**COMPUTER NETWORK**

**ASSIGNMENT WEEK 2**

Explain in detail about the OSI Model with its characteristics

The OSI Model 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. [It was developed by the International Organization for Standardization (ISO) in 1984 and is now considered as an architectural model for inter-computer communications 1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/). [The OSI model consists of seven layers that work together to carry out specialized network functions, allowing for a more systematic approach to networking](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/) [1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/). Here are the seven layers of the OSI Model:

1. Physical Layer: This layer is responsible for transmitting individual bits from one node to another node. It establishes, maintains, and deactivates the physical connection. [It specifies the mechanical, electrical, and procedural network interface specifications](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/) [1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/).
2. Data Link Layer: This layer is responsible for the node-to-node delivery of the message. [The main function of this layer is to make sure data transfer is error-free from one node to another over the physical layer](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/) [1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/).
3. [Network Layer: This layer is responsible for routing packets across multiple networks and provides logical addressing](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/) [1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/).
4. [Transport Layer: This layer provides end-to-end data transport services and ensures that data is delivered error-free, in sequence, and with no losses or duplications](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/) [1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/).
5. [Session Layer: This layer establishes, manages, and terminates communication sessions between applications on different devices](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/) [1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/).
6. [Presentation Layer: This layer provides a common representation of data between applications on different devices](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/) [1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/).
7. [Application Layer: This layer provides services directly to the user’s applications](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/) [1](https://www.geeksforgeeks.org/open-systems-interconnection-model-osi/).

The following are some characteristics of the OSI Model:

* A layer should only be created where definite levels of abstraction are needed.
* The function of each layer should be selected as per internationally standardized protocols.
* The number of layers should be large so that separate functions should not be put in the same layer.
* Each layer should perform a well-defined function.
* Each layer should be able to communicate with its peer layer on other machines.
* The layers should be independent of each other so that changes in one layer do not affect the others.
* The design should be modular so that modifications can be made easily when necessary.