CS3130

Assignment #5

For this assignment, you are to develop a multi-threaded TCP-based secure server that allows authorized user to execute commands on the machine that the server is running on. Your server must

A. use TLS to secure the connection
    a. you must generate your own private key and self-signed certificate using open-ssl
B. use SQLite to implement 3 tables in a database called **server.lite**
    a. the first will be a table of authorized users and their passwords. (2 attributes: user, password). You will have to populate this table. You can use the SQLite CLI to do that (like I showed you in cs2910)
    b. the second logs ALL requests by any users (3 attributes: user, data/time, action/command)
    c. the third is a list of blacklisted IPs. If the request comes from any IP in this table, the request will be denied
C. respond to signals. If server receives a SIGUSR1 signal, it will dump the content of the table in (b) in a text file called **activity.log**

The exchange between ANY client (this means I can use nc to test it) and the server is simple. The client sends a request, the server responds and the connection is closed. The details of this exchange are:

A. client sends a request formatted as “user,password:< command to execute>”
B. server responds with
    a. “200 OK”, if user is authorized and command was successful,
    b. “300 BAD COMMAND”, if user is authorized but server wasn’t able to execute command
    c. “400 USER PROBLEM”, if username doesn’t exist, or an incorrect password is provided
    d. “404 UNKNOWN ERROR”, if IP is blacklisted

    NOTE: to limit the possibility of buffer overflows, you will limit the request to a maximum of 1024 bytes.

Turn in your python code, a README, and the database file.