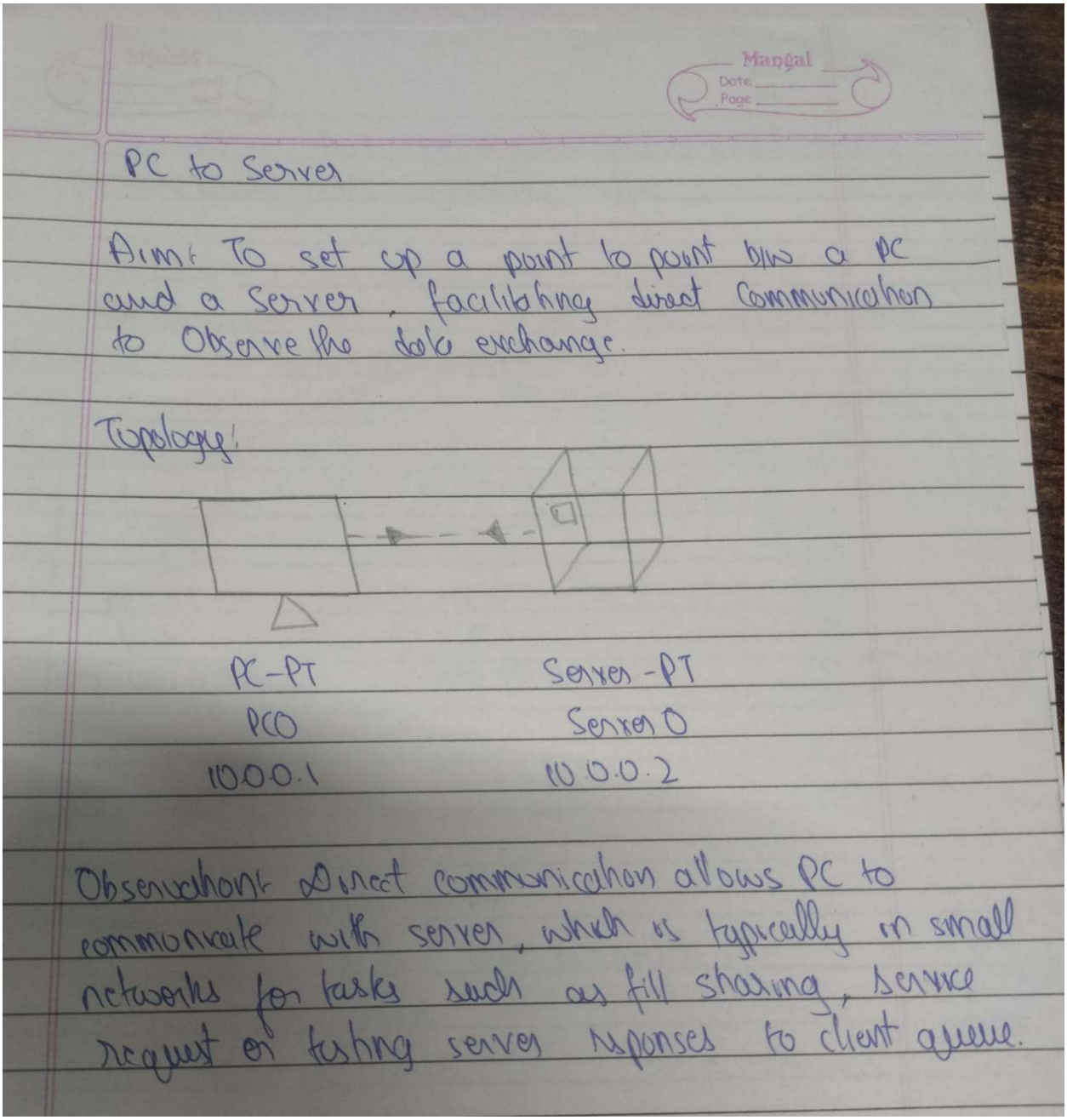
PC to Server:



PC to Server

Aim: To set up a point to point b/w a PC and a Server, facilitating direct communication to observe the data exchange.

