📓 **Journal Entry – Friday**  
**Date:** August 29, 2025  
**Day:** Week 2, Saturday  
**Mood:** Focused, learning vibes

**What I did today:**  
• ✅ Learned about **LAN (Local Area Network)** and its **topologies**.

* **Ring Topology:** Devices share info in a circular form. Weak point: if one part breaks, the whole communication fails.
* **Bus Topology:** All devices share one main backbone cable. Data travels left and right. Weak point: can’t handle a large amount of data.
* **Star Topology:** Each computer has its own cable connected to a central device. Fast and reliable, can handle big data. Weak point: if the central hub fails, the entire network goes down. Also costly to set up and maintain.

• ✅ Learned about **network devices**:

* **Switch:** Connects multiple devices in a network, letting them communicate efficiently. Used in companies with many users (4–400+).
* **Router:** Connects different networks and passes data between them (routing). Useful when networks have many paths.

• ✅ Learned about **Subnetting**: Splits a large network into smaller parts (subnets). Helps direct data to the right section without leaking into the wrong hands.

* Uses IP addresses in 3 ways:
  1. To identify the **network address** (start of the network).
  2. To identify the **host address** (devices inside the network).
  3. To identify the **default gateway** (device responsible for sending data outside the network).

**Quick notes I took:**

* Subnet mask = 32 bits.
* Network address → shows the start of a network.
* Host address → identifies devices within a network.
* Default gateway → handles data transfer out of the network.

**Reflection:**  
Today was about understanding the structure of LAN and how information flows inside it. The topologies were like different “designs” for how computers are connected, and each has its own strengths and weaknesses. Subnetting made sense as a way to keep networks organized and secure.