COEN 146 - Spring 2018
Lab Project 3
TFv2 - Stop and Wait

Demo in the lab and upload by midnight on Tuesday (May 1)

This project consists of building a Stop and Wait protocol. TFv2 is going to be built on top of UDP. Like TFv1, a client will transfer a file name first, and then file contents. A server will receive messages over UDP and write into a file. Messages are sent one at a time, and each message needs to be acknowledged when received, before a new message can be sent. Communication is unidirectional, i.e., data flows from the client to the server. UDP examples are on Camino.

Protocol:
1. The server starts first and waits for messages.
2. The client sends a message with a sequence number 0 or 1.
3. The server, after receiving a message, sends an ACK message with the same sequence number to the client, and deliver data to the file.
4. After sending each message, the client waits for a corresponding ACK (which has the same sequence number). If it receives the ACK, the client can now send one new message. This means that TFv2 blocks on writes until an ACK is received.

TFv2 message contains the header and the application data.

```
DATA PACKET
        header      int (32 bits)        // sequence number 0 or 1
        data        char (10 bytes)

ACK PACKET
        header      int (32 bits)        // sequence number 0 or 1
```

Submission:
1. You need to upload the client code and server code, and demo between you and another student.
2. You need to upload answers for the questions below:
    a. Try them with a long file. Do you see any bit errors or data loss?
    b. Can you explain why FTv2 seems reliable data transfer service?