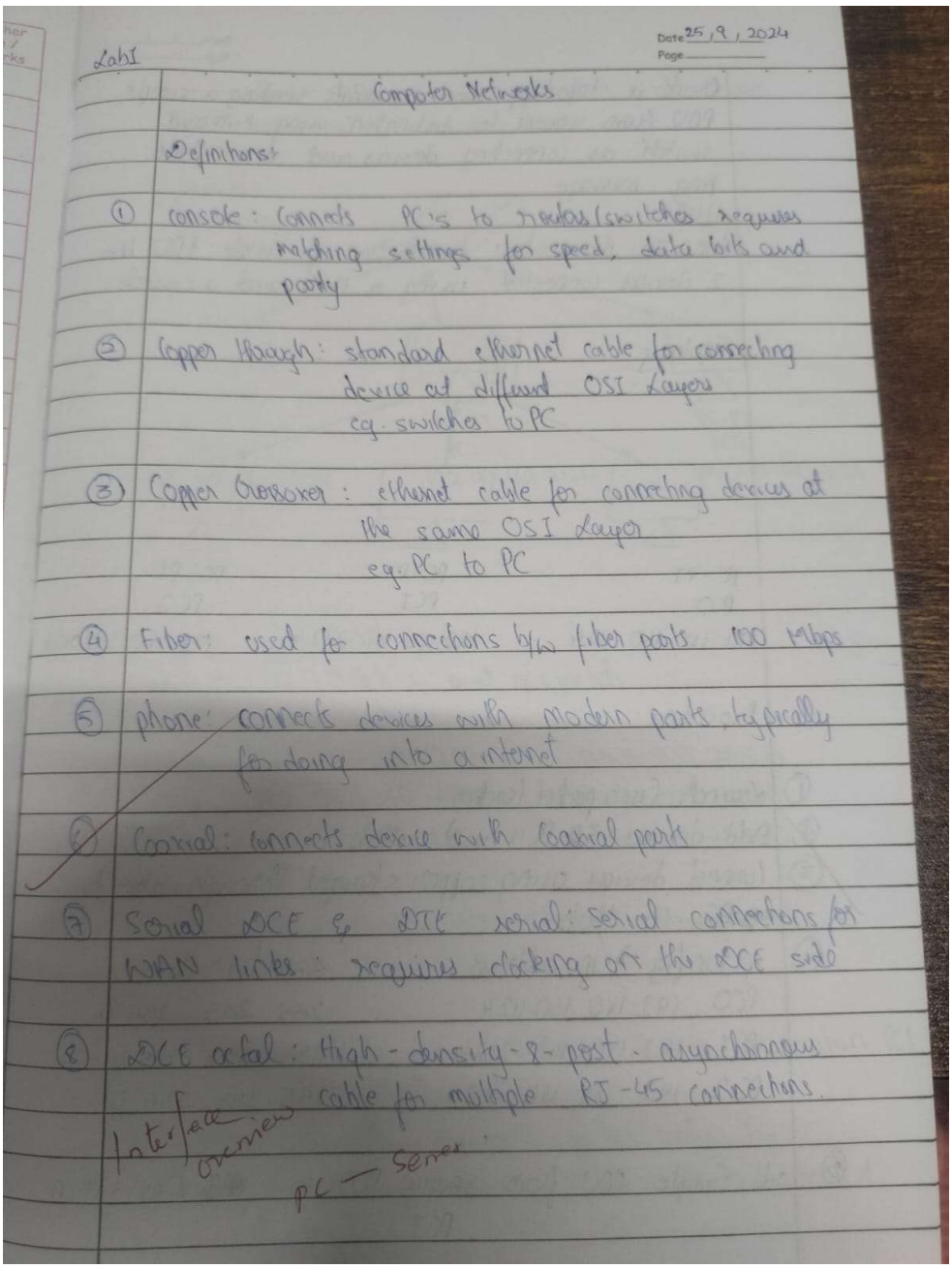
Topology:

PC-PT	Server-PT
PC0	Server 0
10.0.0.1	10.0.0.2

Observation: Direct communication allows PC to communicate with server, which is typically in small networks for tasks such as file sharing, service request or fetching server responses to client queue.

