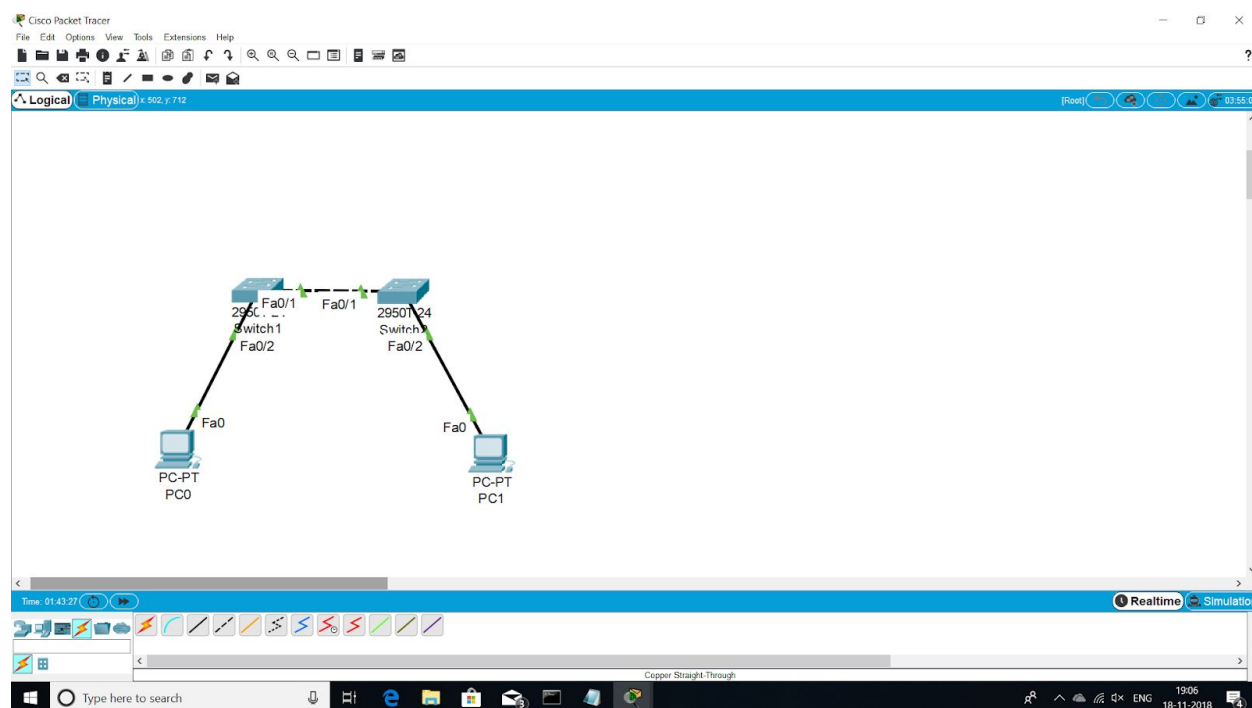# SM Lab-7

1.

Switch 1

Switch>enable

Switch#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#hostname switch1

switch1(config)#enable password switch

switch1(config)#interface vlan 1

switch1(config-if)#ip address 192.168.1.1 255.255.255.0

switch1(config-if)#no shutdown

switch1(config-if)#

%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

switch1(config-if)#^Z

switch1#

%SYS-5-CONFIG_I: Configured from console by console

switch1#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

switch1(config)#username admin password 0 switch

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```
switch1(config)#line vty 0 4
switch1(config-line)#login local
switch1(config-line)#do write
Building configuration...
[OK]
switch1(config-line)#show running-config

switch1(config-line)#^Z
switch1#
%SYS-5-CONFIG_I: Configured from console by console

switch1#show running-config
Building configuration...

