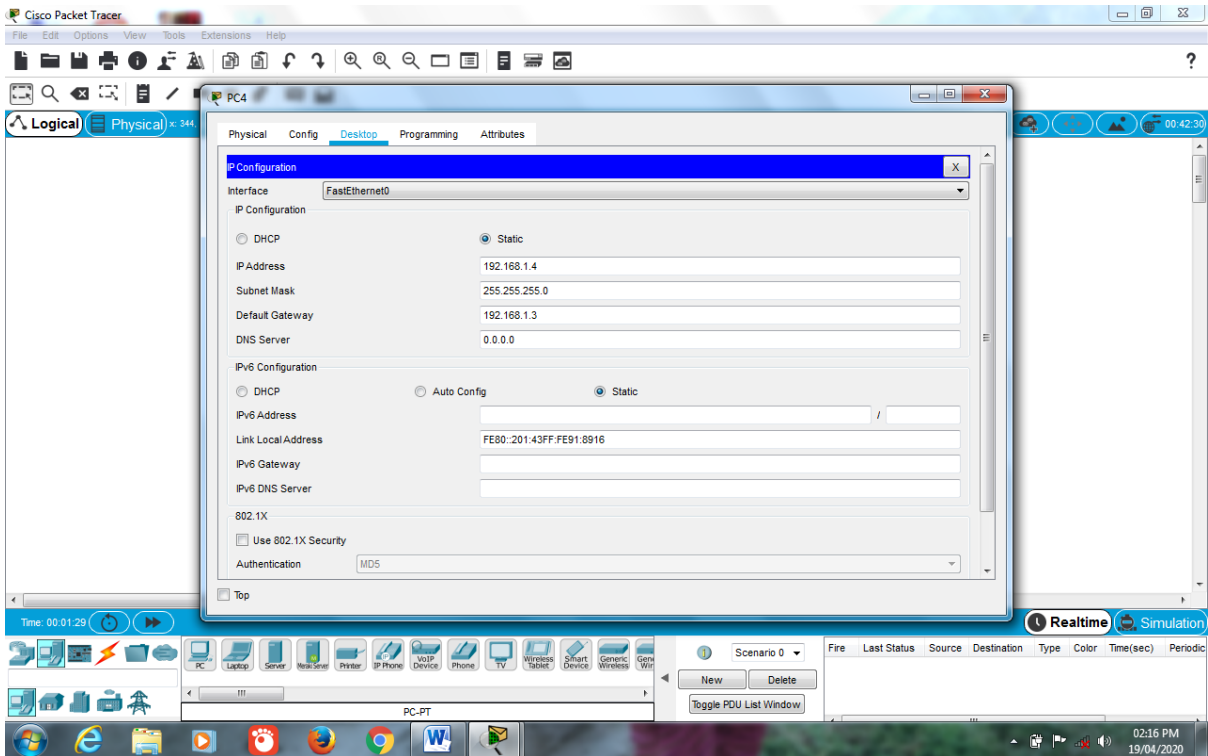
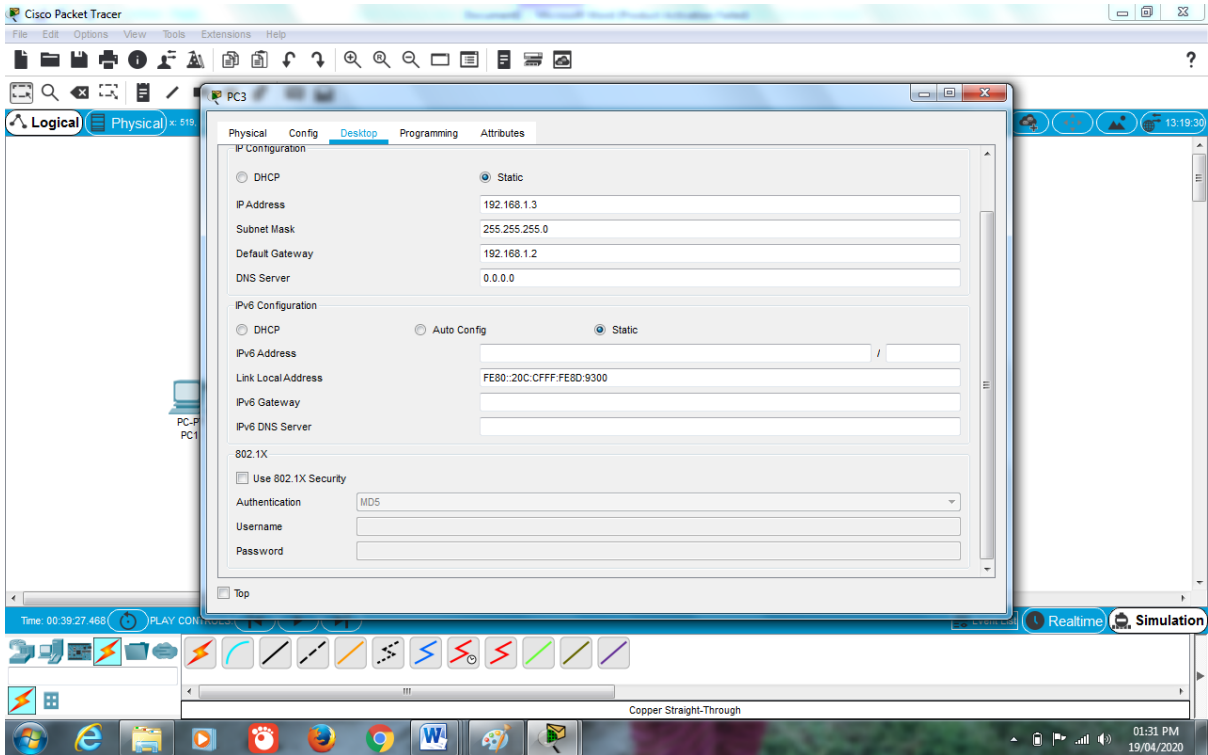
## IP Addresses, Subnet Mask, Default Gateways:

