Client Program Flowchart

```
                              ┌──────────────────┐
                              │ User starts client│
                              │    executable     │
                              └──────────────────┘
                                       │
                                       ▼
┌──────────────────┐        ┌──────────────────┐
│  User enters     │◀───────│  Display UI with  │◀────────── Yes
│  user/pass to    │        │  controls to log  │
│  create new      │        │  in or create user│
│  account         │        └──────────────────┘
└──────────────────┘                  │
         │                            ▼
         ▼                  ┌──────────────────┐
┌──────────────────┐        │  User enters      │
│ Display error    │◀─ No ─ │  user/pass to log │
│ message          │  ◇     │  in to existing   │
└──────────────────┘        │  account          │
         Receive success    └──────────────────┘
         from server?                │
              │ Yes                  ▼
              ▼              Receive success from server?
┌──────────────────┐        No ─▶ ┌──────────────────┐
│ DIsplay success  │              │ Display error    │
│ message          │              │ message          │
└──────────────────┘              └──────────────────┘
                                   │ Yes
                                   ▼
                          ┌──────────────────┐
                          │ Display success  │
                          │ message          │
                          └──────────────────┘
```

- Get list of public chatrooms and display to user
- Start process to send heartbeat message to server every N seconds
- Display logout button
- User selects chatroom to join from the list
- User selects logout button
- Receive success from server? — No → Display error message
- Receive success from server? — No → Display error message
- Display chatroom with chat log, user list, control to leave chatroom, and input field to send messages
- User leaves chatroom
- User selects another user to send a DM
- User inputs message to chatroom
- Start process to receive new chat messages from server and update chat log
- Display DM chat as a window within the client with controls to close the DM and input to send a message
- Client sends message to server
- Client receives new chat message
- User closes DM
- Start process to receive new DM messages from server and update DM chat log
- User inputs message to DM
- Client displays notification somewhere on screen (task bar, OS alert, etc)
- Client hides DM from display
- Client receives new chat message
- Client sends message to server
- Client displays notification somewhere on screen (task bar, OS alert, etc)