Programming Assignment

Due Date - April 8, 2022, 11:59PM

Objectives

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1. Learn to create a network server.

2. Learn how packets can be sent over the network.

3. Familiarize you with the concept of sockets.

4. Use packet capture to visually inspect protocols.

Client Specifications

$ server -p <PORT> -l LOGFILE

The server takes two arguments:

1.PORT - The port the server listens on.

2.Log file location - Where you will keep a record of packets you received.

For example:

$ ./server -p 6543 -l LOGFILE

3. The server must parse three command line arguments port, and logfile.

4. The server reads a text file (provided with the assignment).

5. Your client from PA2 connects to the server and sends a string. The server looks for the word"network" in the string sent by the client.

6. The server returns a random quote from the text file.

7. Make sure the server does not exit after sending the string.

8. The server should be able to handle multiple client requests.

    8. Turn in the following as a ZIP file:
- a. **The server code (60 points)**
- b. **The server's log (20 points)**
- c. **Use TCPDUMP or Wireshark to capture the interactions, turn in the .pcap file (20 points)**

Pseudo code

```
main server class():

      ##you may create separate modules for each of these

      Step 1: #read command line arguments
      ##sanity check inputs

      Step 2: #Create a socket object, use TCP socket(SOCK_STREAM) for
this assignment
      ##Check for errors

      Step 3: #bind and listen
      ##handle bind failure

      Step 4: #receive a message from the client, check for the work
      "network"

      Step 5: pick a random quote and send to the client

      Step 6: Make sure to log all interactions
```