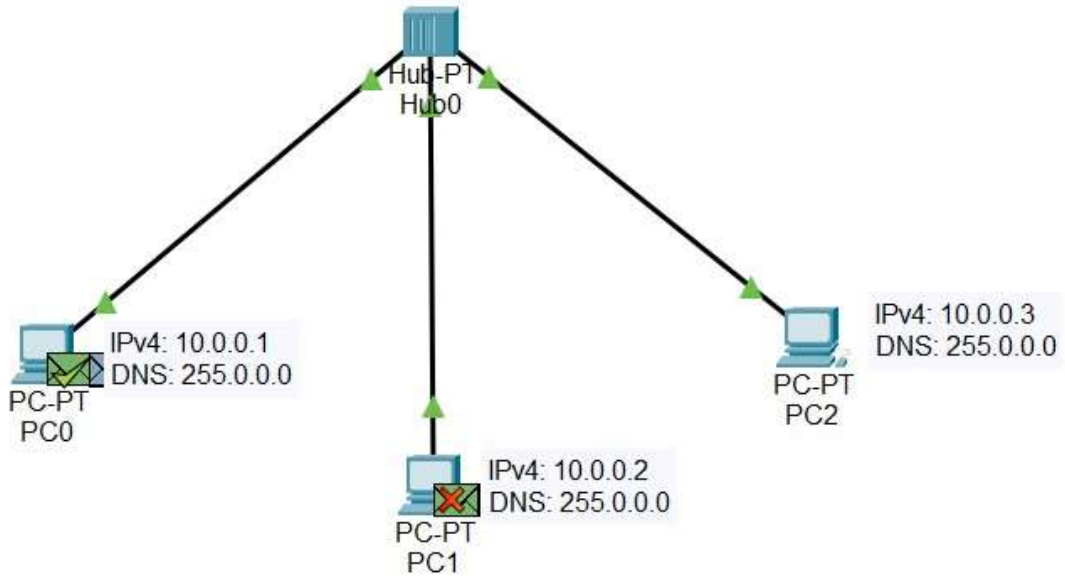
LABORATORY PROGRAM – 1

Create a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices and demonstrate ping message.




```
C:\>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=9ms TTL=128
Reply from 10.0.0.3: bytes=32 time<1ms TTL=128
Reply from 10.0.0.3: bytes=32 time=1ms TTL=128
Reply from 10.0.0.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 9ms, Average = 2ms
```

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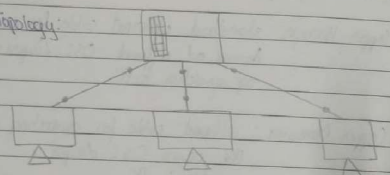
HUB:

Aim: To demonstrate transmission of simple PDU from 2 devices connected using a Hub and a switch

Topology:



PC-PT PC0	PC-PT PC1	PC-PT PC2
192.180.160.1124	192.180.160.2124	192.180.160.3124

Procedure:

1. Launch Cisco packet tracker
2. Add devices: 3 PC's and a Hub
3. Connect devices using copper straight through cable to 3 PC to Hub
4. ip config → ip address

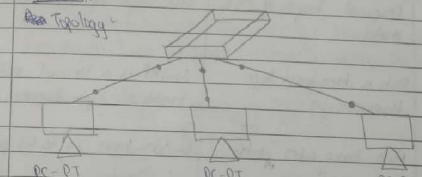
		Subnet mask
PC0	192.180.160.1124	255.255.255.0
PC1	192.180.160.2124	255.255.255.0
PC2	192.180.160.3124	255.255.255.0

5. add Simple PDU from source PC0 to Destination PC1

Observation: Hub broadcasts packets to all devices which many cable unnecessary traffic

SWITCH:

Topology:



PC-PT PC0	PC-PT PC1	PC-PT PC2
192.180.160.1124	192.180.160.2124	192.180.160.3124

Procedure:

1. Launch Cisco packet tracker
2. Add devices: 3 PC's and a switch
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PC0	192.180.160.1124	255.255.255.0
PC1	192.180.160.2124	255.255.255.0
PC2	192.180.160.3124	255.255.255.0

4. Connect devices: using copper straight through cable to 3 PC to Hub
5. add Simple PDU from source PC0 to Destination PC1

Observation: Switch forwards packets only to appropriate device by learning MAC address, makes it more efficient in traffic