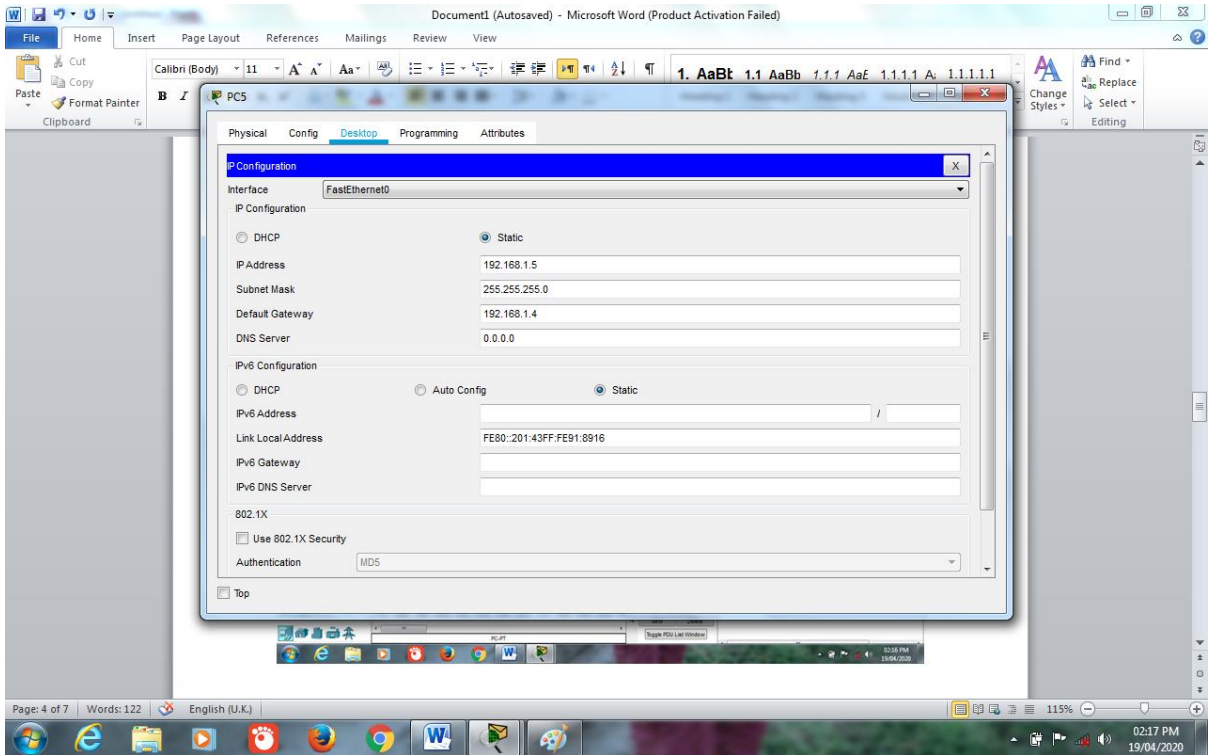
This screenshot shows the configuration window for PC1 in Cisco Packet Tracer. The window is titled "PC1" and has tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Config" tab is active, and the "IP Configuration" section is expanded. The interface is set to "FastEthernet0". Under "IP Configuration", the "Static" radio button is selected. The fields are filled with: IP Address: 192.168.1.1, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.1.0, and DNS Server: 0.0.0.0. The "IPv6 Configuration" section has "Static" selected, with Link Local Address: FE80::201:C9FF:FEAA:4C52. The "802.1X" section has "Use 802.1X Security" unchecked and "Authentication" set to "MD5".

Field	Value	
Interface	FastEthernet0	
IP Configuration		
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static	
IP Address	192.168.1.1	
Subnet Mask	255.255.255.0	
Default Gateway	192.168.1.0	
DNS Server	0.0.0.0	
IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::201:C9FF:FEAA:4C52	
IPv6 Gateway		
IPv6 DNS Server		
802.1X		
<input type="checkbox"/> Use 802.1X Security		
Authentication	MD5	

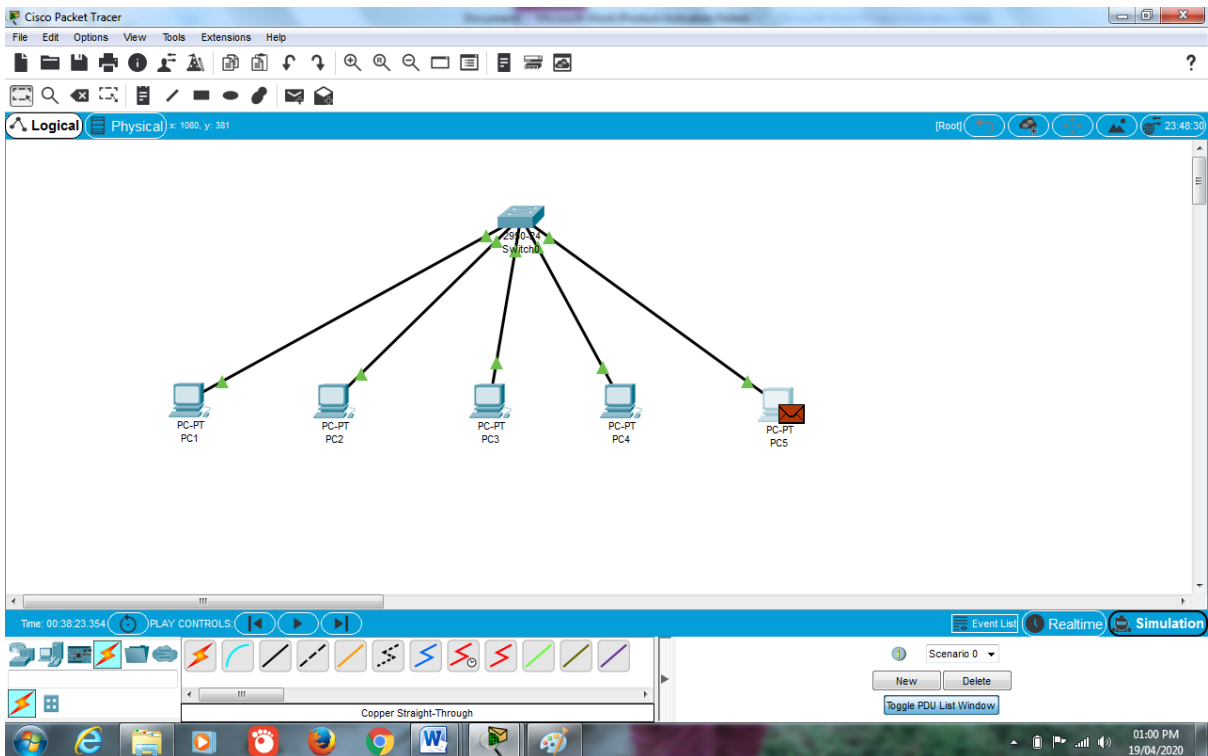
This screenshot shows the configuration window for PC2 in Cisco Packet Tracer. The window is titled "PC2" and has tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Config" tab is active, and the "IP Configuration" section is expanded. The interface is set to "FastEthernet0". Under "IP Configuration", the "Static" radio button is selected. The fields are filled with: IP Address: 192.168.1.2, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.1.1, and DNS Server: 0.0.0.0. The "IPv6 Configuration" section has "Static" selected, with Link Local Address: FE80::20C:85FF:FE31:97CB. The "802.1X" section has "Use 802.1X Security" unchecked, "Authentication" set to "MD5", and fields for "Username" and "Password" are present.

