

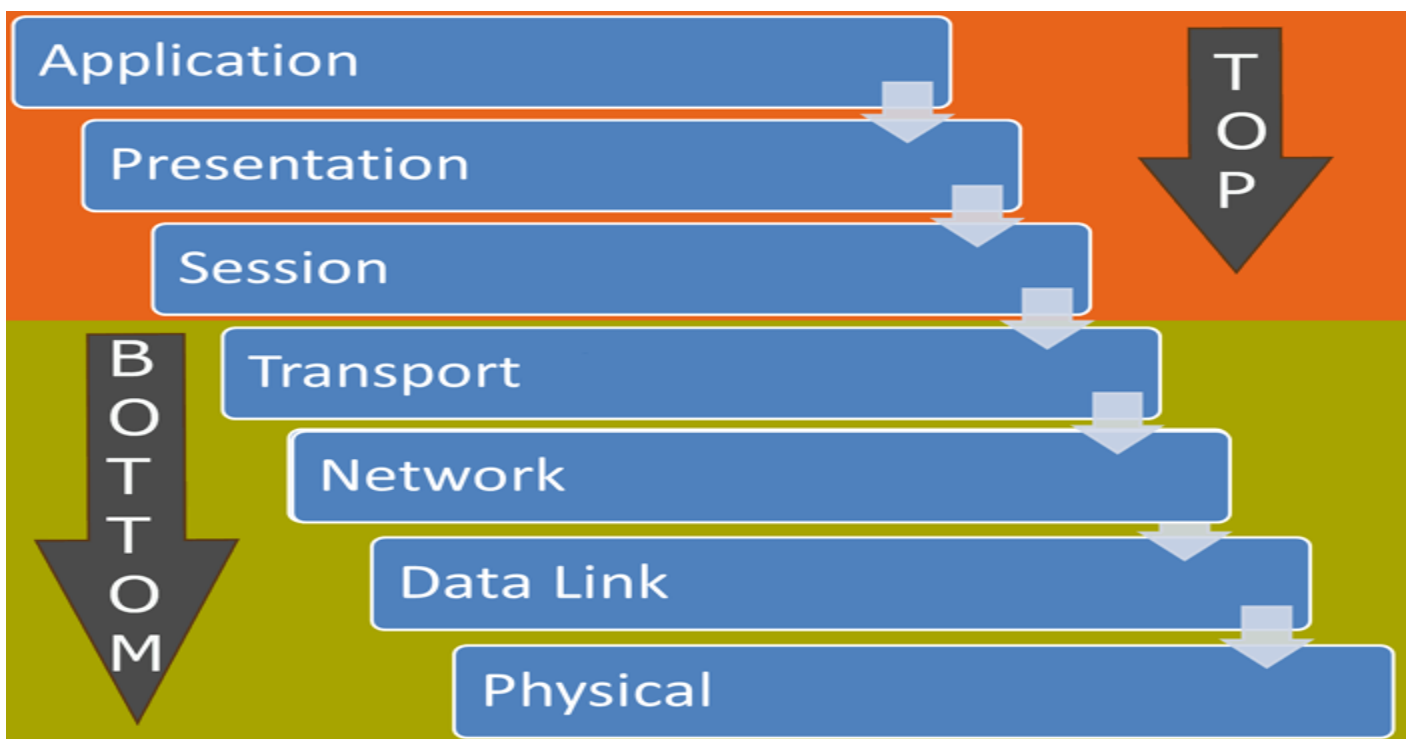
OSI MODEL

The OSI (Open System Interconnection) Reference Model is the comprehensive set of standards and rules for hardware manufacturers and software developers. By following these standards, they can build the networking components and software applications which work in dissimilar environments. In 1984, the ISO (International Organization for Standardization) published this Model.

Seven layers of OSI Model

The OSI model has seven different layers, divided into two groups.

