>>> Assignment #1 for Computer Networks (CNT 4004) <<<
(due on Thursday, September 10th at the start of class)

This assignment covers material from chapter 1 of the textbook and from roughly the first two weeks of class lecture. Each problem is worth 10 points.

Problem #1

If is very important that you know what the class website contains. So, for this first "fun" problem you are to go on a frog hunt. There are images of frogs hidden on one or more pages (only on pages that I have created) on the class website (or linked to from the class website). Find all the frogs. Give the URLs of the page(s) with the frogs. Explain what the page with a frog contains (that is, describe the page contents).

Problem #2

What important job does the first author of the textbook have now? Hint: The answer is not on page iii of the textbook and may not be the first Google hit either.

Problem #3

Give the URL of the where the solutions manual for the textbook can be found (for any edition).

Problem #4

a) What are the fundamental measures of a communication system as described in the class lecture?

b) What are the open challenges in communication systems as described in the class lecture?

c) What are the basic communications tasks that define networking (and what we will study) as described in the class lecture?

d) What is the fundamental difference between circuit switching and packet switching?

Problem #5

a) Compare and contrast the lecture definition of protocol with the textbook definition of protocol

b) Precisely define interface as defined in lecture. Describe how an interface is fundamentally different from a protocol.

c) What is an access network? Give three examples of access network for residences (homes).

Problem #6

a) Sketch the five layer Internet protocol stack model used in our textbook. For each layer, describe its function in one sentence.

b) Sketch a packet (i.e., show the headers and trailers) that would result from this five-layer model. Be sure to show all header and trailers that could be present (even if you know that they are not present in a "real" Internet packet).

c) Give one standard from each (ITU and IETF) that you, very likely, use daily.

d) Describe key fundamental differences in operation between the ITU and IETF.

Problem #7

Do Problem P6 (page 72) from the text book

Problem #8

Do Problem P13 (page 73) from the text book (**hint:** What is the sum of $1 + 2 + 3 + \ldots + N$?).

Problem #9

Do Problem P18(a),(b),(c) (page 74) from the text book.

Problem #10

For this course it is very important that you have a C development environment that you are comfortable with. Now is the time to verify that your development environment is in working order. For this problem you are to download `weblite.c` from the class source code page, build it, and execute it. Take a screenshot (<Alt-PrtSc> in Windows) of your execution and submit it for this problem.

Note:

I am here to help you (I have office hours, I am reachable/responsive by email)! Make use of help if you need it.