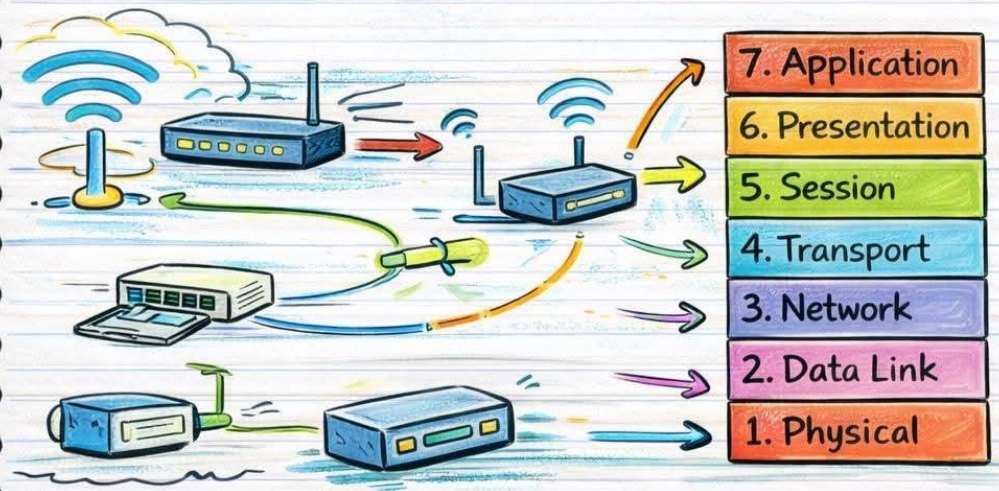


# OSI Model

## Cheat Sheet

(All 7 Layers in One Post.)



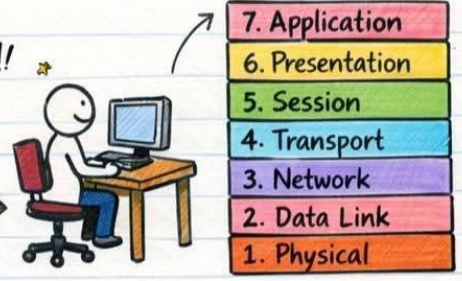
- 7. Application
- 6. Presentation
- 5. Session
- 4. Transport
- 3. Network
- 2. Data Link
- 1. Physical

# LAYER 7: APPLICATION LAYER

## → What is Application Layer?

- The top layer of the OSI Model!!
- Interacts with the User & Apps!

✉ Provides Network Services to Applications!



## → What It Does?

- Connects user apps to the Network.
- Email, File Transfer, Web Browsing
- Finds Communication Partners



## → Protocols Used

- HTTP / HTTPS → Web Browsing
- FTP → File Transfer
- SMTP → Send Email
- DNS → Domain Names (www)



## → Real-World Example

When you open: www.google.com

→ Browser uses → HTTP

→ Application Layer in Action!



## ⊕ Important Points:

- ✓ Closest to the User
- ✓ Interface for Apps
- ✓ No Data Transfer!

# LAYER 5: SESSION LAYER



## → What is Session Layer?

- Session Layer manages sessions (connections) between two devices.

→ It establishes, maintains, and terminates connections.

SESSION SETUP,  
MAINTENANCE &  
TERMINATION



## → Responsibilities ⇐

- ✓ Session setup
- ✓ Session maintenance
- ✓ Session termination



## → Real-World Example ⇐

- Video call on Zoom:

- ✓ Session starts
- ✓ Data flows
- ✓ Session ends when call disconnects



## → Why It Matters? ⇐

- If connection drops:
  - Session layer helps resume communication.



## ◆ Key Point

- Controls dialog between sender and receiver.



# LAYER 4: TRANSPORT LAYER

## What is Transport Layer?

- Transport Layer ensures reliable data delivery.
- It controls data flow and error checking.



