

CSCI 4273/5273
Fall 2014
Homework 2
Due Date: October 13, 2014

Please submit a hardcopy of your solutions at the beginning of class on Wednesday, October 13, 2014. For “Tools” exercises, please submit a printout of your output.

1. Do a literature survey to learn about SMS (Short Message Service). What are the different types of SMS? What kind of application architecture does SMS use? Explain your answer.
2. (Tools exercise) Telnet into a *mailserver* (telnet mailserver 25) and send an email to yourself and an email to your friend. Submit a print out of message exchanges between SMTP client and server.
3. Suppose a webpage consists of five objects: base HTML file (O_b), another HTML object (O_a), and three jpeg objects (O_1 , O_2 and O_3). Draw a diagram to show message exchanges between a client and the server, when the client downloads this webpage, when (a) non-persistent HTTP is used; (b) a persistent HTTP with pipelining is used.
4. Do a literature survey to find out what is a *whois* database. Use various *whois* databases on the Internet to obtain the names of two DNS servers. Indicate which *whois* databases you used.
5. Visit <http://www.iana.org> and answer the following questions
 - a. What are the well-known port numbers for network news transfer protocol (NNTP), NETBIOS session service, and ISO-IP?
 - b. What are the requests processed as a part of "Root Management" of IANA?
6. Visit <http://www.root-servers.org>. Look at the monthly graph (2-hour average) of IPv4 bits/s and IPv6 bits/s in the root server managed by U.S. Army Research Laboratory.
 - a. When did the maximum and minimum, incoming and outgoing data rate occurred?
 - b. Approximately what is the difference between IPv4 data rate and IPv6 data rate?
7. Do a literature survey of key escrow, mandatory key disclosure law and mandatory decryption law. Define them briefly and provide your views (about half page) about them.
8. Exercise 14 (Page 692) 5th Edition or
Exercise 13 (Page 636) 4th Edition
9. Suppose a firewall is configured to allow outbound TCP connections but inbound TCP connections only to specified ports. What problem does this cause in using ftp to download a file from an outside server? How can you fix this problem?

10. How is a digital signature different from user authentication? Explain with an example.