UDel CISC 367
Spring 2016

Individual Assignment – Socket Programming

1 Overview

In this programming assignment, you will implement a Stock Quote application using both TCP and UDP. To use TCP, you will use the `SOCK_STREAM` service. To use UDP, you will use the `SOCK_DGRAM` service. Please refer to Sockets Tutorial for sample TCP/UDP socket code.

The information exchange between client and server proceeds as follows.

- The client program sends a request string to the server, identifying itself and specifying the stock.
- The server then sends a reply string, containing the client's identification information, the stock quote, and the time and date.

2 Requirements

The client and server communicate by exchanging strings of ASCII characters over TCP/UDP. For this, the sokect type is `SOCK_STREAM`/`SOCK_DGRAM` and the address family is `AF_INET`.

The information exchange between client and server proceeds as follows.

- The server waits to receive requests on TCP/UDP port x/y on `mlb1.acad.ece.udel.edu` (IP address `128.4.31.210`).
- The client sends a request string in the following format.

  `proj_1` <client_name> <stock-symbol> `\n`

  where

  - <client_name> – *e.g.* `c.c.shen:cshen`
  - <stock-symbol> – `Yahoo`, `Amazon.com`, or `eBay`
- Upon receiving and parsing the request string, the server responds by sending the following sample string.

```
Hello cshen -- Yahoo is 39 @ Wed Mar 9 10:01:11 2016\n
```

To test your client and stock quote server, you will use a different IP address and/or UDP port number.

3 Socket Library and Compilation

On Solaris systems, the socket API routines are *library* routines so that socket programs must be linked with the `socket` and `nsl` libraries as follows.

```
wheatgrass> CC -o c [flags] my_client.c -lsocket -lnsl ...
wheatgrass> CC -o s [flags] my_server.c -lsocket -lnsl ...
```

4 Submission

You are required to submit all the source files (both client and server), README, and Makefile via email in the form of a uuencoded tar file. The README file should describe how to compile and execute your client and server programs. The following steps explain the submission procedure.

1. Put all the source files of your project #1 into a subdirectory named `<your_login_name>_1`.
2. At the current working directory, do

   ```
   tar cvf <your_login_name>_1.tar <your_login_name>_1
   ```

3. Submit `<your_login_name>_1.tar` to Saikai.

You must submit your files as described above. Other formats will be rejected.

5 Grading

You will be graded on the correctness of your code (80%), and its in-line documentation, readability, and structure (20%).