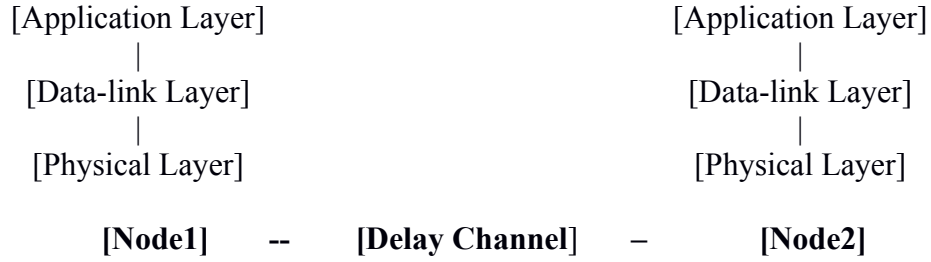
Computer Networks
Lab 2 Assignment

Task 1: Layered Architecture

1. Create a network (name "layerNetwork") with Two nodes, where each node has three layers: *application, datalink*, and *physical layer*. Both nodes are connected with delay channel (check user manual of OMNeT++). (Hint: design layers as *simple module,* and node as *compound module*)



2. Each layer communicates through protocol data unit (PDU). The *application layer* PDU is A_PDU, *data-link layer* PDU is DL_PDU and *physical layer* PDU is P_PDU. Create a packet for each PDU. Only application and data link layer communicate through addresses (source and destination). (Hint: design all PDU's as packet type message defination)
3. Each communication will start from the application layer of the node to next bottom layer up to the physical layer, then this node transfer this P_PDU to the destination node.

Task 2: Stop and Wait ARQ protocol:

1. In the above network implement the Stop-and-Wait ARQ protocol.
2. (*Application Layer*) Node1 sends 10 "Data" packets with id 1 to 10 to Node2. Node2 receives each "Data" packet and send back "Ack" packet with the same id of receiving "Data" packet id to the Node1. After receiving "Ack" packet Node1 sends the next packet.
3. *Data link layer* assigns the id to DL_PDU in modulo-2 (0 and 1) manner. i.e. first PDU received from application layer id will be 0 then second PDU id will be 1 then again 0 and so on.
4. *Physical layer* forward the P_PDU to transmission medium.