Current configuration : 1170 bytes
!
version 12.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname switch1
!
enable password switch
!
!
!
!
username admin privilege 1 password 0 switch
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!

switch1#
```

Switch 2
```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname switch2
switch2(config)#enable password switch
switch2(config)#interface vlan 1
```

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switch2(config-if)#ip address 192.168.1.2 255.255.255.0
switch2(config-if)#no shutdown

switch2(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

switch2(config-if)#^Z
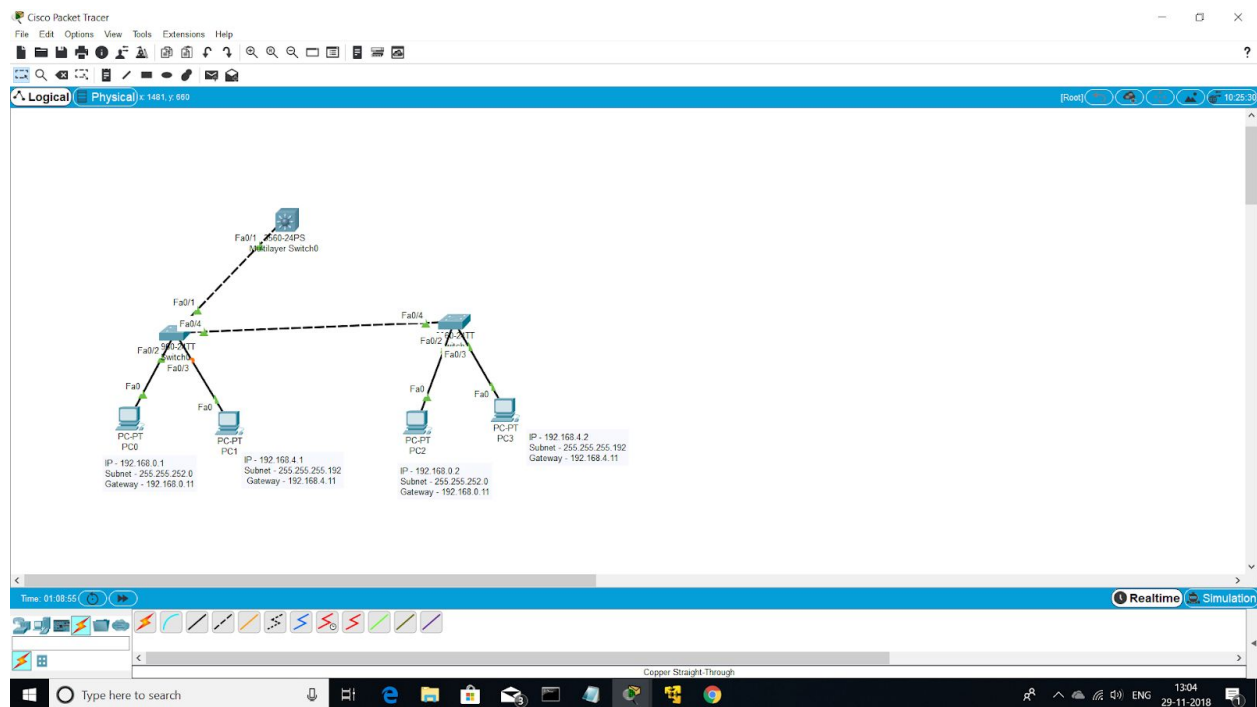switch2#
%SYS-5-CONFIG_I: Configured from console by console

