ISO agreed on **OSI** model for network communication

OSI model has **7** layers

TCP/IP:

[Before message leaves sender]

Most apps. like web browsers and email clients incorporate these three OSI functionalities

- provides services to end users

⑦ **Application:** Each type of application have their own set of rules called protocols, such as DNS, HTTP, FTP and DHCP.

✓ Application detected and identifies the type of process
✓ Protocol activated as needed by the process.

⑥ **Presentation:** The presentation layer is responsible for translation, compression and encryption.

⑤ **Session layer:** The session layer is responsible for dialogue control and synchronization

↳ agreement between sender and receiver regarding timing, etc. ↳ getting the timing right

↳ initiates dialogues   • restart idle sessions
↳ keeps them active

TCP/IP Model:
↓
Transport Layer

④ **Transport Layer:** Responsible for delivery of a message from one process to another, and error recovery

② ↳ ✓ Segmentation & Reassembly   ✓ Error Protocol → TCP
✓ Adds port address at sequencing ✓ Transport Layer Protocol
✓ Connection control ①   Data Unit is Segments

✓ port address is for process

{ 3,4,5 }
✓ Connection Control
✓ Flow & Error Control
✓ Multiplexing
↳ multiple apps can use the network at the same time

① a number to identify app.
② number sequence for segment parts

16-bit port address

process to process communication

BD SCHOOL SHOP
ONE-STOP SCHOOL SHOPPING

TCP/IP
Model:

Theme:

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Internet
Layer

③ Network Layer: Responsible for the delivery of individual network layer PDU → "packets" from source host to destination host.

logical addressing ✓ Adds an address to identify sender & receiver host
✓ Decides which path to take → Routing ②
→ Common Network Layer Protocol → Internet Protocol
cannot start with 0 ───── (IP) address
8 bit each
PDU: Protocol Data Unit
___ . ___ . ___ . ___   32 - bits
0-255 0-255 0-255 0-255

← hop-hop communication

Network
Access

② Datalink Layer: Responsible for moving frames from one "hop" (node) to the next.

Datalink layer PDU → Frames
✓ Framing → process of making
✓ Physical Addressing → MAC Address → 48 bits → 12 hexadecimal digits
✓ Flow / Error control → given by manufacturer
✓ Access control

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① Physical Layer: Responsible for movement of individual bits from one hop (node) to next.

✓ Crossing medium → wired/wireless
✓ Representation of bits
✓ Data Rate → Flow control
✓ Synchronization of bits

• Physical Topology: • Transmission Mode:
  ✓ Bus   ✓ Star   ✓ Simplex   →
  ✓ Ring   ✓ Mesh   ✓ Half Duplex   ⇄
                               ✓ Full Duplex   ⇄