Distributed Systems Lab - Assignment # 1

Q.1. Develop a simple application, which will create a server and a client using the sockets interface. The server waits for TCP connections on TCP port 15710. When a client establishes a connection to that port, the server waits for the client to initiate communication.

The information exchange between client and server proceeds as follows:

a) The client program sends a request message to the server, identifying itself (Its IP address, and port)
b) The server then sends a line of text to the client containing a random number of characters.
c) The client sends back a number equal to the number of characters in the line of text and closes its end of the connection. So if the server sent 132 bytes of text, the client would send ``132".

The server sends back a response indicating whether the client's input was correct.

Q.2. Use TCP sockets to create a client-server application, which behaves as follows:

Two different clients send an integer value to the server. The server receives these values from both the clients, and sends back the sum of the two values supplied by the two clients. After the first client connects, the server will wait for the second client to connect. The server must support multiple connections at a time. The server will read integer values from both the clients and send back the sum of these two values to both the clients.

Q.3. Use TCP sockets to construct a relay type of server. The server maintains the information of clients and if any client requests the server, it replies to the client who connected just after the requesting client. Say clients *abc*, *def* and *hij* connected in this order. If *abc* requests any data to the server, then server will reply to *def*.

To make it simple, you can restrict the clients to always request in an order. (Assumptions can be made for any particular scenerio).

NOTE: The client and server codes can initially be tested locally using the loopback address 127.0.0.1, but eventually the codes are to be tested on two different machines.