

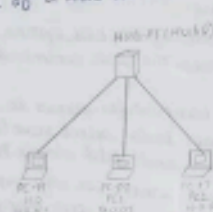
# EXPERIMENT-1

## Question 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.

## Observation:

**TOPOLOGY**  
connection of a hub to three PC's




```
graph TD; Hub[Hub (HUB)] --- PC01[PC-01]; Hub --- PC02[PC-02]; Hub --- PC03[PC-03];
```

**Aim:** To create sample network consisting of 3 PC's connected to a central hub this connection will help observe the behaviour of data transmission using hub

**Topology:** 3 PC's are connected to a hub using straight through ethernet cables.

**Observation:** Hub broadcasts packets to all devices which may cause unnecessary traffic

**connection of switch to three PC's**



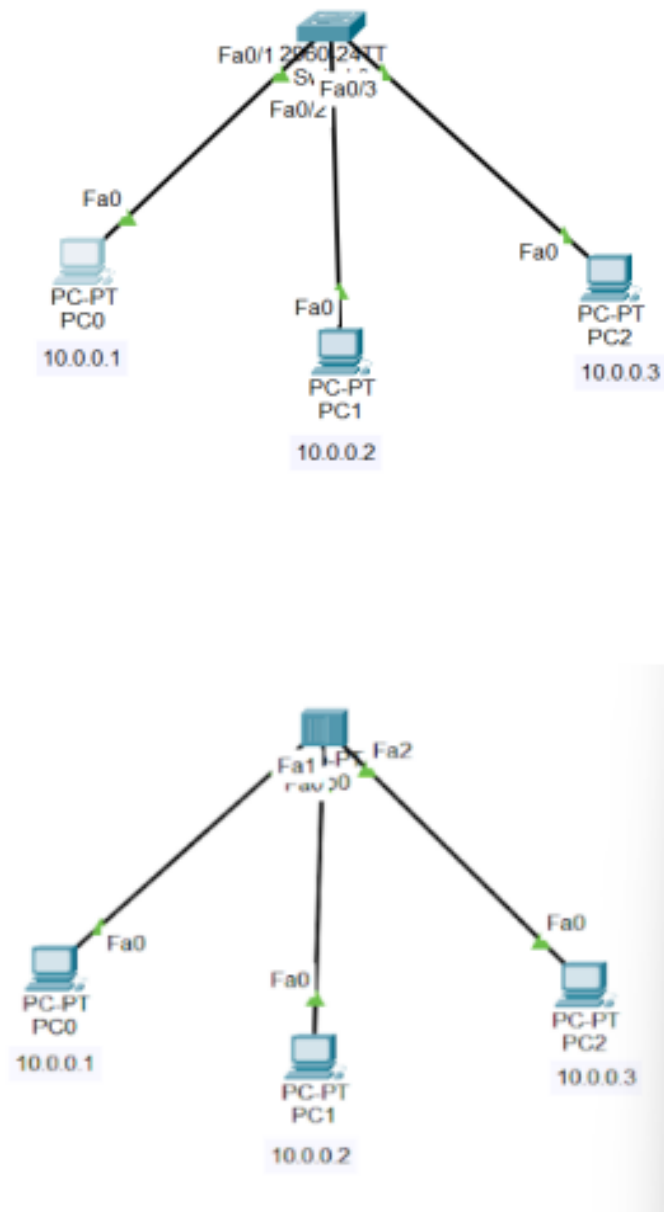
```
graph TD; Switch[Switch (SWITCH)] --- PC01[PC-01]; Switch --- PC02[PC-02]; Switch --- PC03[PC-03];
```

**Aim:** To create sample network consisting of 3 PC's connected to a central switch this connection will help observe the behaviour of data transmission using switch

**Topology:** 3 PC's are connected to a switch using straight through ethernet cables

**Observation:** Switch forwards packets only to appropriate device by learning MAC addresses making it more efficient

Screenshot of the topology:



Screenshot of the output:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=0ms TTL=128
Reply from 10.0.0.1: bytes=32 time=4ms TTL=128
Reply from 10.0.0.1: bytes=32 time=4ms TTL=128
Reply from 10.0.0.1: bytes=32 time=4ms TTL=128

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 6ms, Average = 5ms

C:\>
```

```
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:\>
```