Good evening Dear sir and Madam, I am Md. Nasarul Hasan present the OSI Model on behalf of group four. Here are our group members.◄

**Open Systems Interconnection is known as OSI**. It has been developed by **International Organization of Standardization** in 1984. Each layer has specific functionality to perform. Now I am describing OSI models activity in a short form. ◄

There are seven layers in OSI model. Application, Presentation, Session, Network, Data link and Physical layer. The activity in Physical layer is transmits raw bit stream, Defines format of data in Data Link layer, Data decides physical path in Network layer, Data transmits in Transfer layer, Maintains connections in Session layer, Data encryption & decryption in Presentation layer, Human-computer interaction activities in Application layer. ◄

In this layers, Application, Presentation and Session layer are call software layer, Transfer layer is the heart of OSI model. Network, Data Link and Physical layer are called **Lower Layers** or **Hardware Layers**. ◄

To remember these seven layers of OSI model we can remember the sentence “All people seem to need data processing”. ◄

Here A for Application layer, P for Presentation layer, S for Session layer, N for Network layer, D for Data link layer and P for Physical layer. ◄

Honorable Sir and Madam, now I am describing every layer of OSI Model and its functions with a figure in every slides.

First layer in this model is Physical Layer. This layer includes the physical equipment involved in the data transfer, which is a string of binary number system 1 and 0. Hub, Modem, Cables are Physical Layer devices.

There are some functions in the physical layer. Those are: Bit synchronization, Bit rate control, Physical topologies, and transmission mode.

In this figure we are trying to show Physical layers works. Here bit stream sends by cable from sender to receiver. ◄

The second layer is data link layer. The data link helps data transfer between two devices on the same network. The data link layer takes packets from the network layer and breaks them into smaller pieces called frames. Switch & Bridge are Data Link Layer devices. Framing, Physical addressing, Error, Flow, Access control are data link layer functions. ◄

Next the network layer is responsible for facilitating data transfer between two different networks. The network layer breaks up segments from the transport layer into smaller units, called packets. Routing, Logical addressing is Network layer functions. ◄

The fourth layer is Transport layer. Transport layer responsible for end-to-end communication between the two devices. Data in the Transport Layer is called as Segments. Transport Layer is called as Heart of OSI model. Segmentation and reassembly, Service point addressing is transport layer’s function. ◄

Session layer responsible for opening and closing communication between the two devices. The time between when the communication is opened and closed is known as the session. Session establishment, maintenance and termination. Synchronization and dialog controller is session layer function. ◄

Then the presentation layer is primarily responsible for preparing data so that it can be used by the application layer. This layer can also handle the encryption and decryption required by the application layer. The function of presentation layer is translation, encryption, decryption and compression. ◄

The last layer is application layer. This is the only layer that directly interacts with data from the user. Software applications like web browsers and email clients rely on the application layer to initiate communications. Network virtual termina, file transfer access and management, mail services, directory services are the function of application layer. ◄

There are some Advantages and also Disadvantages of OSI Model. **Advantages are:**

1. Network Support: Most computer networks use OSI as their standard model.

2. Layer Changes: Each layer in the OSI model is separated to other. For this reason, any changes in the layer will not affects.

3. Layer Identification: Each layer in the OSI model is assigned with the task of services, protocols and interfaces.

4. Flexibility: OSI model is also flexible in nature. It can work with both connection oriented and connectionless services.

5. Troubleshooting: Since each layer in OSI model is separated to each other, troubleshooting is made easier for that.

## Disadvantages are:

1. Implementation: OSI is a theoretical model. That means practical implementation is almost impossible.

2. Adaptation: Many companies were initially hesitated to use this OSI model due to the popularity of TCP/IP model.

3. Effectiveness: OSI model failed to meet the practical expectations. As a result, it is not effective as a TCP/IP model.

4. Complexity: Compare to a TCP/IP model, an OSI model is complex in its structure.

5. Collaboration: Each layer in OSI model will not be able to work in parallel. So, OSI model has some complications while working.◄

This is all of our group presentation. Now this is interactive session, if you have any question, please ask us. We will try to answer our question. ◄

Thank you for your kind attention. Good evening and thank you all.

1. **Transmits raw bit stream** over the physical medium in Physical layer.
2. Defines the **format of data** on the network in Data Link layer.
3. Decides which **physical path** the data will take in Network layer.
4. **Transmits data** using transmission protocols including TCP and UDP in Transfer layer.
5. **Maintains connections** and is responsible for controlling ports and sessions in the Session layer.
6. Ensures that data is in a usable format and is where **data encryption** occurs in Presentation layer.
7. **Human-computer interaction** layer, where applications can access the network services in Application layer.

Allow access to network resources in Application layer.

To translate, encrypt and compress data in Presentation layer.

To establish, manage and terminate in the Session layer.

Provide reliable process-to-process and massage delivery and error recovery in Transfer layer.

Move packets from source to destination and provide internetworking Network layer.

To organize bits into frames and provide hop-to-hop delivery in Data Link layer.

To transmit bits over a medium and provide Mechanical and electrical specifications in Physical layer.