**Home Assignment Lab# 4**



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**Home Tasks**

The Open Systems Interconnection (OSI) model describes seven layers that computer systems use to communicate over a network.

## Layers:

The layers are:

1. Physical Layer
2. Data Link Layer
3. Network Layer
4. Transport Layer
5. Session Layer
6. Presentation Layer
7. Application Layer
8. **Physical Layer:**

Physical Layer is used for hardware connectivity and physical connectivity. Physical connections are from points to points. Physical topologies are also included in this layer. The connectivity includes cables, Wi-Fi network etc. When there is any problem in networking, physical layers are checked, is all wires are properly connected or not and routers, switches are properly connected or not.

**Data Link Layer:**

1. Data Link layer allow a device to access the network to send and receive message. This layer also gives Error detection and correction that comes from physical layer. It transfer data from one node to another node.
2. **Network Layer:**

Network layer gives Network Addressing of IPv4, Ipv6. The number we enter to call should have proper network address, so that the data will be transmitted. This layer is responsible for packet forwarding, including routing through different routers.

1. **Transport Layer:**

Transport layer provide reliability of data transmission between system and host. It also gives error detection. This layer divide the data into packets for transmission. The best known example of the Transport Layer is the Transmission Control Protocol (TCP) and UDP. This layer decides how much data is to send in different packets so that it will be transferred properly to other system.

1. **Session Layer:**

Session layer creates communication channels on both sender and receiver sides so that two system can speak to each other. Functions of this layer involve setup, coordination (how long should a system wait for a response) and termination between the two system at the end of the session.

1. **Presentation Layer:**

In Presentation layer, data is present in encryption for security, when sender sends the data. After when receiver receives the data, it is decrypted. This layer also verifies the type of file as docs, multimedia etc.

1. **Application Layer:**

The Application Layer in the OSI model is the layer that is the “closest to the end user”. Application layer stores information about data like file present in which computer, in which directory and its size etc. It receives information directly from users and displays incoming data to the user.  Web browsers (Google Chrome, Firefox, etc.) Tel-Net, and FTP, are examples of communications.

**OSI Model / TCP/IP Model**

1. OSI has 7 layers, whereas TCP/IP has 4 layers.
2. The OSI Model is a logical and conceptual model that gives network communication used by systems. On the other hand, TCP/IP helps you to determine how a specific computer should be connected to the internet and how data can be transmitted between them.
3. OSI header is 5 bytes, whereas TCP/IP header size is 20 bytes.
4. OSI refers to Open Systems Interconnection, whereas TCP/IP refers to Transmission Control Protocol.
5. OSI has a vertical approach, whereas TCP/IP has a horizontal approach.
6. OSI model helps you to use router, switch, motherboard, and other hardware, whereas TCP/IP helps you to establish a connection between different types of computers.
7. OSI model is developed by ISO (International Standard Organization), whereas TCP Model is developed by ARPANET (Advanced Research Project Agency Network).