CPE 400/ECG 600 Socket Programming Project
Due date: 2:30pm Wednesday, Dec. 4, 2013

In this project, you will program the simple message transmission between a sender and receiver. The sender will send a character message to the receiver which will check if the message is a palindrome or not and return the result to the sender. A palindrome is a string of form $\omega\omega^r$ where ω^r is the reverse of ω. For example, 1001 is a palindrome, but 1010 is not.

The following steps shall be implemented:

1. The sender connects to the receiver through a TCP socket and displays:
   "Host *IP1* connecting to *IP2"*
2. The sender prompts the user to input a message, ending by the 'enter' sign.
   "Please enter the character message to be checked (ctrl+z to exit):"
   User input
3. The sender sends the message to the receiver process.
4. The receiver process displays the received message.
5. The receiver checks if received message is a palindrome or not.
6. The receiver replies the result to the sender.
7. The sender displays the result.
8. Repeat steps 2 to 7 until user exits.
9. Close the TCP socket between the sender and receiver.

Assume the IP addresses are known to the sender and receiver (specified in your programs). Also the receiver will only receive messages from a single sender. Choose a server port number greater than 1023 (to be safe, choose a server port number larger than 5000). You need run the programs on different machines to test your programs. Make sure you close every socket that you use in your program.

Write your program in C. You will need use the C system calls for socket programming, including *socket(), bind(), listen(), accept(), connect(),* and *close().* For an audio/html tutorial of socket programming in C, see "Unix Network Programming," and "Christensen Tools Page" linked on the course website.

In your report, please provide:

1. The source codes of your sender and receiver programs.
2. The screen shot of your sender screen with the displays of two input messages.
3. The screen shot of your receiver screen with the displays of two input messages.