Week 5 Notes

Application Layer

* Electronic Mail on the Internet
  + Three major components
    - User agents
    - Mail servers
    - SMTP – Simple Mail Transfer Protocol
      * This protocol is the communication between the actual mail servers
  + User Agent:
    - These are the users that access the mail servers
    - The people that send the mail
    - Mail reader or mail recipient
      * Outlook, iPhone mail, Gmail, etc.
  + Mail servers
    - Mailbox contains incoming messages for user
* SMTP Protocol
  + For electronic mail transmission
  + Mail servers use SMTP to send email messages
    - Client: sending mail server
    - Server: receiving mail server
* SMTP defined in the RFC
  + Used TCP to reliably transfer email message from client (mail server initiating connection) to server, port 25
  + Direct transfer: sending server (acting like client) to receiving server
  + Three phases of transfer
    - Handshaking (greeting)
    - Transfer of messages
    - Closure
* Domain Name System
  + Distributed database implemented in hierarchy of many name servers
  + Application layer protocol: hosts, name servers communicate to resolve names (address/name translation)
* DNS services
  + Hostname to ip address translation

Thursday Notes

* Socket Programming with TCP
  + Client must contact server
    - Server process must first be running
    - Server must have created socket that welcomes clients contact
  + Client contacts server by
    - Creating TCP socket
* Client-Server App: Socket Programming with TCP
  + Client reads line from standard input
  + Server reads line from socket
  + Server concerts line to UPPERCASE
  + Client reads, prints modified line form socket
  + IO
    - Input stream: sequence of bytes into process
    - Output stream: sequence of bytes out of process