Field	Value	
Interface	FastEthernet0	
IP Configuration		
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static	
IP Address	192.168.1.2	
Subnet Mask	255.255.255.0	
Default Gateway	192.168.1.1	
DNS Server	0.0.0.0	
IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::20C:85FF:FE31:97CB	
IPv6 Gateway		
IPv6 DNS Server		
802.1X		
<input type="checkbox"/> Use 802.1X Security		
Authentication	MD5	
Username		
Password		





## **Send message and Simulation:**



Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 747, y: 220

Simulation Panel

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC5	ICMP
	0.001	PC5	Switch0	ICMP
	0.002	Switch0	PC1	ICMP
	0.002	Switch0	PC2	ICMP
	0.002	Switch0	PC3	ICMP
	0.002	Switch0	PC4	ICMP
	0.003	PC1	Switch0	ICMP
	0.004	Switch0	PC5	ICMP

Reset Simulation  Constant Delay Captured to: 12.209 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telet, UDR, USB, VTP

Edit Filters Show All/None

Time: 00:38:59.612 PLAY CONTROLS: Realtime Simulation

Copper Straight-Through

01:16 PM 19/04/2020

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 859, y: 189

Simulation Panel

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC5	ICMP
	0.001	PC5	Switch0	ICMP
	0.002	Switch0	PC1	ICMP
	0.002	Switch0	PC2	ICMP
	0.002	Switch0	PC3	ICMP
	0.002	Switch0	PC4	ICMP
	0.003	PC1	Switch0	ICMP
	0.004	Switch0	PC5	ICMP

Reset Simulation  Constant Delay Captured to: 14.208 s

Play Controls

Event List Filters - Visible Events

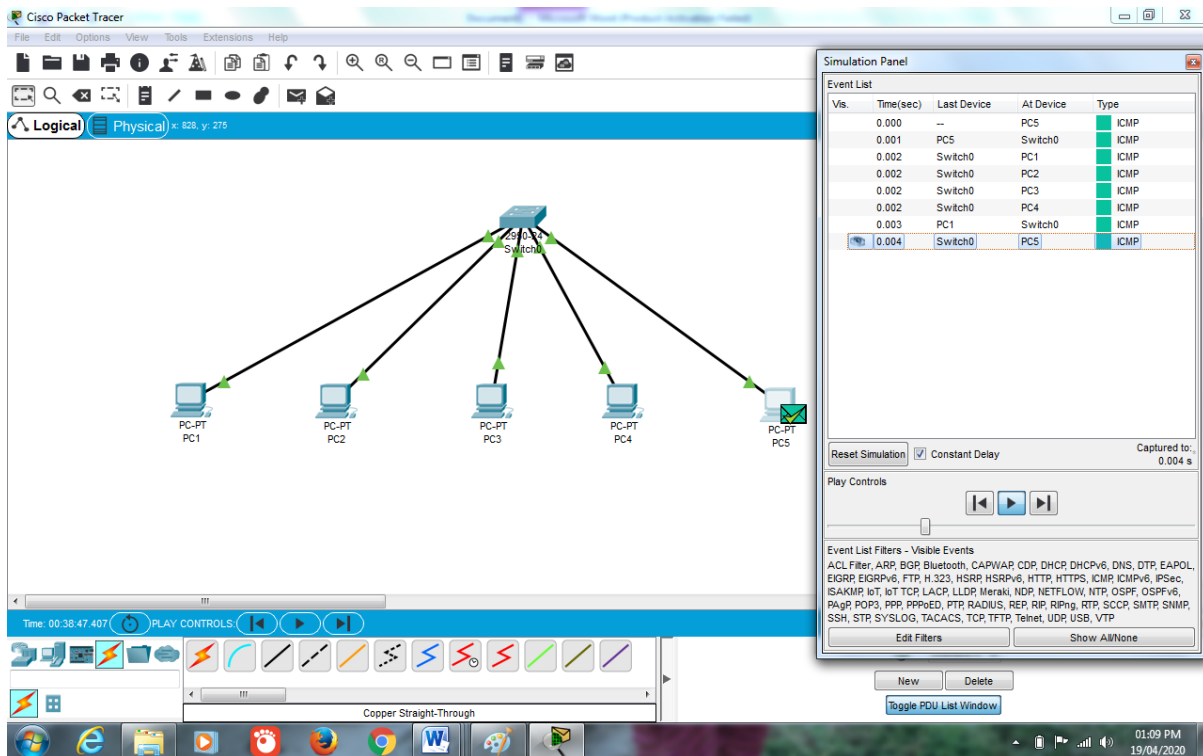
ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telet, UDR, USB, VTP

