>>> Assignment #3 for Computer Networks (CNT 4004) <<<
Due on 10/06/10 at the beginning of class

This assignment covers material from chapter 3 of the textbook and from class lecture.

Problem #1

Design the following protocol using two FSMs (one for sender and one for receiver). Consider a sender and receiver. The sender sends packets to the receiver, the receiver returns an ACK for each received packet that is uncorrupted. Each packet and ACK contains a checksum to test for corruption (assume that the checksum is "perfect", namely that all cases of corruption can be detected). Packets contain application data. Packets and ACKs may get lost or corrupted. The sender sends a packet and then waits for a period *T* for an ACK. If no ACK is received or the ACK is corrupt, the sender sends the packet again. This is repeated up to three times at which point the sender simply gives up. Assume that the network never mis-orders packets and never inserts "bogus" packets. Using a timing diagram show the case of a first sent packet being lost, then the second packet being successfully received and ACKed.

Problem #2

Do problem P3 (page 299) in the textbook. Hint: Pay attention to wrap around.

Problem #3

Do problem P5 (page 300) in the textbook.

Problem #4

Do problem P12 (page 301) in the textbook. The purpose of this problem is to get you to think about really "odd" cases, but then also to understand that such cases not only can, but will, occur when bazillions of messages are transported.

Problem #5

Do problem P14 (page 301) from the text book.

Problem #6

Do problem P23 (page 303) from the text book. Hint: Think back to what you learned for sockets programming.

Problem #7

There are two ways to terminate a TCP connection, what are they? What are the implications (that is, what happens?) of each way?

Extra Credit

Earn some extra credit by working on a design for the class project (the standard) and presenting it at the class standards meeting!

Note:

The TA and I are here to help you! Make use of help if you need it.