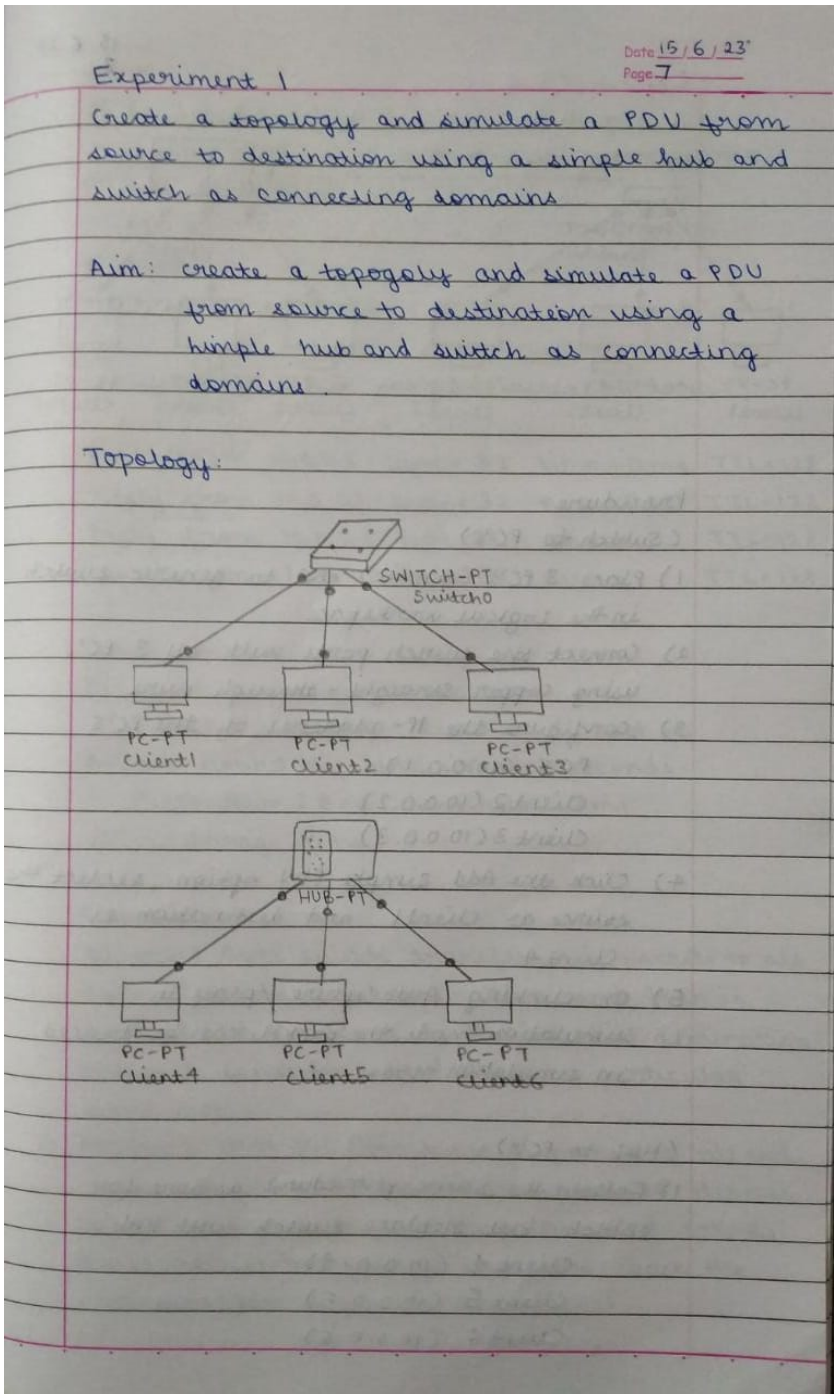
EXPERIMENT 1:

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

OBSERVATION:



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Experiment 1

Create a topology and simulate a PDU from source to destination using a simple hub and switch as connecting domains

Aim: create a topology and simulate a PDU from source to destination using a simple hub and switch as connecting domains.

