CYBERSECURITY DAILY DIARY

DAY-05
DATE- 27 June, 2025

Topics Covered:

- CIDR & subnet masks: convert masks to CIDR notation and compute host counts.

What did I learn:

Today I explored how **CIDR (Classless Inter-Domain Routing)** and **subnet masks** work together to define IP address ranges and network segmentation. This is a key skill for configuring virtual networks and analyzing traffic in cybersecurity labs.

- I learned how to **convert subnet masks to CIDR notation**:
  - For example, `255.255.255.0` becomes `/24` because it has 24 consecutive 1s in binary.
  - `255.255.255.192` becomes `/26`, and `255.255.255.255` becomes `/32`.
- I practiced **calculating host counts** using the formula:
  $Hosts=2(32−CIDR)−2\text{Hosts} = 2^{(32 - \text{CIDR})} - 2$
  - `/24` → 254 usable hosts
  - `/26` → 62 usable hosts
  - `/30` → 2 usable hosts (great for point-to-point links)
- I realized how CIDR helps create **efficient IP address allocation**, especially in virtual labs where I need small subnets for isolated VMs.
- This knowledge will help me design my lab's IP scheme, simulate realistic network topologies, and interpret routing tables during traffic analysis.

Understanding CIDR and subnet masks isn't just about math—it's about control. Now I can shape my lab's network with precision, avoid IP conflicts, and prepare for deeper tasks like firewall rules, NAT configurations, and intrusion detection.