Dr. Christian Scheideler
Johns Hopkins University

Baltimore, Feb. 13 2002

Computer Networks

Spring 2002

Assignment 3

Problem 8 (4 points)**:**
True or false?

(a) Suppose a user requests a web page that consists of some text and two images. For this page the client will send one request message and receive three response messages.

(b) Two distinct web pages (for example, `www.mit.edu/research.html` and `www.mit.edu/students.html`) can be sent over the same persistent connection.

(c) With nonpersistent connections between browser and origin server, it is possible for a single TCP segment to carry two distinct HTTP request messages.

(d) The `Date:` header in the HTTP response message indicates when the object in the response was last modified.

Problem 9 (2 points)**:**
Read RFC 959 for FTP. List all of the client commands that are supported by the RFC.

Problem 10 (2 points)**:**
Two HTTP request methods are GET and POST. Are there any other methods in HTTP/1.0? If so, what are they used for? In addition, list all request methods specified in HTTP/1.1.

Problem 11 (2 points)**:**
The aim of this problem is to intercept SMTP communication between your email reader and your email server. For this you will first have to download `sniffer.java` from the course web page and to compile it on your computer using a Java SDK.

If you do not have a Java SDK, you can download it from

`http://java.sun.com/j2se/1.4/download.html`

You may have to add `c:<Javadir>\bin` to the PATH variable in the `.cshrc` or `autoexec.bat` file (for Windows NT/2000, choose Start, Control Panel, System, Environment from the taskbar) to be able to run Java from any location in your computer.
To compile a Java file, open a shell, go to the directory of the file and enter `javac <name>.java`. If the compilation is successful, a `<name>.class` file will be generated. To run the program, enter `java <name> [parameters]`.

Once `sniffer.java` has been successfully compiled, check the IP address of your SMTP server (you can do this by opening a shell and entering, for example, `ping blaze.cs.jhu.edu`, if you have an email address in the CS department).Then enter

```
java sniffer <SMTP server IP address> <SMTP port> <SMTP port>
```

Afterwards, reconfigure your email reader so that it now tries to send emails to your computer instead of the SMTP server. You can achieve this in Microsoft Outlook, for instance, by choosing Tools, E-mail Accounts, Change... from the menu bar and setting the SMTP server name to the name of your machine. If you do not know the name or IP address of your computer, open a shell and enter `ipconfig` under Linux, `ipconfig /all` under Windows NT/2000, or `winipcfg` under Windows 98/95. Then, write a short test email and try to send it out. If you did everything correctly, the sniffer should output the interaction between your email reader and your SMTP server. Your assignment will be to print out this output and hand it in.