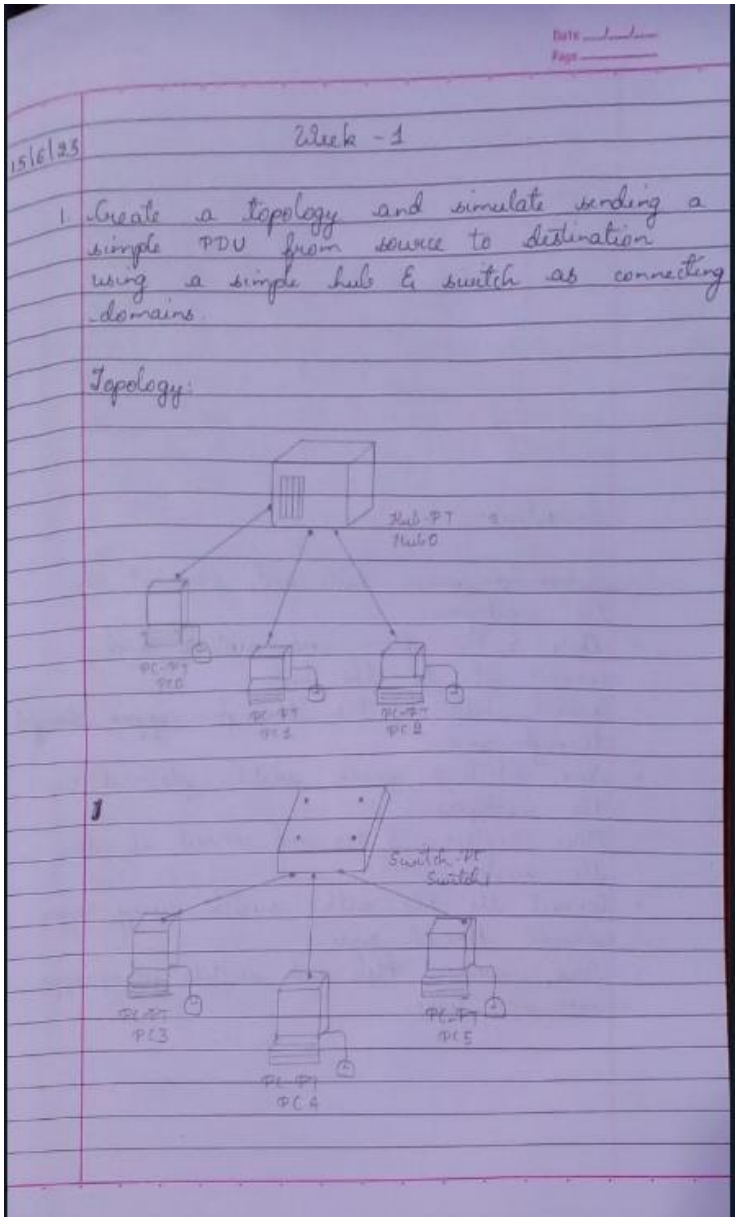
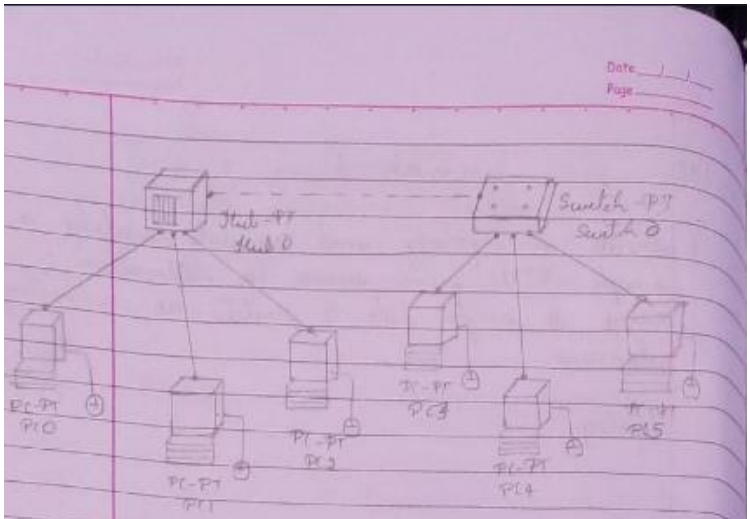
WEEK 1

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 book:





Procedure.

