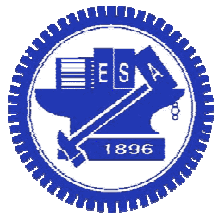

Homework #2

Writing a Report on a Web Server Program



National Chiao Tung University
Chun-Jen Tsai
03/30/2012

Homework Highlights

- ❑ For this homework, you have to do two things:
 - Study the source code of a mini web server program
 - 1) Trace the structure of the program
 - 2) Learn network programming using socket API by yourself
 - 3) Understand the behavior of a server
 - Write a report and email it to the TA, by the end of 4/16. TA's email address: fox.shc@gmail.com. The report must be in the pdf file format.
- ❑ Additionally, you can try to improve the program:
 - Adding more information to the server log
 - Improving the error handling mechanism of the server
 - Fix any bugs you find

Target Program: `nweb.c`

- ❑ A mini web server program, `nweb.c`, can be downloaded from the class website
 - The program is a simple command line program (no GUI)
 - You can compile the program using Visual Studio 2008 or gcc for Win32 (e.g. MinGW)
- ❑ The server, “`nweb.exe`”, is a command line program
 - The server listens to TCP port 80 for the HTTP traffics
 - All the web pages should be stored in “`c:\public_html`”
 - You can use any web browser (e.g. IE) to connect to the server and browse the web pages
 - The server generates a log file, `nweb.syslog`, that records http requests from all clients

Study `nweb.c` and Write a Report

□ Your report[†] should contain at least four sections:

■ **Introduction**

- Give a general introduction to how the client/server model of web server & web browser works; or the concept of socket programming

■ **Program analysis**

- Describe your understanding of the program. You can use block diagrams to explain the algorithm of the program
- If you find any bugs in the program, you can also make some comments in this section

■ **Improvements**

- You can discuss on how to add functions to this web server

■ **Discussions and Conclusions**

- Summarize what you have learned from this homework

† Do not use PowerPoint, Keynote, or Impress, etc. to write your report!

Comments on Network Programming

- ❑ Network programming is usually based on the BSD socket library.
 - Hence, some people refer to network programming as “socket programming”
- ❑ Microsoft Windows has its own version of socket library, called Winsock library
 - Winsock is very similar to the BSD socket, but not 100% compatible

Web Resources for Socket Programming

- ❑ Winsock programming guides

- <http://www.madwizard.org/programming/tutorials/netcpp/1>

- ❑ General BSD socket programming guides

- <http://www.beej.us/guide/bgnet/output/html/multipage/index.html>

Comments on MinGW Compilation

❑ If you are interested in using MinGW to compile `nweb.c`, you can download the GNU toolchain for Windows from <http://www.mingw.org/>

❑ After installation, just type the following command from command prompt:

```
c:\nweb> gcc -o nweb nweb.c -lws2_32
```

The executable `nweb.exe` will be in current directory.