Edit Filters Show All/None

Time: 00:39:01.611 PLAY CONTROLS: Realtime Simulation

Copper Straight-Through

01:20 PM 19/04/2020

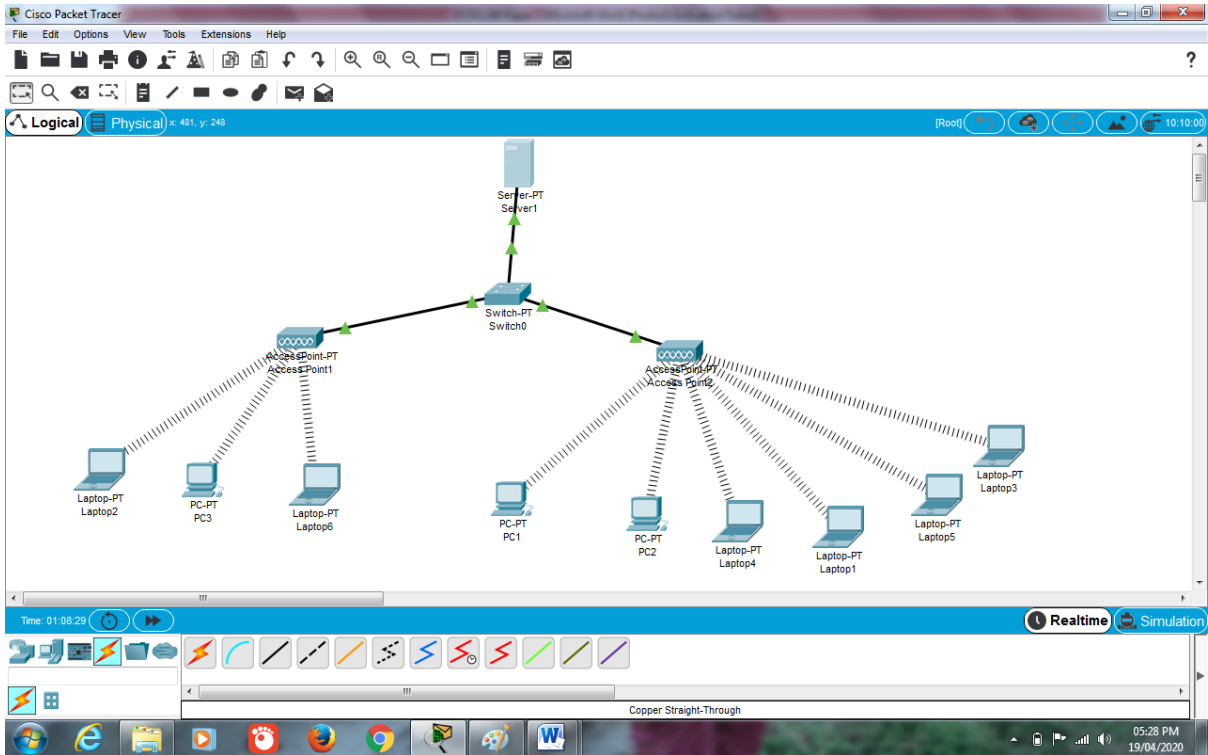


## Task 2:

**Construct a client server model that have 9 hosts, three of them are computers, and other six hosts will be laptops, in which further connected to 2 access points through wireless channel, as three of them will be connected to access point 1 and other through access point 2, assign them IP address and subnet masks dynamically from the server. Moreover, access the HTTP server from the client and show the results.**

**Answer:**

**Construction:**

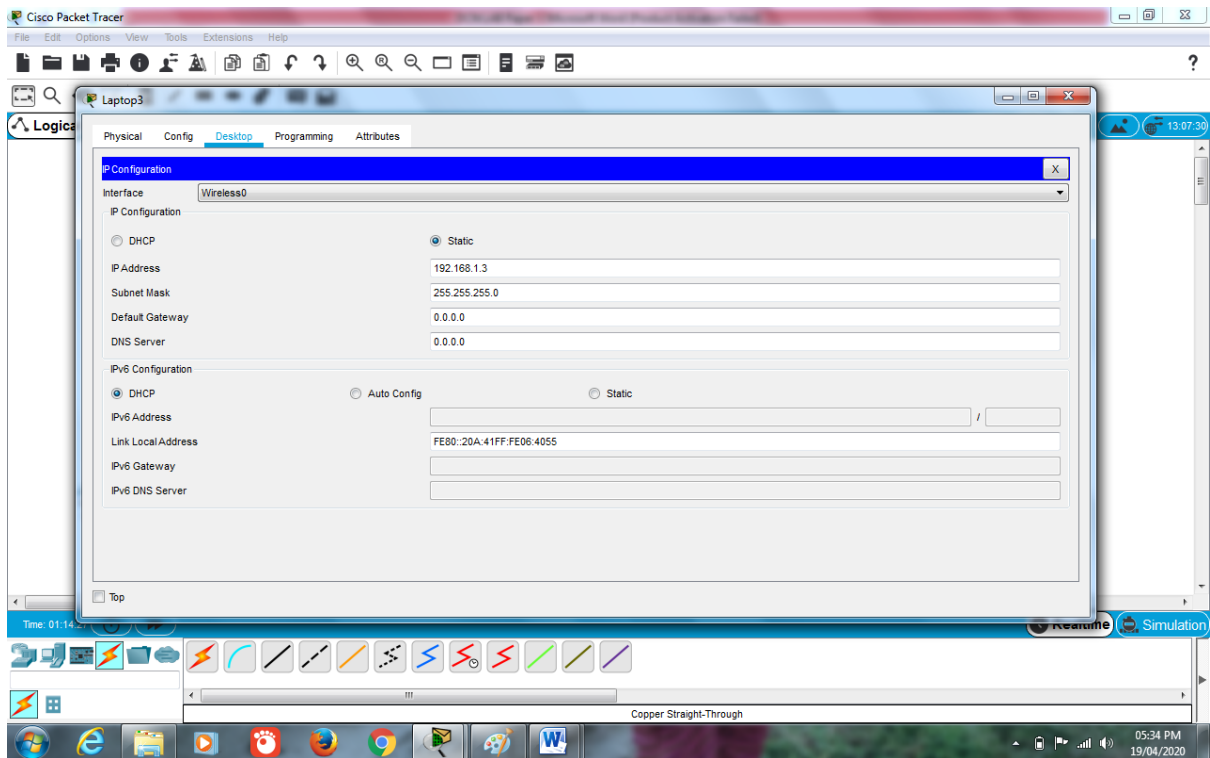
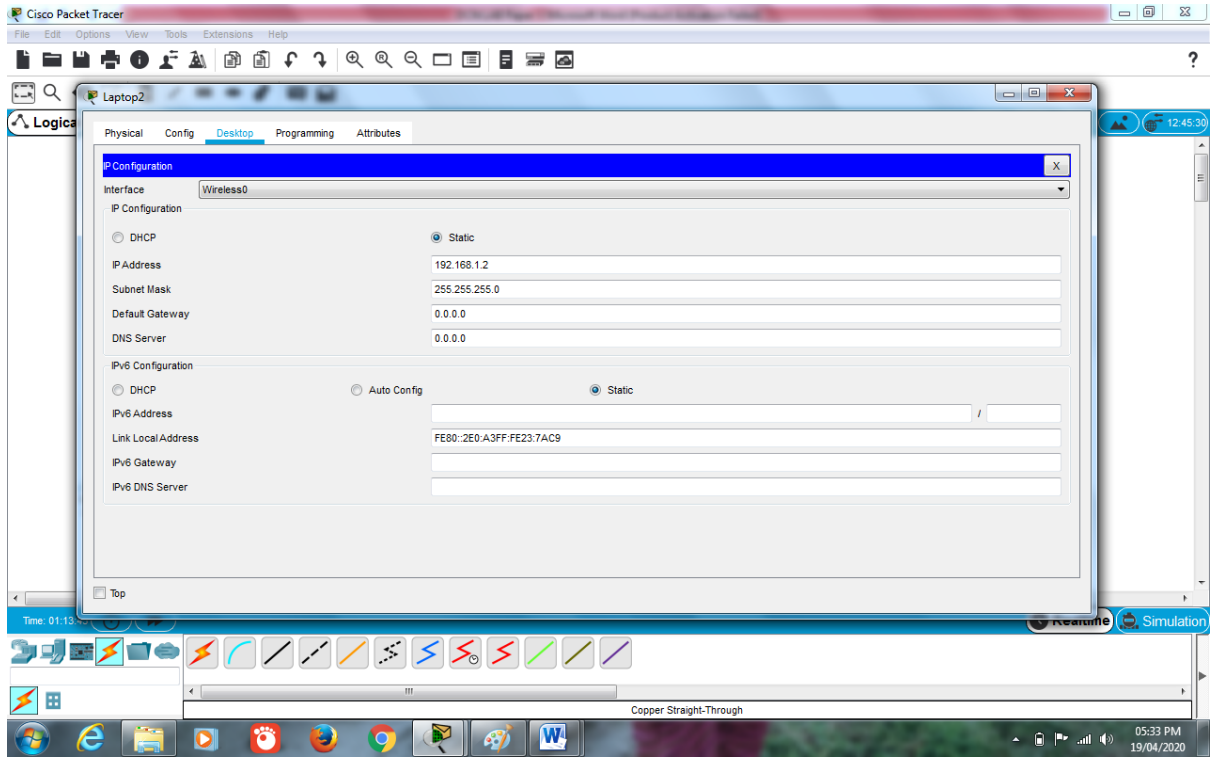


