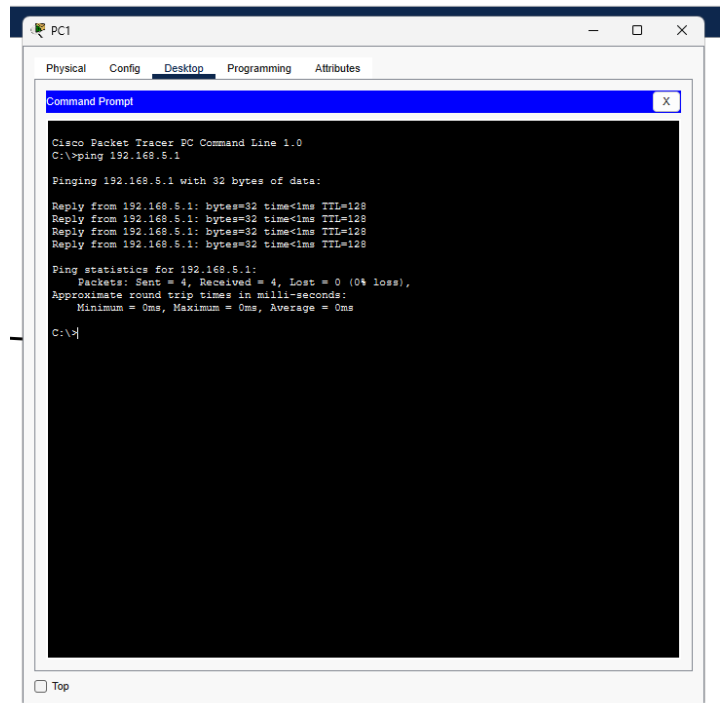
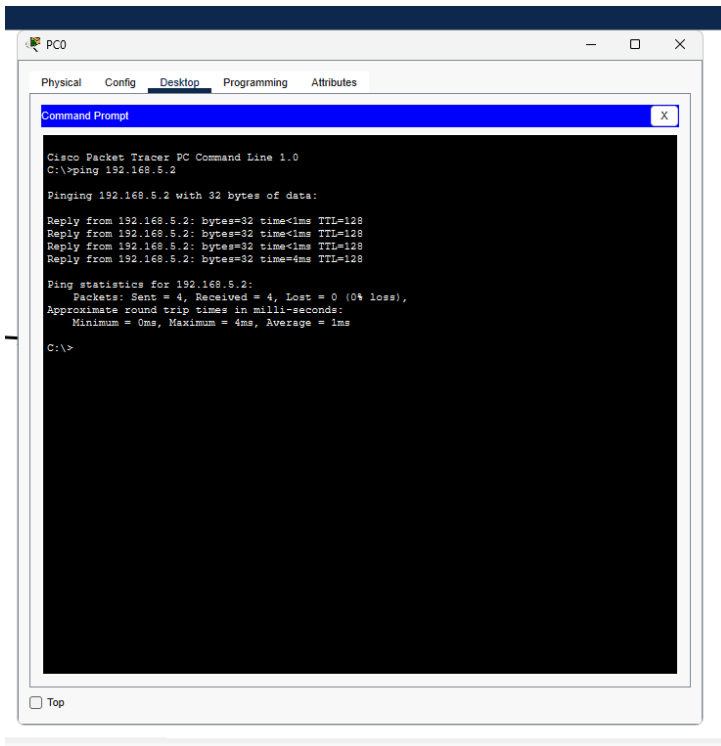