Hubs and Switches:

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

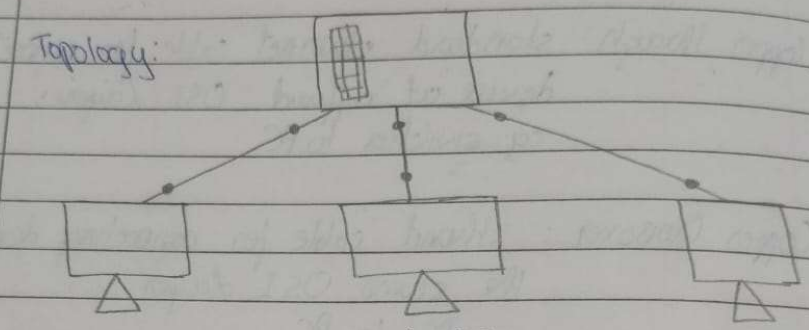


Create a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices and demonstrate ping message

HUB:

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

Topology:



PC-PT	PC-PT	PC-PT
PC0	PC1	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

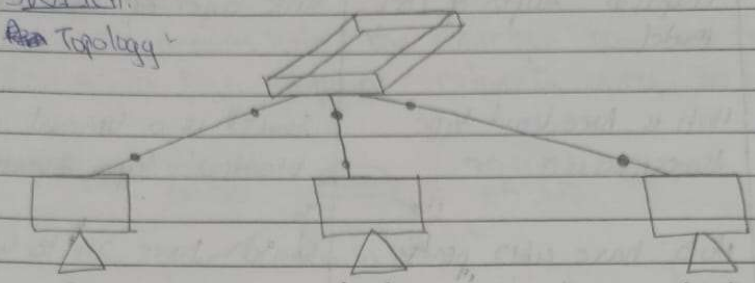
PC0	192.180.160.1124	255.255.255.0
PC1	192.180.160.2124	255.255.255.0
PC2	192.180.160.3124	255.255.255.0

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	PC-PT	PC-PT
PC0	PC1	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
3. ip config → ip address

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 3PC to Hub

5. add Simple PDU from source PC0 to Destination PC1

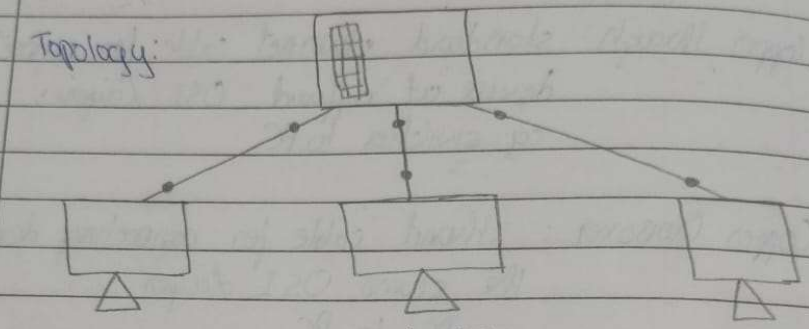
Observation: Switch forwards packets only to appropriate device by learning MAC address, create it more efficient in traffic

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

HUB:

Aim: To demonstrate transmission of simple PDU between 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

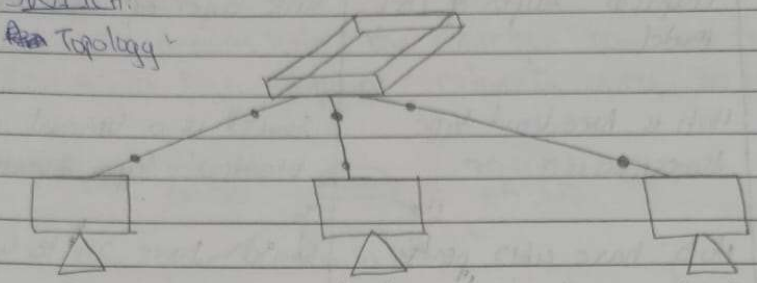
		Subnet mask
PC0	192.180.160.1124	255.255.255.0
PC1	192.180.160.2124	255.255.255.0
PC2	192.180.160.3124	255.255.255.0

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	PC-PT	PC-PT
PC0	PC1	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
3. ip config → ip address

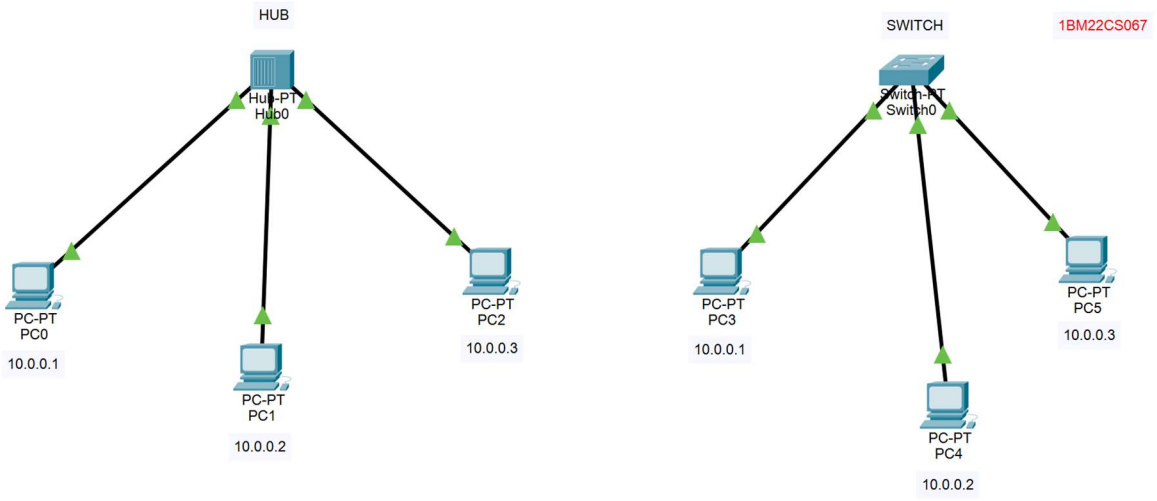
PC0	192.180.160.1124	255.255.255.0
PC1	192.180.160.2124	255.255.255.0
PC2	192.180.160.3124	255.255.255.0

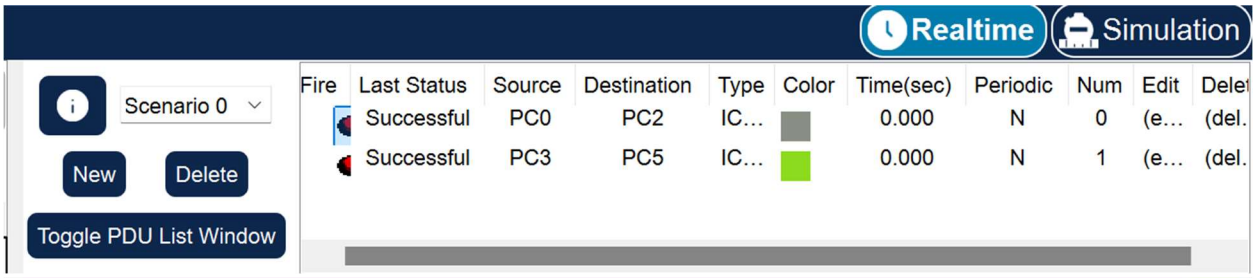
4. Connect devices: using copper straight through cable to 3PC to Hub
5. add Simple PDU from source PC0 to Destination PC1

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

	Hub	Switch
①	Hub is operated on Physical layer of OSI model	Switch is operated on data link layer of OSI model
②	Hub is broadcast type transmission	Switch is a unicast, multicast broadcast type transmission
③	Hub have 4/12 ports	Switch have 24 to 48 port
④	There is only one collision domain	Different ports have their own collision domain
⑤	Hub cannot be used as a repeater	switch can be used as a repeater

25 | 9 | 20





Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
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<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
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 = 0ms, Average = 0ms

C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
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<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
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 = 0ms, Average = 0ms

C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```