## Protocols

- **TCP** (Transmission Control Protocol)
- **UDP** (User Datagram Protocol)



## TCP vs UDP

TCP	UDP
<ul style="list-style-type: none"><li>✓ Reliable</li><li>✓ Error checking</li><li>✓ Slower</li></ul>	<ul style="list-style-type: none"><li>⚡ Faster</li><li>⚡ No guarantee</li><li>⚡ Used in streaming</li></ul>

## Real-World Example

WhatsApp message → **TCP**      Live video streaming → **UDP**

## Responsibilities

- ✓ Segmentation
- ✓ Flow control
- ✓ Error recovery



# LAYER 3: NETWORK LAYER

## What is Network Layer?

- This layer handles routing and IP addressing.

It determines the best path for data.

## Main Responsibilities

- ✓ Logical addressing (IP)
- ✓ Routing
- ✓ Packet forwarding



## Protocols

- IP (Globe icon) | ICMP (Warning icon) | Routing protocols (Map icon)

## Real-World Example

- When sending email:  
Data travels through multiple routers.



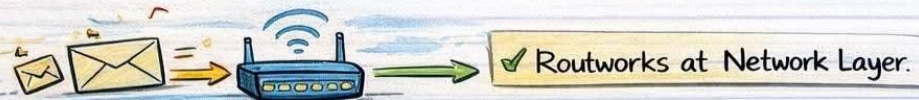
Network layer decides:

- ✓ Which path is shortest.

## Real-World Example

## Key Device

- Router works at Network Layer.



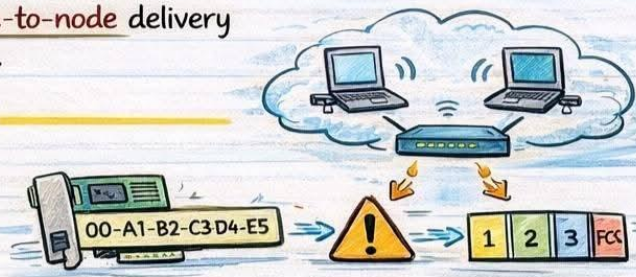
# LAYER 2: DATA LINK LAYER

## What is Data Link Layer?

- Responsible for node-to-node delivery within same network.

## Responsibilities

- ✓ MAC addressing
- ✓ Error detection
- ✓ Frame formatting



## Two Sub-layers

- LLC (Logical Link Control)



- MAC (Media Access Control)



## Real-World Example

- Laptop connected to WiFi:  
Data transferred within local network.



## Key Device

- Switch works at Data Link Layer.



# LAYER 1: PHYSICAL LAYER

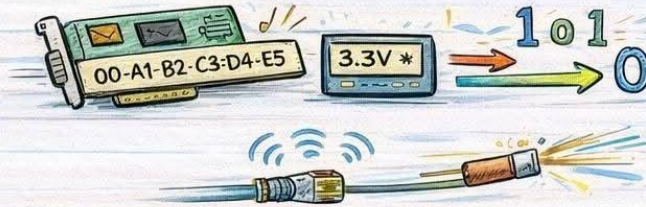
## What is Physical Layer?

- Lowest layer of OSI model.
- Responsible for physical transmission of data.



## What It Handles

- ✓ Cables
- ✓ Voltage levels
- ✓ Electrical signals
- ✓ Bits (0 and 1)

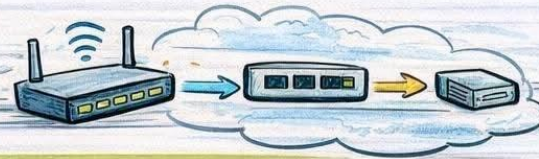


## Transmission Media

- ✓ Ethernet cable
- Fiber optic
- Wireless signals

## Real-World Example

- Data traveling through: WiFi signal or LAN cable.



## Key Devices

- Hub
- Repeater



📧 [download computer network notes - coderstar.shop](https://www.coderstar.shop)

## Final Summary Trick

- All
- People
- Seem
- To
- Need
- Data
- Processing
- 📁 (Application → Physical)