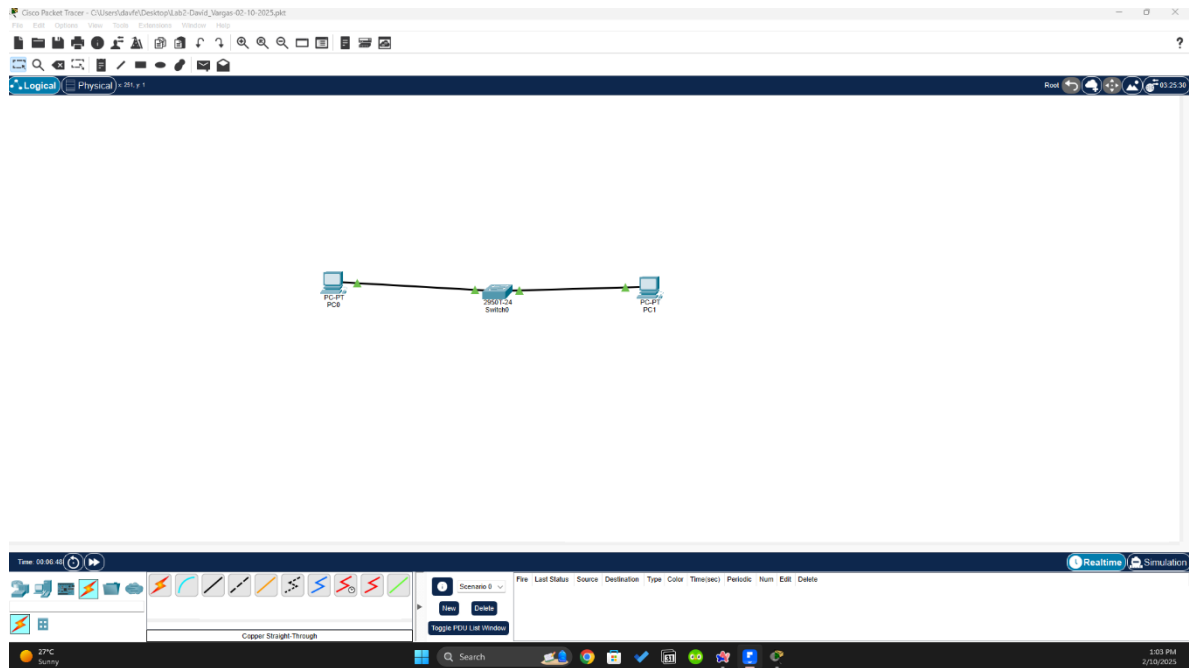
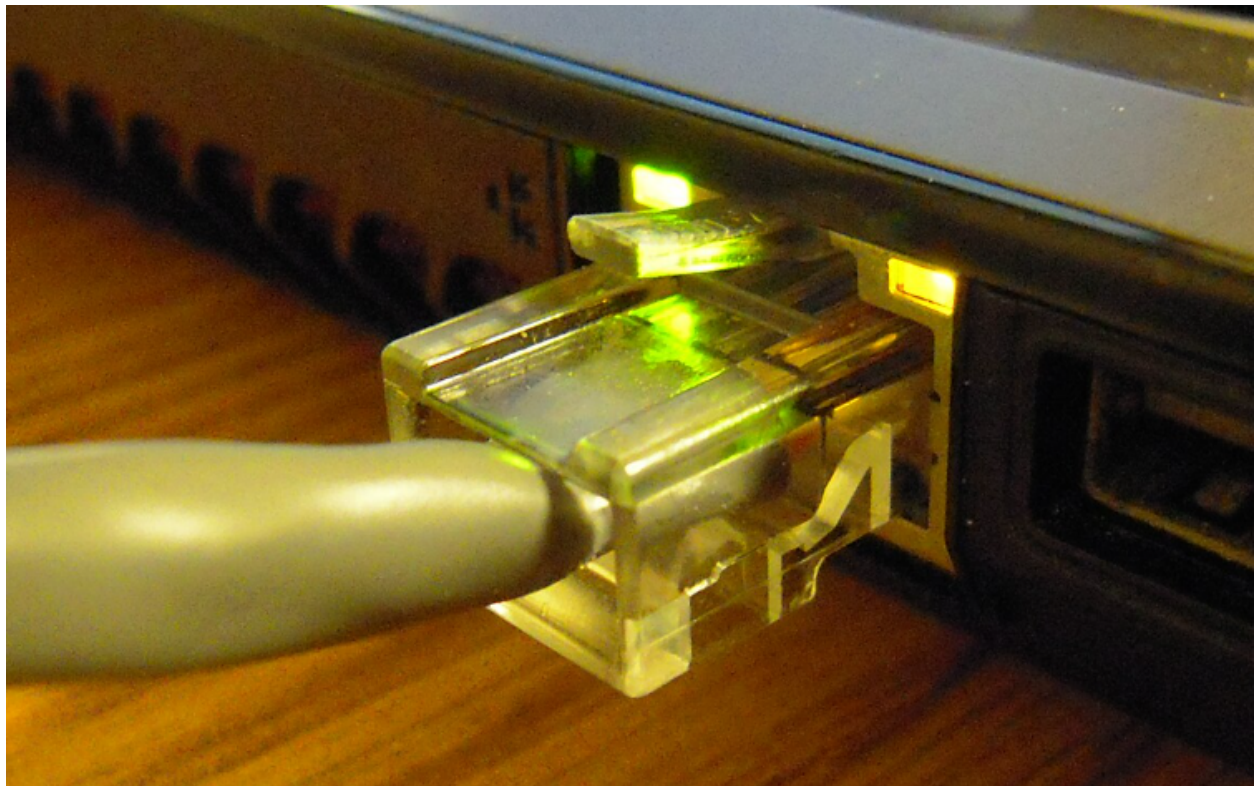


David Vargas – Lab Completed Remotely





Q1.

- 7 Application layer
- 6 Presentation Layer
- 5 Session Layer
- 4 Transport Layer
- 3 Network Layer
- 2 Data Link Layer
- 1 Physical Layer

Q2.

Wired Connections, coaxial Cables, Twisted Pair cables

Wireless Connections Wi-Fi, Bluetooth,

Optical Connections fiber optic cables.

Q3

The T-568B pinout was used to create the Patch Cable for this exercise

Q4.

1. Cut & Strip – Cut a CAT5e/CAT6 cable to the desired length and strip about 1.5 inches of the outer sheath.
2. Arrange Wires – Use T-568A wiring on one end and T-568B wiring on the other:
 - T-568A: White/Green, Green, White/Orange, Blue, White/Blue, Orange, White/Brown, Brown.
 - T-568B: White/Orange, Orange, White/Green, Blue, White/Blue, Green, White/Brown, Brown.
3. Insert & Crimp – Align wires, trim evenly, insert into RJ45 connectors, and crimp securely using a crimping tool.
4. Test – Use a cable tester to verify correct wiring.

Why Use a Crossover Cable?

A crossover cable is used to directly connect two similar devices without a switch:

- PC-to-PC networking (older computers without auto-MDI/MDIX).

- Switch-to-switch or router-to-router connections when no uplink port is available.
- Legacy networking setups where automatic crossover detection is unavailable.

Most modern devices support auto-MDI/MDIX, which automatically adjusts for crossover connections, reducing the need for physical crossover cables.

Q5.

The ping command is a network utility used to test connectivity between two devices on a network. It sends ICMP (Internet Control Message Protocol) Echo Request packets to a target device and waits for a reply.

How Does Ping Verify Connectivity?

1. Sends ICMP Echo Request – The source device sends a small packet to the destination IP.
2. Receives ICMP Echo Reply – If the destination is reachable, it responds with a reply.
3. Measures Response Time – Ping displays the round-trip time (RTT) in milliseconds.
4. Checks for Packet Loss – If no reply is received, the request may have been dropped, indicating network issues.

Use Example:

```
ping 192.168.5.1
```

If successful, you'll see responses like:

```
Reply from 192.168.5.1: bytes=32 time=5ms TTL=64
```

If unsuccessful, you may see:

```
Request timed out.
```

This helps diagnose network connectivity issues, latency, or unreachable hosts.