Programming Assignment #1

COEN 233 Computer Networks
Department of Computer Engineering
Santa Clara University

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Tuesday & Thursday 9:00-9:30pm

Due date: Sunday Midnight, January 18, 2015

Domain Location System DLS (200 points)

Please implement a simplified version of Domain Location System (DLS). The program should be implemented using the client-server model in C/C++ and sockets. Your program should be able to register address-location pairs, and to get a location (in the form of latitude/longitude from global positioning system) from an address. To make your life easier, you only need to implement the server on Linux, and the client on Window using Visual Studio Console Application.

The syntax of the server commands is:

dlsServer

The server program should start to run the server and print out an available port number dynamically, e.g., 9999.

The syntax of the client commands is:

// register an address-location pair
dlsClient (*host_name*|*IP_addr*) *port_number latitude longitude address*
// get the latitude/longitude pair from an input address
dlsClient (*host_name*|*IP_addr*) *port_number address*
// get the "closest" address from an input latitude/longitude pair
dlsClient (*host_name*|*IP_addr*) *port_number latitude longitude*

For example, when you on a PC at design center, you can open 2 dos windows and 1 xterm (by Putty or open another dos window and rlogin to a Linux server in the Design Center, e.g., 129.210.16.80), issue the command "dlsServer" on the xterm, issue "dlsClient 129.210.16.80 9999 37.349740 -121.938999 '500 El Camino Real, Santa Clara, CA 95053, USA'" on one of the dos window, issue "dlsClient 129.210.16.80 9999 '500 El Camino Real, Santa Clara, CA 95053, USA'" on another dos window, and the location "N37.349740 W121.938999" should be displayed. Addresses can be delimited by single quotes or double quotes.

Student Name:

SSN/ID:

Score:

Correctness and boundary condition (60% - include 20% on Window):

Compiling without warning/error at server side (2.5%):

Error Handling (5%):

Automatic available port finding (2.5%):

Support both host name and IP address (2.5%):

Display output on both server and client windows (2.5%):

Modular design, file/directory organizing, showing input, documentation, coding standards, sympathy/typing point with README (20%):

Automation for client and server side (5%):

Subtotal:

Late penalty (20% per day):

Special service penalty (5%):

Total score: