OSI Model :-

- 7 layers of OSI Model

Application	• End user layer • HTTP, FTP, IRC, SSH, DNS
Presentation (Encoding & Encryption) ASCII Base64 UTF	• Syntax layer • SSL, SSH, IMAP, FTP, MPEG, JPEG
Session	• Synch & send to port • APIs, Sockets, WinSock
Transport	• End-to-end connections • TCP, UDP
Network (Hop-hop connctn)	• Packets • IP, ICMP, IPSec, IGMP
Data Link L_2→ L_8→	• Frames (chunk of data) • Ethernet, PPP, Switch, bridge
Physical	• Physical Structure • Coax, Fiber, Wireless, Hubs, Repeaters.

IPV4 → 32 bit
IPV6 → 128 bit

IPV4 Head

0-3 → version
4-7 → IHL
8-13 → DSCP
14-15 → ECN
16-31 → Total length

① Identificatn → 0-15
② Flags → 16-18
③ Fragment offset → 19-31

① Time to live → 0-7
② Protocol → 8-15
③ Header checksum - 16-31

① Source IP add.
② Destinatn IP add.

⑭ 3 Flags

① DF - Don't fragment
MF → More fragment

- TTL depend on OS.

ICMP Header :-

- Internet Control Message Protocol.
- ICMP is supporting protocol in Internet protocol suite.
- It is used by network devices, including routers, to send error messages & operation info. indicating success or failure when communicating with another IP address.
- 2 main Types of **ICMP**
  1. Ping
  2. Traceroute
- There are 2 types of messages in ICMP
  1. Error reporting messages
  2. Query messages.

IPV6 Header :-

- 0-3 → version
  4-11 → Traffic class
  12-31 → Flow label

1. Payload length → 0-15
2. Next header → 16-23
3. Hop limit → 24-31