

>>> Assignment #2 for Computer Networks (CNT 4004) <<< Due on 09/22/10 at the beginning of class

This assignment covers material from chapter 2 of the textbook and from roughly the second two weeks of class lecture.

Problem #1

Answer the following short questions about application layer protocols:

- a) What are the two things that an application layer process implements?
- b) Application layer protocols define four things. What are these four things?
- c) Can an application process implement both client and server capabilities? Give an example of such an application.
- d) In the context of a communications session, one process is usually a client and the other a server. Carefully define client and server in this context.
- e) What are the two RFCs that define the HTTP standard (note that there are two versions of HTTP)? Give the RFC title, author, and number for each.

Problem #2

Do problem P1 (page 181) in the textbook. Explain each answer (i.e., why true or false).

Problem #3

Do problem P3 (page 181) in the textbook.

Problem #4

Do problem P4 (page 181) in the textbook.

Problem #5

Do problem P13 (page 184) in the textbook.

Problem #6

Write two C programs as follows. Write a client program to take as input from the console a string (maximum 140 characters) and then send it using UDP to a server program. The server program should receive all messages sent to it and output them on the console. Submit the C source code and a screen shot of the programs working. Hint: You can easily modify `udpClient.c` and `udpServer.c` to meet the requirements of this problem. If you do modify existing code, be sure to carefully and clearly denote which code is yours and which is “old”. Be sure to consult the class C Style Guidelines for keeping your code style compliant.

Problem #7

Find `udpClientBroadcast.c` on the Christensen tools page (Hint: get there via my homepage), download and build it. Run the program and take a trace of the datagram it sends using Wireshark. Study the Ethernet and IP destination addresses – what do you see? Explain how `udpClient.c` was modified to become `udpClientBroadcast.c`.

Note:

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