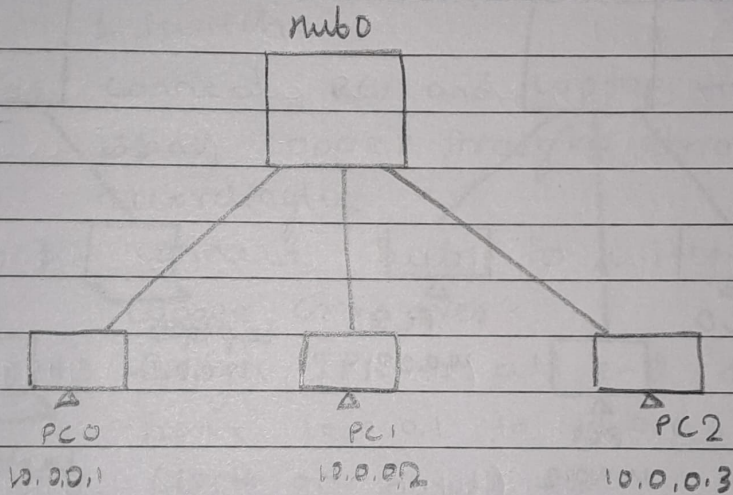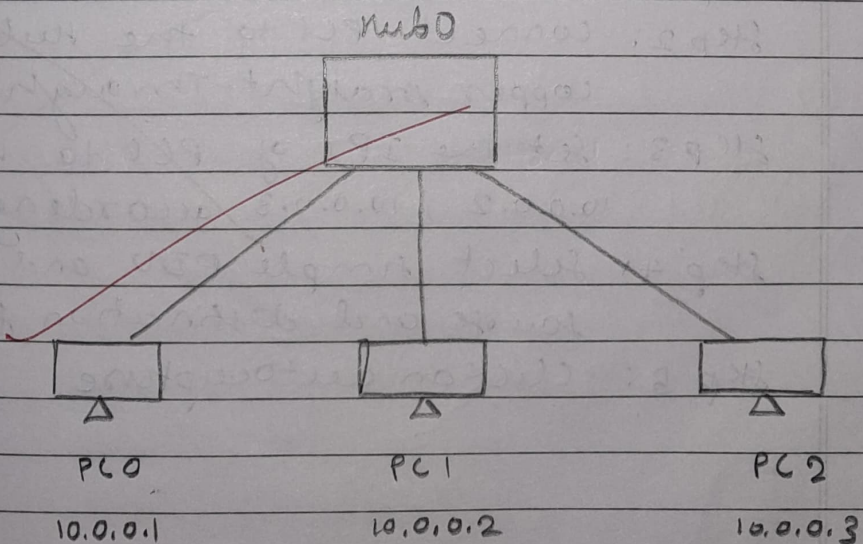LAB-01

Hubs & Switches

Objective:

Simulating transmission of simple PDU using hub and switch as connecting devices.

Configurations:
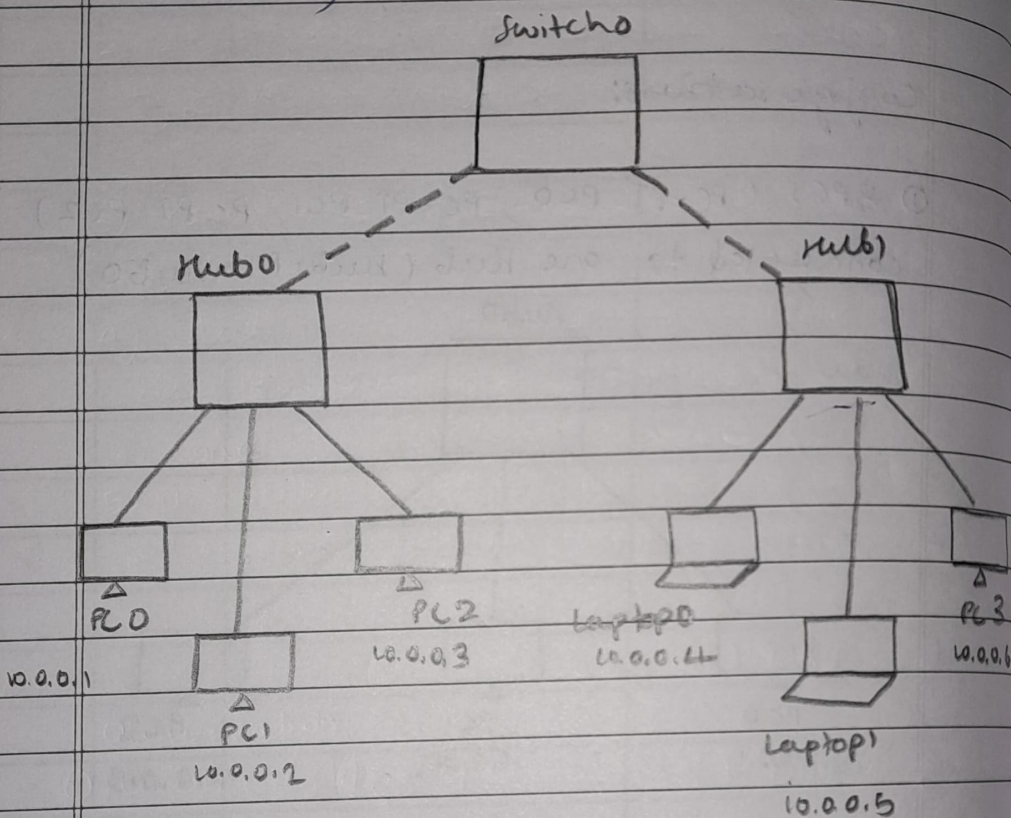
① 3PCS (PC-PT PC0, PC-PT PC1, PC-PT PC2) connected to one Hub (Hub-PT Hub0)

Hub0

PC0
10.0.0.1

PC1
10.0.0.2

PC2
10.0.0.3

② 3 PCS (PC-PT PC0, PC-PT PC1, PC-PT PC2) connected to one switch (Switch-PT switch0)

Hub0

PC0
10.0.0.1

PC1
10.0.0.2

PC2
10.0.0.3

③ 3PCs (PC0, PC1, PC2) connected to Hub (Hub
1 PC1 and 2 Laptops (PC 3, Laptop 0, Laptop
connected to Hub (Hub 1)
Hub0 and Hub1 are connected to Switch
(Switch0)

Switch0

Hub0   Hub1

PC0

10.0.0.1

PC2   Laptop0   PC3
10.0.0.3   10.0.0.44   10.0.0.6

PC1
10.0.0.2   Laptop1

10.0.0.5

Procedures:

① Step 1: Place 3PCs and 2 Hub
Step 2: Connect PCs to the Hub using
copper straight-Through
Step 3: Set the IPs of PCs to 10.0.0.1
10.0.0.2 , 10.0.0.3 accordingly
Step 4: Select simple PDU and select
source and destination systems
Step 5: Click on autocapture.

② Step 1: Place 3 PCs and 1 switch

Step 2: Connect PCs to the switch using copper straight - Through

Step 3: Set the IPs of PCs to 10.0.0.1 10.0.0.2 and 10.0.0.3

Step 4: Select simple PDU and add it to source, destination PCs

Step 5: Click on autocapture

③ Step 1: Place 4 PCs, 2 laptops and 2 hubs and 1 switch.

Step 2: Connect PCs and laptops to hubs using copper straight through accordingly.

Step 3: Connect hubs to switch using copper cross over

Step 4: Assign IPs to all end devices from 10.0.0.1 to 10.0.0.6

Step 5: Click on simple PDU and select source and destination systems

Step 6: Click on autocapture.

Difference between Hub & Switch

Hub	Switch
i) Operated on Physical layer	1) Operated on Data link layer
2) It is broadcast type transmission	2) It is Unicast multicast and broadcast type transmission
3) Hub have 4/12 ports	3) Switch can have 24 to 48 ports
4) Hub is half duplex transmission mode	4) Switch is full duplex transmission mode
5) cannot be used as repeater	5) can be used as repeater

Observation:

① Hub sends the packets to all available devices. The destination PC accepts the packet and sends the acknowledgment back All the remaining PC's repeat the packet

② The switch sends the packet to only the destination PC which accepts and sends back the acknowledgment.