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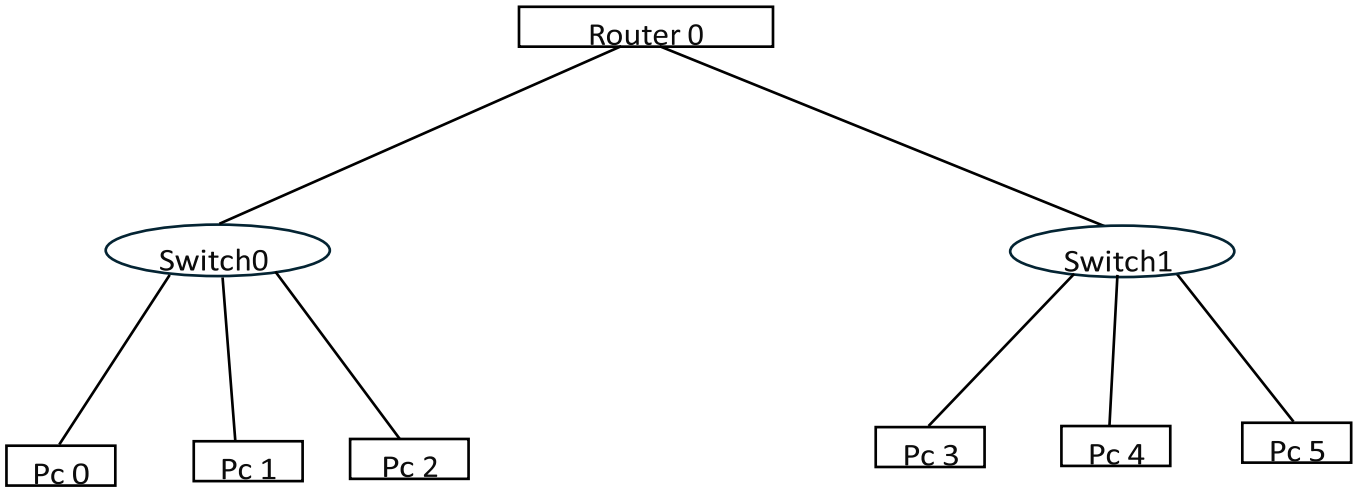
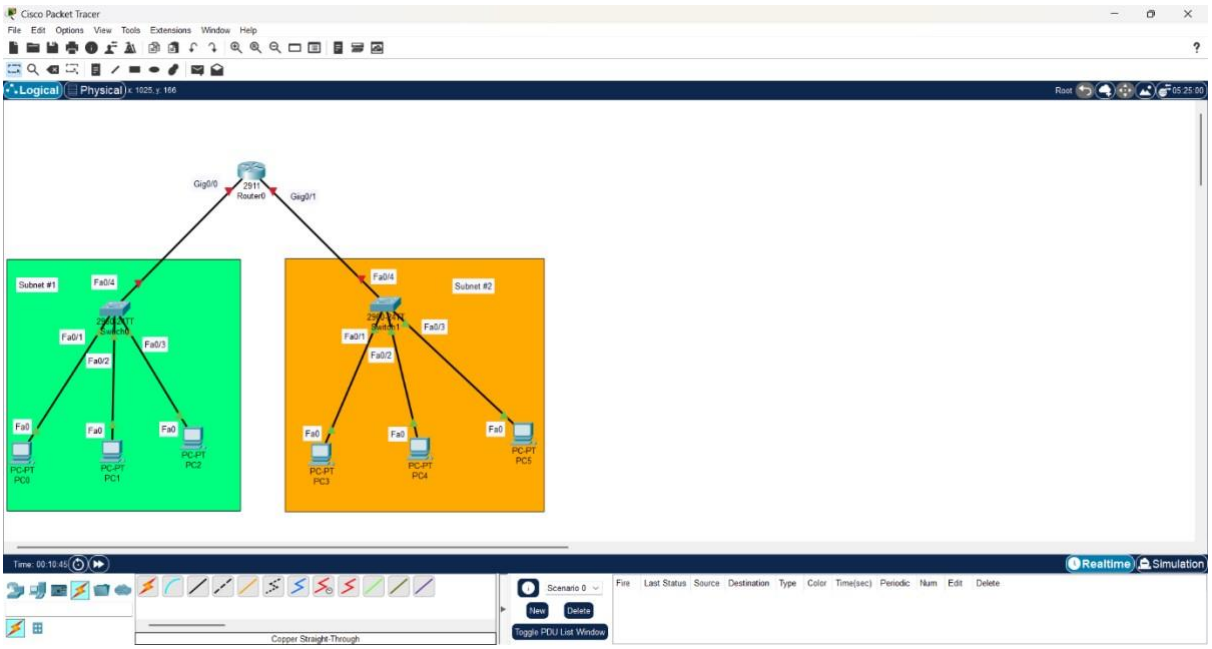
Name	**K.HANUMAN**
Class/Section	**8501A/S06**
Ex.No:	**8**
Date of Submission	**27.02.2025**
Name of the Experiment	**Subnetting**
Google Drive link of the packet tracer file (give view permission):	https://drive.google.com/drive/folders/1FoHZ0xcfb4sr_soLnAXpWWRnYTUccObR