switch2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch2(config)#username admin password 0 switch
switch2(config)#line vty 0 4
switch2(config-line)#login local
switch2(config-line)#^Z
switch2#
%SYS-5-CONFIG_I: Configured from console by console

switch2#write
Building configuration...
[OK]

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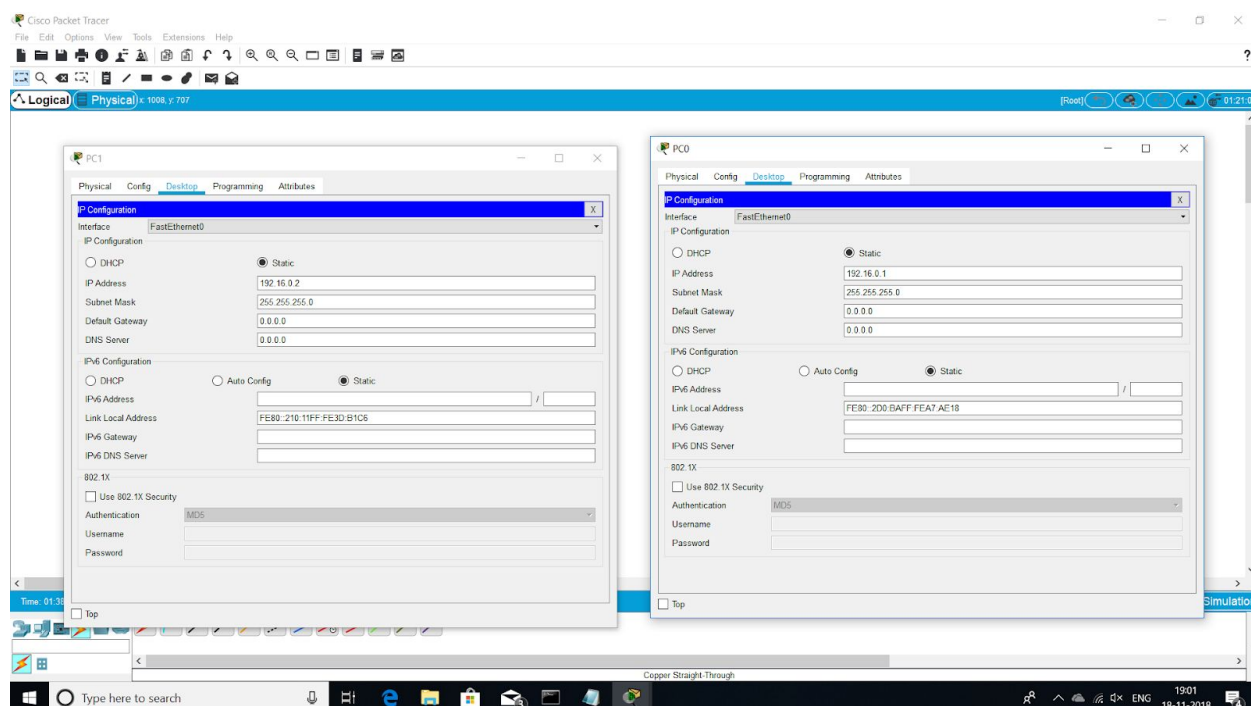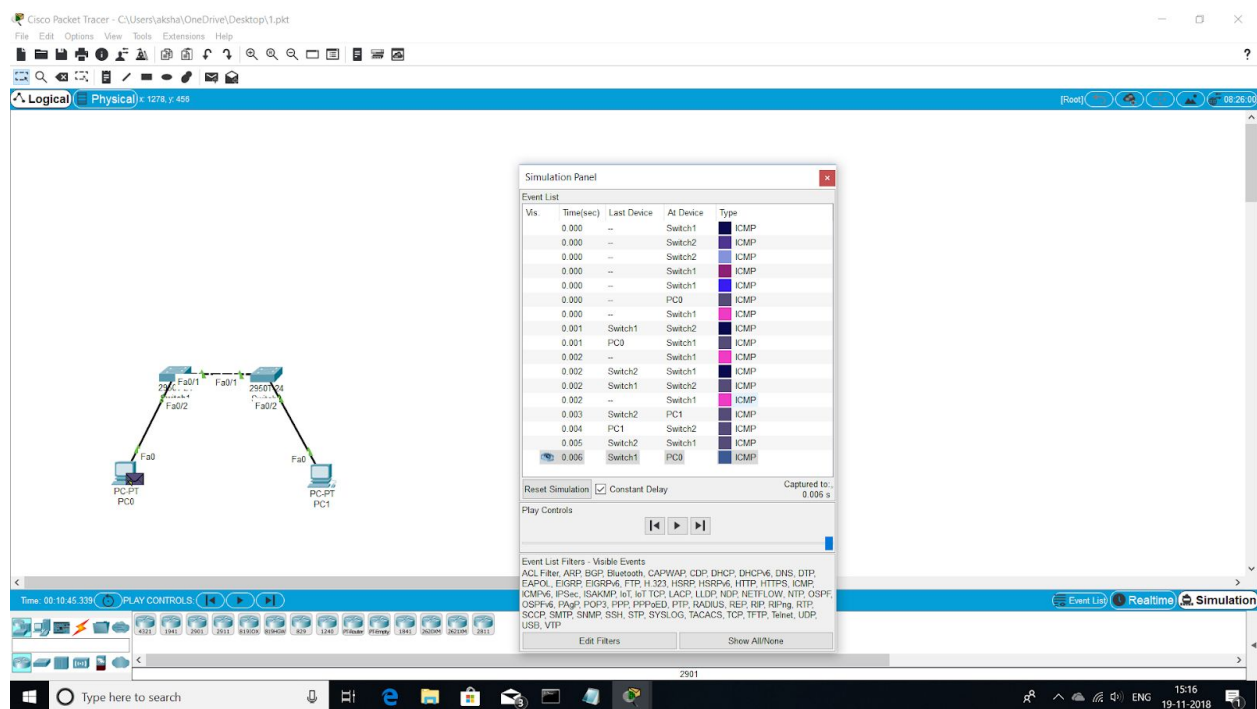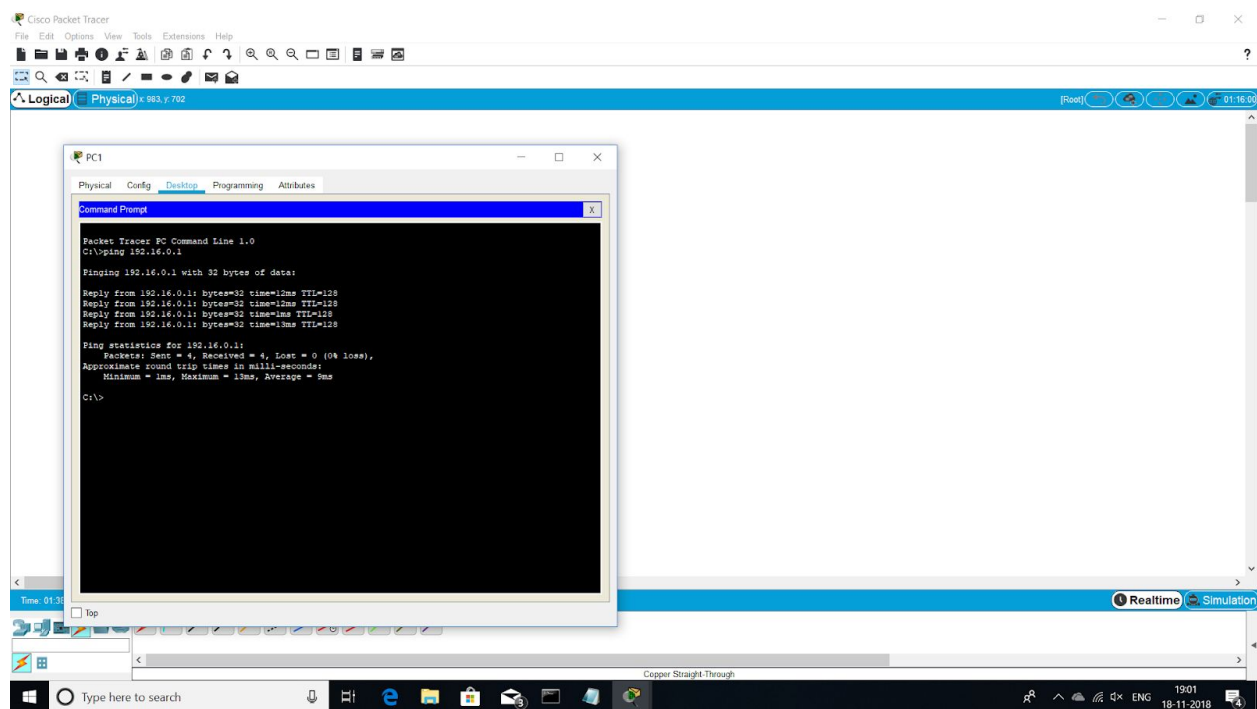
2.

Switch 0

Setting up vlan2 and 3

Switch>enable

Switch#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#vlan 2

Switch(config-vlan)#exit

Switch(config)#vlan 3

Switch(config-vlan)#exit

Switch#show vlan

VLAN Name Status Ports

---- ------------------------------- --------- ------------------------------

