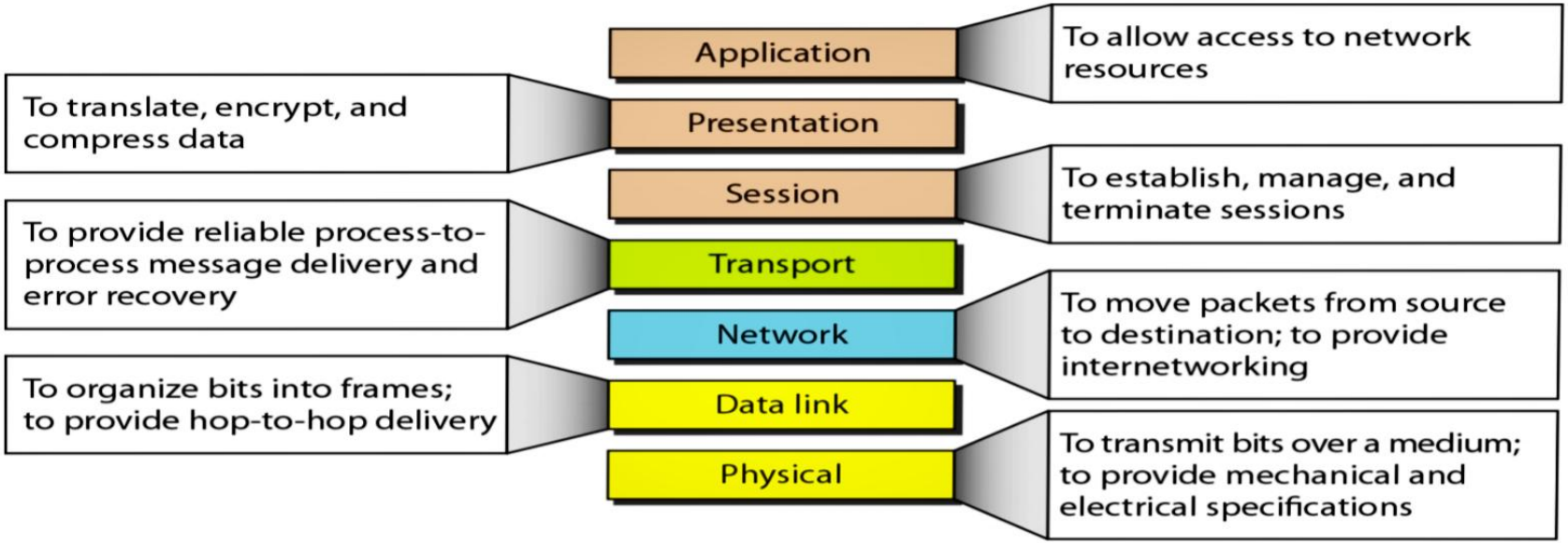
Figure *Summary of layers*



Physical Layer

1. It deals with the transmission of information in the form of raw bits over the communication channel.
2. Its design issues include mechanical, electrical and procedural interfaces along with the underlying physical medium.

Example

What is the mode of communication? How much voltages are used to denote logic 1 and logic 0? etc.

Data Link Layer

1. It is a layer above the physical layer whose function is to break the input data into (data) frames and take care of acknowledgments.
2. It regulates the flow of traffic in case of fast sender transmitting to a slow receiver.
3. It provides an error-free transmission for the network layer and solves the problems that results from frames (i.e., damage, lost and duplication).
4. A MAC sublayer (i.e., a sublayer of DLL) provides controlled access to the shared channel.

Network Layer

1. Network layer routes packets from source to destination by applying routing algorithms.
2. It controls the entire operation of the subnet besides controlling congestion.
3. It also maintains the accounting information about the data sent by each user.
4. It establishes the connections with other heterogeneous networks.

Transport Layer

1. The transport layer is responsible for accepting data from the session layer, dividing it into small pieces (TPDUS), if required and passing these pieces to the network layer and assure the correct reception of data at the other end.
2. It sets up and terminates the connections across the network thereby regulating the flow of information.
3. It also multiplexes the data and establishes multiple connections, when a high throughput is desired.

Session Layer

1. Session layer is responsible for conducting sessions among various users on different machines.
2. It manages the dialogue control in case of half-duplex communication.
3. It prevents the occurrence of simultaneous operation at both sides by using a service called 'token management'.
4. Data synchronization is also provided by inserting checkpoints into the data stream, so that only the data after the last checkpoint is retransferred in case of a system crash.

Presentation Layer

1. This layer is concerned with the syntax and semantics of the information transmitted.
2. It converts the information between the representations used in individual computers and globally accepted standards.

Application Layer

It contains the implementation of various protocols used for user interaction such as, Telnet, FTP, SMTP, etc.