SALECLIENT SPECIFICATIONS - Merged Phase

In this phase, a C console application would be developed according to following specifications;

- ☐ 1. Upon startup, the client application will prompt the user to input the IP address and port number. These will serve as the connection details for the server.

- ☐ 2. After obtaining the IP and port information, the client application will request the user to enter their user ID and password.

- ☐ 3 The client application will hash the provided user ID and password and send them to the server over TCP.

- ☐ 4. The server application, on startup, will initiate a TCP server to listen for incoming connections from client

- ☐ 5 When a client connects, the server will process the incoming message:

    - ☐ 5.1 If the operation is log in

        - ☐ 5.1.1 The server will search for the user ID received in the message.
        - ☐ 5.1.2 If the ID is found, the server will retrieve the corresponding password and calculate its hash(SHA1).
        - ☐ 5.1.3 The server will compare the hash from the request message with the calculated hash.

        - ☐ 5.1.4 If the hashes match, the server will fetch the user ID and password from the database and response send them to the client.

        - ☐ 5.1.5 If the ID is not found or 0the passwordhash doesn't match, the server will send an appropriate error code

☐ 6 If the server successfully responds to the client's login attempt, the client will proceed to the menu created in Phase 1 (saledemo.c).

☐ 7 In case of a failed login attempt, the client application will prompt the user to enter their user ID and password again

☐ 8. **Resquest Message Format:**

For a login request, the format of the message will be: **\<length\>\<command\>\<data\>**, where data includes the user ID and password hash.

☐ 9.**Response Message Format:**

For a login response, the format of the message will be: If successful: **\<length\>\<response code\>\<data\>**,response code = 0: data = name surname where data includes the user's name and surname. If unsuccessful, response code = 1: **\<length\>\<response code\>** User not found. If unsuccessful, response code = 2: **\<length\>\<response code\>** Incorrect password

☐ 10. **Timeout Handling:**

If the client does not receive a response from the server within 5 seconds, it will display a connection failure message on the client's screen

☐ 11.Login server accepts requests
      o2.1 Message format : "length – cmd – data"
          ▪Length is 1 byte
          ▪Cmd is 1 byte
      o2.2 If cmd is 1, then data is "id – hash(password)"
          ▪Id is in four bytes
          ▪hash(password) length is 20 since sha1 length is 20

    For example if user id is 479 and password is "helloworld",

    For example;

    1901303437396adfb183a4a2c94a2f92dab5ade762a47889a5a1
    Where
- Hex 19 is 25, and total length of message (except length) is 25
- 01 is cmd for login
- 30343739 is corresponding hex values for "0479"
- sha1 hash of "helloworld" is "6adfb183a4a2c94a2f92dab5ade762a47889a5a1"