Group	Layer Number	Layer Name	Description
Top Layers	7	Application	Provide user interface to send and receive the data
	6	Presentation	Encrypt, format and compress the data for transmission
	5	Session	Initiate and terminate session with remote system
Bottom Layers	4	Transport	Break data stream in smaller segments and provide reliable and unreliable data delivery
	3	Network	Provide logical addressing
	2	Data Link	Prepare data for transmission
	1	Physical	Move data between devices



The Physical Layer

The Physical Layer is the first layer of OSI model. This layer specifies the standards for devices, media and technologies which are used in moving the data across the network such as:-

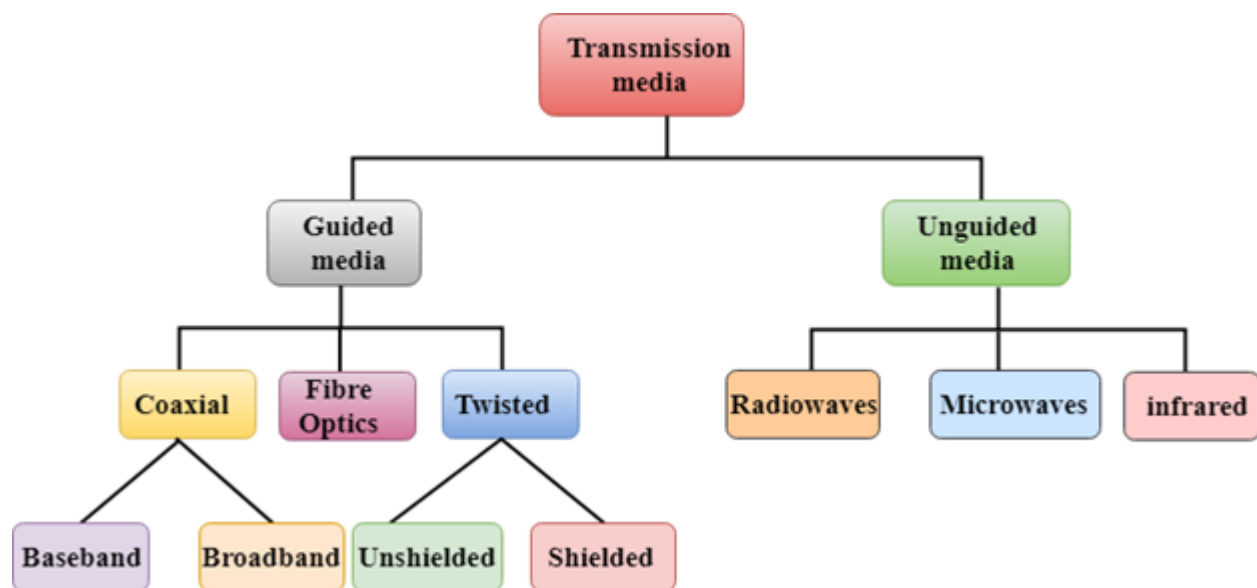
- Type of cable used in connecting the devices
- Patterns of pin used in both sides of cable
- Type of interface card used in networking device
- Type of connector used to connect the cable with network interface

Some other task:→

Transmission Media

- Transmission media is a communication channel that carries the information from the sender to the receiver. Data is transmitted through the electromagnetic signals.
- In **OSI** (Open System Interconnection) phase, transmission media supports the Layer 1. Therefore, it is considered to be as a Layer 1 component.
- The electrical signals can be sent through the copper wire, fibre optics, atmosphere, water, and vacuum.

Classification Of Transmission Media:



1. Guided Media
2. Unguided Media

Encoding & Signal

Encoding of digital signals received from the Data Link layer based on the attached media type such as electrical for copper, light for fiber, or a radio wave for wireless.

Topology (Already Sent, Kindly refer that notes)

The Data Link Layer

The Data Link Layer is the second layer of OSI model. This layer defines how networking components access the media and what transmission methods they use.

1. Frame (All packet bind up in frame):→ A frame check sequence (FCS) is an error-detecting code added to a frame in a communications protocol. Frames are used to send payload data from a source to a destination.
2. Error detection :→ Refer to Frame
3. Physical addressing:→ A physical address is also known as a binary address or a real address. Physical address is a Mac address of the PC (Machine).
4. Flow Control:→ Flow control is a technique that allows two stations working at different speeds to communicate with each other. In data link layer, flow control restricts the number of frames the sender can send before it waits for an acknowledgment from the receiver.

The Network Layer

The third layer of OSI model is the Network Layer. This layer takes data segment from transport layer and adds logical address to it. A logical address has two components; network partition and host partition. Network partition is used to group networking components together while host partition is used to uniquely identity a system on a network. Logical address is known as IP address.