CS 331 Lecture Notes

COURSE OVERVIEW

Coursework & Evaluation

- Five projects: 55%
  - Bi-weekly project
  - Two parts: a problem set, a programming assignment
  - Purposes: review the contents covered in class, learn network tools and explore new knowledge by yourself, help will be provided if you let me know your questions
  - Two deadlines: one for problem set, one for programming assignment, to help you start projects early so that I can help you better

- Two midterms: 20%
  - two one hour exams: 10/13, 11/15
  - sample exams will be provided before the exams
  - one letter size cheatsheet

- Final Exam: 20%
  - two hour exam: 12/18
  - review course will be given, but no sample exam
  - one letter size cheatsheet

- Participation: 5%
  - attendance
  - ask and answer questions

Course Outline

- We will visit some topics several times!
NETWORK OVERVIEW

What are the questions?

- “Faster” networks
  - Higher transmission rate
  - Lower latency
- Lower error rate (bit error rate, packet loss probability)
- Higher availability (reliability)
- Ubiquity
- Lower monetary cost
- Improved user experience (low complexity)

Categories of Networks

- Wide Area Network (WAN)
- Local Area Network (LAN)
- Access Network
- Cellular Data Networks
- Datacenter Networks
- Storage Networks (SAN & NAS)
- Personal Area Network (PAN)
- …
BASIC CONCEPTS: PART I

Basic Terms
- Protocol
- Packet (message, segment, datagram, frame, …)
- ?-cast
  - unicast, multicast, broadcast, anycast, …
- Single hop vs. multi-hop

Characters of a Network
- Point to point
- Broadcast and select