Topology:

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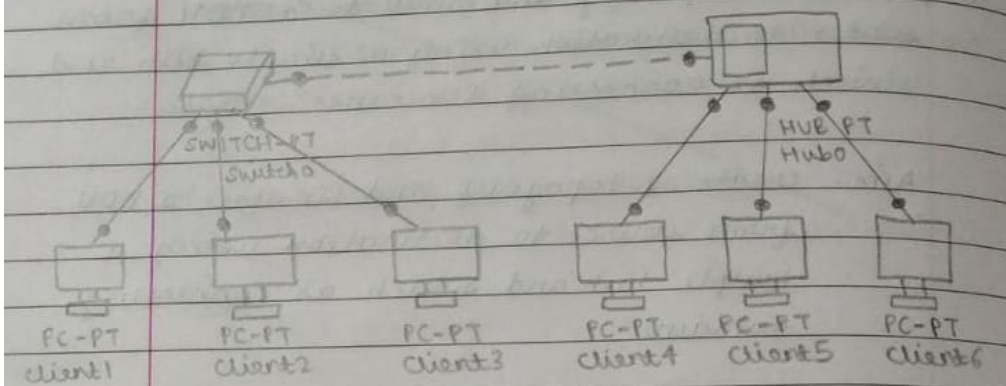

Procedure:

(Switch to PC's)

1) Place 3 PC's (Generic) end to generic switch in the Logical workspace
2) Connect the switch ports with all 3 PC's using copper straight-through wire
3) Configure the IP-addresses of the PC's
   PC 5 (10.0.0.1)
   Client2 (10.0.0.2)
   Client 3 (10.0.0.3)
4) Click the Add simple PDU option, select the source as Client1 and destination as Client 4
5) On clicking Auto capture / play in simulation mode, the packet can be traced in simulation mode

(Hub to PC's)

1) Follow the same procedure as done for switch but replace switch with hub
   Client 4 (10.0.0.4)
   Client 5 (10.0.0.5)
   Client 6 (10.0.0.6)

Now connect the switch and hub and simulate the packet transfer from source to destination

Output:

PC > ping 10.0.0.3

pinging 10.0.0.3 with 32 bytes of data :

Reply from 10.0.0.3 : byte = 32 time = 0 ms TTL = 128
Reply from 10.0.03 : byte = 32 time = 2 ms TTL = 128
Reply from 10.0.0.3 : byte = 32 time = TTL = 128
Reply from 10.0.0.3 : byte = 32 time = TTL = 128

Observation :

Ping statistics for 10.0.0.3 :

Packet : Sent = 4 Reached = 4 Lost = 0

Approx. round trip times in milli seconds :

Minimum = 0 ms Maximum = 2 ms

Average = 0 ms

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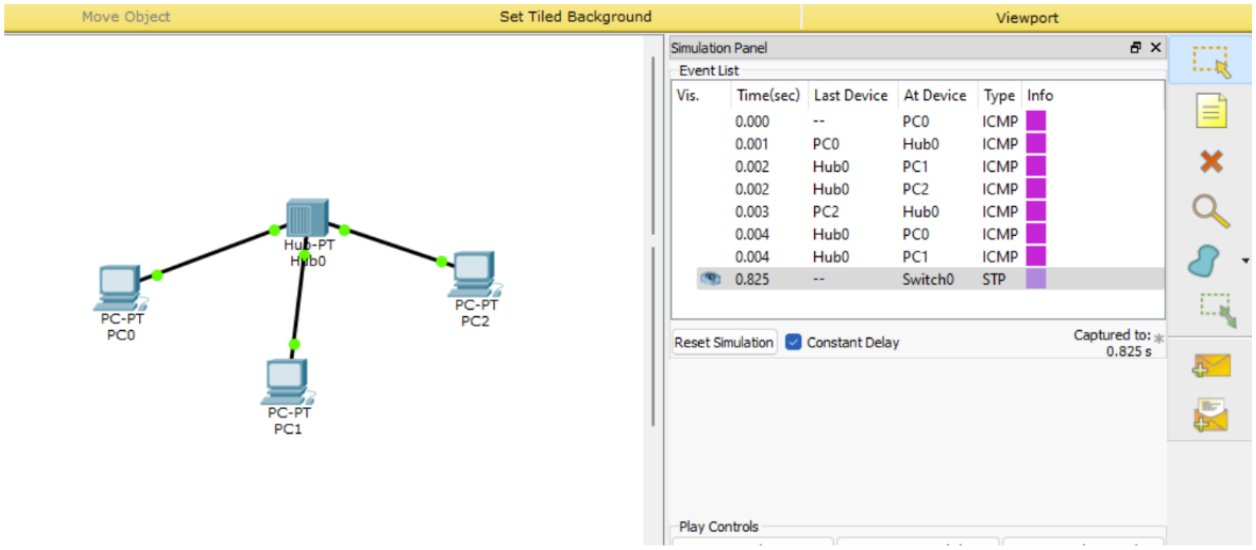
Observation

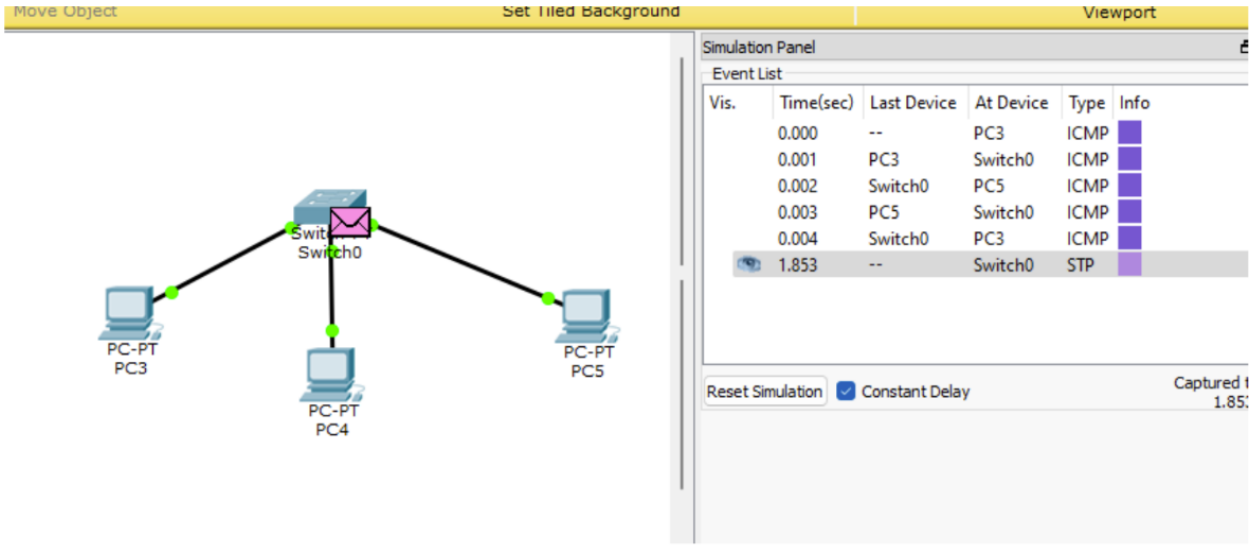
1) Observed that switch transfers the packets to all devices during the 1st iteration and then it records the IP address of the intended destination device & sends the packet to that particular destination
2) Observed that Hub broadcast to packets to all ends devices and which are not intended to devices receive the packets discard to packets and intends device receive the packets and sends back the acknowledgement to the source.

Topology & Simulation Panel:

Topology with Hub as connecting device:



Topology with Switch as connecting device:



Topology with both Hub and Switch as connecting device: