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Assignment 1

Scenario 1 (**5 Marks**): A ship approaching port needs to send information to the shore abut the size of the ship and it's current speed and direction. The port needs to send the ship a warning about incoming fog and the location of a dangerous, rocky shoreline. The ship-to-shore radio is broken, so the ship attempts to transmit the information using Morse Code (flashing a light and blasting a horn) and the port relies on it's fog horn and lighthouse to send it's message to the ship.

What roles (protocols) are in place that ensure that this conversation begins and ends and also has a structure which allows each party to convey (and/or receive) the message. Which layer is reflected in this scenario and what role of that layer is being fulfilled?

A possible answer to this scenario would be the Transport Layer (TCP/IP) as this scenario describes a port needing to transmit a message to a ship and in return also needs to relay a message back to the port. The transport layer establishes connections via remote host which is exactly the case in this scenario as the ship on the water is the remote host. As the port and the ship both send vital messages it is important that the message received is error free which and the main purpose of the transport layer. It is to successfully relay data transmission and send the data error free. In this case it can be considered that both the ship and the port use different "networks" to get the message across the water. Transport layer is hosted using single or multiple networks. One form of network would be the Morse code and another forms of network would be from the ship, flashing a light and blasting the horn. Both the port and the ships need to send information accurately which is a main aspect of the internet layer.

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Scenario 2 (**5 Marks**): The Prime Minister of Canada is responding to questions at a press conference. Reporters are in seats in front of his podium, raising their hands to get his attention in order to ask their question. The Prime Minister points to reporters one at a time and they ask their question. Once he answers, he points to another reporter so that someone else gets a turn to ask a question.

What roles (protocols) are in place that ensure that this conversation begins and ends and also has a structure which allows each party to convey (and/or receive) the message. Which layer is reflected in this scenario and what role of that layer is being fulfilled?

This scenario would be like the Internet Layer because the main work of this layer is to send packets from any networks (which are the reporters) to reach a destination which would be (the Prime Minister). The conversation begins where the prime minister independently route each of the reporters (source) to the destination which would be at the press conference. The fact that the prime minister picks each reporter to answer questions also show similarity to the multicast group management system as per the Internet layer. There are many reporters which can be considered the multicast group and the prime minister in this case would be the one routing the protocols allowing the network to transmit the message.