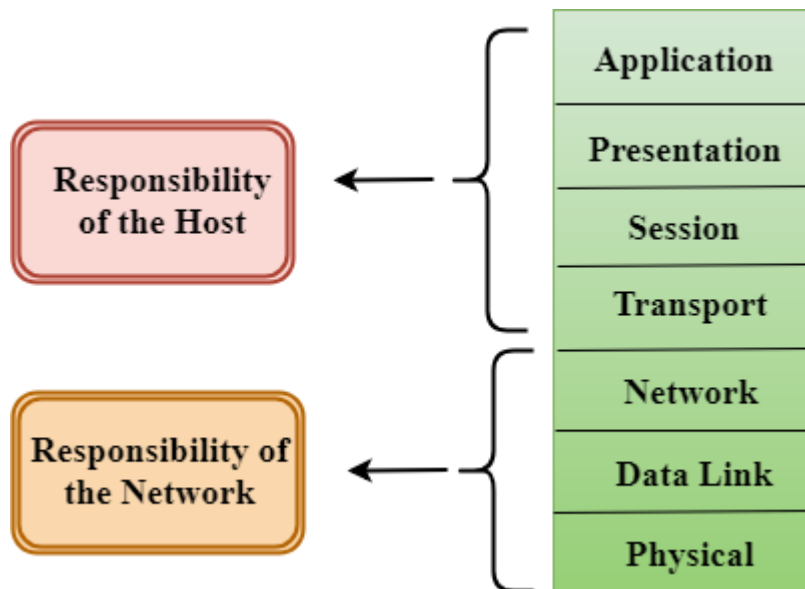# OSI Model

- o OSI stands for **Open System Interconnection** is a reference model that describes how information from a software application in one computer moves through a physical medium to the software application in another computer.

- o OSI consists of seven layers, and each layer performs a particular network function.

- o OSI model divides the whole task into seven smaller and manageable tasks. Each layer is assigned a particular task.

- o Each layer is self-contained, so that task assigned to each layer can be performed independently.

Characteristics of OSI Model:

- o The OSI model is divided into two layers: upper layers and lower layers.

- o The upper layer of the OSI model mainly deals with the application related issues, and they are implemented only in the software. The application layer is closest to the end user. Both the end user and the application layer interact with the software applications. An upper layer refers to the layer just above another layer.

- o The lower layer of the OSI model deals with the data transport issues. The data link layer and the physical layer are implemented in hardware and software. The physical layer is the lowest layer of the OSI model and is closest to the physical medium. The physical layer is mainly responsible for placing the information on the physical medium.

Functions of the OSI Layers

There are the seven OSI layers. Each layer has different functions. A list of seven layers are given below:

1. Physical Layer
2. Data-Link Layer
3. Network Layer
4. Transport Layer
5. Session Layer
6. Presentation Layer
7. Application Layer
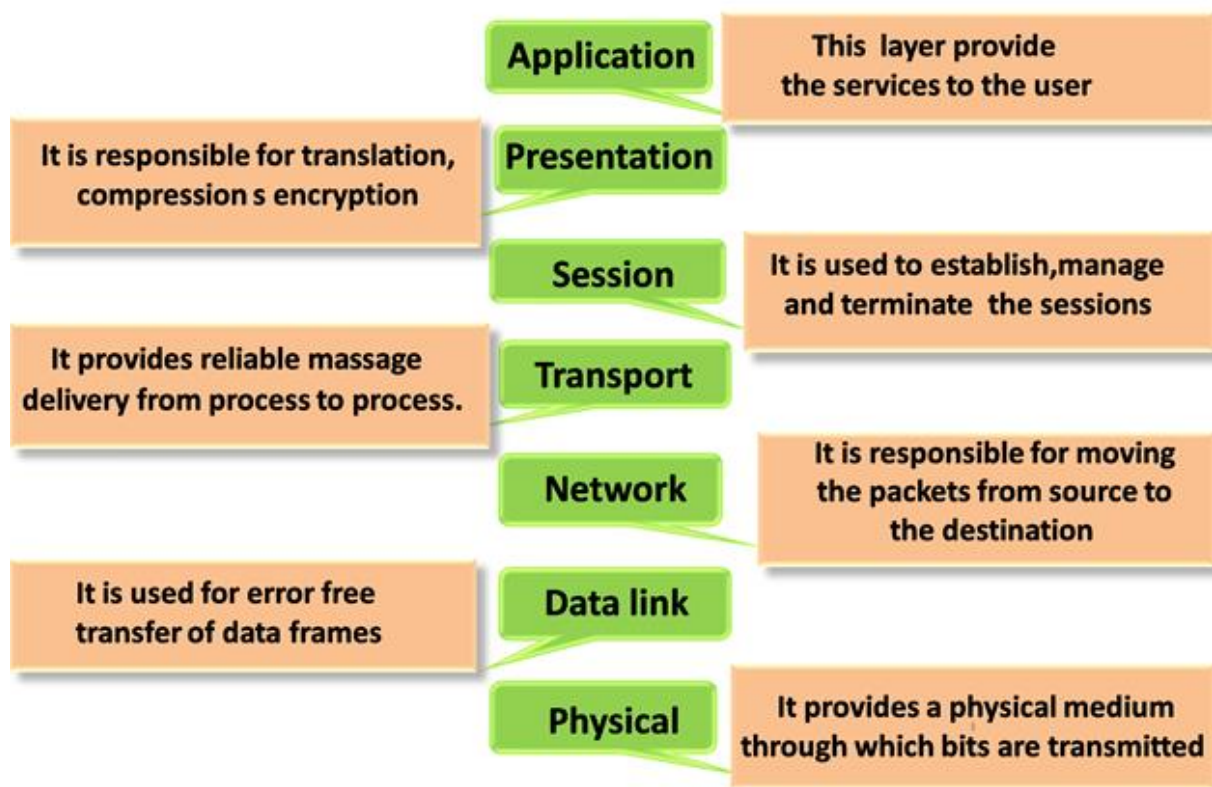
Difference between TCP/IP and OSI Model:

TCP/IP   OSI

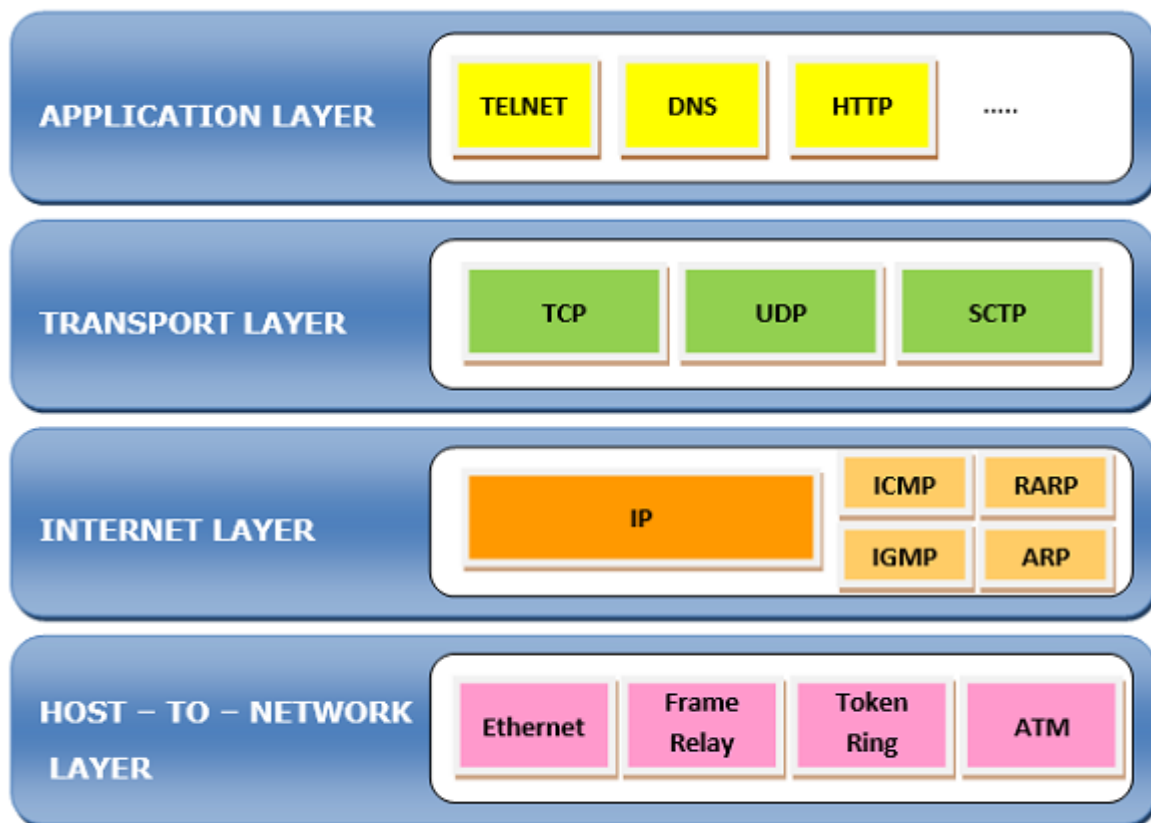|	
TCP refers to Transmission Control Protocol.	OSI refers to Open Systems Interconnection.
TCP/IP has 4 layers.	OSI has 7 layers.
TCP/IP is more reliable	OSI is less reliable
TCP/IP does not have very strict boundaries.	OSI has strict boundaries
TCP/IP follow a horizontal approach.	OSI follows a vertical approach.
TCP/IP uses both session and presentation layer in the application layer itself.	OSI uses different session and presentation layers.
TCP/IP developed protocols then model.	OSI developed model then protocol.
Transport layer in TCP/IP does not provide assurance delivery of packets.	In OSI model, transport layer provides assurance delivery of packets.
TCP/IP model network layer only provides connection less services.	Connection less and connection oriented both services are provided by network layer in OSI model.
Protocols cannot be replaced easily in TCP/IP model.	While in OSI model, Protocols are better covered and is easy to replace with the change in technology.

TCP/IP

It stands for Transmission Control Protocol/Internet Protocol. The **TCP/IP model** is a concise version of the OSI model. It contains four layers, unlike seven layers in the OSI model. The layers are:
1. Process/Application Layer
2. Host-to-Host/Transport Layer
3. Internet Layer
4. Network Access/Link Layer

The following diagram shows the layers and the protocols in each of the layers −

APPLICATION LAYER	TELNET	DNS	HTTP	.....

TRANSPORT LAYER	TCP	UDP	SCTP

INTERNET LAYER	IP	ICMP	RARP
		IGMP	ARP

HOST − TO − NETWORK LAYER	Ethernet	Frame Relay	Token Ring	ATM

Functions of TCP/IP layers:

Application								
Presentation	SMTP	FTP	TELNET	DNS	SNMP	NFS		TFTP
Session							RPC	

Transport		TCP		UDP	

Network	ICMP	IGMP			
			IP	ARP	RARP

Data link layer

Physical Layer