1 default active Fa0/1, Fa0/2, Fa0/3, Fa0/5

Fa0/6, Fa0/7, Fa0/8, Fa0/9

Fa0/10, 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

2 VLAN0002 active

3 VLAN0003 active

1002 fddi-default active

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1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active

VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2

<u>Trunk</u>
Switch(config)#interface fastEthernet 0/4
Switch(config-if)#switchport mode trunk
Switch#show running-config
Building configuration...

Current configuration : 1101 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
!

<u>Configuring vlan 2</u>
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface fastEthernet 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#

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Configuring vlan 3

Switch(config)#interface fastEthernet 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit

Did the same for switch 1

Switch 0

Switch(config)#interface fastEthernet 0/1
Switch(config-if)#switchport mode trunk

Multilayer switch

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface fastEthernet 0/1
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport mode trunk
Switch(config-if)#exit
Switch(config)#vlan 2
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#exit

Switch(config)#interface vlan 2
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan2, changed state to up

Configuring pc0

Switch(config-if)#ip address 192.168.0.11 255.255.252.0
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#interface vlan 3
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan3, changed state to up

Configuring pc1
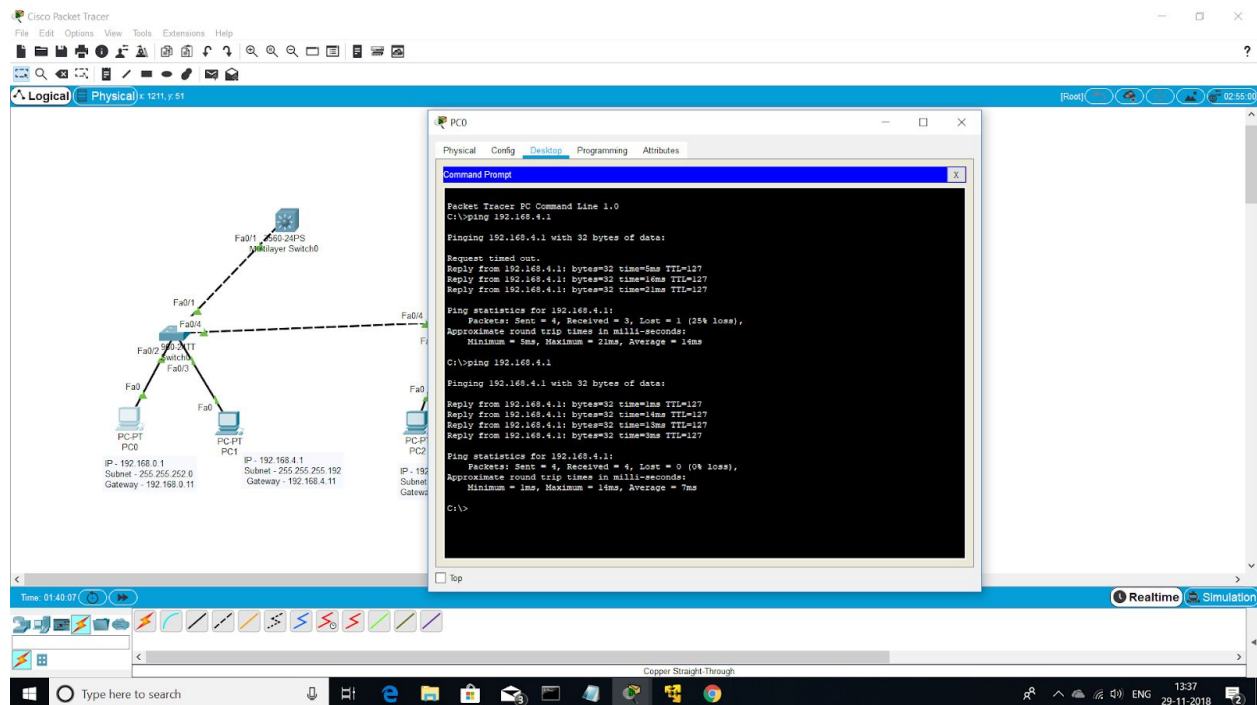
Switch(config-if)#ip address 192.168.4.11 255.255.255.192

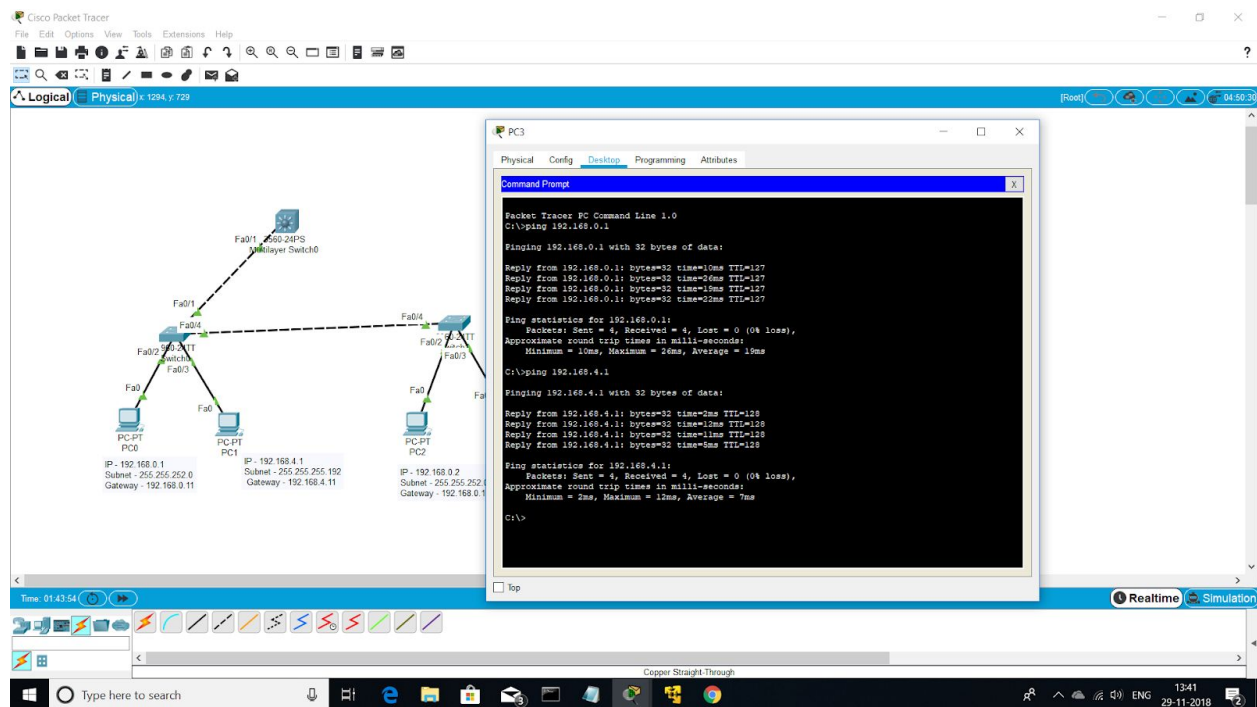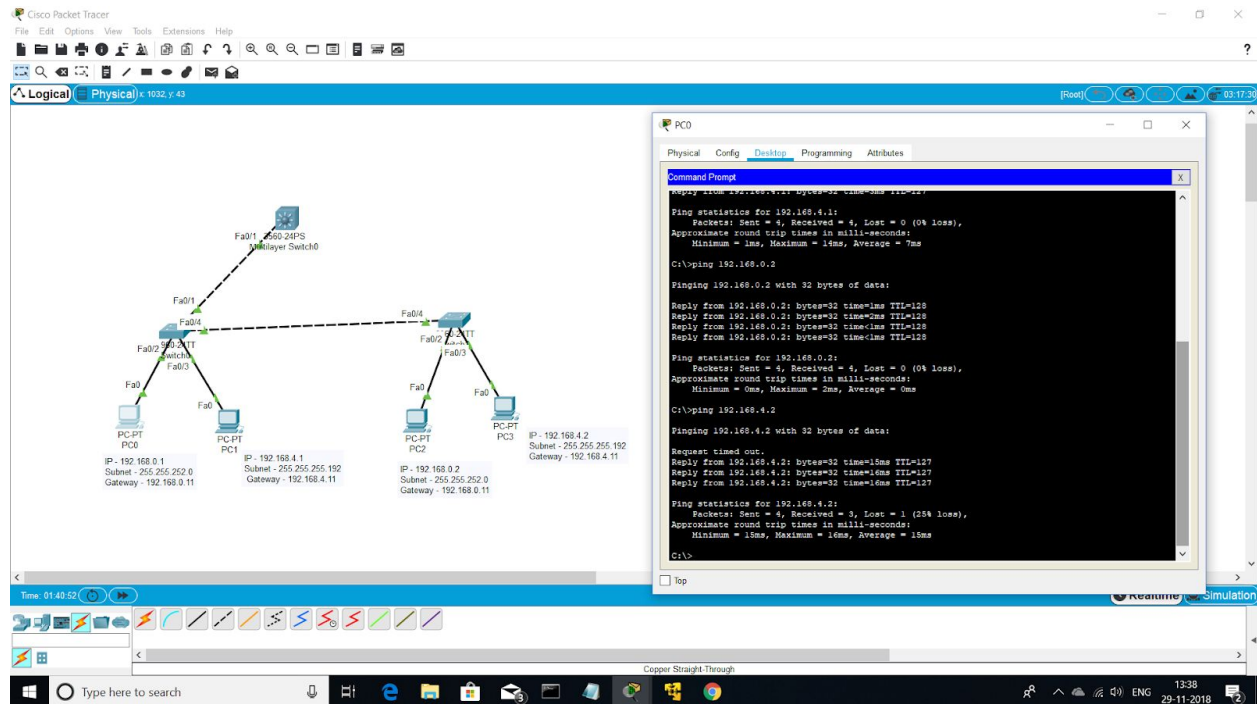Akshala Bhatnagar
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Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#

<u>Routing</u>
Switch(config)#ip routing
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

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3.a) IP address = 193.16.3.5

This is a class c IP address.

There are 14 networks. 14 can be represented in 4 bits in binary form ie -

Subnet mask of class C is 255.255.255.0 which is 1111111.1111111.1111111.0000000

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The subnet mask for this will be 1111111.1111111.1111111.11110000. Which is 255.255.255.240

The increment is of 2^4 that is 16.

b) IP address of last host of 3rd subnet is 193.16.3.46. The 3rd subnet is 193.16.3.32

IP network ranges are 193.16.3.0 - 193.16.3.15

                           193.16.3.16 - 193.16.3.31

                           193.16.3.32 - 193.16.3.47 and so on

c) There are 16 subnets. As masked bits = 4. The last subnet is is 193.16.3.223. The IP address of the last host of the last subnet is 193.16.3.222.

d) The increment is 16. So the maximum number of hosts is per subnet is $2^4 - 2 = 14$

e) The broadcast of first subnet is 193.16.3.15

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