1. General Concepts about Computer Communication and Networking

* Definition of Connection-oriented Service
  + technique used to transport data at the session layer
* Definition of Connection-less Service
  + a terminal or node can send data packets to its destination without establishing a connection to the destination
* Protocol
  + A set of rules the sender and receiver agree on achieve the communication between them
  + Aspects of Protocol
    - Syntax, Semantics, Timing
* Interface
  + Boundary between 2 adjacent layers
* Differences of a Network Service, Protocol, and Networking Application
* Five TCP/IP Layers
  + Physical, Data Link, Network, Transport, Application
* Definition of a PDU
  + Protocol data unit: data as it moves from one layer of the OSI model to another
* Names of PDUs for TCP/IP five layers
  + Physical: Bits
  + Data Link: Frames
  + Network: Packets
  + Transport: Segments
  + Application: Data

2. Socket Programming

* What is a socket interface?
  + The set of API’s used for the communication between an application and TCP or UDP.
* What is the execution sequence of a server and a client?
  + Server must be started first.
* What is the addressing scheme used in a client program to identify a server?
  + The IP address, Port ID pair.
    - IP Address is for identifying a host
    - the port ID is for identifying an application server.

3. Acronyms and uses

* HTTP: Hyper Text Transfer Protocol
  + used by a web client to communicate with a web server
* HTML: Hyper Text Markup Language
  + used for developing a web document
* DNS: Domain Name System
  + converting a domain name to an IP address
* FTP: File Transfer Protocol
  + copying files between a host and a machine
* SMTP: Simple Mail Transfer Protocol
  + for delivering e-mail messages
* POP3: Post Office Protocol
  + for accessing e-mail messages with limited functions
* IMAP: Internet Message Access Protocol
  + for accessing e-mail messages with more user options

1. Others: Study the handout carefully and thoroughly.

* Comparison of protocols: similarities and differences
  + HTTP vs FTP
    - Similarities
      * Defined for copying files
      * Running on top of TCP
    - Differences:
      * HTTP uses one TCP connection
      * FTP uses two TCP connections
  + SMTP vs HTTP
    - Similarities
      * Used in transferring files
      * Connection oriented
    - Differences
      * SMTP is a push protocol
      * SMTP one responsive message with all objects
      * HTTP sends each object in one responsive message each