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| **DOCUMENT RULES:** | |
| **Task Number / Name:** | **TCP/Ip Layers** |
| **Task name & column name should be written:** | **Bold (CTRL+B)** |
| **Commands should be written in the after # sign:** | *Italic (CTRL+I) #hostname* |
| **Output photo should be cropped or compressed:**  **Photo could be more than one:**  **If you need extra lines, add the line next after it:** | ***Description photo should be with title bar (CTRL + I + B)***  Text  Description automatically generated |
| **All other text should be written:** | Standard |
| **Font name and text size:** | Calibri and 14 |
| **Group name:** | 2nd shift |
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| **TCP/Ip** **(Transmission Control Protocol/Internet Protocol) Layers** |

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| **What is TCP/Ip?** |
| TCP/IP Model helps you to determine how a specific computer should be connected to the internet and how data should be transmitted between them. It helps you to create a virtual network when multiple computer networks are connected together. The purpose of TCP/IP model is to allow communication over large distances.  TCP/IP stands for Transmission Control Protocol/ Internet Protocol. TCP/IP Stack is specifically designed as a model to offer highly reliable and end-to-end byte stream over an unreliable internetwork. |
| **What does TCP/IP do?** |
| TCP/IP determines how computers transfer data from one device to another. This data needs to be kept accurate so that the receiver gets the same information that the sender originally sent.  To ensure that each communication reaches its intended destination intact, the TCP/IP model breaks down data into packets and then reassembles the packets into the complete message on the other end. Sending the data in small packets makes it easier to maintain accuracy versus sending all the data at once. After a single message is split into packets, these packets may travel along different routes if one route is congested. |
| **TCP/Ip Layers** |
| The functionality of the TCP IP model is divided into four layers, and each includes specific   * Application Layer * Transport Layer * Internet Layer * Network Interface   protocols. |
| Application Layer |
| Application layer interacts with an application program, which is the highest level of OSI model. The application layer is the OSI layer, which is closest to the end-user. It means the OSI application layer allows users to interact with other software application.  Application layer interacts with software applications to implement a communicating component. The interpretation of data by the application program is always outside the scope of the OSI model.  Example of the application layer is an application such as file transfer, email, remote login, etc. |
| Transport Layer |
| Transport layer builds on the network layer in order to provide data transport from a process on a source system machine to a process on a destination system. It is hosted using single or multiple networks, and also maintains the quality of service functions.  It determines how much data should be sent where and at what rate. This layer builds on the message which are received from the application layer. It helps ensure that data units are delivered error-free and in sequence.  Transport layer helps you to control the reliability of a link through flow control, error control, and segmentation or de-segmentation. |
| Internet Layer |
| The main work of this layer is to send the packets from any network, and any computer still they reach the destination irrespective of the route they take.  The Internet layer offers the functional and procedural method for transferring variable length data sequences from one node to another with the help of various networks.  Layer-management protocols that belong to the network layer are:   1. Routing protocols 2. Multicast group management 3. Network-layer address assignment. |
| The Network Interface Layer |
| Network Interface Layer is this layer of the four-layer TCP/IP model. This layer is also called a network access layer. It helps you to defines details of how data should be sent using the network.  It also includes how bits should optically be signaled by hardware devices which directly interfaces with a network medium, like coaxial, optical, coaxial, fiber, or twisted-pair cables.  A network layer is a combination of the data line and defined in the article of OSI reference model. This layer defines how the data should be sent physically through the network. This layer is responsible for the transmission of the data between two devices on the same network. |
| **How does the TCP/IP model work?** |
| Whenever you send something over the internet — a message, a photo, a file — the TCP/IP model divides that data into packets according to a four-layer procedure. The data first goes through these layers in one order, and then in reverse order as the data is reassembled on the receiving end. |
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| The TCP/IP model works because the whole process is standardized. Without standardization, communication would go haywire and slow things down — and fast internet service relies on efficiency. As the global standard, the TCP/IP model is one of the most efficient ways to transfer data over the internet. |
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