- Select a generic hub and place it on the workspace.
- Place 3 PCs from end systems and connect it to the hub.
- Connect hub to PCs through copper straight through wire.
- Now, select a generic switch, place it on the workspace.
- Place another 3 PCs and connect it to the switch
- Connect the PCs with switch using copper straight through wire.
- Now, connect hub and switch using copper cross over wire.

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Output:

PC> ping 192.160.1.2

Pinging 192.160.1.2 with 32 bytes of data:

Reply from 192.160.1.2: bytes=32 time=8ms TTL=128
Reply from 192.160.1.2: bytes=32 time=4ms TTL=128
Reply from 192.160.1.2: bytes=32 time=4ms TTL=128
Reply from 192.160.1.2: bytes=32 time=4ms TTL=128
Ping statistics for 192.160.1.2
Packets: Sent=4, Received=4, Lost=0 (0% loss),
Approx. round trip times in milliseconds:
Minimum=4ms, Maximum=8ms, Average=5ms

PC> ping 190.160.1.4

Pinging 192.160.1.4 with 32 bytes of data:

Reply from 192.160.1.2: bytes=32 time=1ms TTL=128
Reply from 192.160.1.4: bytes=32 time=2ms TTL=128
Reply from 192.160.1.4: bytes=32 time=1ms TTL=128
Reply from 192.160.1.4: bytes=32 time=2ms TTL=128
Ping statistics for 192.160.1.4
Packets: Sent=4, Received=4, Lost=0 (0% loss)
Approx. round trip time in milliseconds:
Minimum=1ms, Maximum=2ms, Average=1ms.

PC>ping 192.160.1.6

Pinging 192.160.1.6 with 32 bytes of data:

Pinging 192.160.1.6 •

Reply from 192.160.1.6: bytes=32 time=12ms TTL=128

Reply from 192.160.1.6: bytes=32 time=6ms TTL=128

Reply from 192.160.1.6: bytes=32 time=6ms TTL=128

Reply from 192.160.1.6: bytes=32 time=6ms TTL=128

Ping statistics for 192.160.1.6:

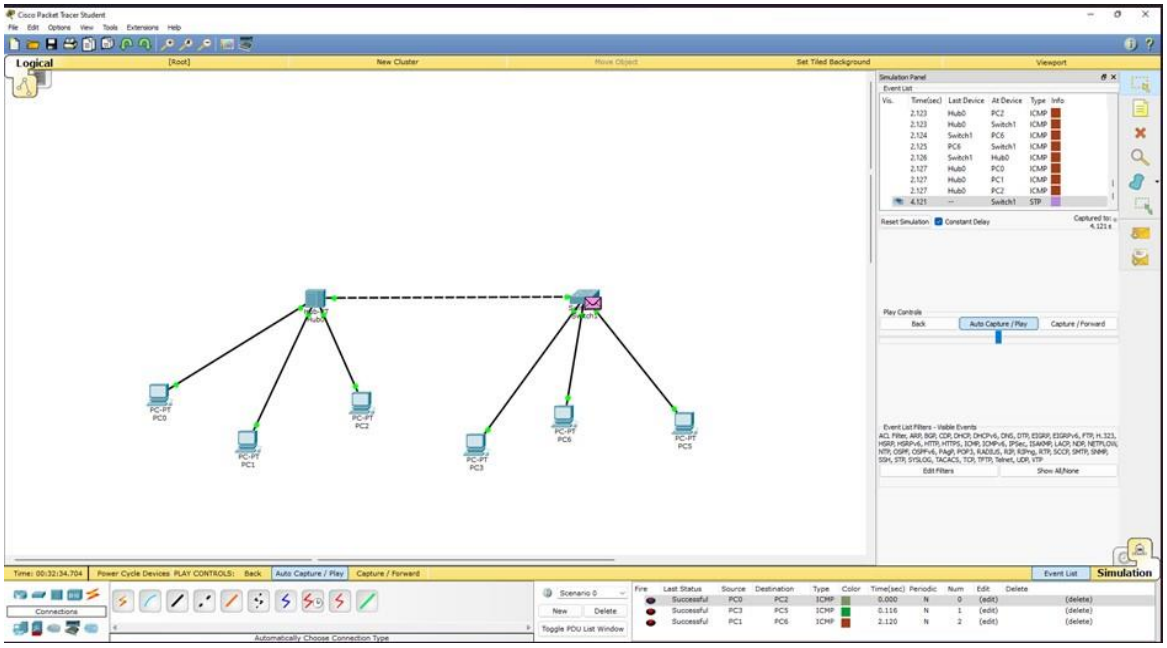
Packets: Sent=4, Received=4, Lost=0 (0% loss),

Approx. round trips in milliseconds:

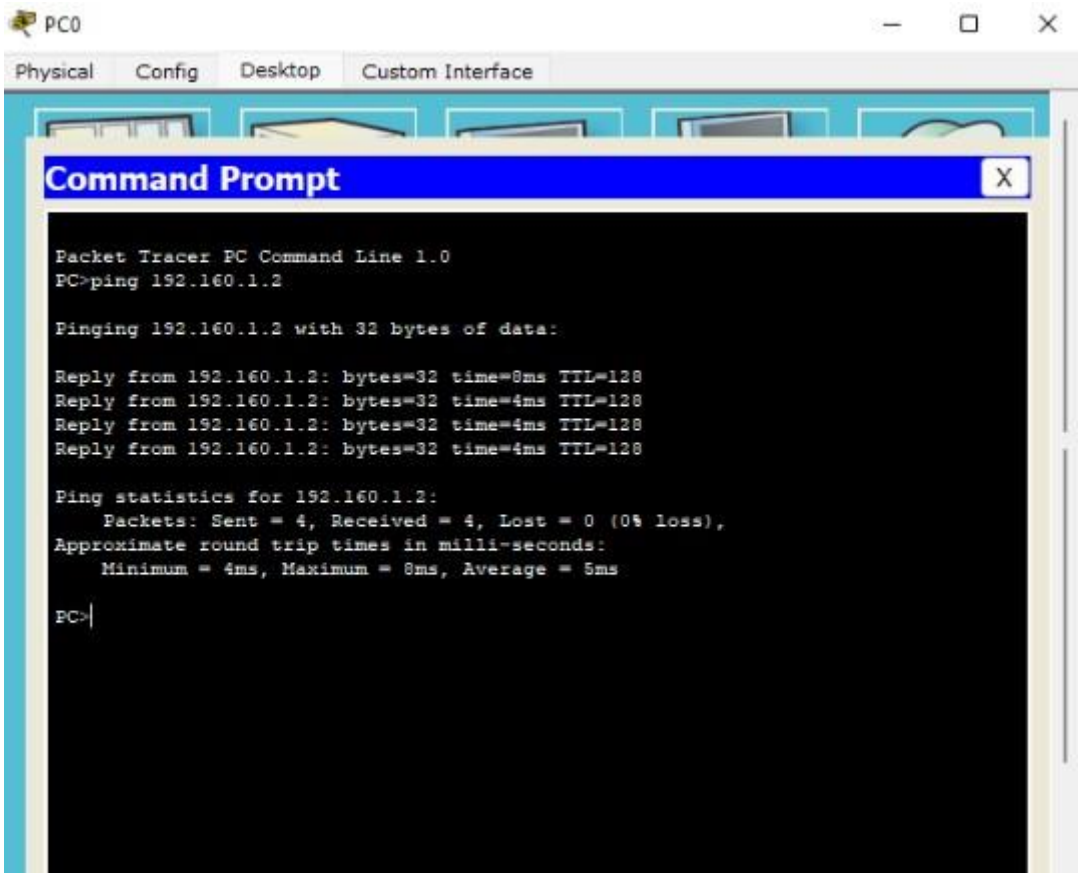
Minimum=6ms, Maximum=12ms, Average=7ms

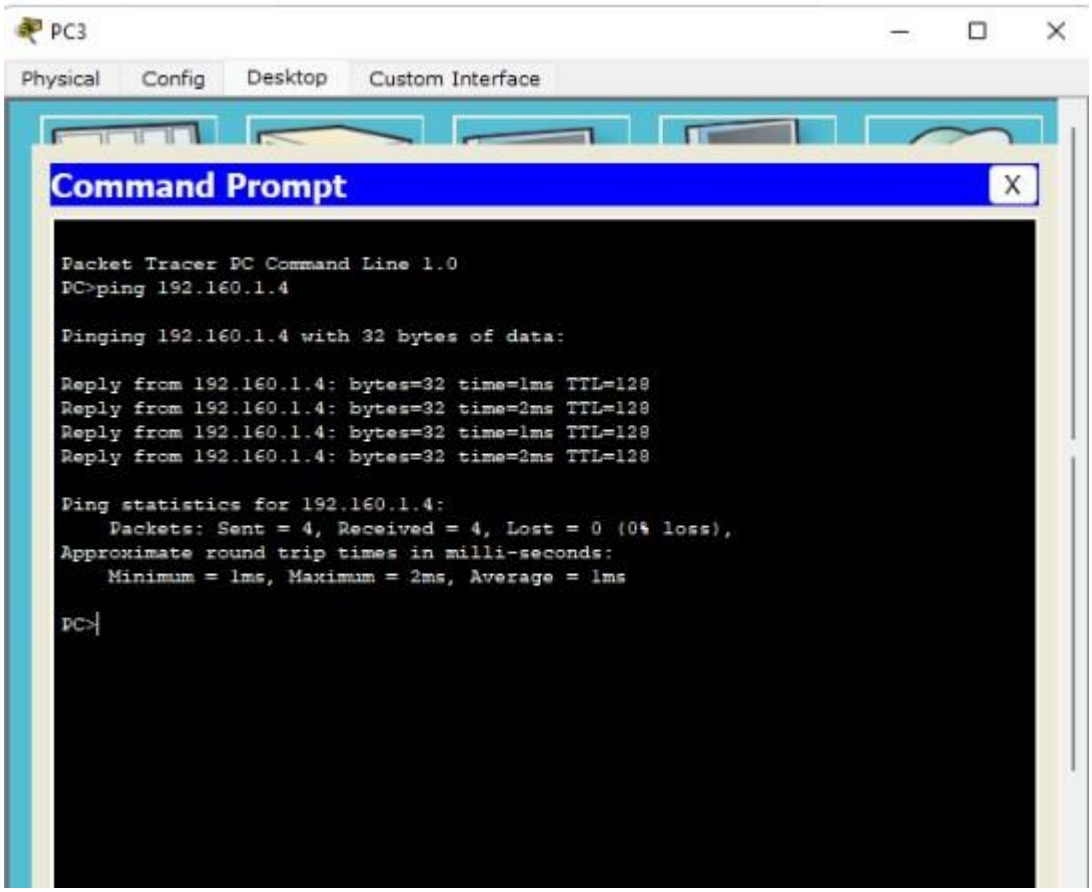
Observation:

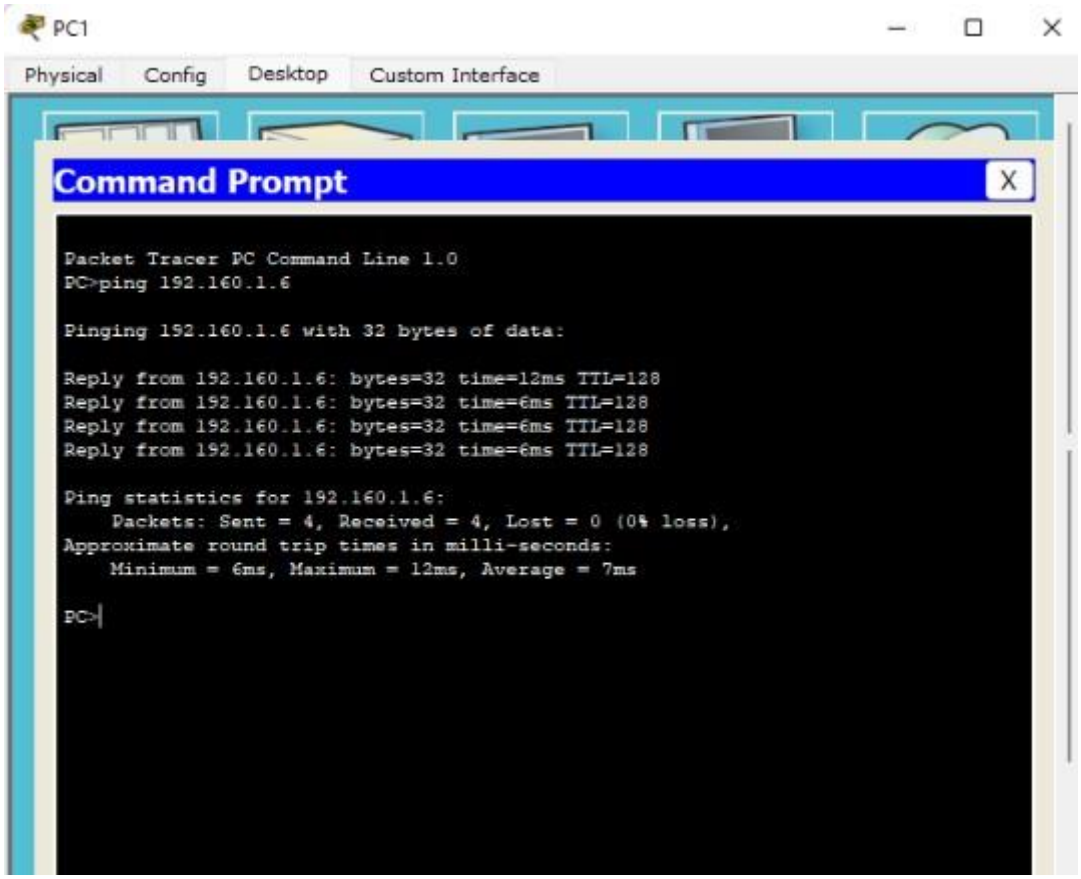
- Switch broadcasts packets to all devices during first iteration, records IP address of intended destination, sends package to the destination.
- Hub broadcasts packets to all the devices which are even not intended to receive the packet and the indicated device receives the packet, sends acknowledgement message.



Output :


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 192.160.1.2
Pinging 192.160.1.2 with 32 bytes of data:
Reply from 192.160.1.2: bytes=32 time=8ms TTL=128
Reply from 192.160.1.2: bytes=32 time=4ms TTL=128
Reply from 192.160.1.2: bytes=32 time=4ms TTL=128
Reply from 192.160.1.2: bytes=32 time=4ms TTL=128
Ping statistics for 192.160.1.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 4ms, Maximum = 8ms, Average = 5ms
PC>


PC3
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 192.160.1.4
Pinging 192.160.1.4 with 32 bytes of data:
Reply from 192.160.1.4: bytes=32 time=1ms TTL=128
Reply from 192.160.1.4: bytes=32 time=2ms TTL=128
Reply from 192.160.1.4: bytes=32 time=1ms TTL=128
Reply from 192.160.1.4: bytes=32 time=2ms TTL=128
Ping statistics for 192.160.1.4:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 2ms, Average = 1ms
PC>


PC1
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 192.160.1.6
Pinging 192.160.1.6 with 32 bytes of data:
Reply from 192.160.1.6: bytes=32 time=12ms TTL=128
Reply from 192.160.1.6: bytes=32 time=6ms TTL=128
Reply from 192.160.1.6: bytes=32 time=6ms TTL=128
Reply from 192.160.1.6: bytes=32 time=6ms TTL=128
Ping statistics for 192.160.1.6:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 6ms, Maximum = 12ms, Average = 7ms
PC>