CS472 – COMPUTER NETWORKS

Midterm Study Guide

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Exam Format

The exam will be closed book and designed so that most students can complete it (hopefully ☺) in 45-60min. It will likely be 6 or 7 questions. Each question should be able to be answered in a few sentences to a short paragraph.

The exam will explore your understanding of fundamental concepts we discussed in class, it will not require you to memorize things like the exact PDU structure of the HTTP protocol, nor will there be any requirement to write code or psudocode.

Please ensure you bring something to write with to the exam – I will provide the paper and a stapler.

Exam Topic Prep – You should be familiar with the below

- Material From Reading – note I will not ask any questions from the reading that has not been discussed in class.
  - Chapter 1 and section 6.7
  - Chapter 2.1-2.3; 2.7 & 2.8
  - Chapters 2.4-2.6
- What is a protocol? How does it relate to a conversation?
- Issues and challenges with message delivery (at least once, at most once, exactly once)
- Basics of addresses and identifiers we covered – IP, MAC, Ports – what are they, what are they used for?
- Clients, Servers and Peer-to-Peer Concepts
- Connection Oriented vs Connectionless – similarities, differences, how they support networking needs
- What is a DFA? What is it useful to depict?
- Why do we break things up into packets/frames/segments?
- Reliable and unreliable delivery – why is it good to have both?
- OSI and TCP Reference Model + Concepts/Benefits/Challenges of Layering, SubLayering, etc.
- How the HTTP protocol works to power modern web-oriented applications. For example, how does the HTTP PDU support these types of applications and how does HTTP 1.1/2/3 fit into the picture.
- What is a socket? What do we use sockets for? What is the relation between the physical network, the OS, and the socket programming interface?

Exam Topic Prep – You should be familiar with the below

- Common attributes and themes associated with protocols
  - Addressing, Connection control, delivery ordering, segmentation & reassembly, PDU definition, error detection, flow control, multiplexing, security, QoS (Slide 10)
- Using IP to determine if 2 machines are on the same network or not – understanding how IP addresses are encoded host and network part, etc
- The 5-tuple needed in TCP/UDP/IP – SourceIP, DestIP, Source Port, Dest Port, Protocol
- Protocol negotiation, why is it needed