Programming Assignment

Due Date - Feb 24, 2021, 10PM

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
```