1. **Device Requirements:**
   1. Router 0
   2. Switch 0
   3. Switch 1
   4. Pc 0 5. Pc 1 6. Pc 2
   7. Pc 3
   8. Pc 4
   9. Pc 5
   10. Wires

2. **Network Diagram for your experiment (draw the diagram either hand drawing/ms paint or any other drawing tools)**



3. Network Diagram (Packet Tracer diagram before configuration):



4. Configuration details:

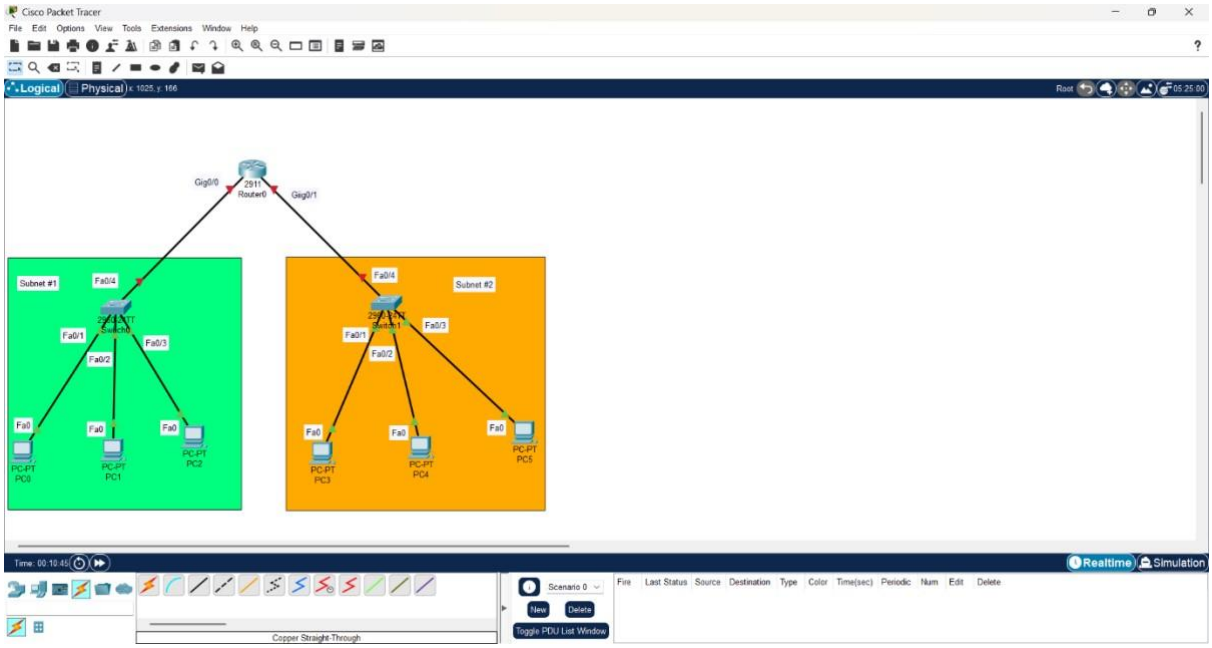
Device Name	Interface Name	IP Address	Subnet mask	Default Gateway
PC0	Fa0	192.168.10.1	255.255.255.128	192.168.10.4
PC1	Fa0	192.168.10.2	255.255.255.128	192.168.10.4
PC2	Fa0	192.168.10.3	255.255.255.128	192.168.10.4
PC3	Fa0	192.168.10.129	255.255.255.128	192.168.10.132
PC4	Fa0	192.168.10.130	255.255.255.128	192.168.10.132
PC5	Fa0	192.168.10.131	255.255.255.128	192.168.10.132
Router 0	Gig0/0, Gig0/1	192.168.10.4, 192.168.10.132	255.255.255.128, 255.255.255.128	
Switch 1	Fa0/4			
Switch 2	Fa0/4			

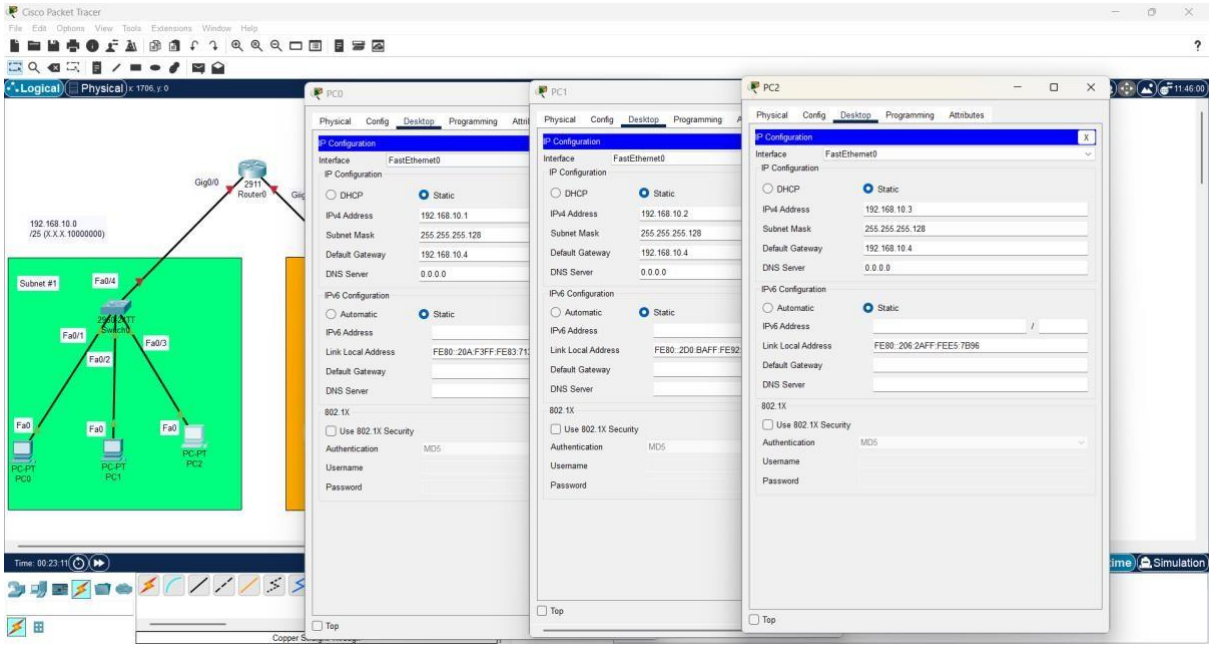
5. **Describe step by step configuration steps properly (you may copy the commands used in the configuration tab and paste it.)**

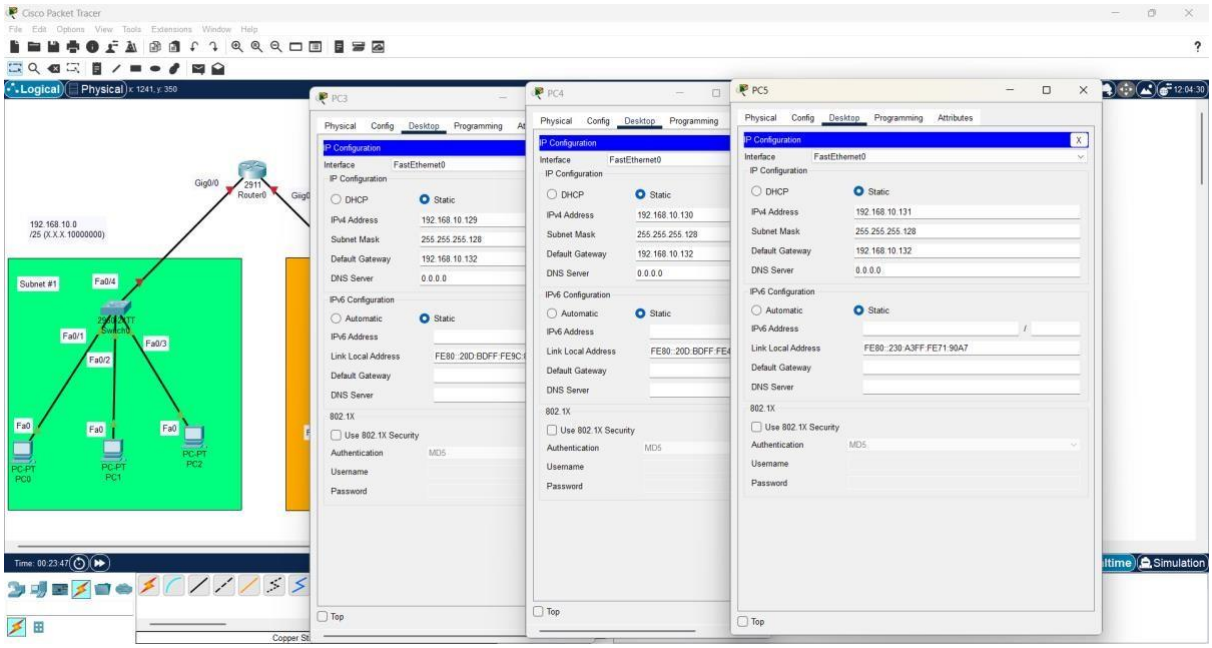
Router 0:

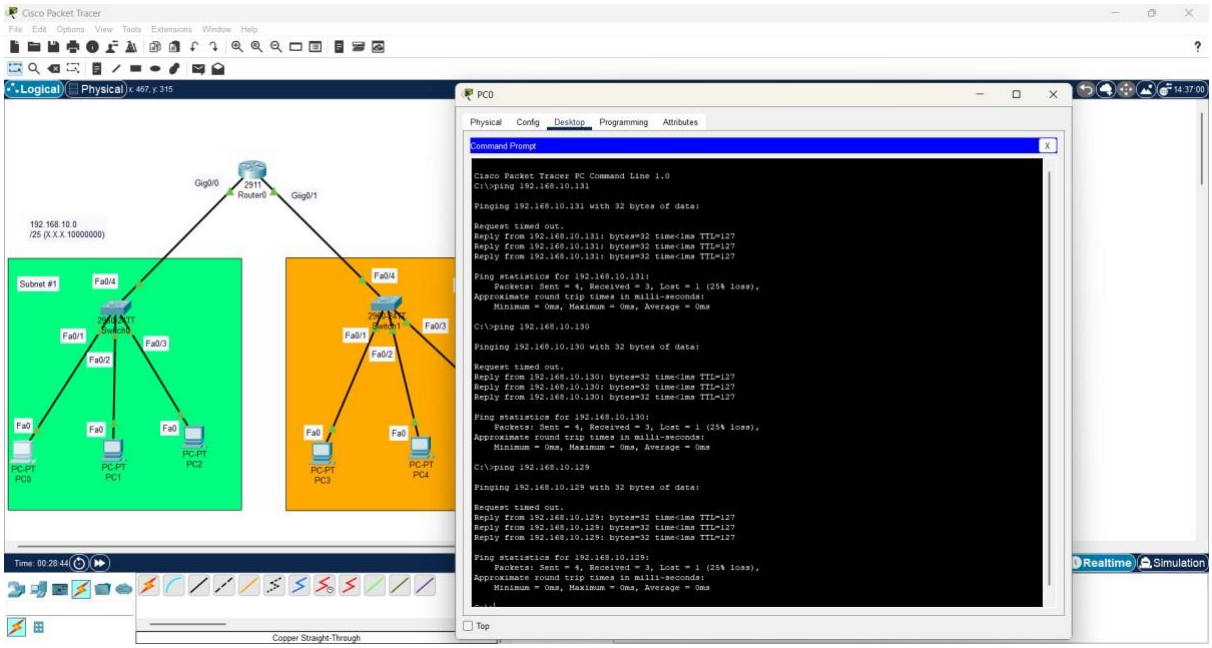
```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up ip
address 192.168.10.4 255.255.255.0
Router(config-if)#ip address 192.168.10.4 255.255.255.0
Router(config-if)#ip address 192.168.10.4 255.255.255.128
Router(config-if)#ip address 192.168.10.4 255.255.255.128
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up ip
address 192.168.10.132 255.255.255.128
Router(config-if)#ip address 192.168.10.132 255.255.255.128
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#exit
```

6.Output Diagram (Minimum 3 screenshot):






Cisco Packet Tracer
PC3
PC4
PC5
IP Configuration
Interface FastEthernet0
DHCP
Static
IPv4 Address 192.168.10.129
IPv4 Address 192.168.10.130
IPv4 Address 192.168.10.131
Subnet Mask 255.255.255.128
Default Gateway 192.168.10.132
DNS Server 0.0.0.0
IPv6 Configuration
Automatic
Static
802.1X
Use 802.1X Security
Authentication
Username
Password
Top


Cisco Packet Tracer
PC0
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.131
Pinging 192.168.10.131 with 32 bytes of data:
Request timed out.
Reply from 192.168.10.131: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.10.131:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.10.130
Pinging 192.168.10.130 with 32 bytes of data:
Request timed out.
Reply from 192.168.10.130: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.10.130:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.10.129
Pinging 192.168.10.129 with 32 bytes of data:
Request timed out.
Reply from 192.168.10.129: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.10.129:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms

Google Drive link of the packet tracer file (give view permission):

Link:https://drive.google.com/drive/folders/1FoHZ0xcfb4sr_soLnAXpWWRnYTUccObR

CONCLUSION (provide conclusion about this experiment):

Configuring subnetting is essential for efficient IP address management and network segmentation. By dividing a network into smaller subnets, subnetting improves performance, enhances security, and optimizes resource utilization. Proper implementation reduces network congestion, minimizes broadcast traffic, and ensures better network organization. Subnetting also simplifies troubleshooting and enhances overall network efficiency.

Rubrics for Experiment Assessment:

Rubrics	Good	Normal	Poor	Marks
Creation of Topology (4)	Created the topology, Identify the proper devices and making the connections **(4)**	Created the topology, Identify the proper devices, making the connections But missing some features **(3)**	Created wrong topology, Failed to Identify the proper devices and making connections **(1)**	
Verify the connectivity (4)	Verified the connectivity in all the levels **(4)**	Verified the connectivity at some levels (only some nodes) **(2)**	Verified the connectivity is not done. **(1)**	
Timely Completion (2)	Completed the lab before the allotted time **(2)**	Completed the lab after the deadline **(1)**	Did not submitted before grading **(0)**	
			Total	

Result: Thus the Design a Configuring subnetting Protocol has been done successfully.