CS-356 Computer Networks Lab: Session 6

Lab
Assignment 4

Assignment Question: Socket-based Remote Command Execution

Introduction:
In this assignment, you will implement a socket-based remote command execution system using C/C++. This system will allow clients to connect to a server and execute commands remotely. The server will execute the commands received from clients and send back the output (if any) to the clients. You will implement both the server and client sides of this system.

Requirements:

1. **Server Side:**
    - Implement a server program that listens for incoming connections from clients.
    - Upon connection, the server should send the client information about the server (e.g., IP address, current user, date, and time).
    - The server should be able to receive commands from clients and execute them.
    - If a command generates output, the server should send the output back to the client.
    - If a command does not generate any output, the server should send a success message back to the client.
    - The server should only stop when manually terminated.
2. **Client Side:**
    - Implement a client program that connects to the server.
    - Upon connection, the client should receive information about the server (e.g., IP address, server date, and time).
    - The client should be able to send commands to the server for execution.

- After sending a command, the client should receive the output (if any) from the server.

Submission Instruction:
You should write two C programs – server.cpp (contains the server program) and client.cpp (contains the client program).

Note: You can ignore security-related features (such as authentication) in your implementation for the purpose of this assignment. Focus on the core functionality of remote command execution using sockets.