LAB WEEK 1

To demonstrate the transmission of a simple PDU between 2 devices connected using a Hub and a Switch.
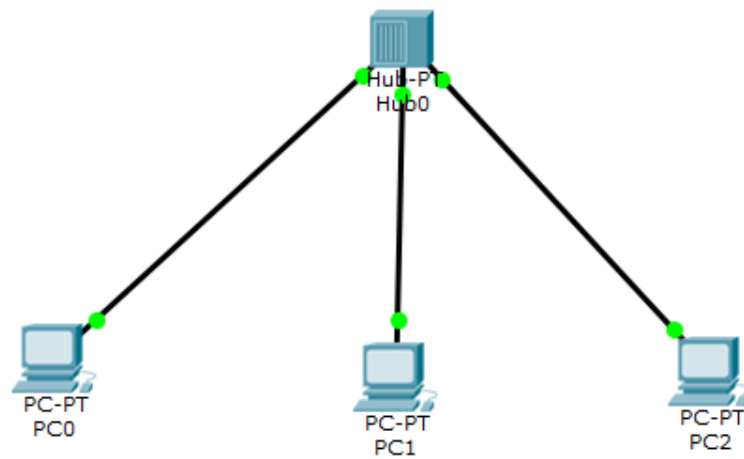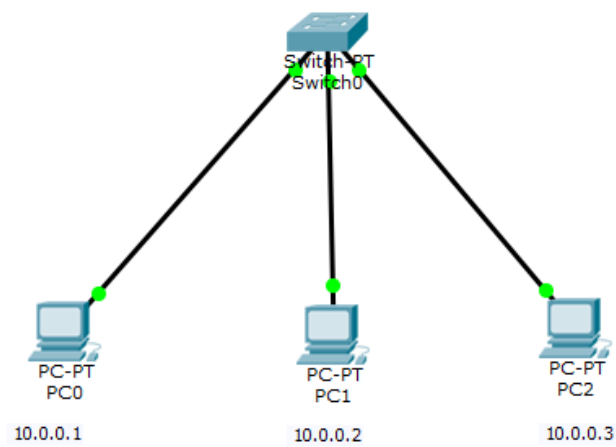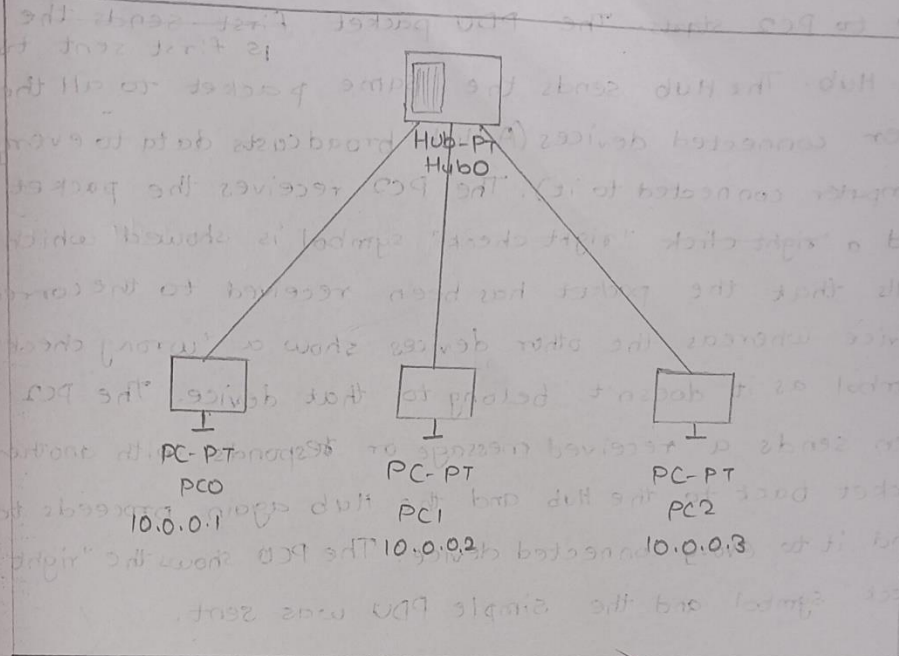

Figure 1: Using Hub

Figure 2: Using Switch

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Topology –

Hub-PT
Hub0

PC-PT
PC0
10.0.0.1

PC-PT
PC1
10.0.0.2

PC-PT
PC2
10.0.0.3

Configuration steps:

Step 1: Select the "Generic PC-PT" from the end devices section.

Step 2: Select a "Hub-PT" from the connecting devices section.

Step 3: Choose a "straight-through" or "automatically choose" connection type and connect each device to the Hub.

Step 4: To config the PCs, click on the PC, go to Config menu.

Step 5: Select "FastEthernet0" under the Interface section.

Step 6: Under IP configuration, make sure the connection/configuration is "Static."

Step 7: Type the IP address as "10.0.0.1" for the first PC and so on for the other PCs.
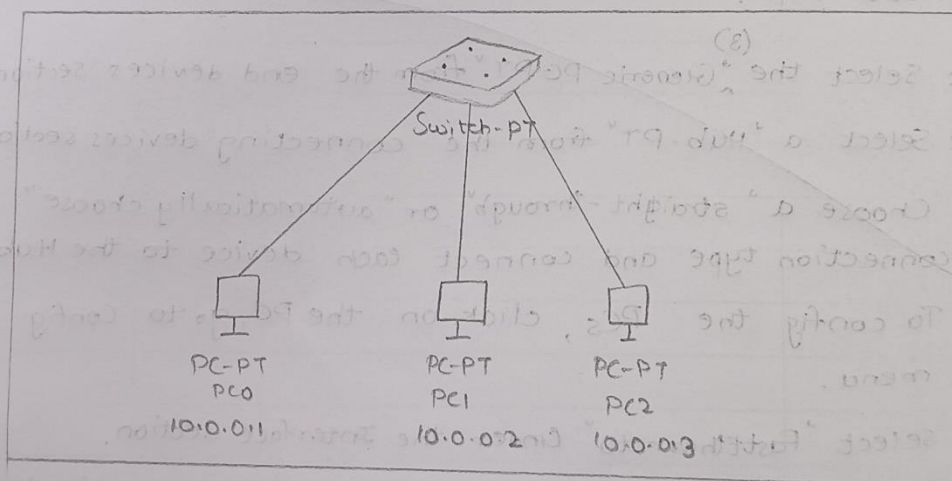
Step 8: Select "a simple PDU" and click on the PC0 and PC2 as source and destination respectively.

Step 9: Switch to the simulation mode and observe the movement of the PDU (Protocol Data Unit) from PC0 to PC2

* Observation:

In the simulation mode, when "Auto Capture/Play" is clicked, the simulation of the packet moving from PC0 to PC2 starts. The PDU packet ~~first sends the~~ is first sent to the Hub. The Hub sends the same packet to all the other connected devices. (A Hub broadcasts data to every computer connected to it). The PC2 receives the packet and a ~~right click~~ "right check" symbol is showed which tells that the packet has been received to the correct device whereas the other devices show a "wrong check" symbol as it doesn't belong to that device. The PC2 then sends a received message or responds with another packet back to the Hub and the Hub again proceeds to send it to every connected device. The PC0 shows the "right check" symbol and the simple PDU was sent.

* Topology (Switch)

Switch-PT

PC-PT	PC-PT	PC-PT
PC0	PC1	PC2
10.0.0.11	10.0.0.2	10.0.0.13

* Observation:

In the simulation mode, The PDU packet is first sent to the switch. Unlike Hub, the switch checks the IP address and sends the PDU packet to the given IP address of the PC only. The PC2 receives the packet and shows the "right click" symbol indicating the packet has been received and sends the return PDU the switch again checks the IP address and sends it to the respective PC. (PC0).