## IP Addresses and Subnet Masks:

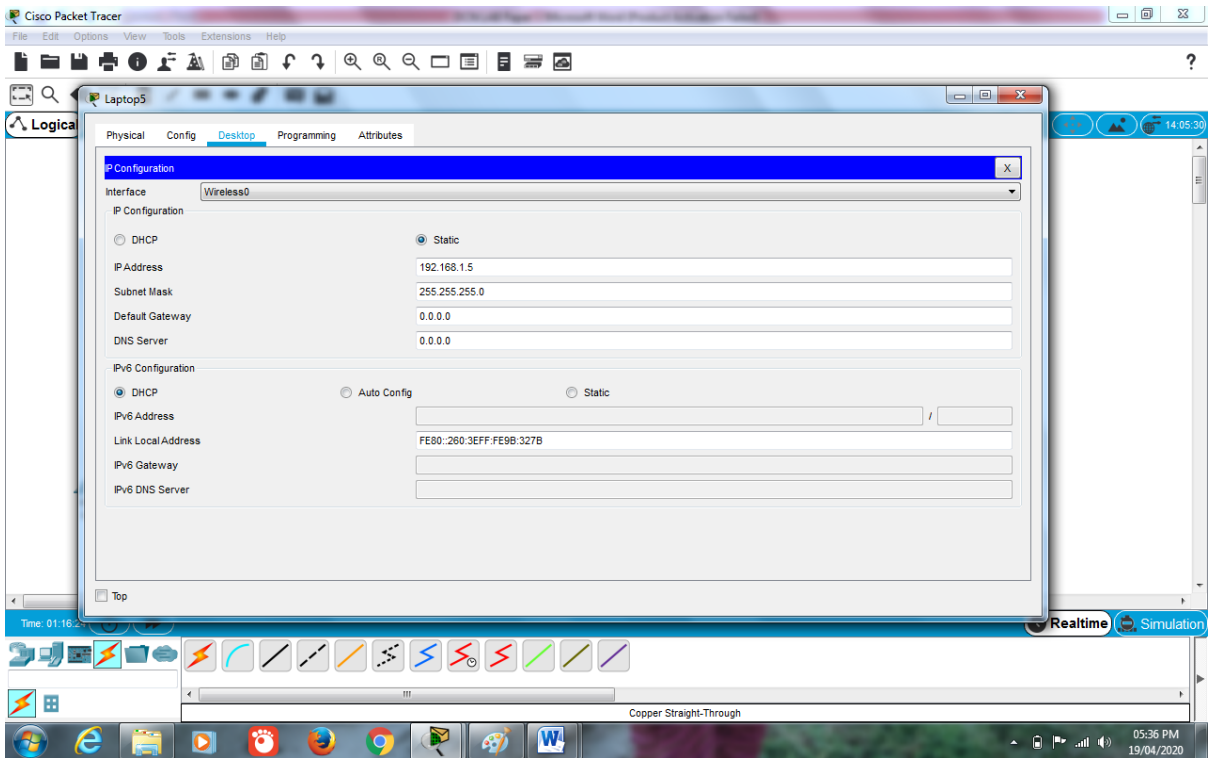
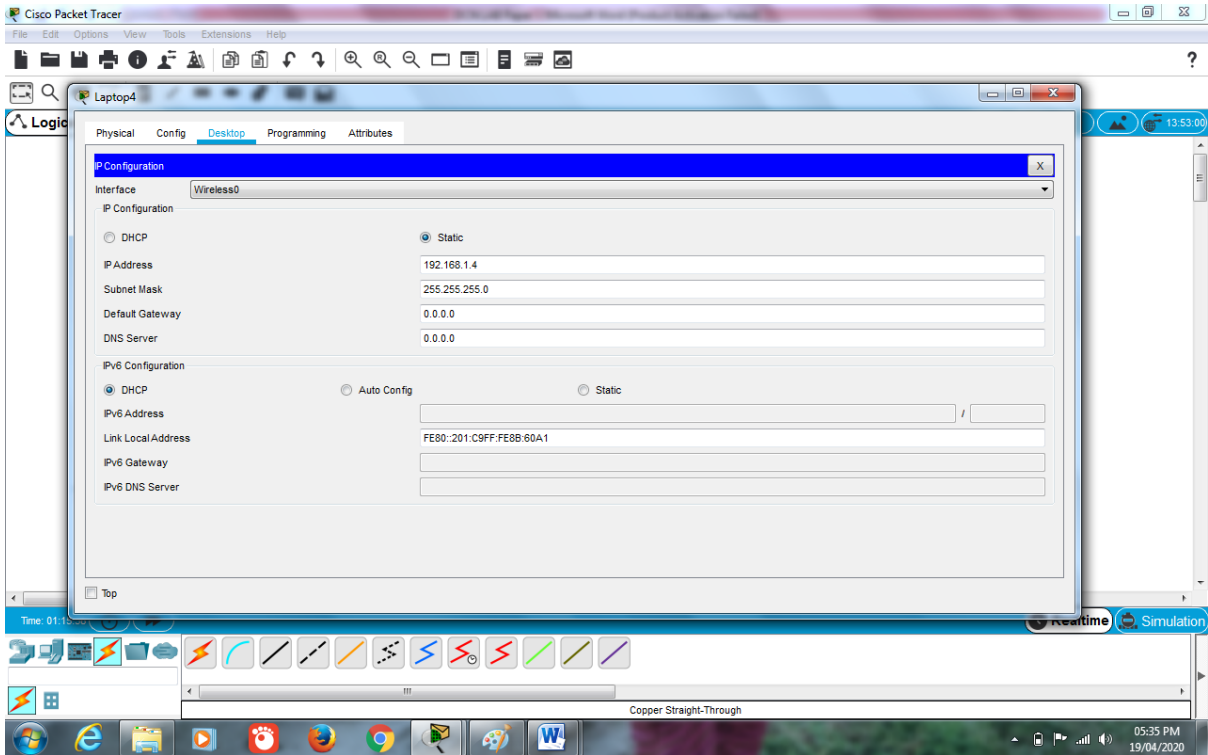
Cisco Packet Tracer  
 File Edit Options View Tools Extensions Help  
 Logical Physical x: 481, y: 248 [Root] 10:10:00  
 Time: 01:08:29 Realtime Simulation  
 Copper Straight-Through  
 05:28 PM 19/04/2020

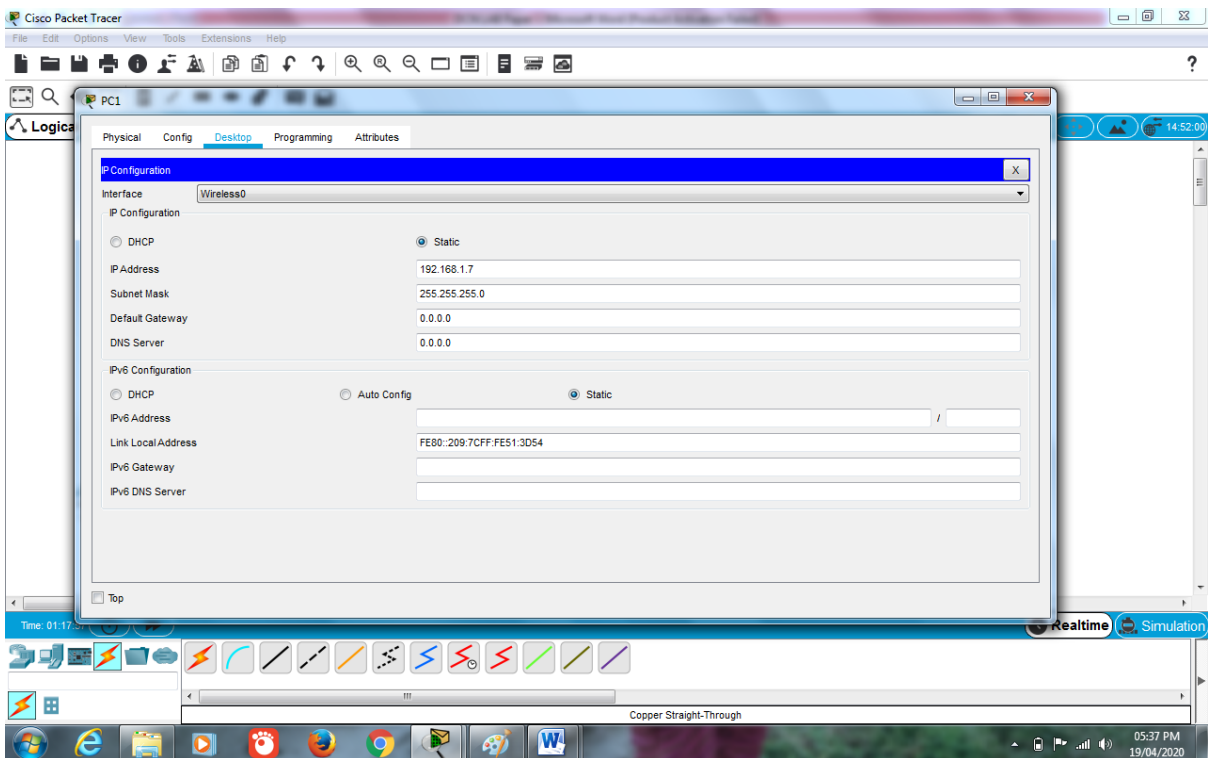
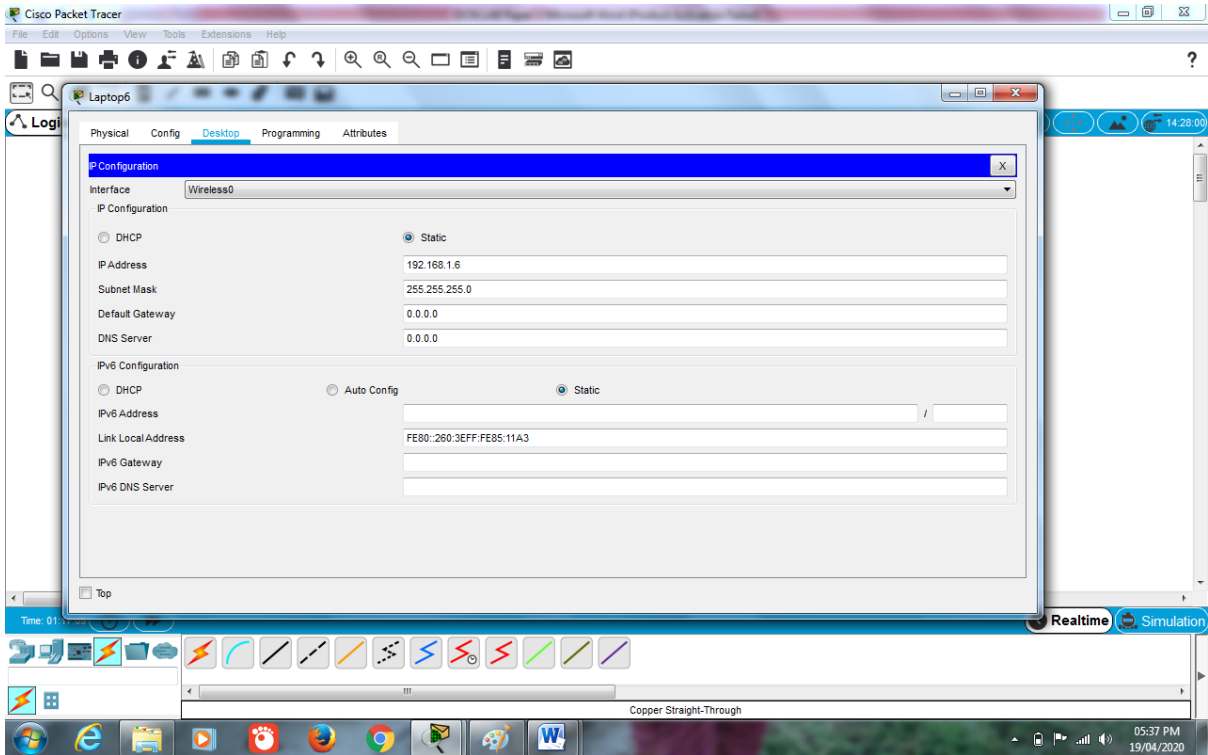
Laptop1  
 Physical Config Desktop Programming Attributes  
 IP Configuration  
 Interface: Wireless0  
 IP Configuration:  DHCP  Static  
 IP Address: 192.168.1.1  
 Subnet Mask: 255.255.255.0  
 Default Gateway: 0.0.0.0  
 DNS Server: 0.0.0.0  
 IPv6 Configuration:  DHCP  Auto Config  Static  
 IPv6 Address:   
 Link Local Address: FE80::260:47FF:FEA4:5D4B  
 IPv6 Gateway:   
 IPv6 DNS Server:   
 Top

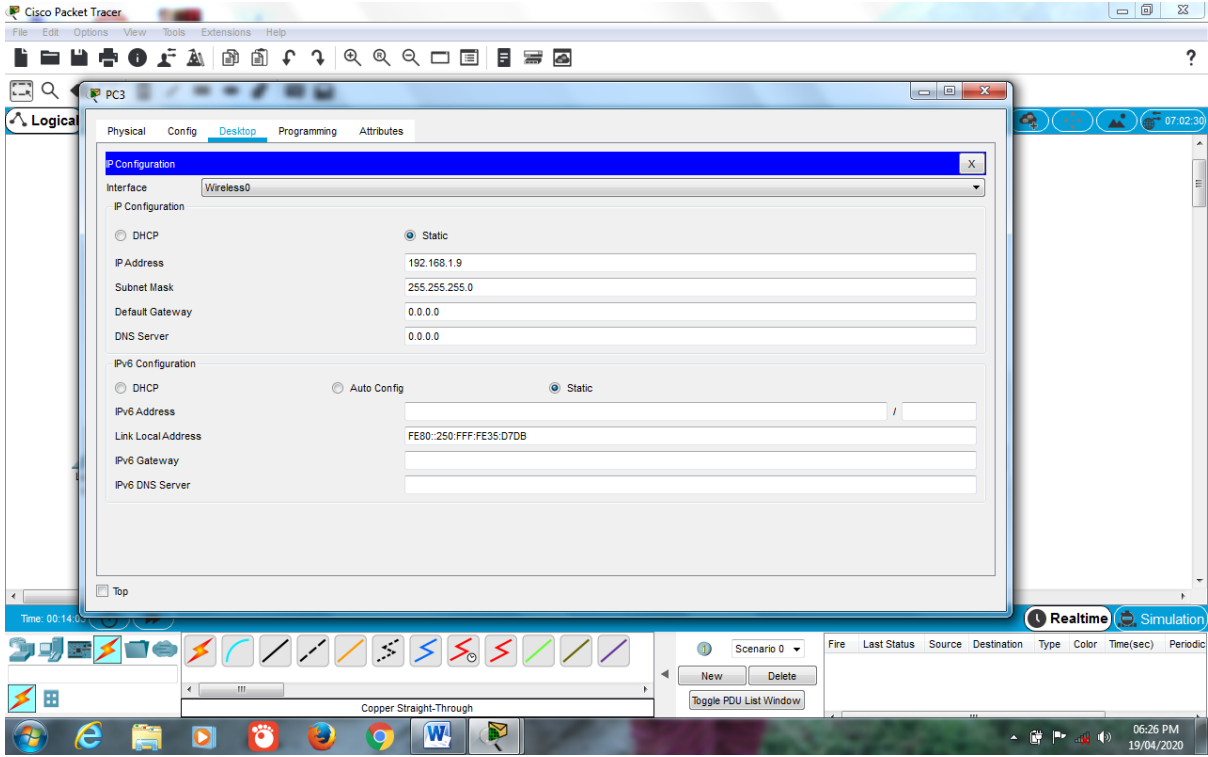
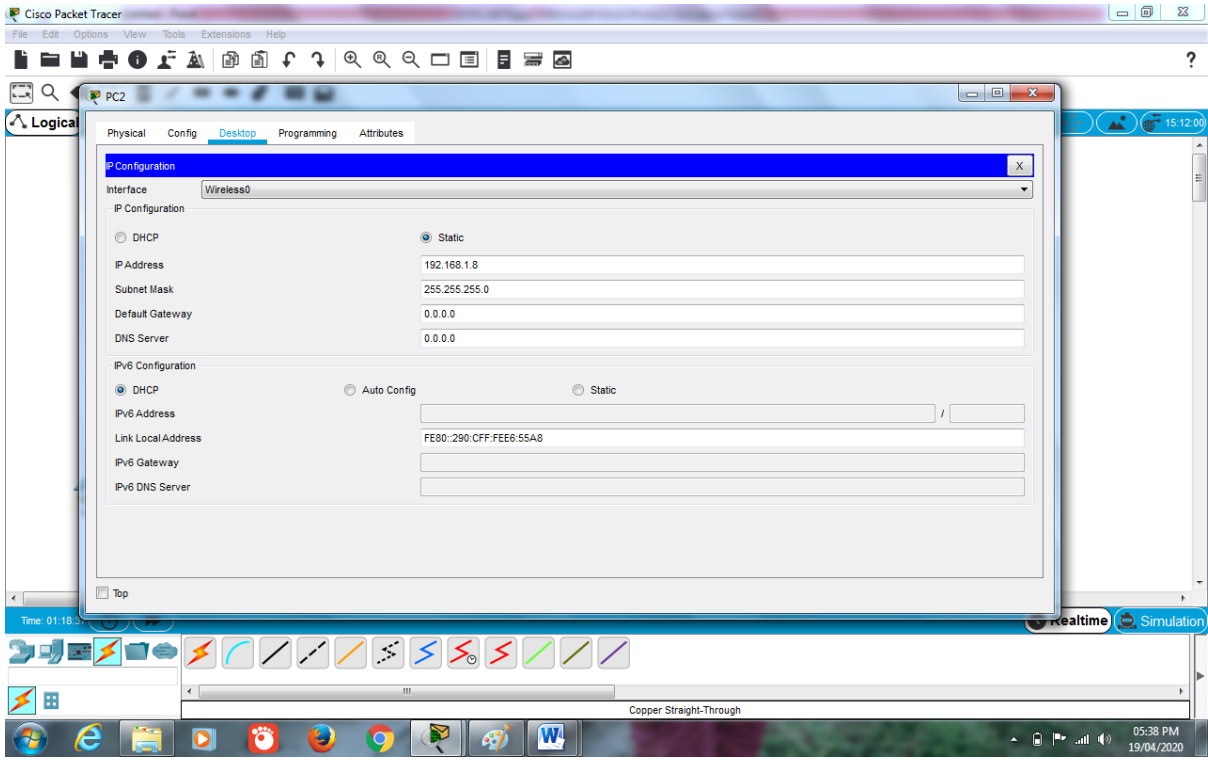
Time: 05:31 PM 19/04/2020  
 Copper Straight-Through  
 05:31 PM 19/04/2020

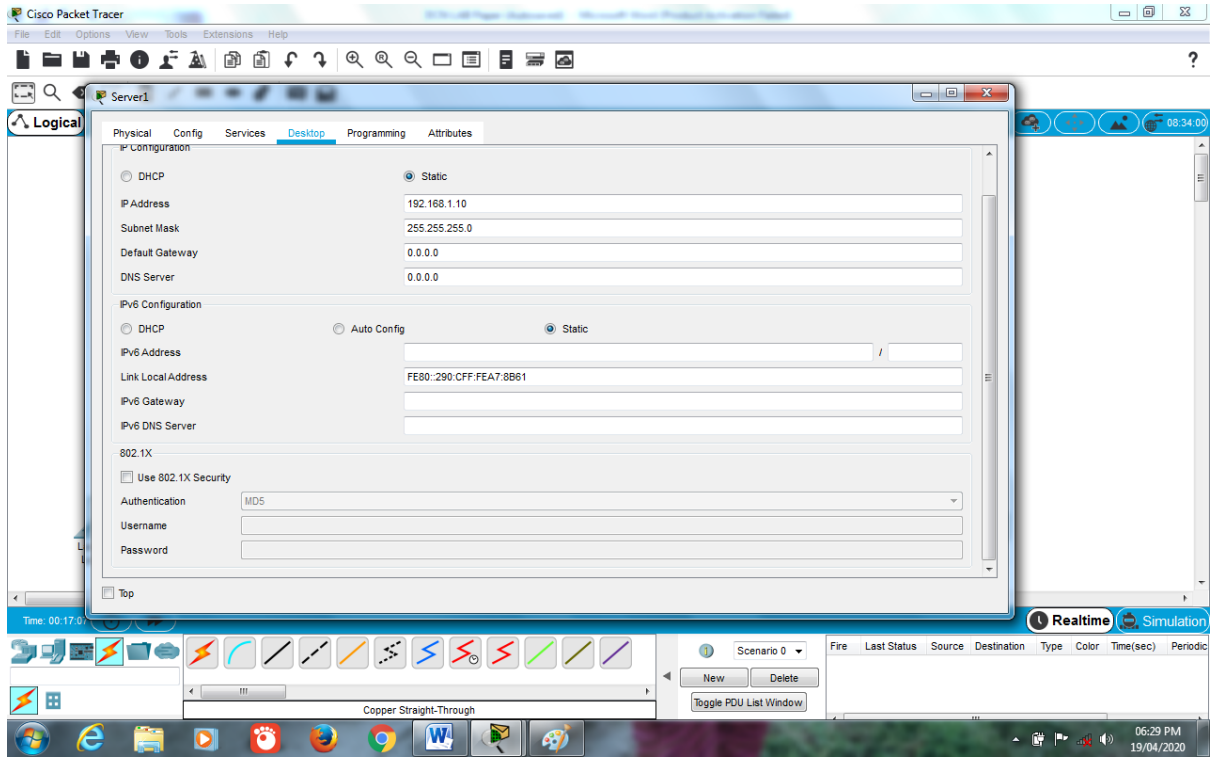




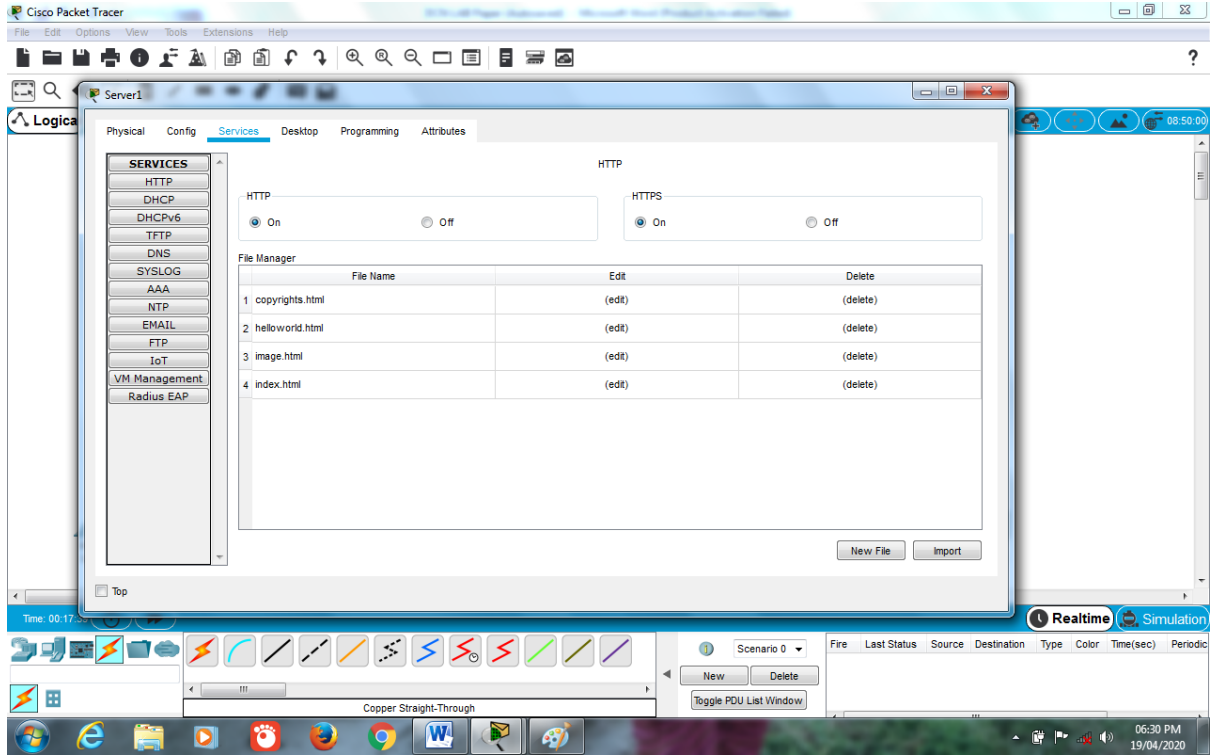








## HTTP in Server1:



## HTTP Server from the Client and Results:

