

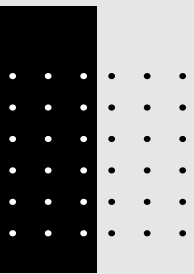
ConnectASU

Social Network Desktop Application

20
23

SUBMITTED TO

PROF. Islam El-Maddah



This document is a detailed document from A-Z for our “CSE 338: Software Testing, Verification and Validation” semester project which we chose to be implementing a Test-Driven Social Network Desktop Application named “ConnectASU”.

This Project is Brought to You By
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We are profoundly appreciative of Professor “Islam El Maddah” and Engineer “Mahmoud Wageeh” and Engineer “Omar Mohamed” for their unstinting support, guidance, and encouragement throughout the duration of this project. Their prompt and helpful responses to our queries were invaluable, and their enthusiasm helped us to stay motivated and on track. We are truly fortunate to have had such dedicated, knowledgeable, and inspiring mentors.

You can find the whole project files in the following repo:

<https://github.com/mina58/ConnectASU>

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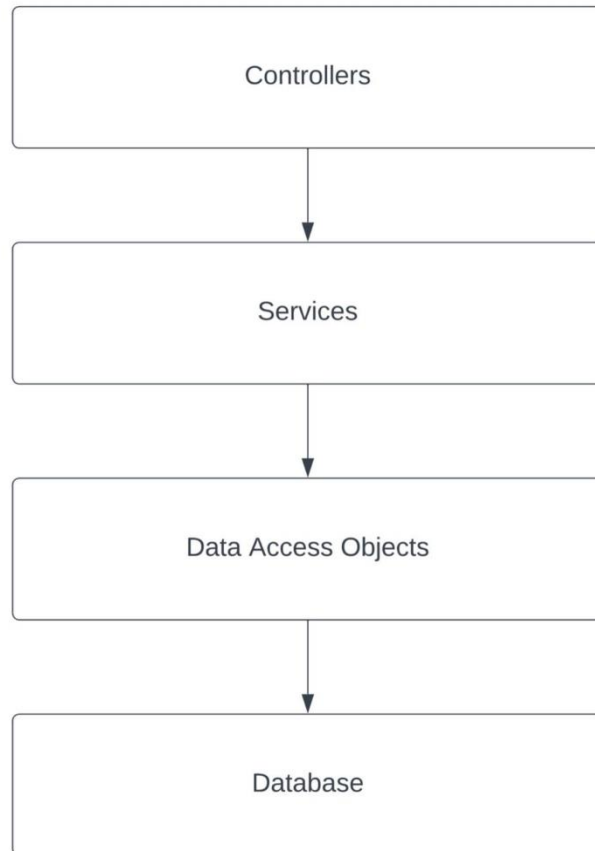
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Integration Testing

In the shown diagram that is the system architecture of our project composed of 4 layers which are:

1. **Database**
2. **Data Access Objects (DAO):** include classes that call database.
3. **Services:** it handles the logic of the application.
4. **Controllers:** uses the services below it to be used by GUI.

A bottom-up approach is used.



Performance Testing

⬆ Mina

```
@Test
public void testSignUp() {
    for (User user : users) {
        SignUpTask signUpTask = new SignUpTask(user);
        executor.execute(signUpTask);
    }
    UserDao userDao = new UserDao();
    try {
        executor.awaitTermination(timeout: 10, TimeUnit.SECONDS);
    } catch (InterruptedException e) {
        throw new RuntimeException(e);
    }
    try {
        ArrayList<User> users = userDao.getUserSearchByName("");
        assertEquals(NUMBER_OF_USERS, users.size());
    } catch (SQLException e) {
        fail("Failed to get the users from the database");
    }
}
```

```

Mina
@Test
public void testLogin() {
    UserService userService = UserService.getInstance();
    for (User user : users) {
        try {
            userService.createAccount(user.getEmail(), user.getName(), user.getPassword());
        } catch (InvalidEmailException | InvalidPasswordException | InvalidUserNameException e) {
            fail("Failed to create the users account");
        }
    }

    try {
        UserDao userDao = new UserDao();
        ArrayList<User> users = userDao.getUserSearchByName("");
        assertEquals(NUMBER_OF_USERS, users.size(), message: "Users were not added");
    } catch (SQLException e) {
        fail("Failed to get the users from the database");
    }

    for (User user : users) {
        try {
            LoginTask loginTask = new LoginTask(user);
            executor.execute(loginTask);
        } catch (RuntimeException e) {
            fail("Failed to login user: " + user.getEmail() + " " + user.getPassword());
        }
    }
}

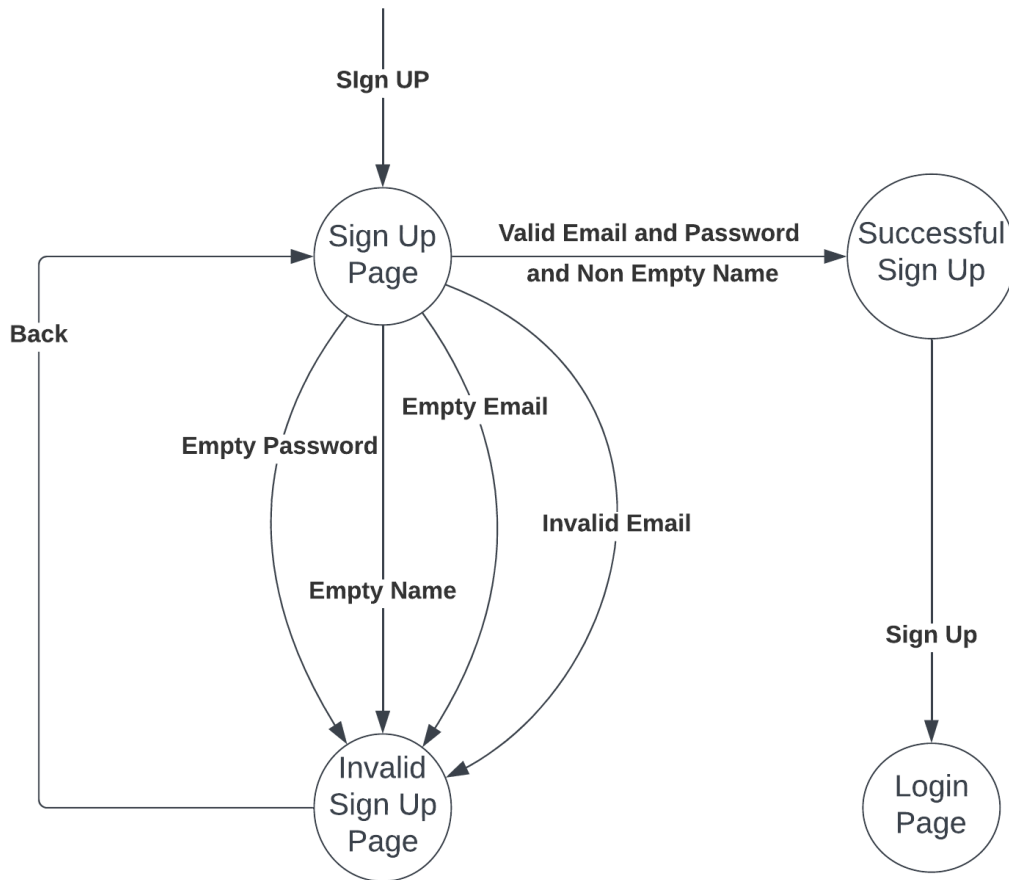
```

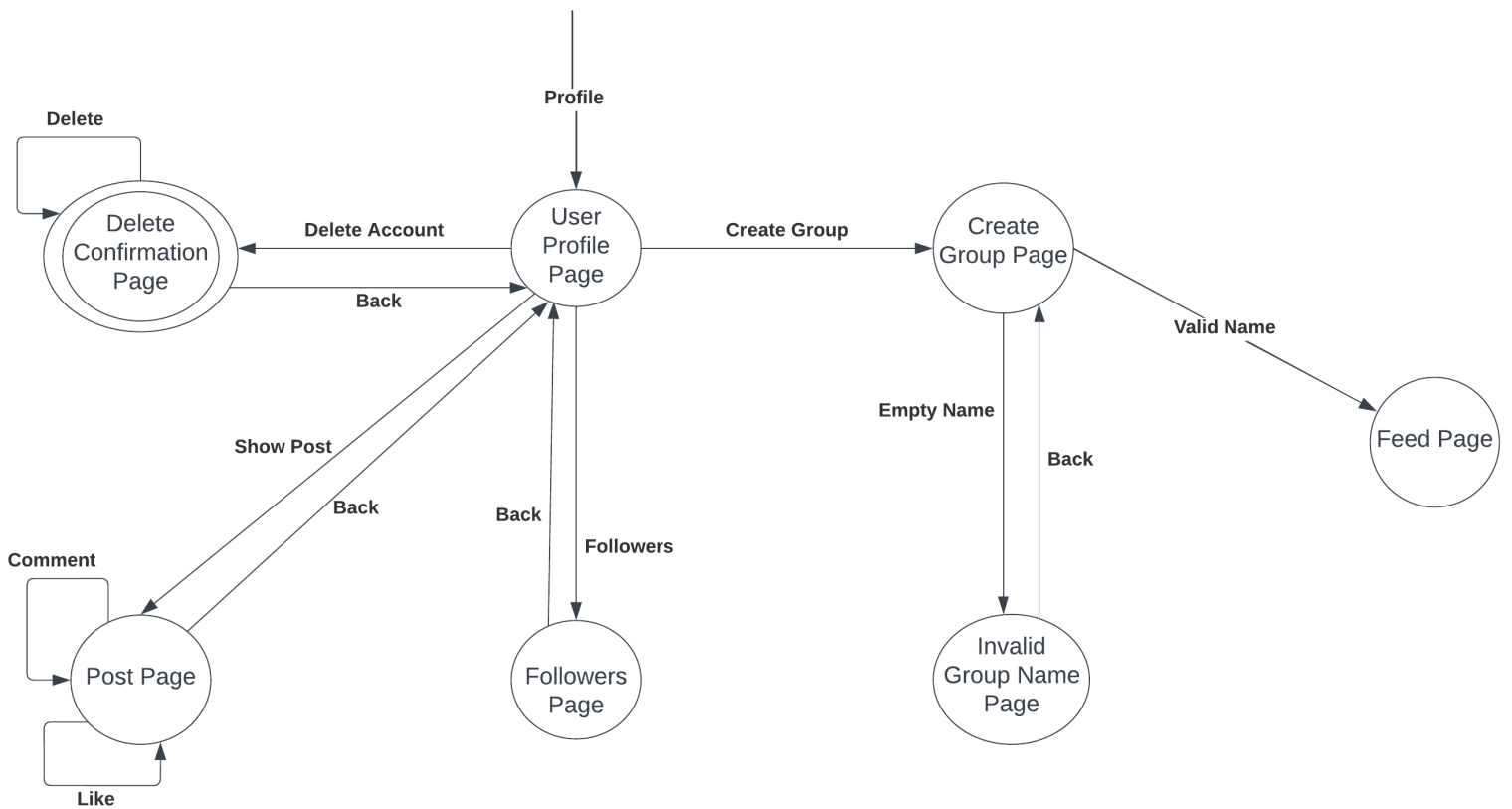
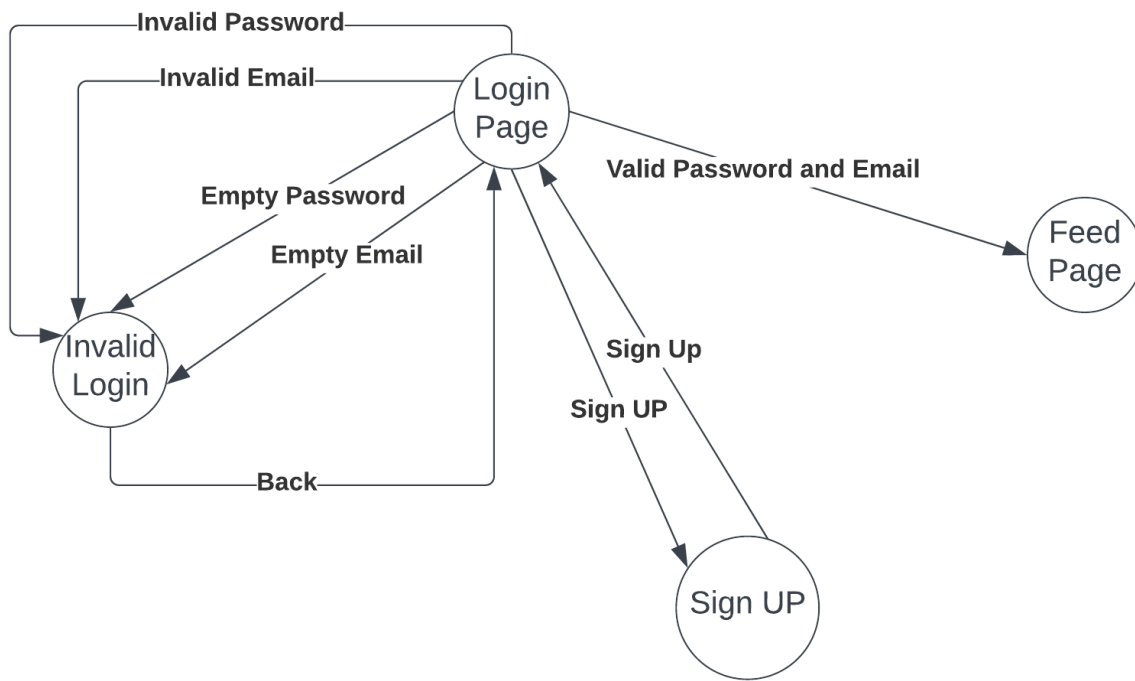
Errors Appeared

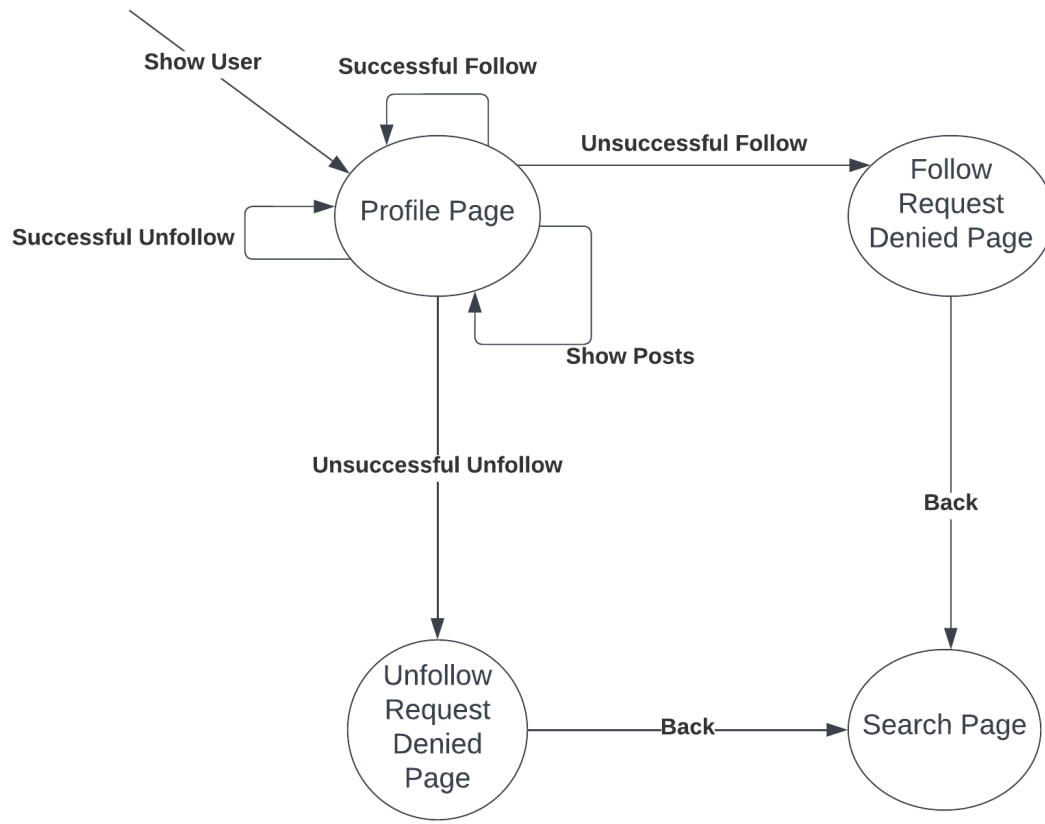
A race condition problem appeared in performance testing, and we did manage to fix it, by making the function that faced the problem synchronized.

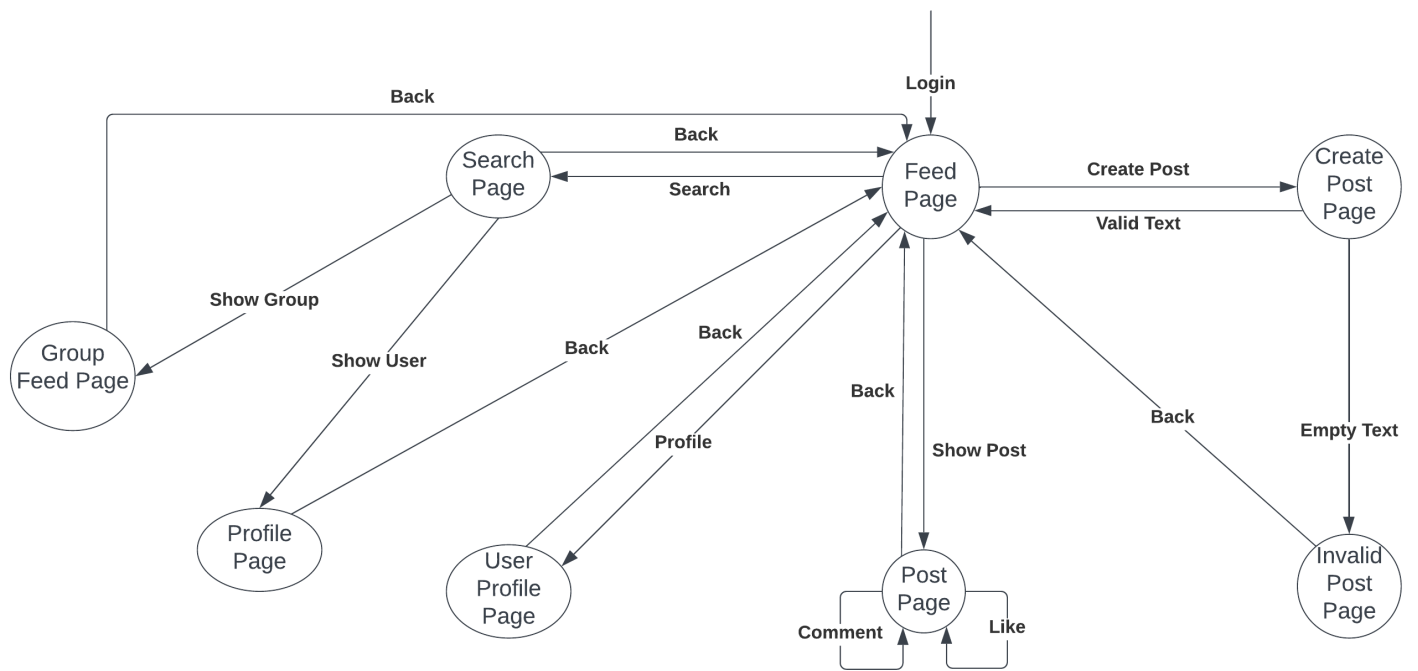
GUI Testing

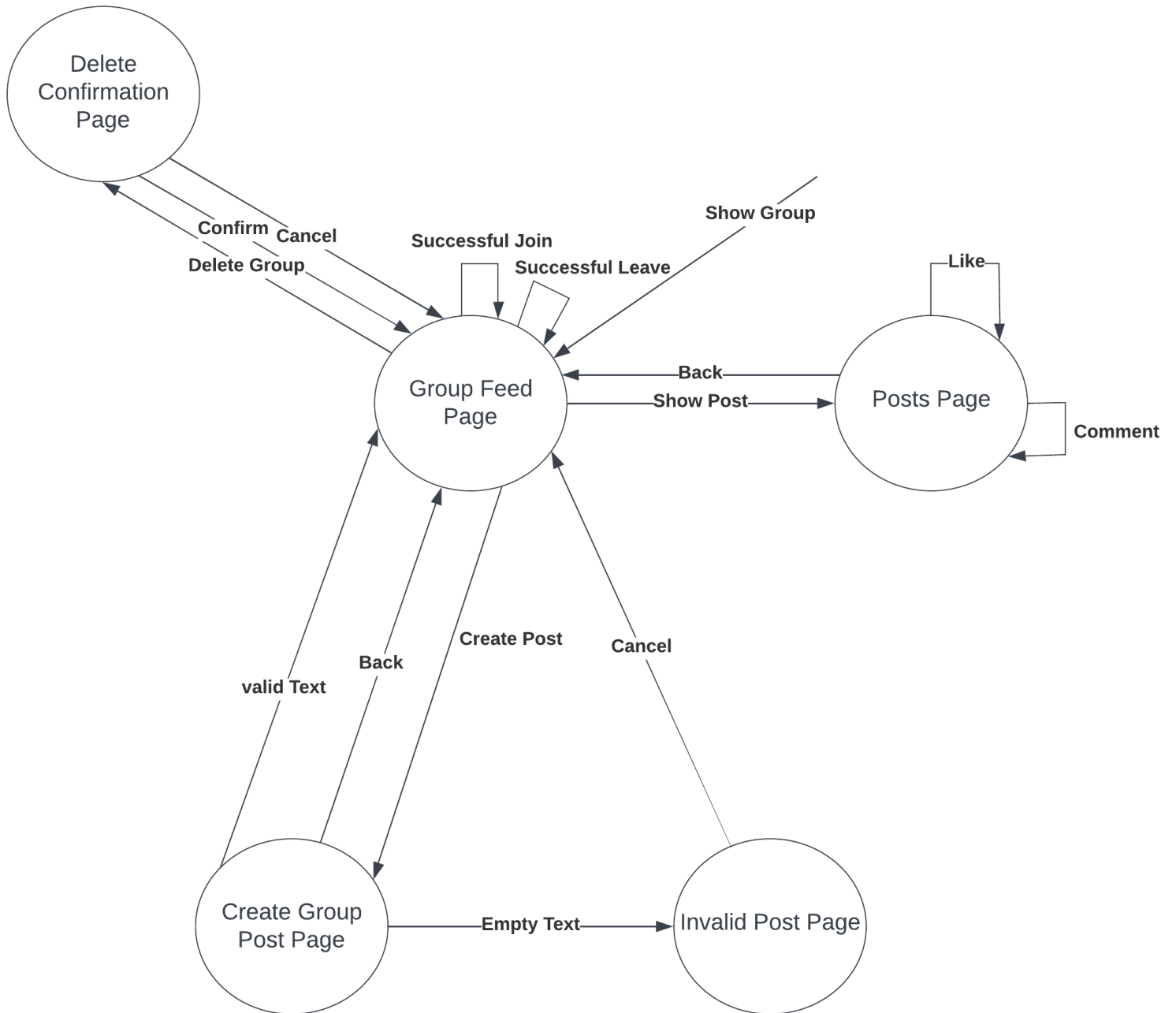
FSM





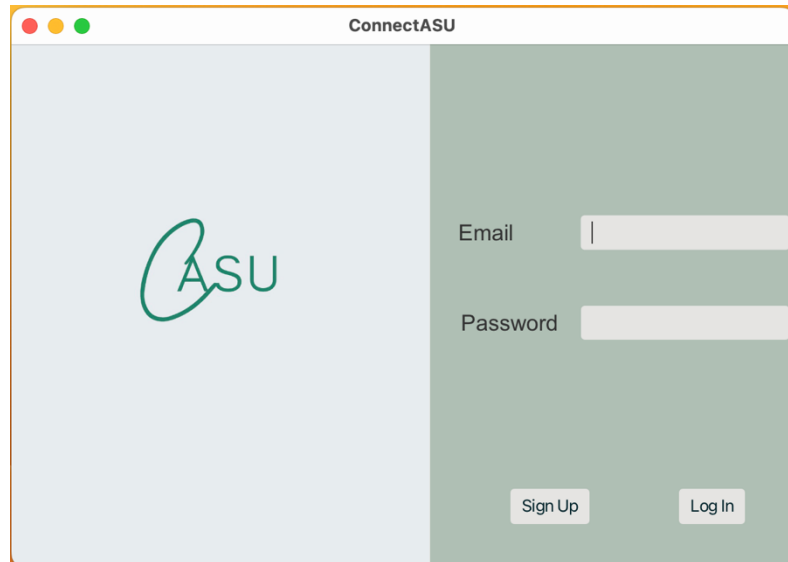




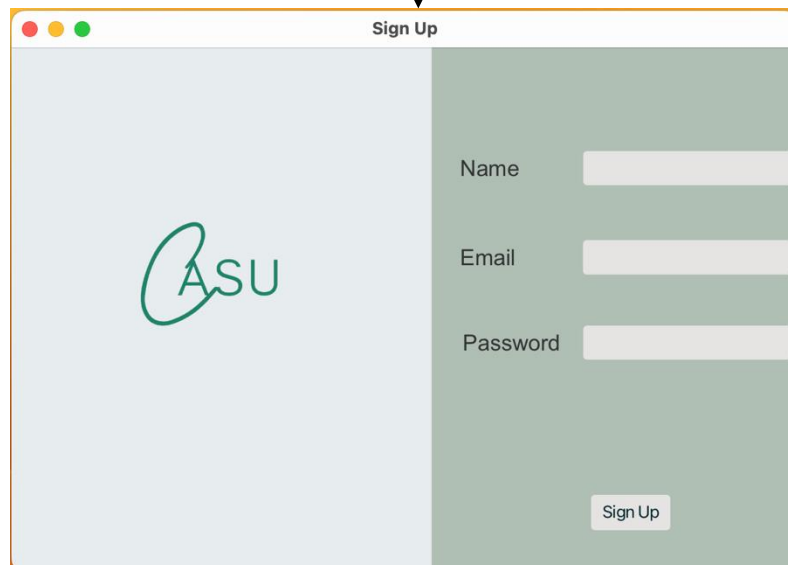


Manual Testing

<Login Page, Sign up, Sign up Page>

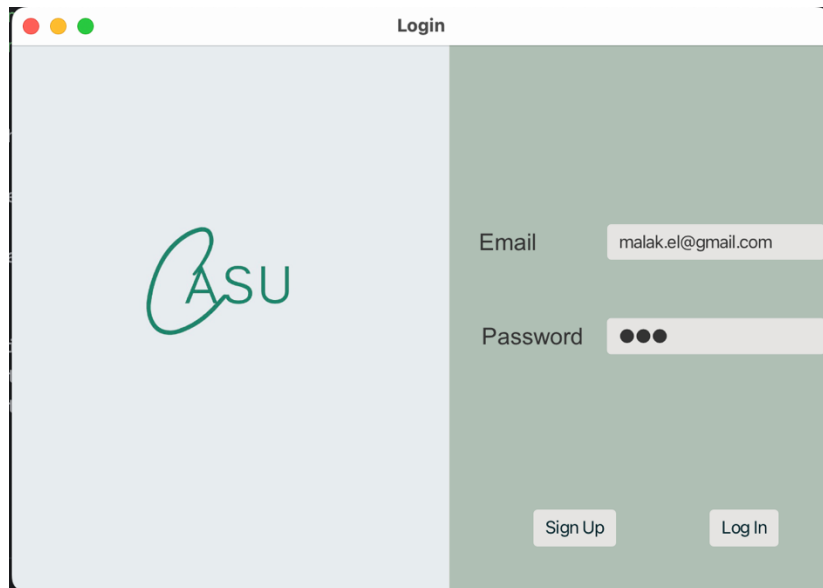


The image shows a web browser window titled "ConnectASU". The left side of the page features a large, stylized green logo that reads "ASU". The right side has a light green background with two input fields: "Email" and "Password". Below these fields are two buttons: "Sign Up" and "Log In".

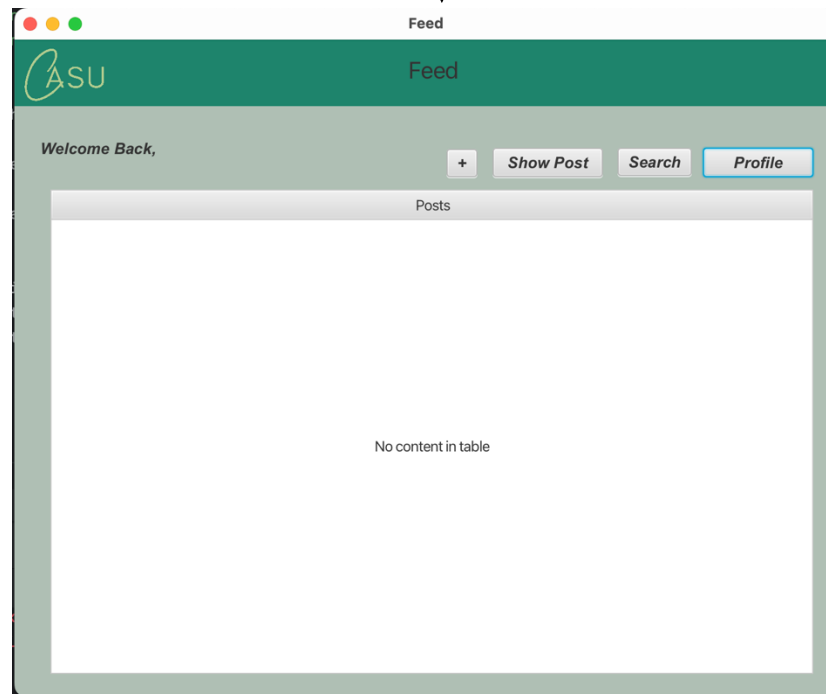


The image shows a web browser window titled "Sign Up". The left side of the page features a large, stylized green logo that reads "ASU". The right side has a light green background with three input fields: "Name", "Email", and "Password". Below these fields is a single button labeled "Sign Up". An arrow points from the "Sign Up" button on the previous page to this page.

<Login Page, Valid Username and Passowrd , Feed Page >

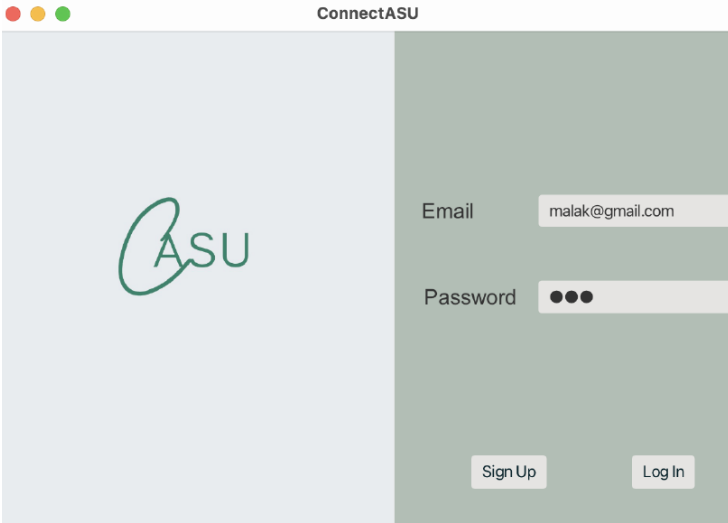


A screenshot of a web browser window titled "Login". The window has a light blue header bar with three colored window control buttons (red, yellow, green) on the left. The main content area is split into two sections. The left section has a light blue background and features a large, stylized green logo that reads "ASU". The right section has a light green background and contains a login form. The form has two input fields: "Email" with the text "malak.el@gmail.com" and "Password" with three black dots. Below the input fields are two buttons: "Sign Up" and "Log In".

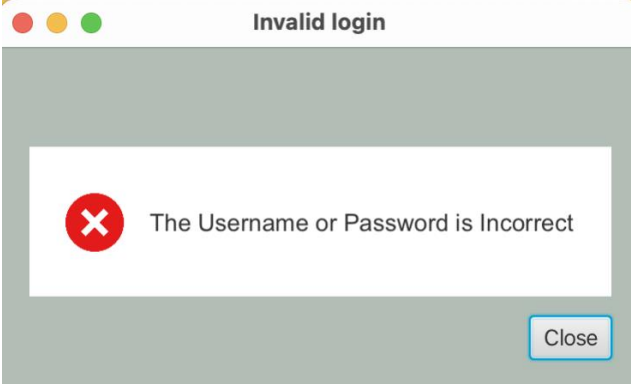


A screenshot of a web browser window titled "Feed". The window has a light blue header bar with three colored window control buttons (red, yellow, green) on the left. The main content area is split into two sections. The top section has a light green background and features a large, stylized green logo that reads "ASU" on the left and the word "Feed" on the right. Below the header is a navigation bar with a "Welcome Back," message, a "+" button, a "Show Post" button, a "Search" button, and a "Profile" button. The bottom section has a light blue background and features a large, empty white box with the text "No content in table" centered inside.

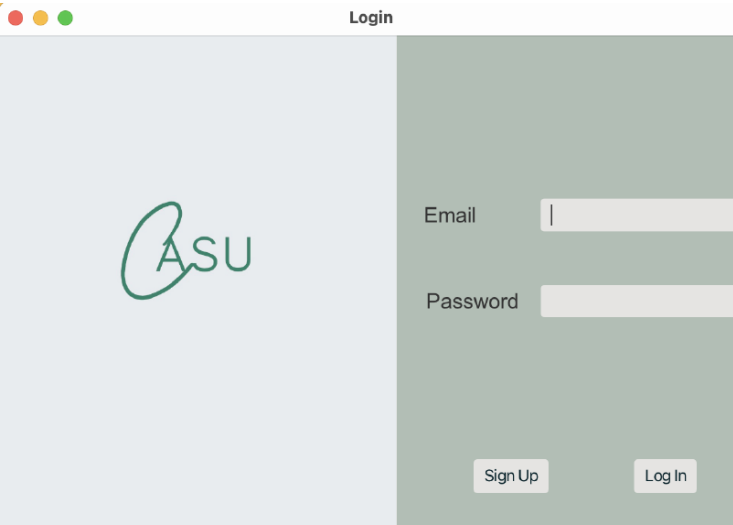
<Login Page, Invalid Email , Inavid Page , Back, Login Page>



The image shows a web browser window titled "ConnectASU". The left side of the page features a large, light blue square with the "ASU" logo in a green, stylized font. The right side is a dark green panel containing login fields. The "Email" field is pre-filled with "malak@gmail.com". The "Password" field is masked with three black dots. Below these fields are two buttons: "Sign Up" and "Log In".

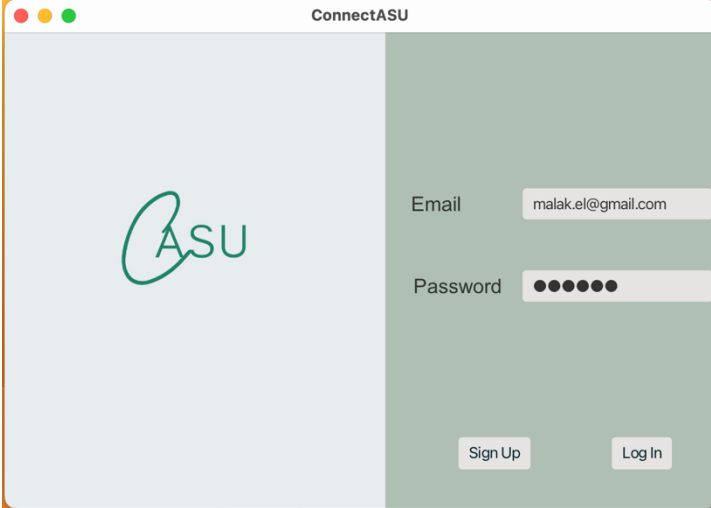


The image shows a modal dialog box titled "Invalid login". It has a dark green background. In the center, there is a white rectangular box containing a red circle with a white "X" icon and the text "The Username or Password is Incorrecr". At the bottom right of the dialog is a blue button labeled "Close".

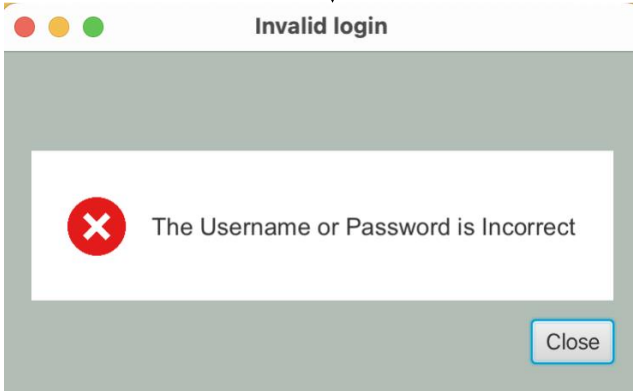


The image shows a web browser window titled "Login". The layout is identical to the "ConnectASU" page, with a light blue square on the left containing the "ASU" logo and a dark green panel on the right. The "Email" field is empty, showing a cursor. The "Password" field is also empty. The "Sign Up" and "Log In" buttons are at the bottom.

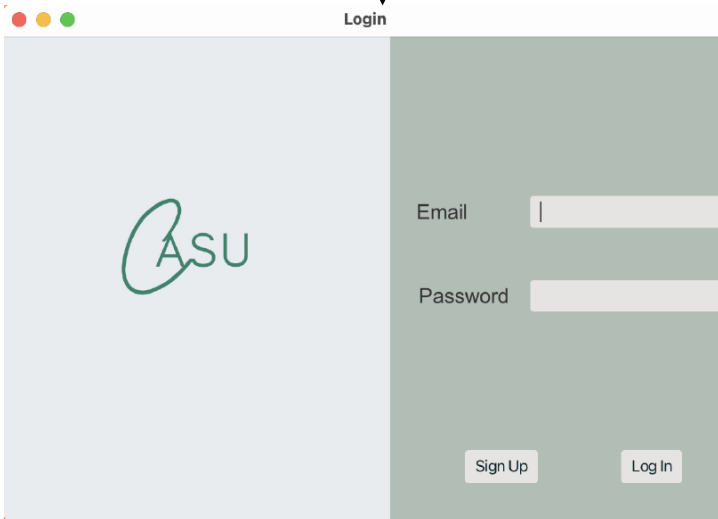
<Login Page, Invalid Password , Inavid Page , Back, Login Page>



The image shows a web browser window titled "ConnectASU". The left side of the page features a large, stylized green logo that reads "ASU". The right side contains a login form with two input fields: "Email" and "Password". The "Email" field is pre-filled with the text "malak.el@gmail.com". The "Password" field is masked with ten black dots. Below the input fields are two buttons: "Sign Up" and "Log In".

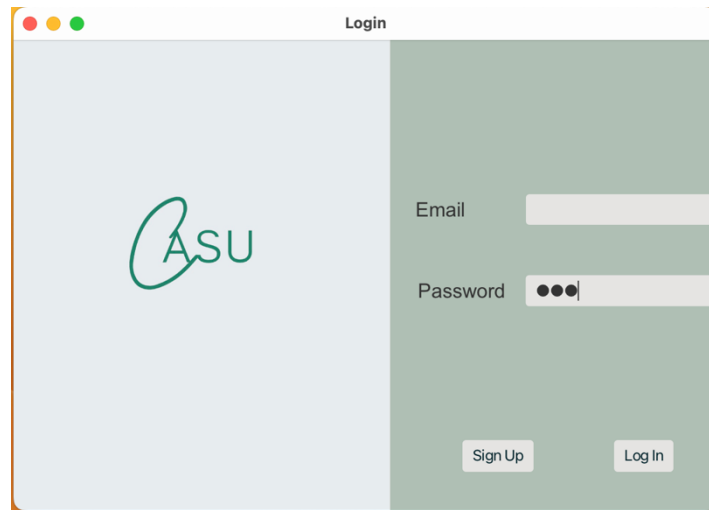


The image shows a web browser window titled "Invalid login". The main content area is a light gray rectangle. In the center, there is a white rectangular box containing a red circle with a white "X" icon. To the right of the icon, the text "The Username or Password is Incorrect" is displayed. In the bottom right corner of the gray area, there is a blue button labeled "Close".

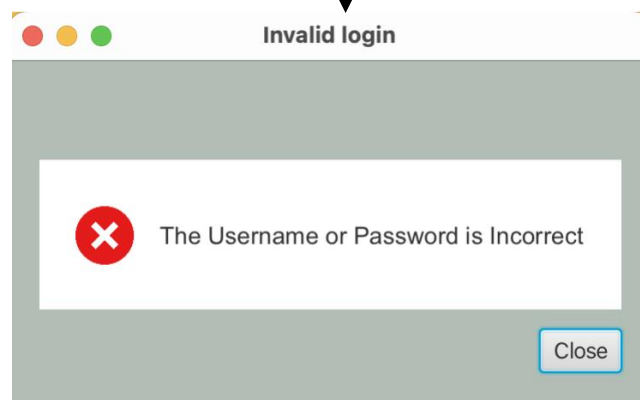


The image shows a web browser window titled "Login". The layout is identical to the "ConnectASU" page. The left side has the "ASU" logo. The right side has "Email" and "Password" input fields, both of which are currently empty. Below the fields are "Sign Up" and "Log In" buttons.

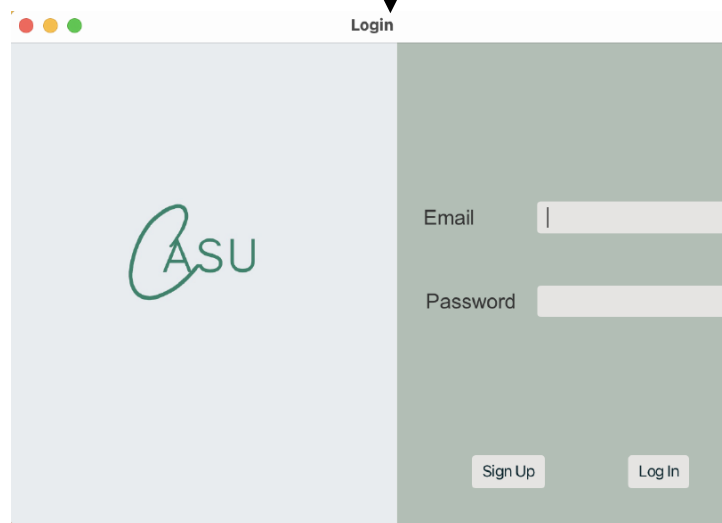
<Login Page, Empty Email , Invalid Page , Back, Login Page>



A screenshot of a web browser window titled "Login". The window is divided into two main sections. The left section has a light blue background and features a large, stylized green logo that reads "ASU". The right section has a dark green background and contains a login form. The form includes an "Email" label followed by a text input field, and a "Password" label followed by a password input field with three black dots. Below the input fields are two buttons: "Sign Up" and "Log In".

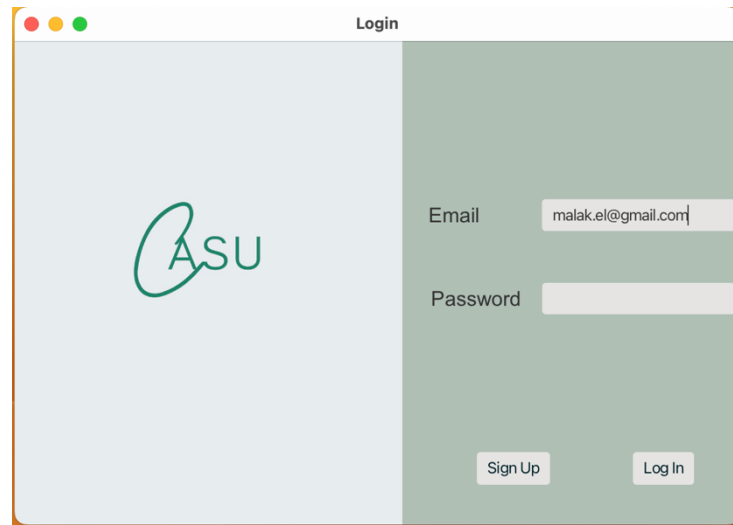


A screenshot of a modal dialog box titled "Invalid login". The dialog has a dark green background. In the center, there is a white rectangular area containing a red circle with a white "X" icon, followed by the text "The Username or Password is Incorrect". In the bottom right corner of the dialog, there is a blue button labeled "Close".

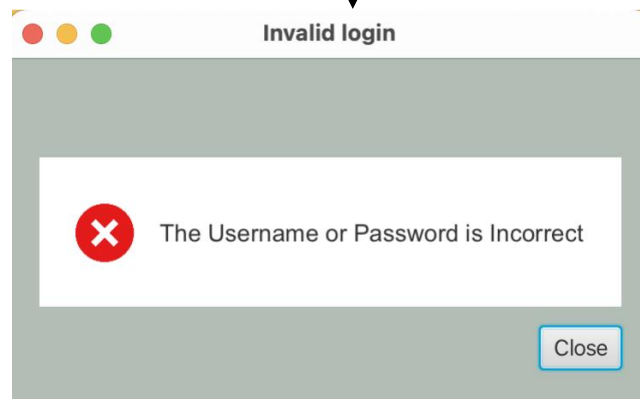


A screenshot of a web browser window titled "Login", identical to the first one. It shows the "ASU" logo on the left and the login form on the right. The "Email" input field now contains a single vertical line cursor, indicating it is active. The "Password" input field remains empty with three black dots. The "Sign Up" and "Log In" buttons are still present at the bottom.

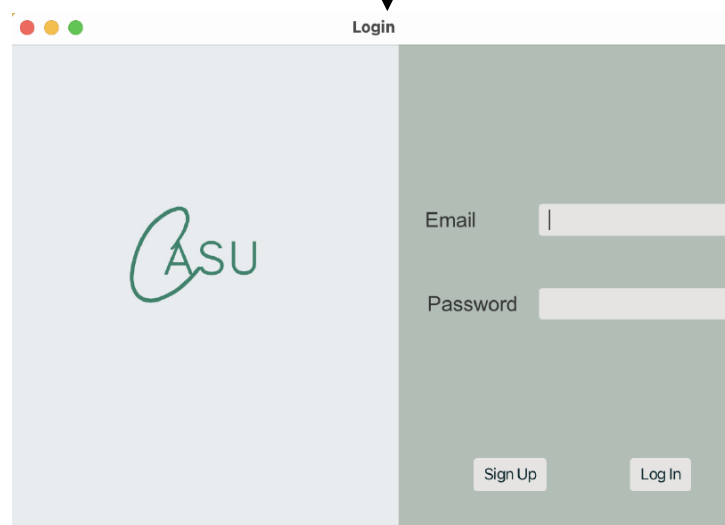
<Login Page, Empty Password , Inavid Page , Back, Login Page>



A screenshot of a web browser window titled "Login". The window is split into two panels. The left panel is light blue and features a green logo that says "ASU". The right panel is a darker green and contains a login form. The form has two input fields: "Email" with the text "malak.el@gmail.com" and "Password" which is empty. Below the input fields are two buttons: "Sign Up" and "Log In".

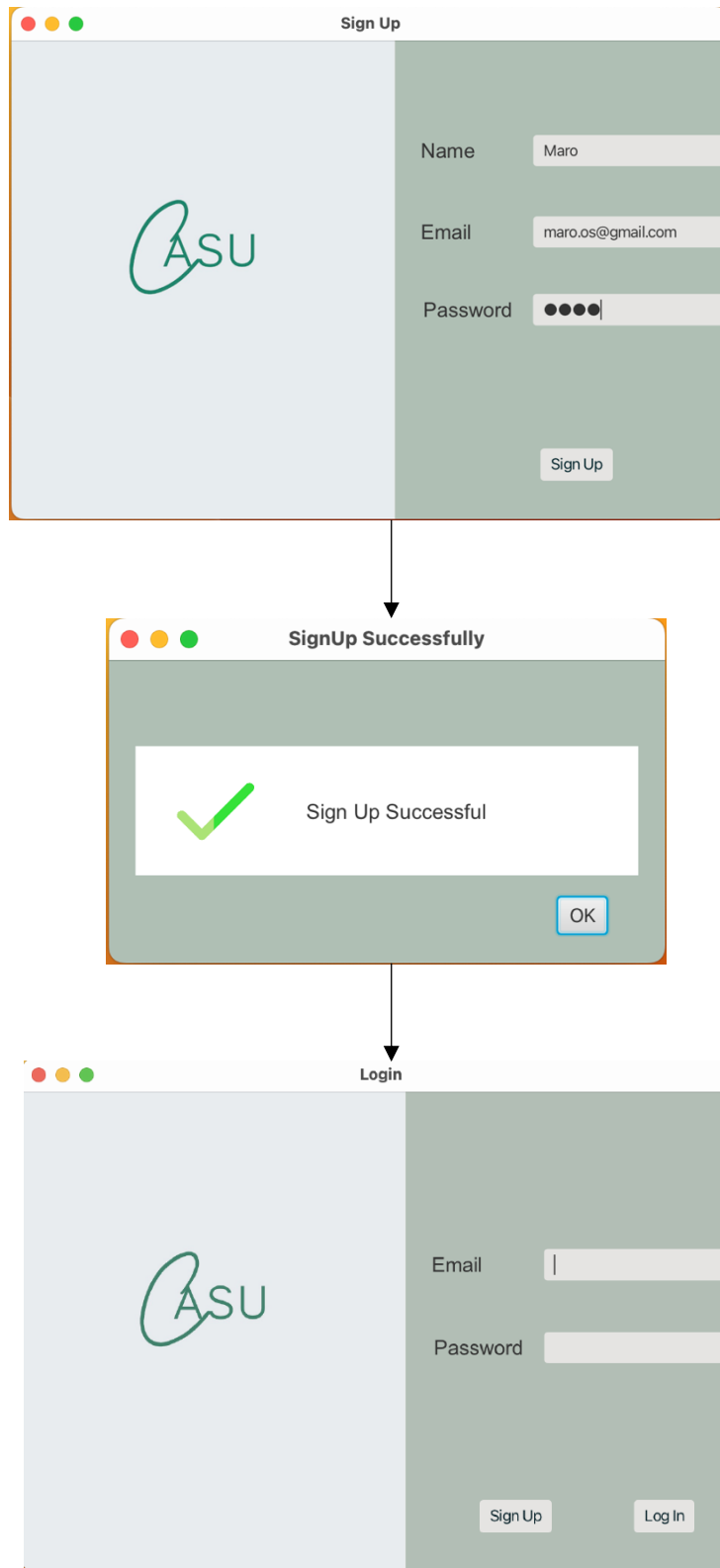


A screenshot of a web browser window titled "Invalid login". The window has a dark green background. In the center, there is a white rectangular box containing a red circle with a white "X" and the text "The Username or Password is Incorrect". In the bottom right corner of the window, there is a blue button labeled "Close".

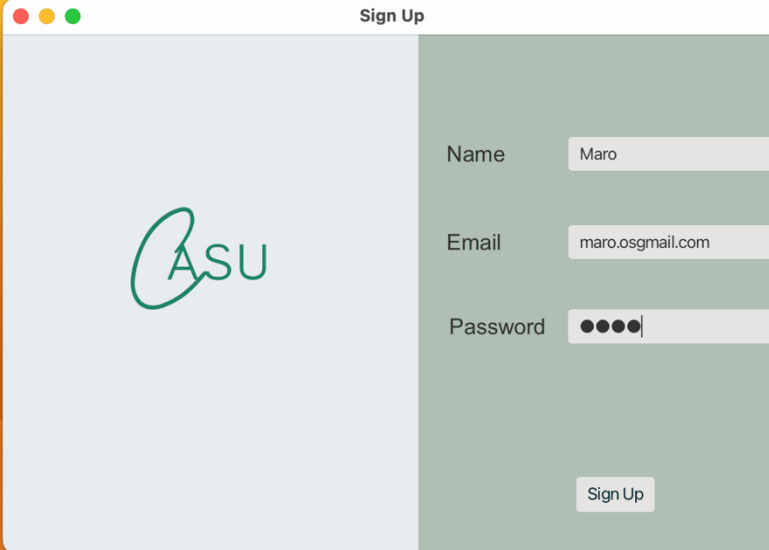


A screenshot of a web browser window titled "Login". The window is split into two panels. The left panel is light blue and features a green logo that says "ASU". The right panel is a darker green and contains a login form. The form has two input fields: "Email" which is empty and "Password" which is empty. Below the input fields are two buttons: "Sign Up" and "Log In".

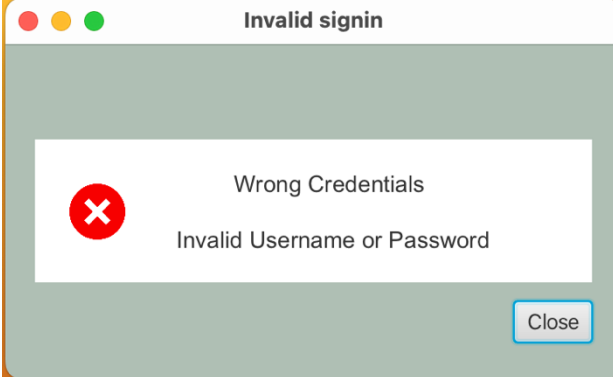
<Sign Up Page, Valid Email and Password and Non-Empty Name, Successful Page, Sign Up, Login Page>



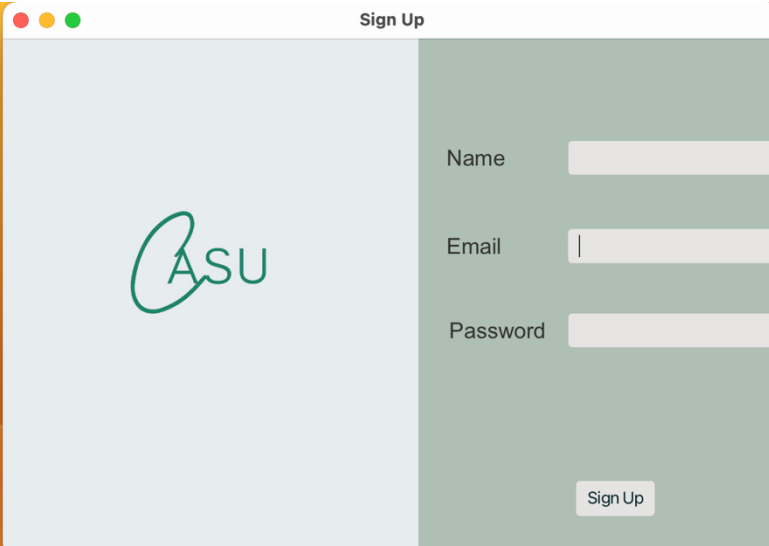
<Sign Up Page, Invalid Email, Invalid Sign Up Page, Back, Sign Up page>



The Sign Up page features a light blue background on the left with a green 'ASU' logo. The right side has a green background with a white form. The form includes fields for Name (filled with 'Maro'), Email (filled with 'maro.osgmail.com'), and Password (filled with five dots). A 'Sign Up' button is at the bottom right.

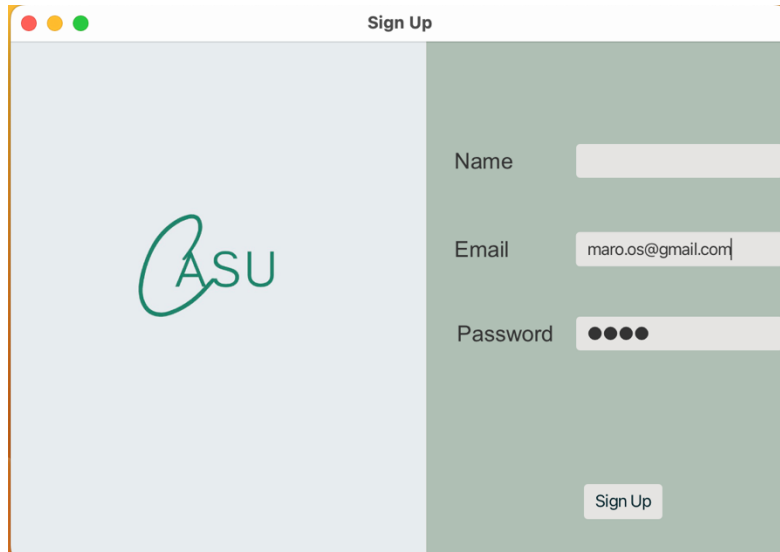


An 'Invalid signin' dialog box is shown. It has a green background and a white message box. The message box contains a red circle with a white 'X', the text 'Wrong Credentials', and 'Invalid Username or Password'. A 'Close' button is at the bottom right.

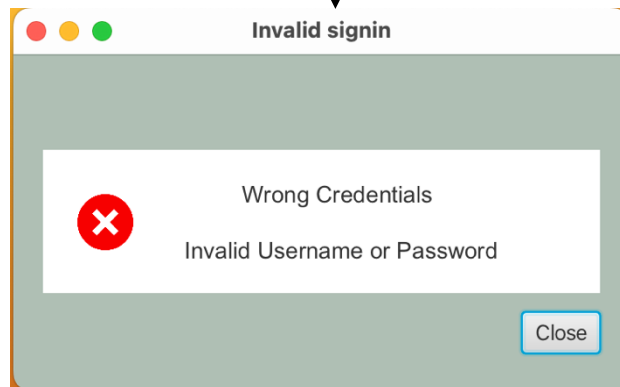


The Sign Up page is shown again, but the form fields are now empty. The Name field is empty, the Email field has a cursor, and the Password field is empty. The 'Sign Up' button remains at the bottom right.

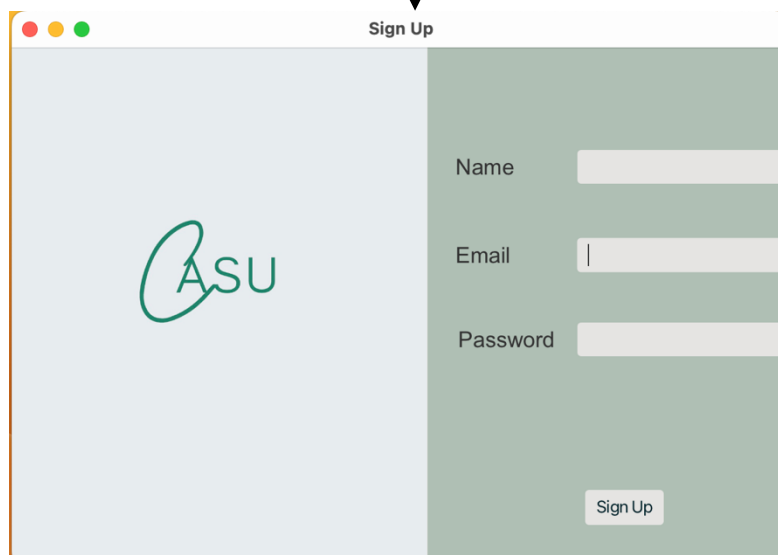
<Sign Up Page, Empty Name, Invalid Sign Up Page, Back, Sign Up page>



A web browser window titled "Sign Up". The left side features a light blue background with a green "ASU" logo. The right side has a green background with three input fields: "Name" (empty), "Email" (containing "maro.os@gmail.com"), and "Password" (containing four dots). A "Sign Up" button is at the bottom right.

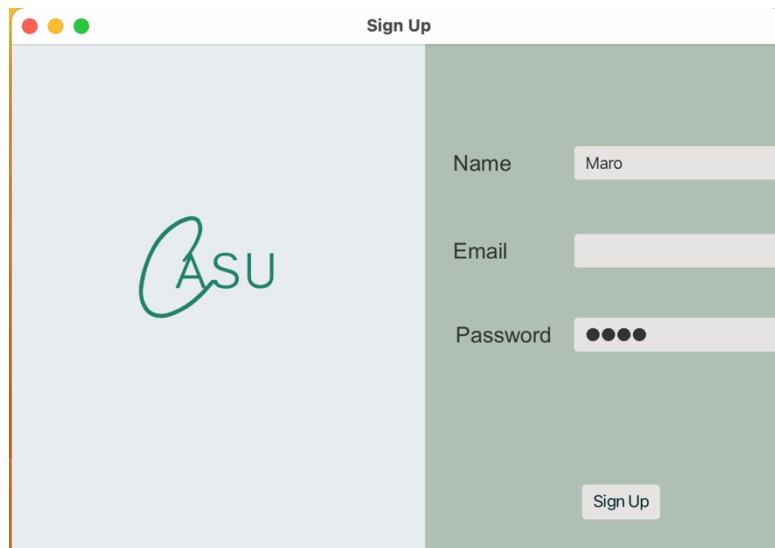


An "Invalid signin" dialog box with a red "X" icon. The text inside reads "Wrong Credentials" and "Invalid Username or Password". A "Close" button is in the bottom right corner.

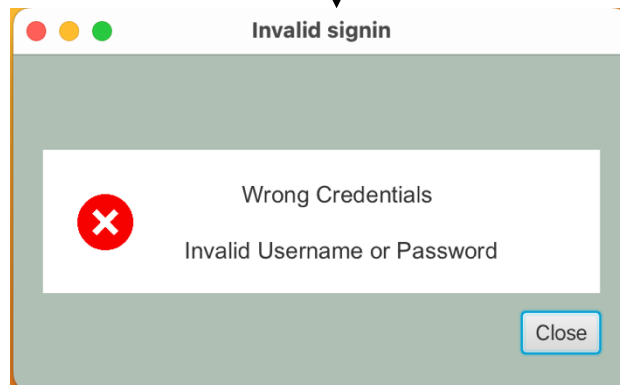


A web browser window titled "Sign Up". The left side features a light blue background with a green "ASU" logo. The right side has a green background with three input fields: "Name" (empty), "Email" (empty), and "Password" (empty). A "Sign Up" button is at the bottom right.

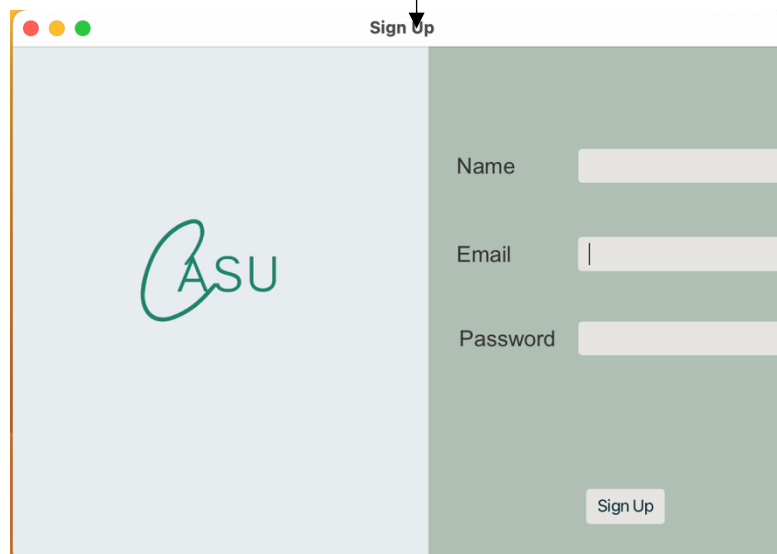
<Sign Up Page, Empty Email, Invalid Sign Up Page, Back, Sign Up page>



A screenshot of a web browser window titled "Sign Up". The window is split into two panels. The left panel has a light blue background and features a green logo that says "ASU" with a circular arrow around it. The right panel has a light green background and contains three input fields: "Name" with the text "Maro", "Email" which is empty, and "Password" with four black dots. Below these fields is a "Sign Up" button.

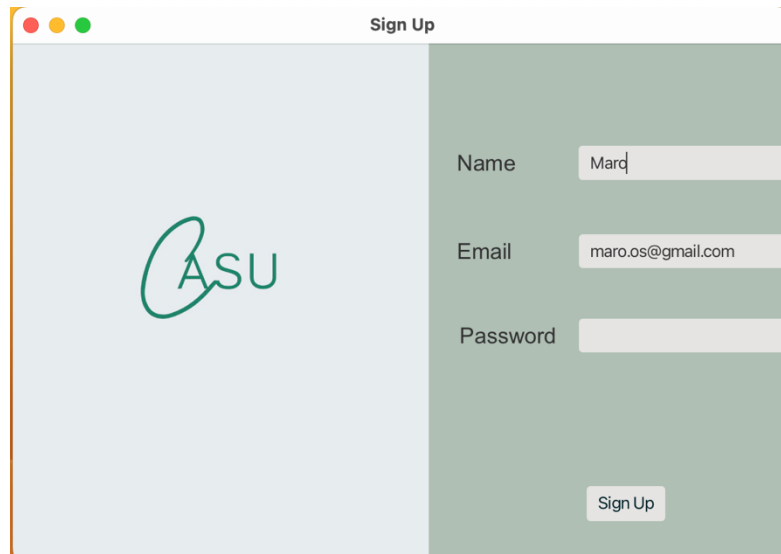


An "Invalid signin" dialog box is shown in the center of the screen. It has a white background and a red circle with a white "X" icon on the left. The text inside reads "Wrong Credentials" and "Invalid Username or Password". A "Close" button is located at the bottom right of the dialog box.

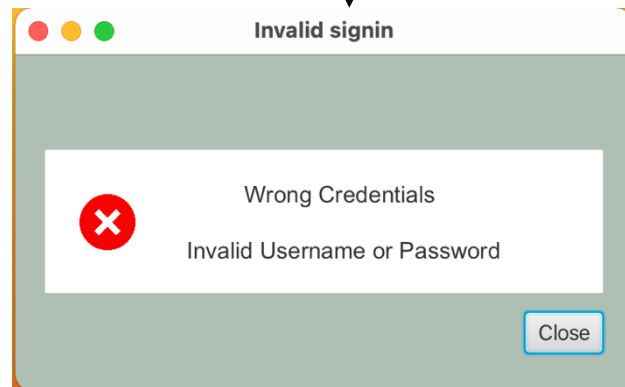


A second screenshot of the "Sign Up" page. The layout is identical to the first screenshot, but the "Name" field is now empty, and the "Email" field now contains a single vertical line cursor, indicating it is active for input.

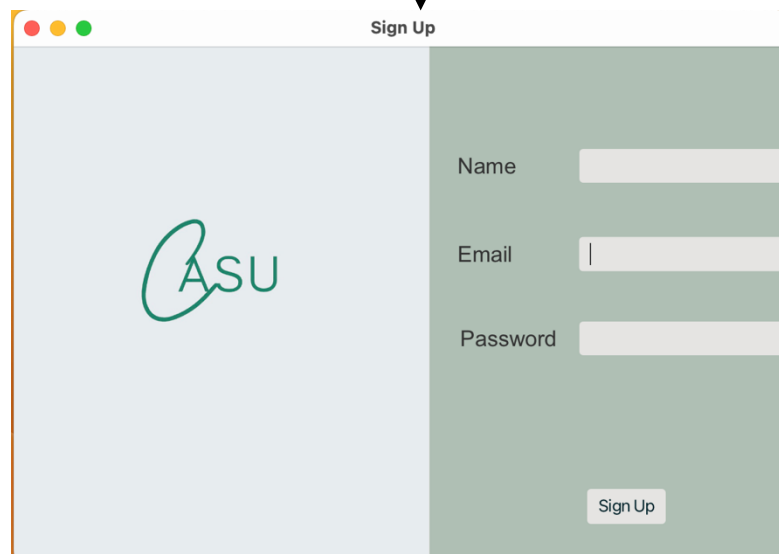
<Sign Up Page, Empty Password, Invalid Sign Up Page, Back, Sign Up page>



A screenshot of a web browser window titled "Sign Up". The left side of the page features a light blue background with a green "ASU" logo. The right side has a green background with three input fields: "Name" (containing "Marq"), "Email" (containing "maro.os@gmail.com"), and "Password" (empty). A "Sign Up" button is located at the bottom right of the form area.

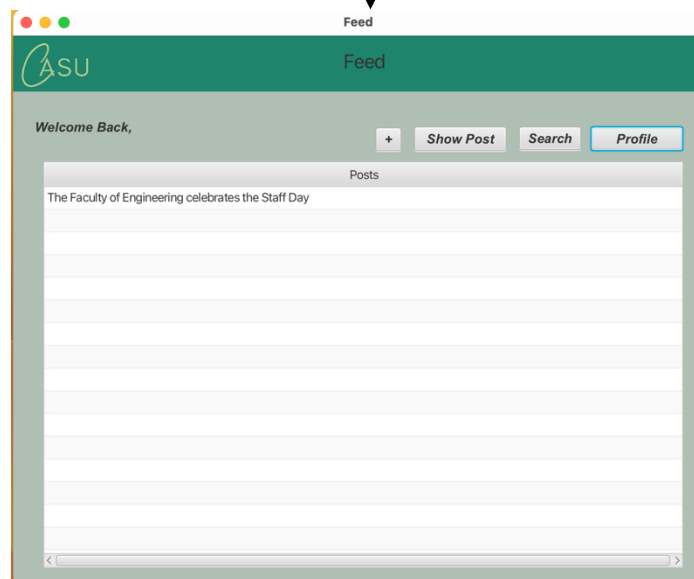
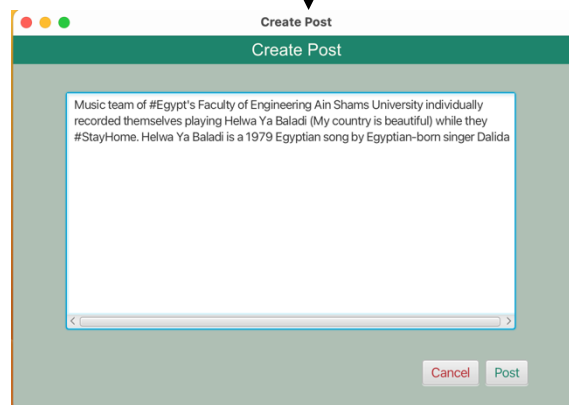
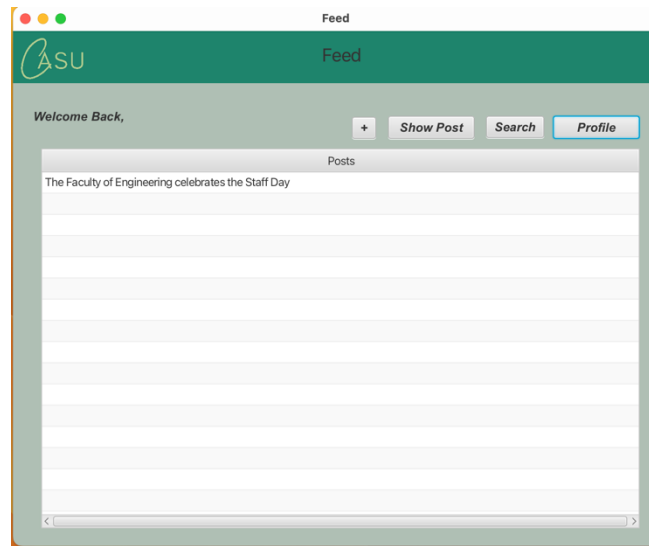


An "Invalid signin" dialog box is displayed in the center of the screen. It has a white background with a red circle containing a white "X" on the left. The text inside reads "Wrong Credentials" and "Invalid Username or Password". A "Close" button is located at the bottom right of the dialog box.

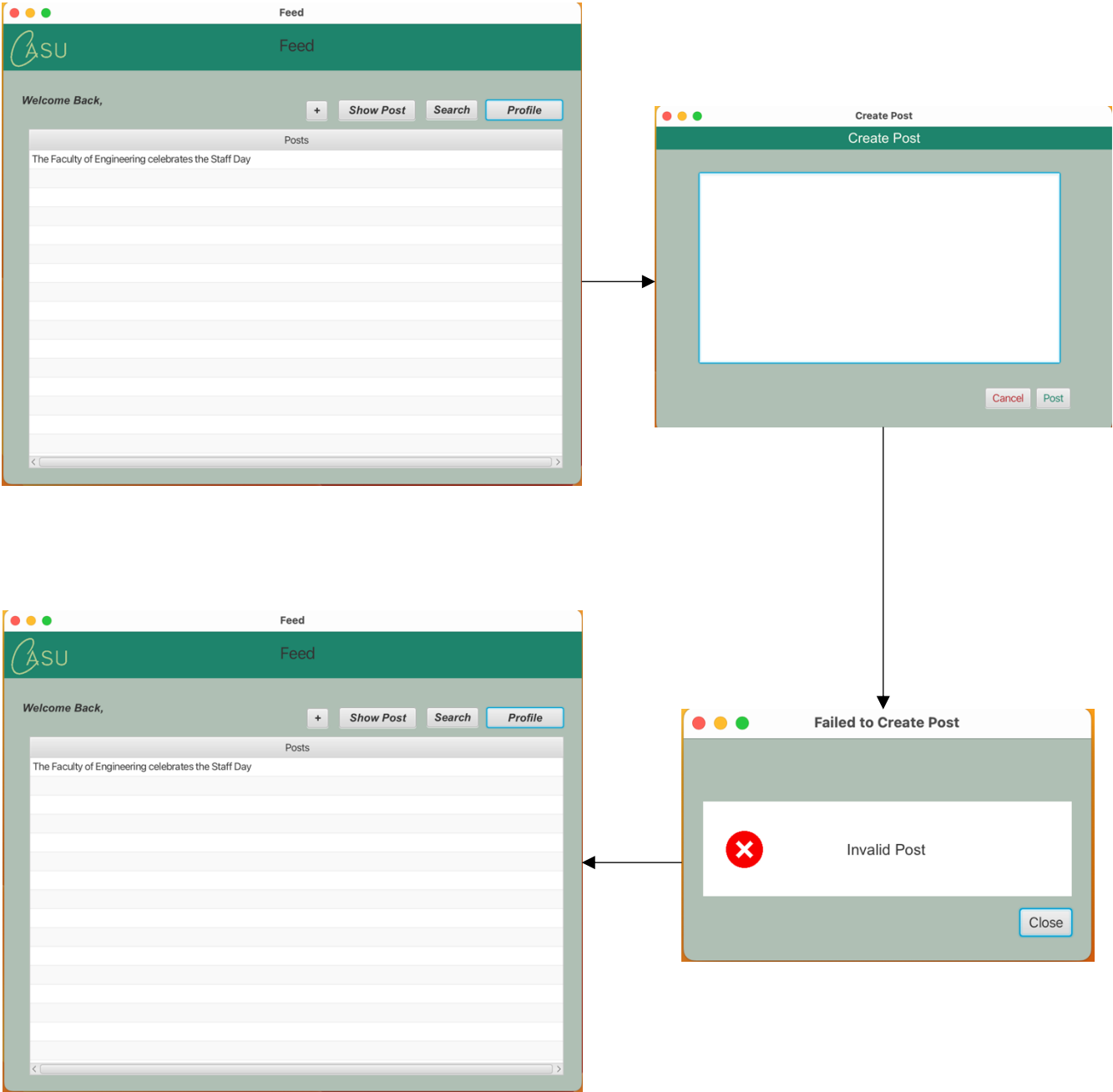


A second screenshot of the "Sign Up" page, identical to the first one. The "Name" field contains "Marq", the "Email" field contains "maro.os@gmail.com", and the "Password" field is empty. The "Sign Up" button is at the bottom right.

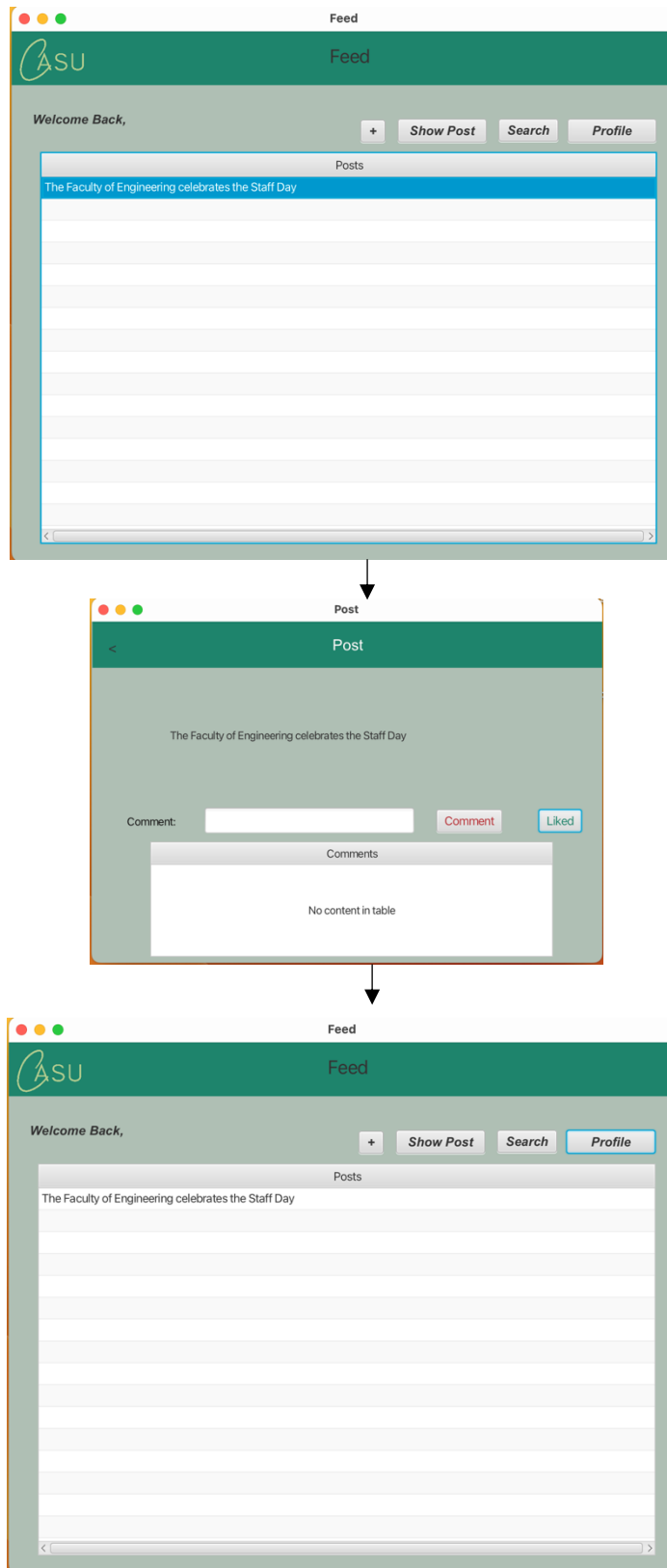
<Feed Page, Create Post, Create Post Page, Valid Text, Feed Page>



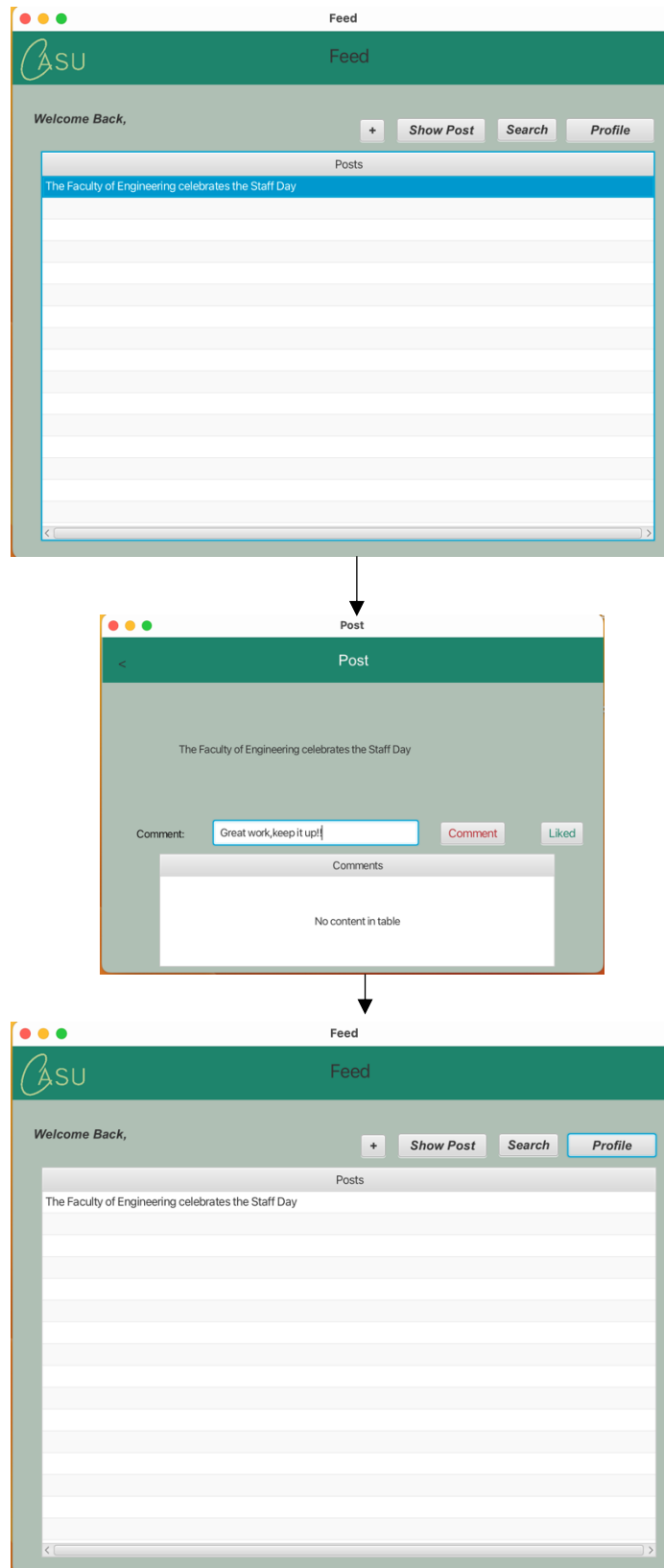
<Feed Page, Create Post, Create Post Page, Empty Text, Invalid Post Page, Back, Feed Page>



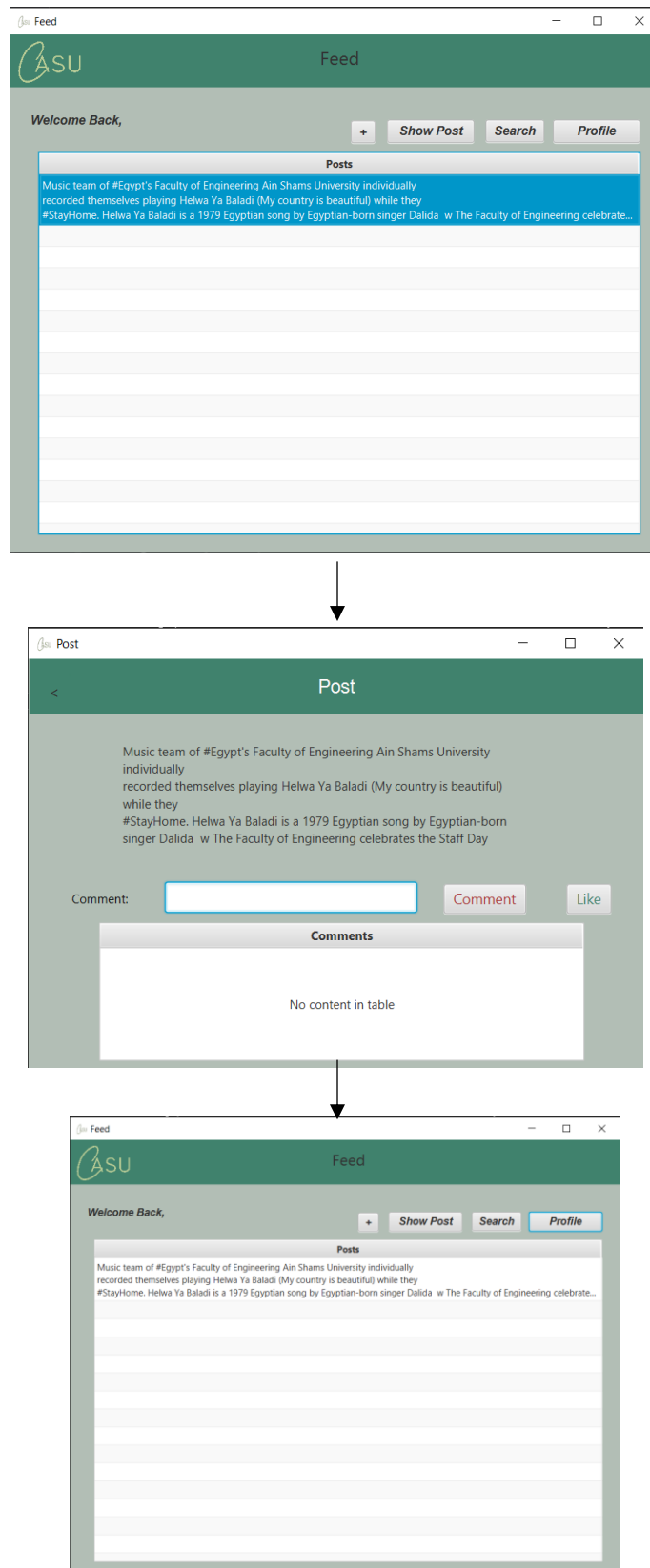
<Feed Page, Show Post, Post Page, Like, Back, Feed Page>



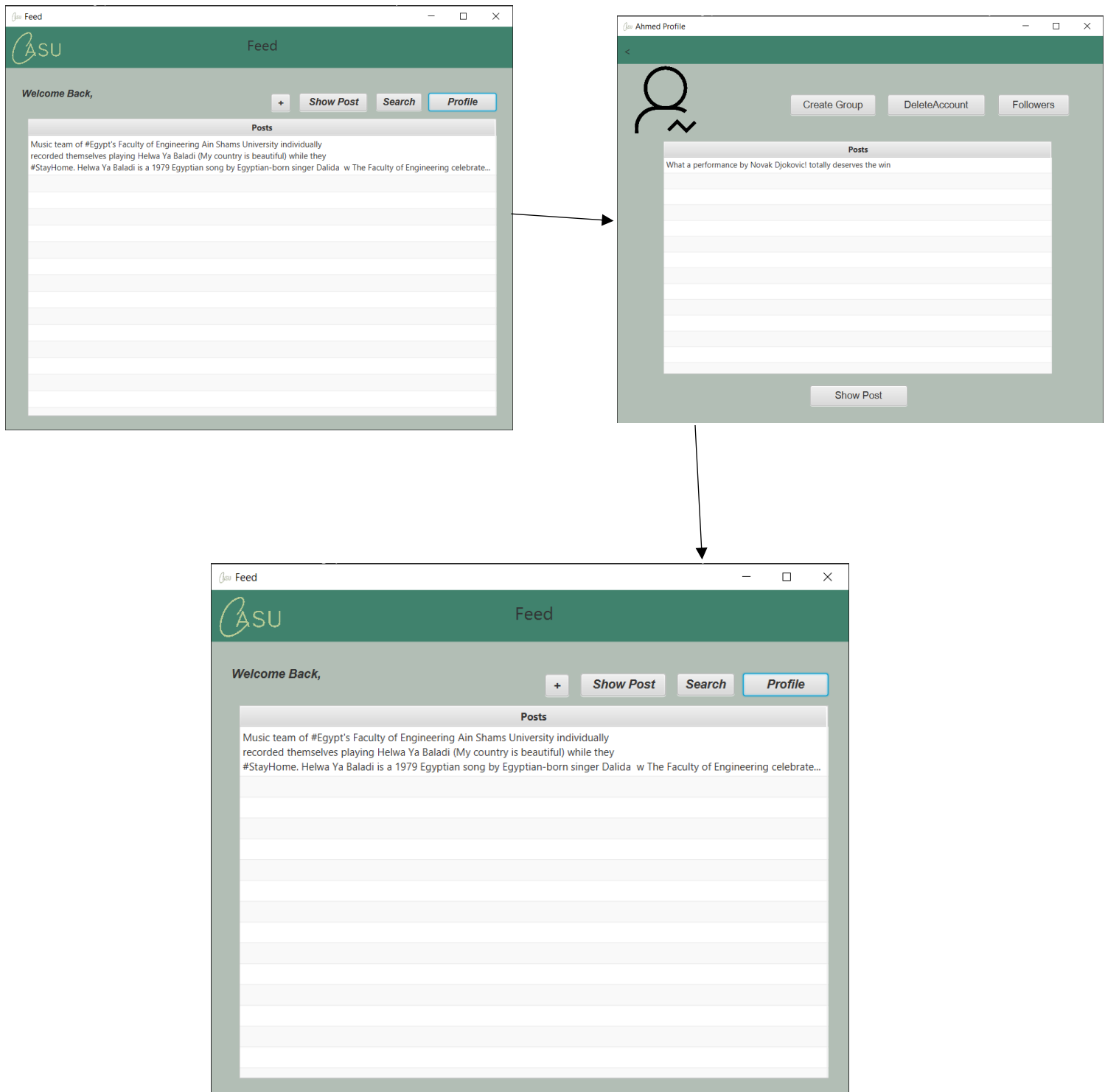
<Feed Page, Show Post, Post Page, Comment, Back, Feed Page>



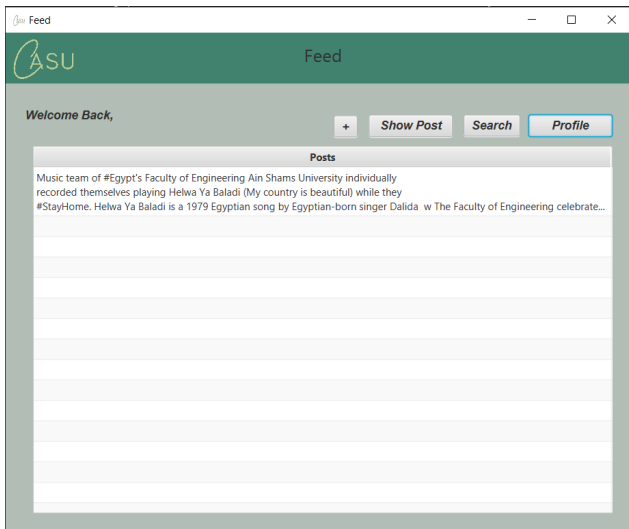
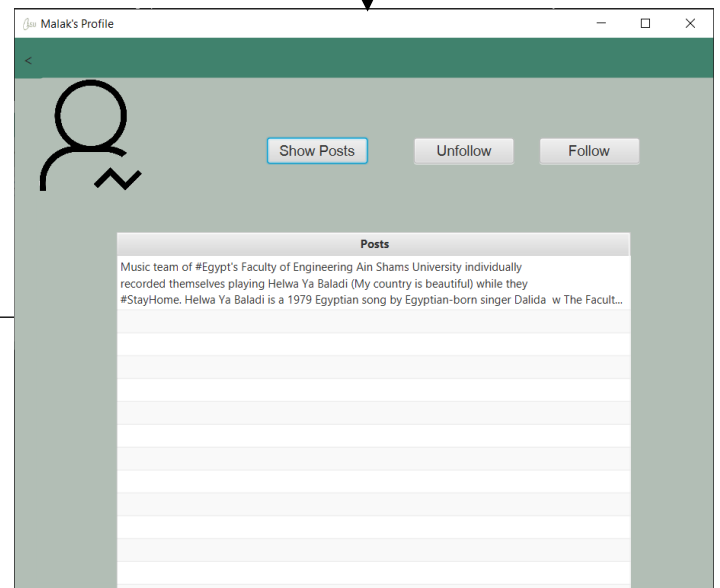
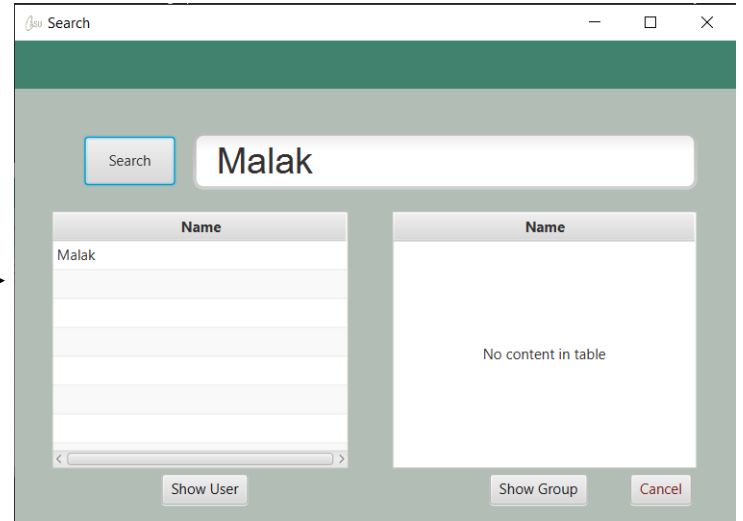
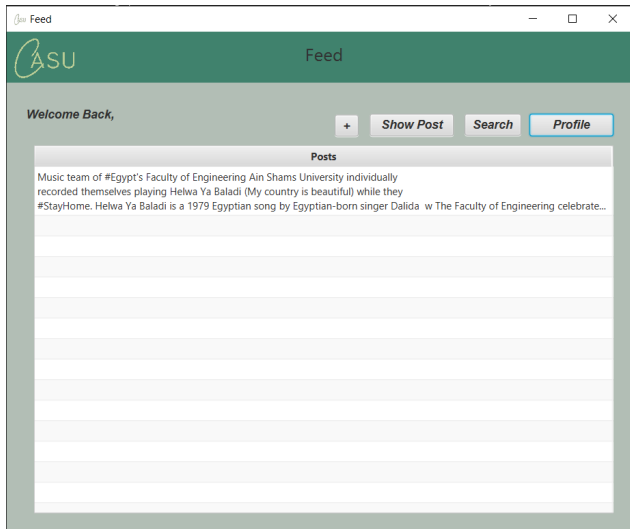
<Feed Page, Show Post, Post Page, Back, Feed Page>



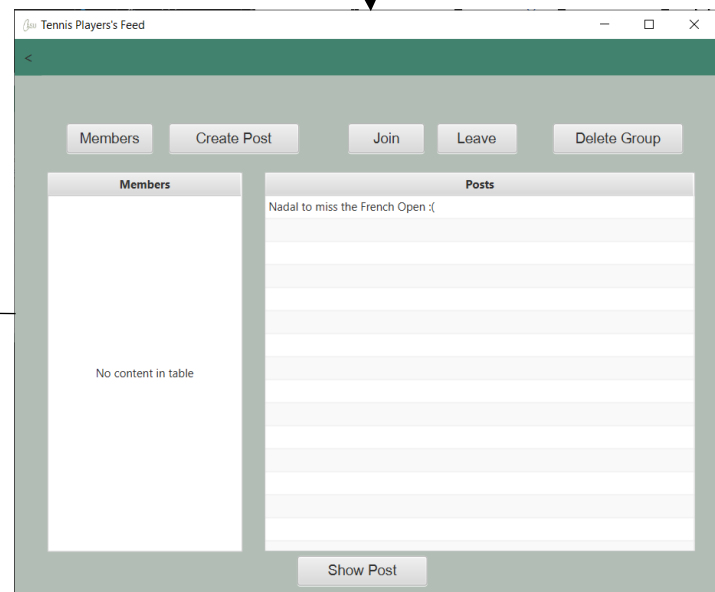
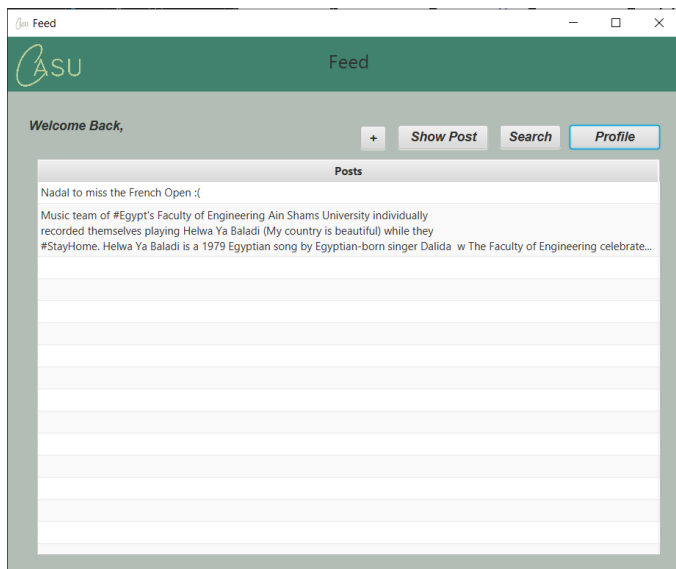
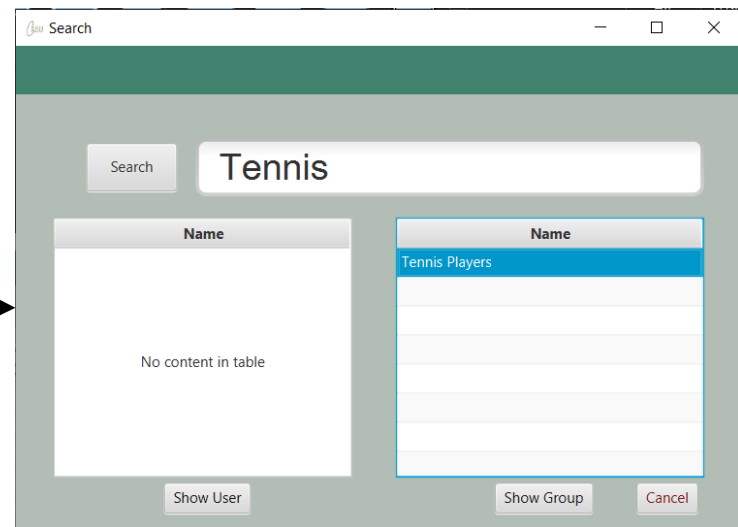
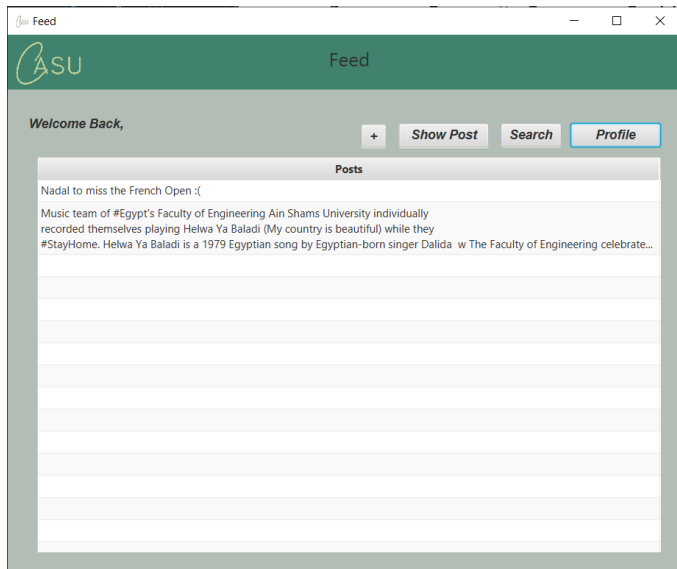
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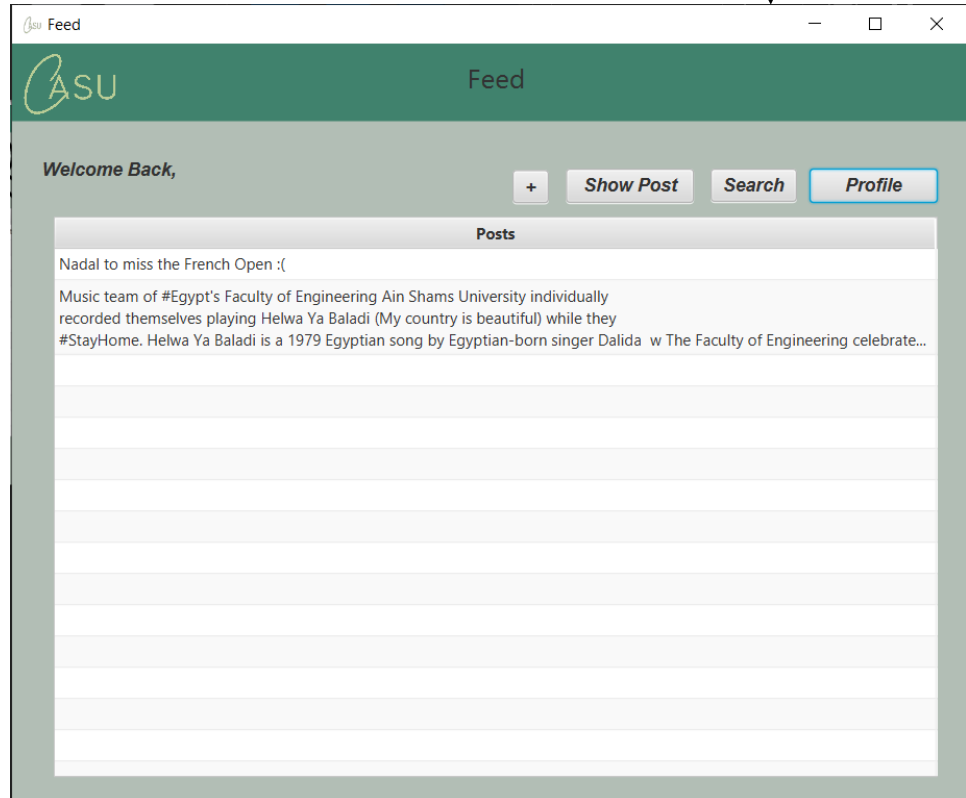
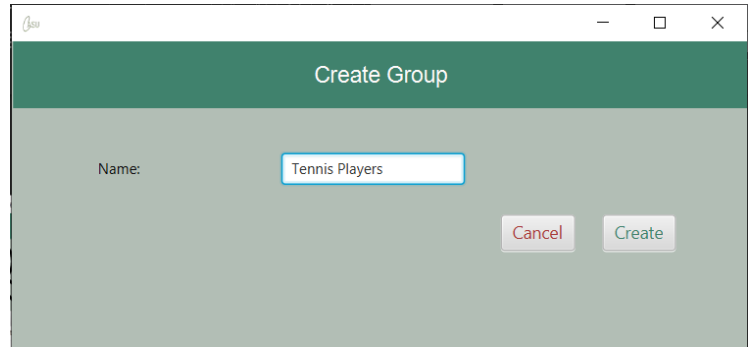
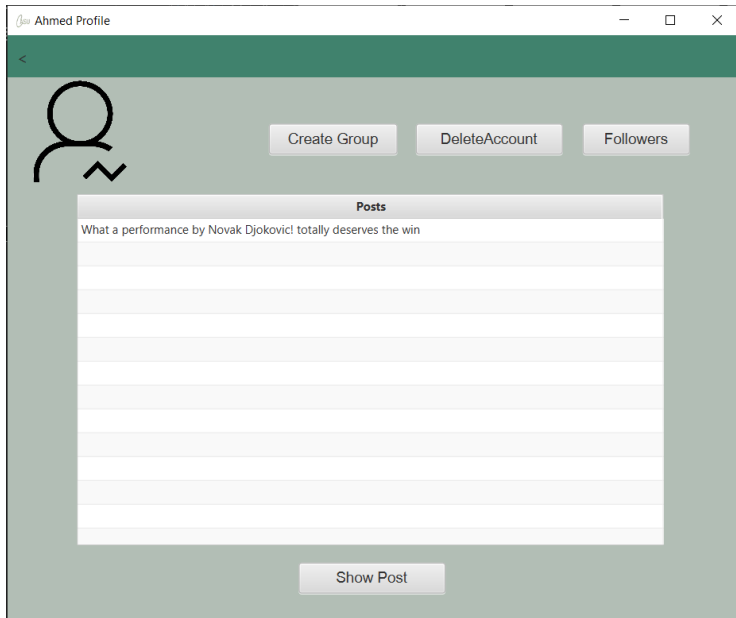
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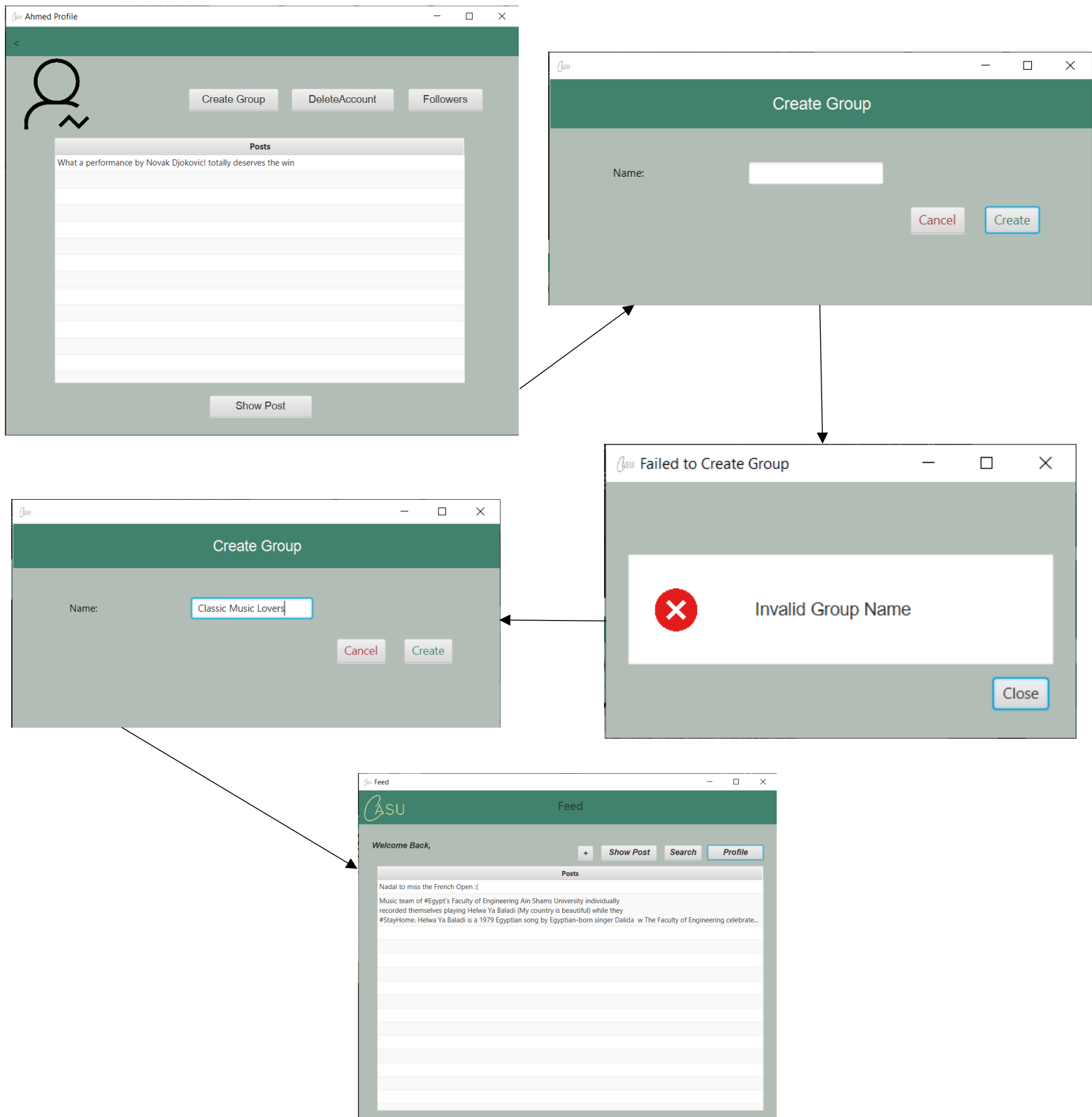
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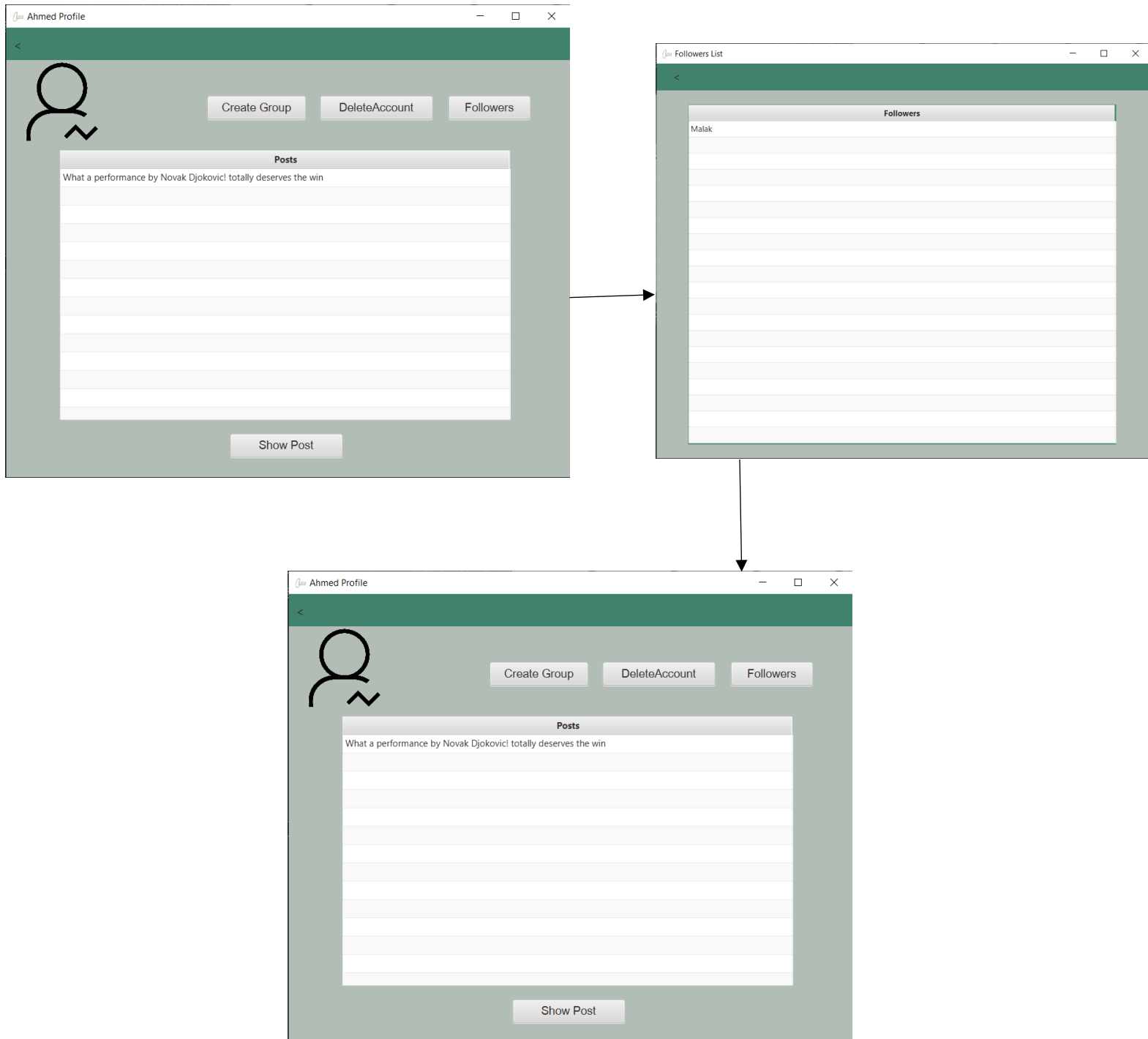
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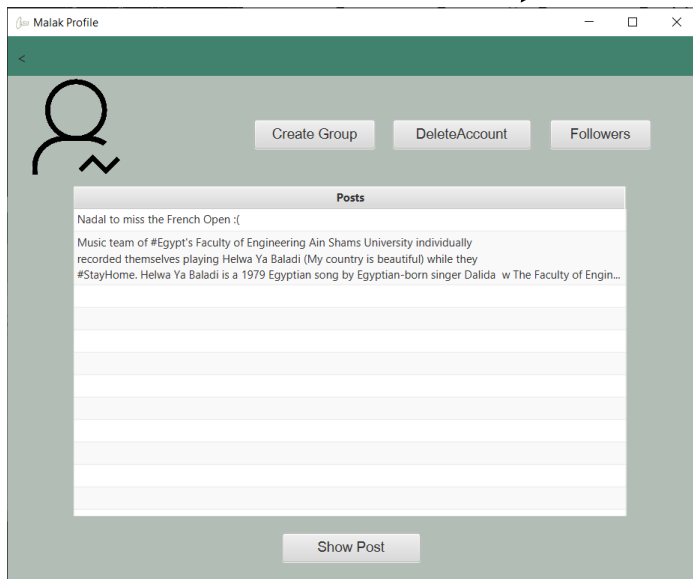
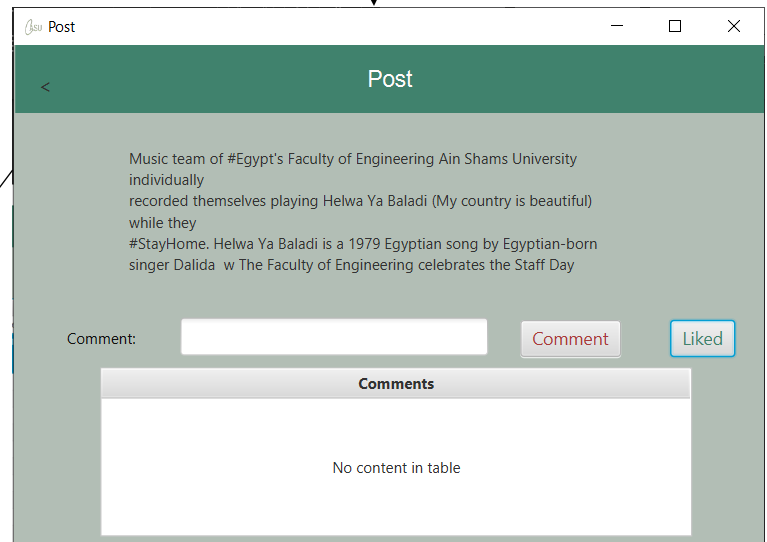
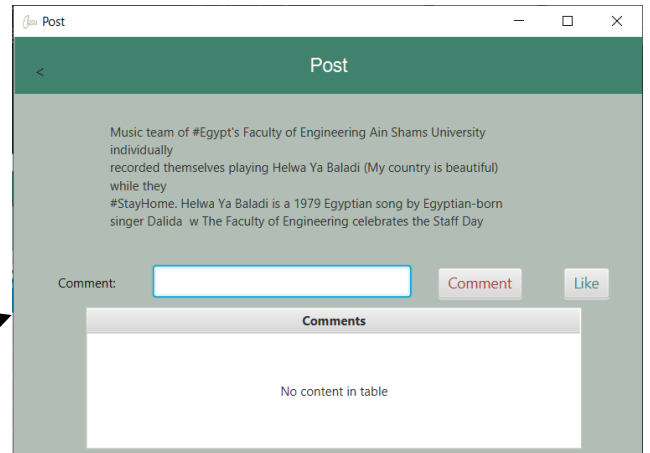
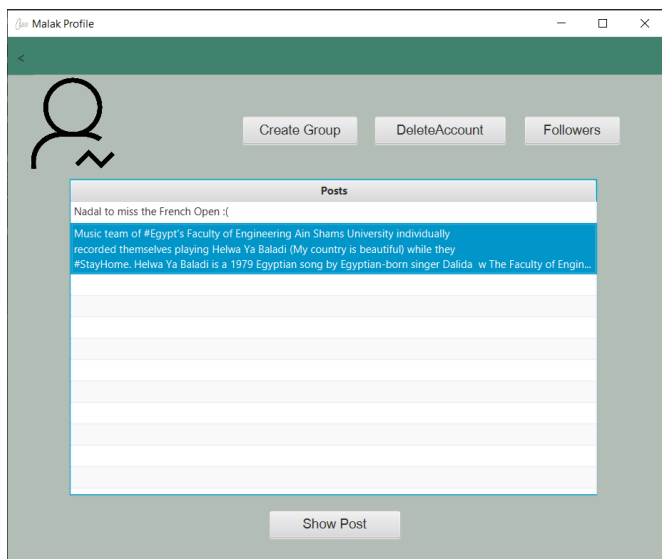
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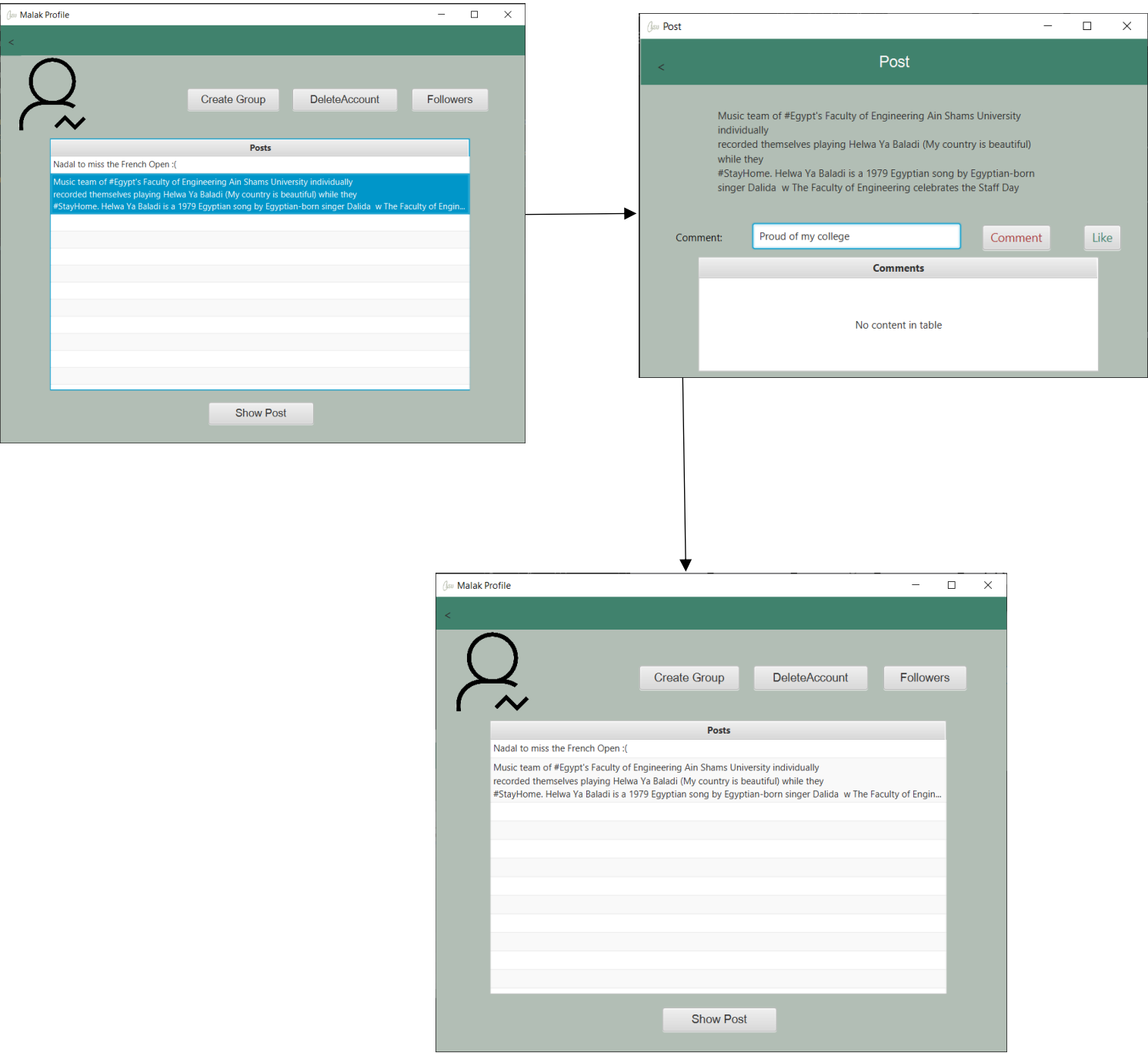
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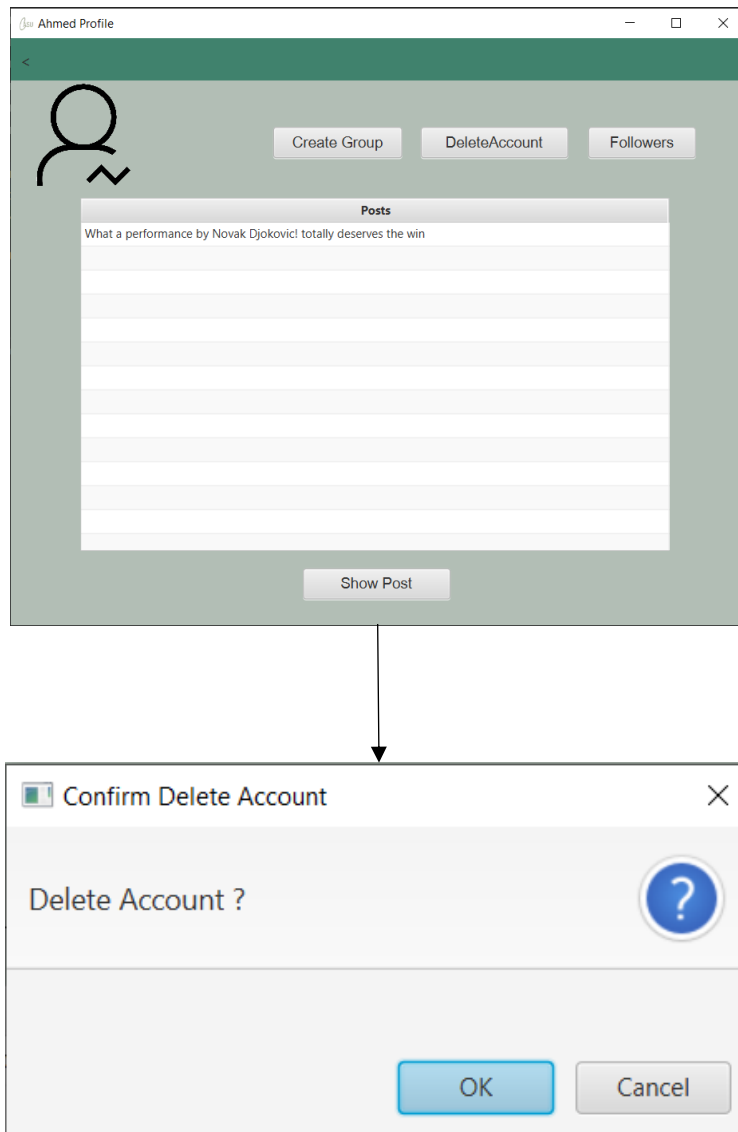
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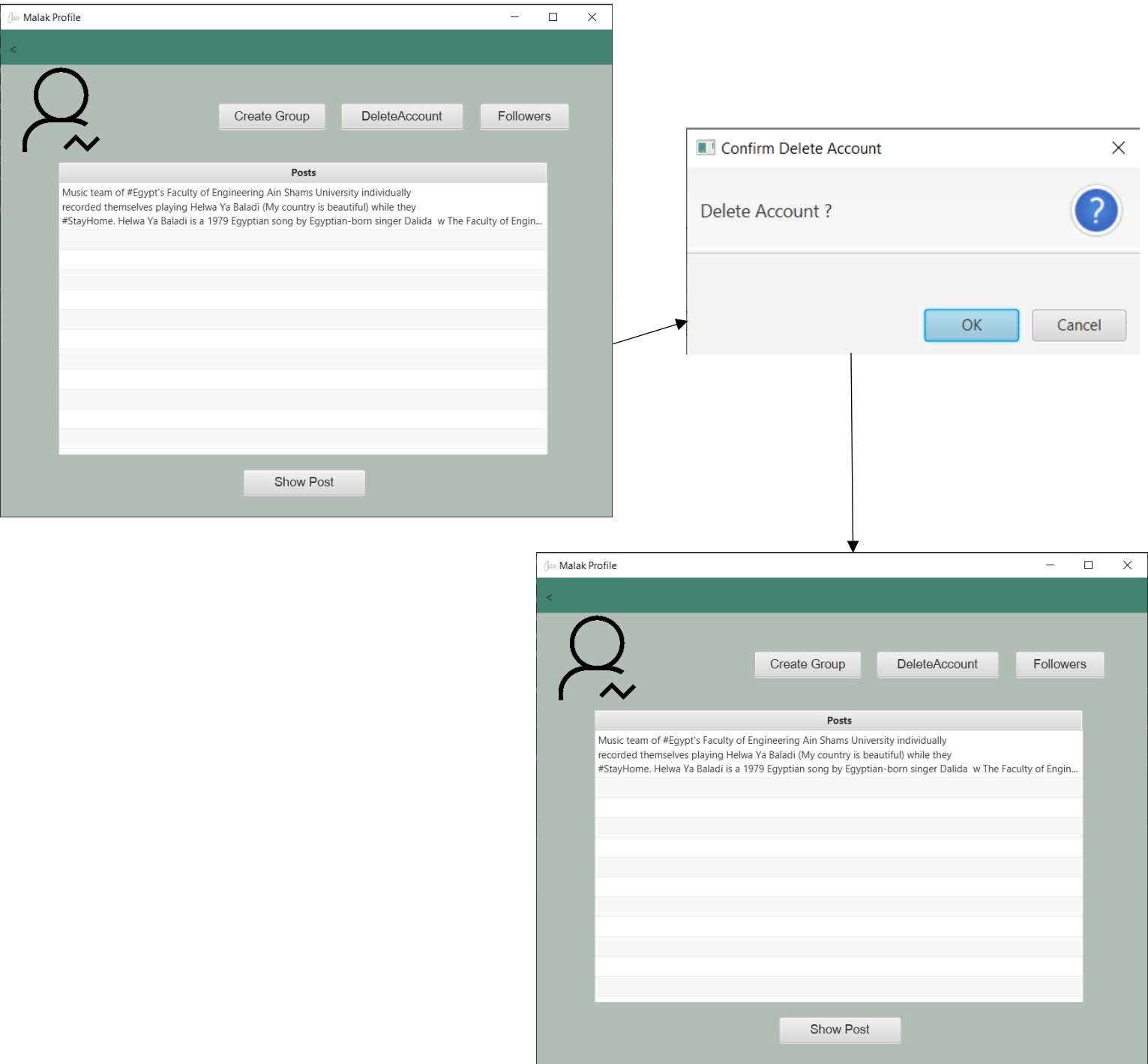
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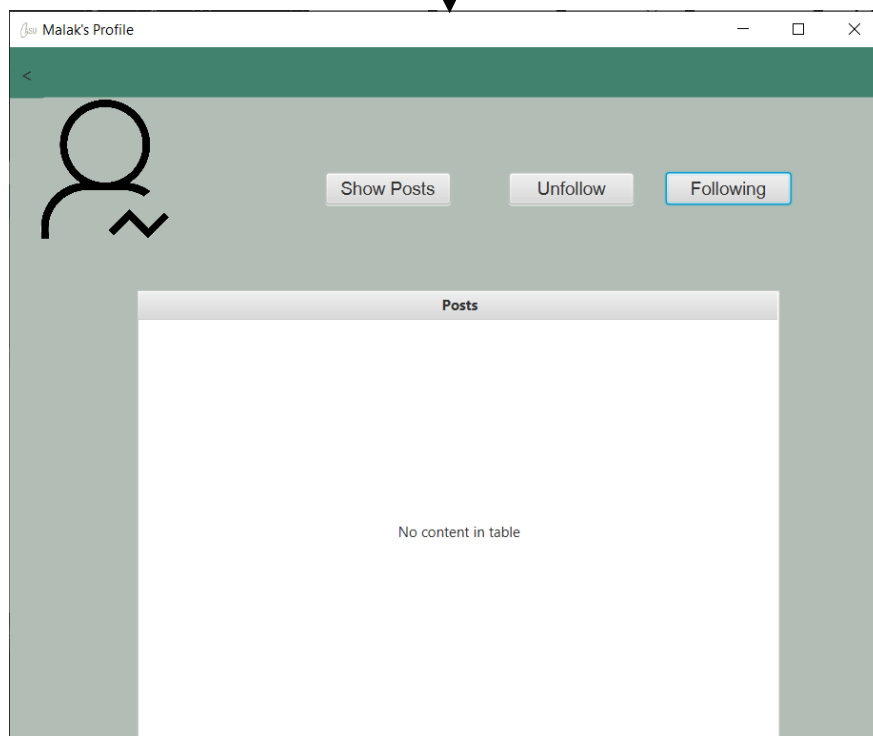
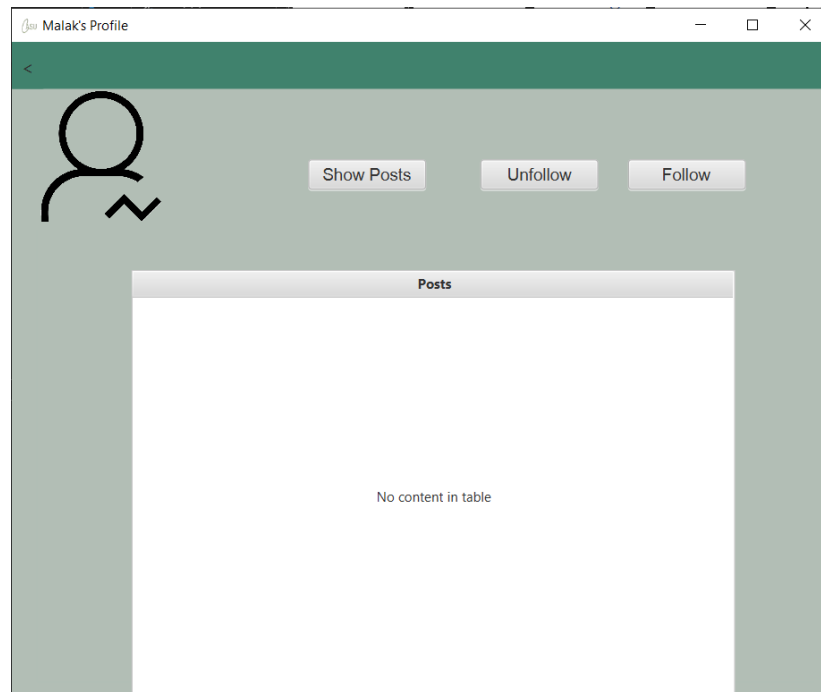
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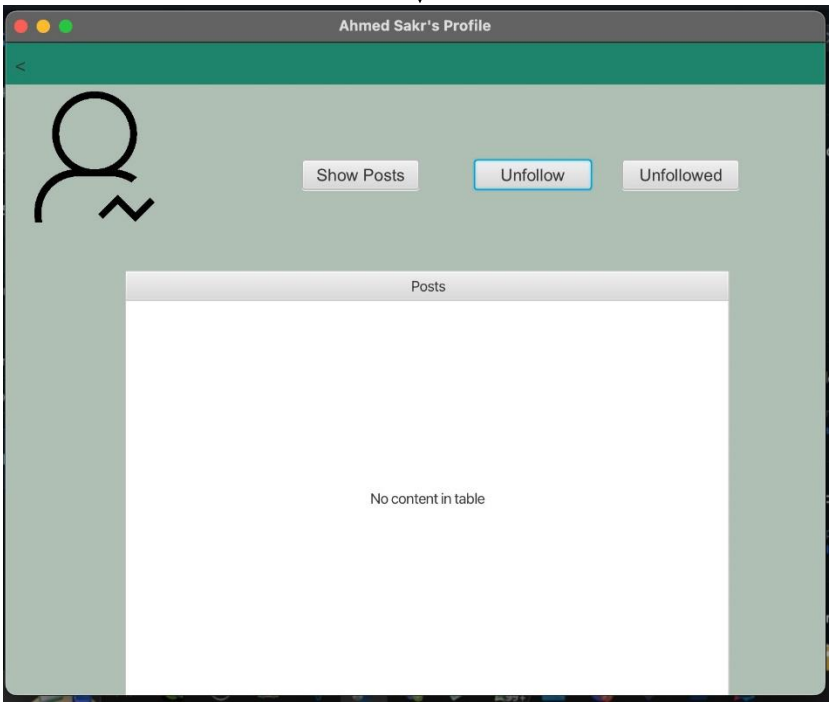
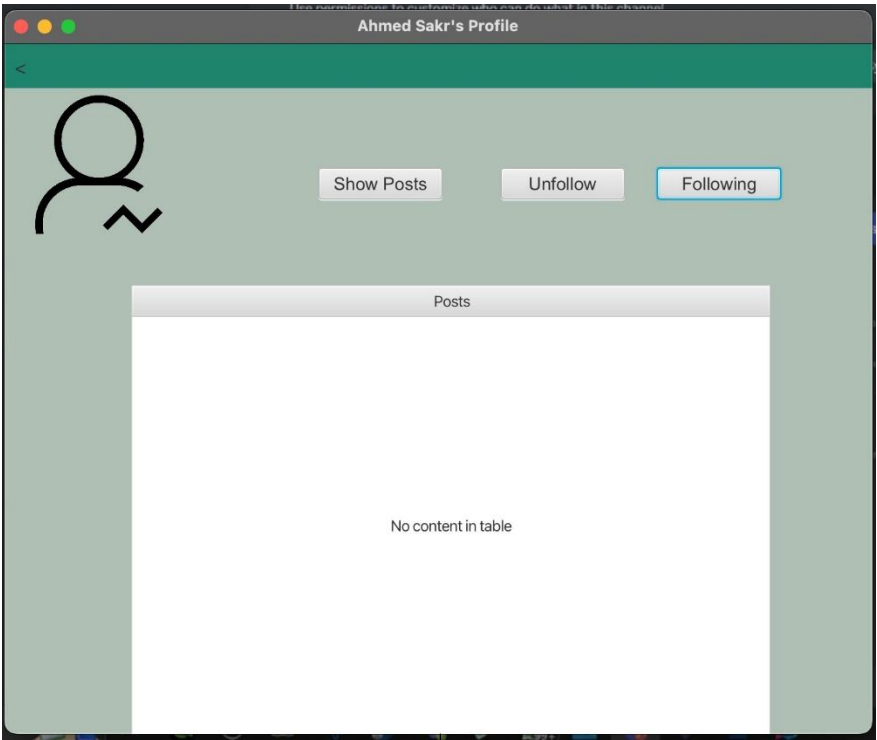
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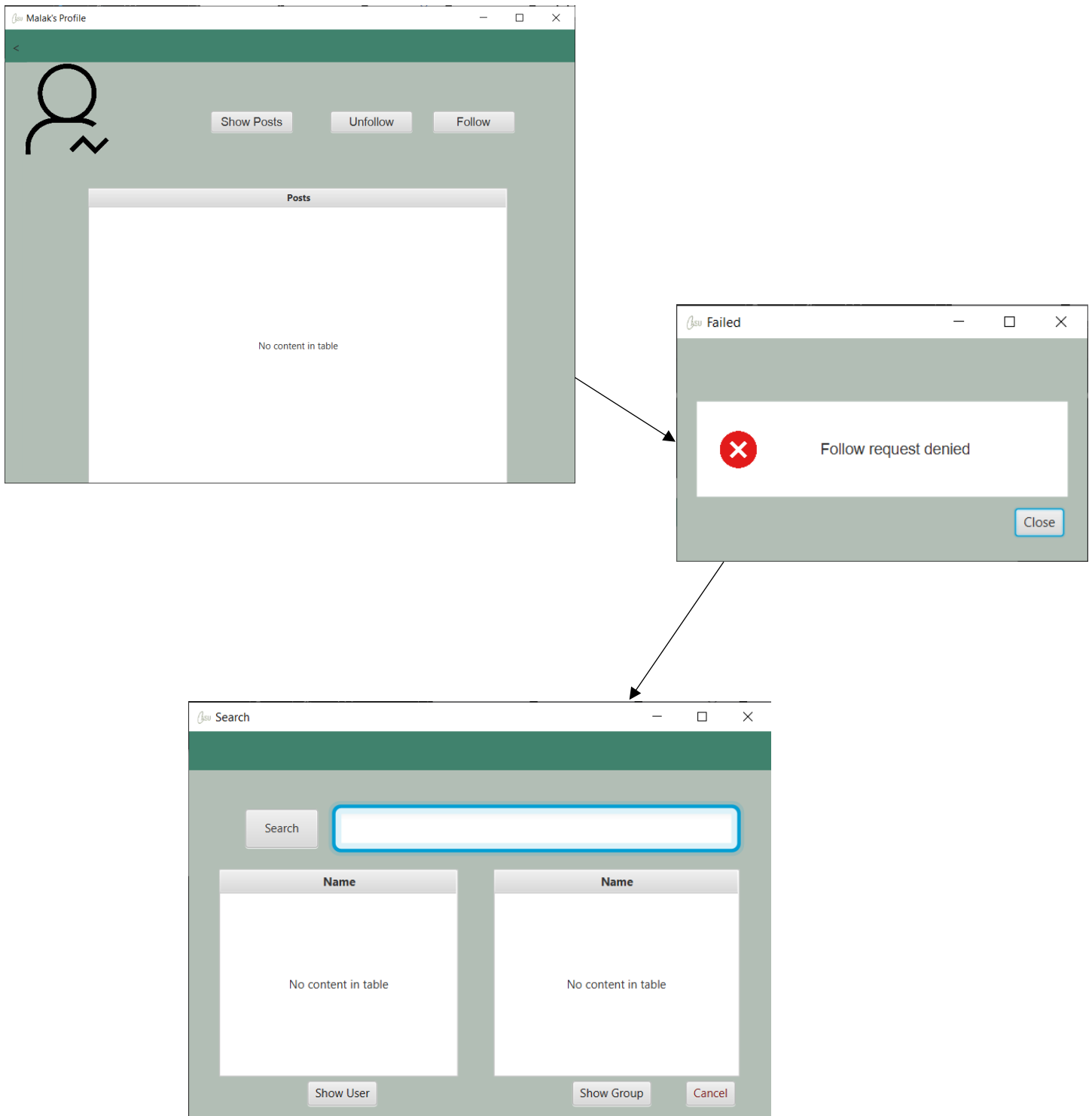
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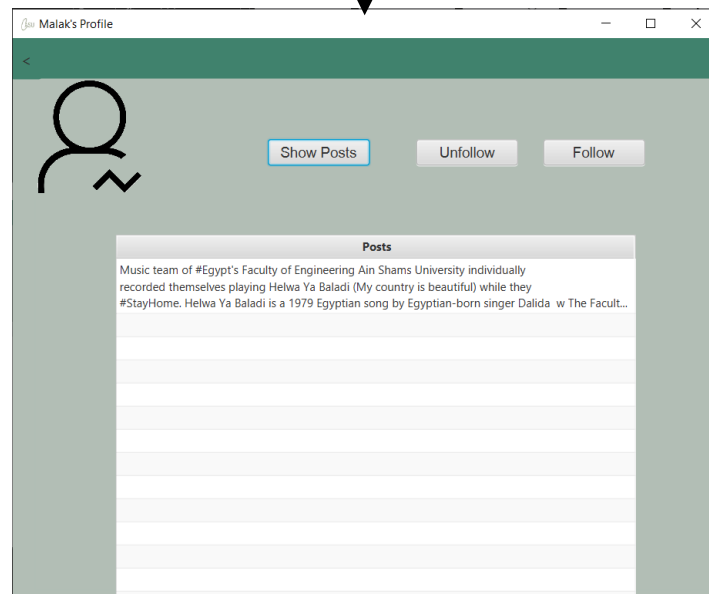
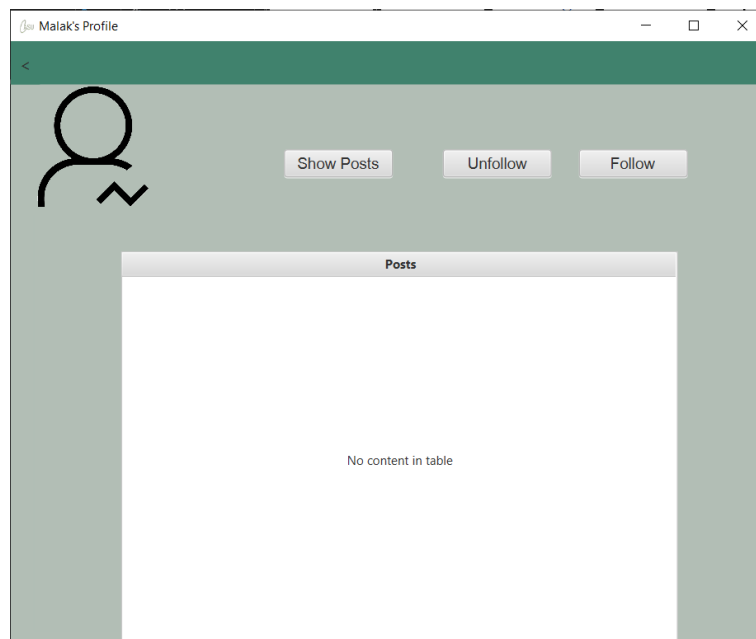
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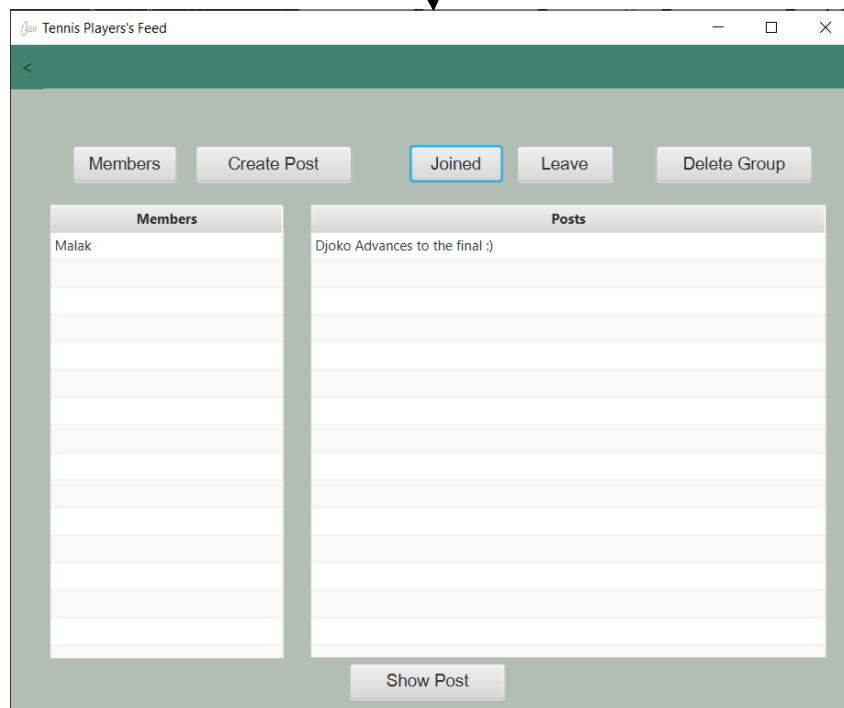
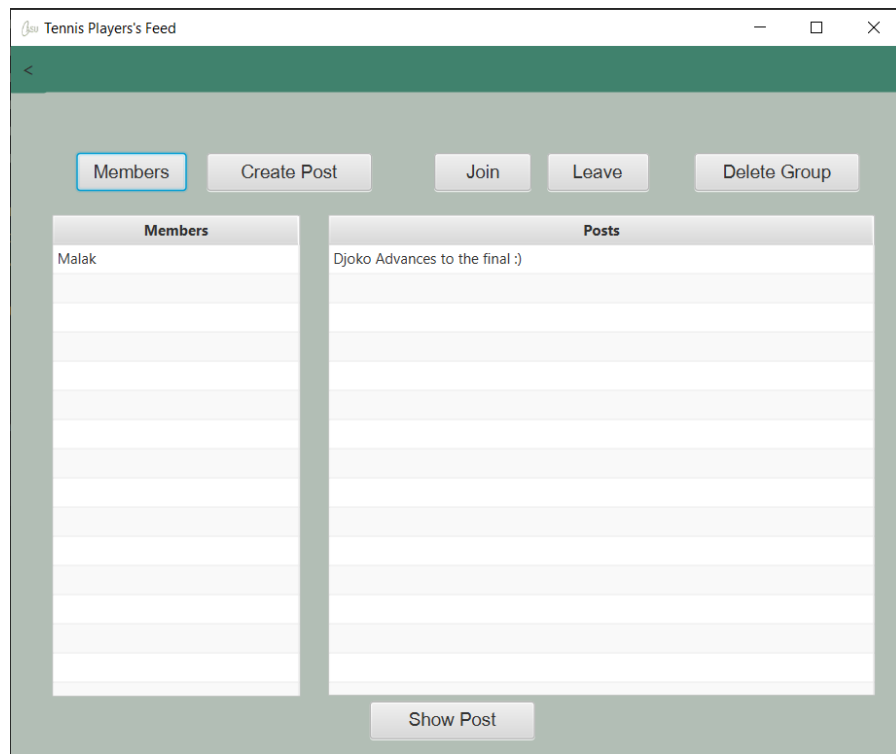
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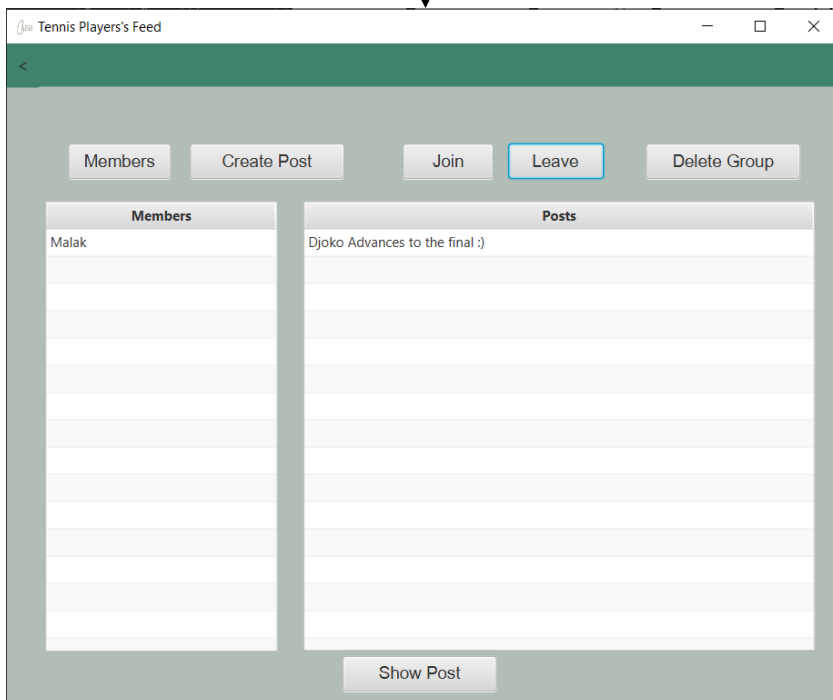
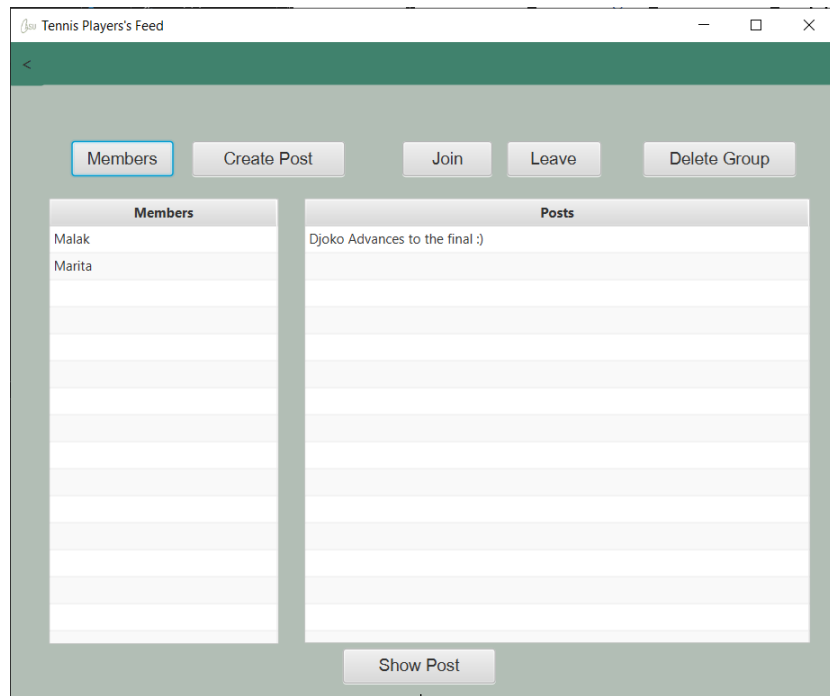
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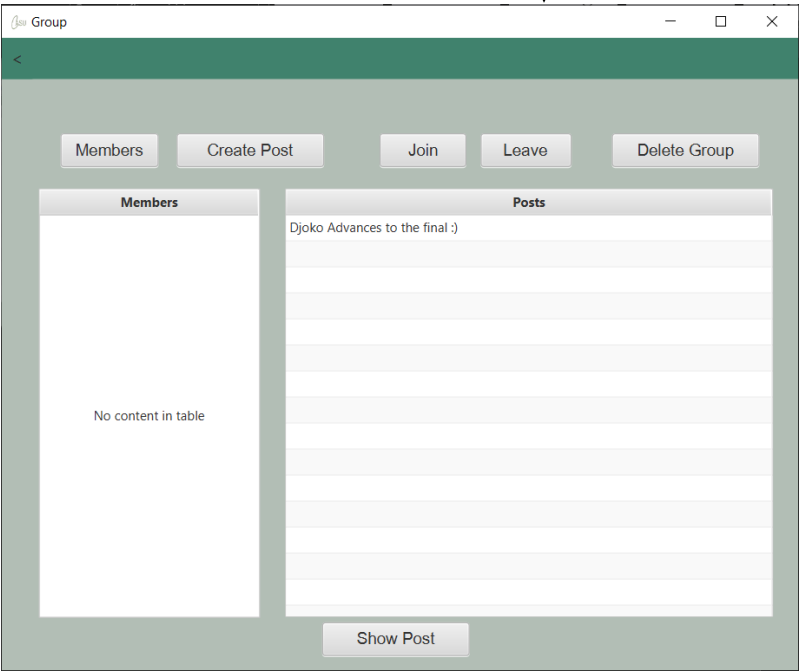
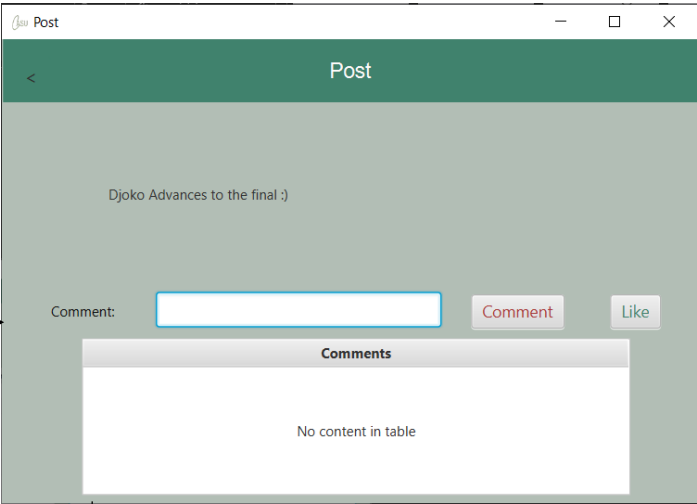
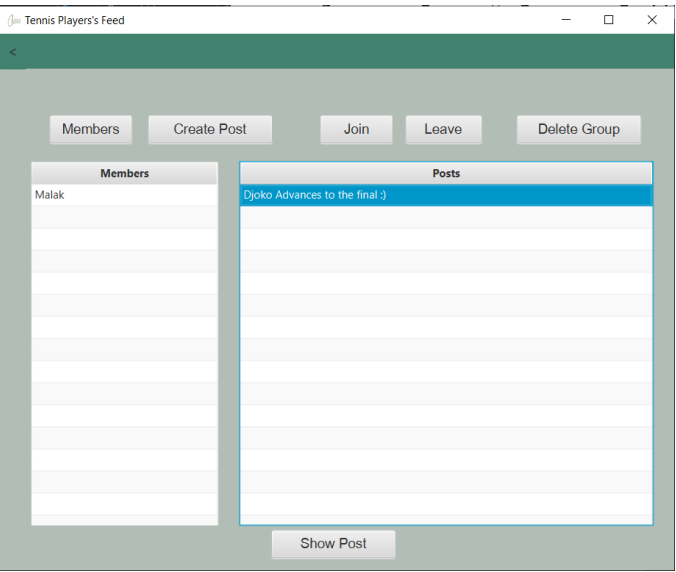
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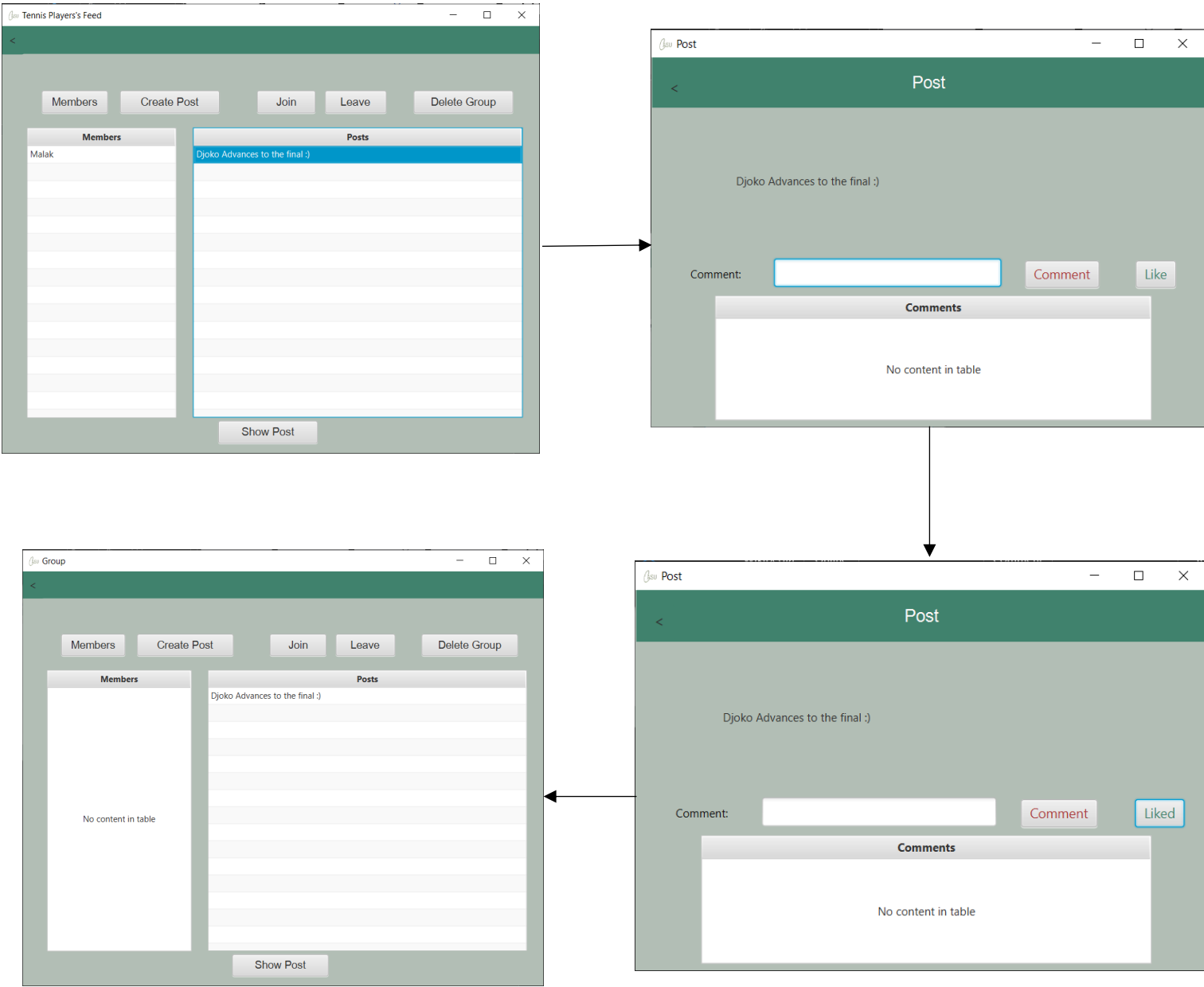
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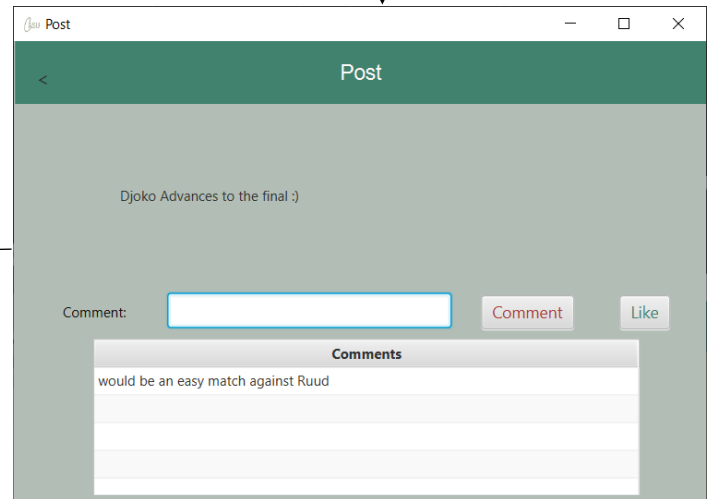
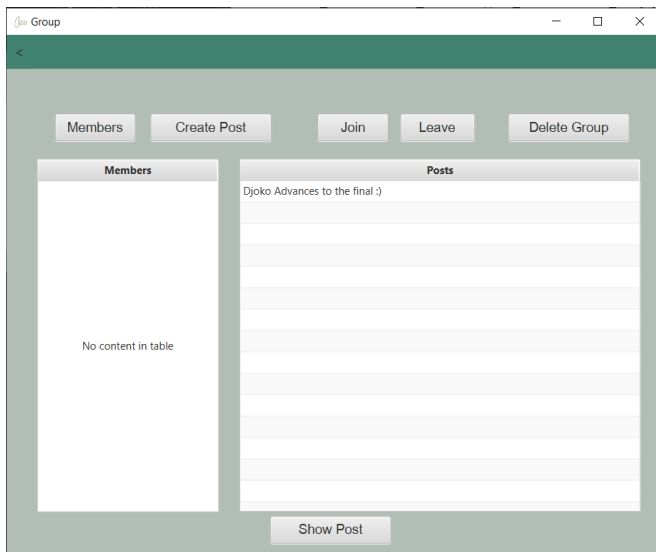
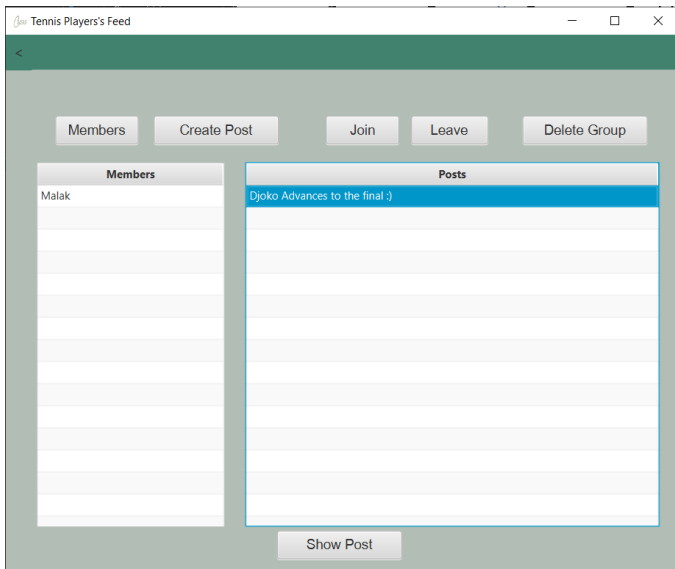
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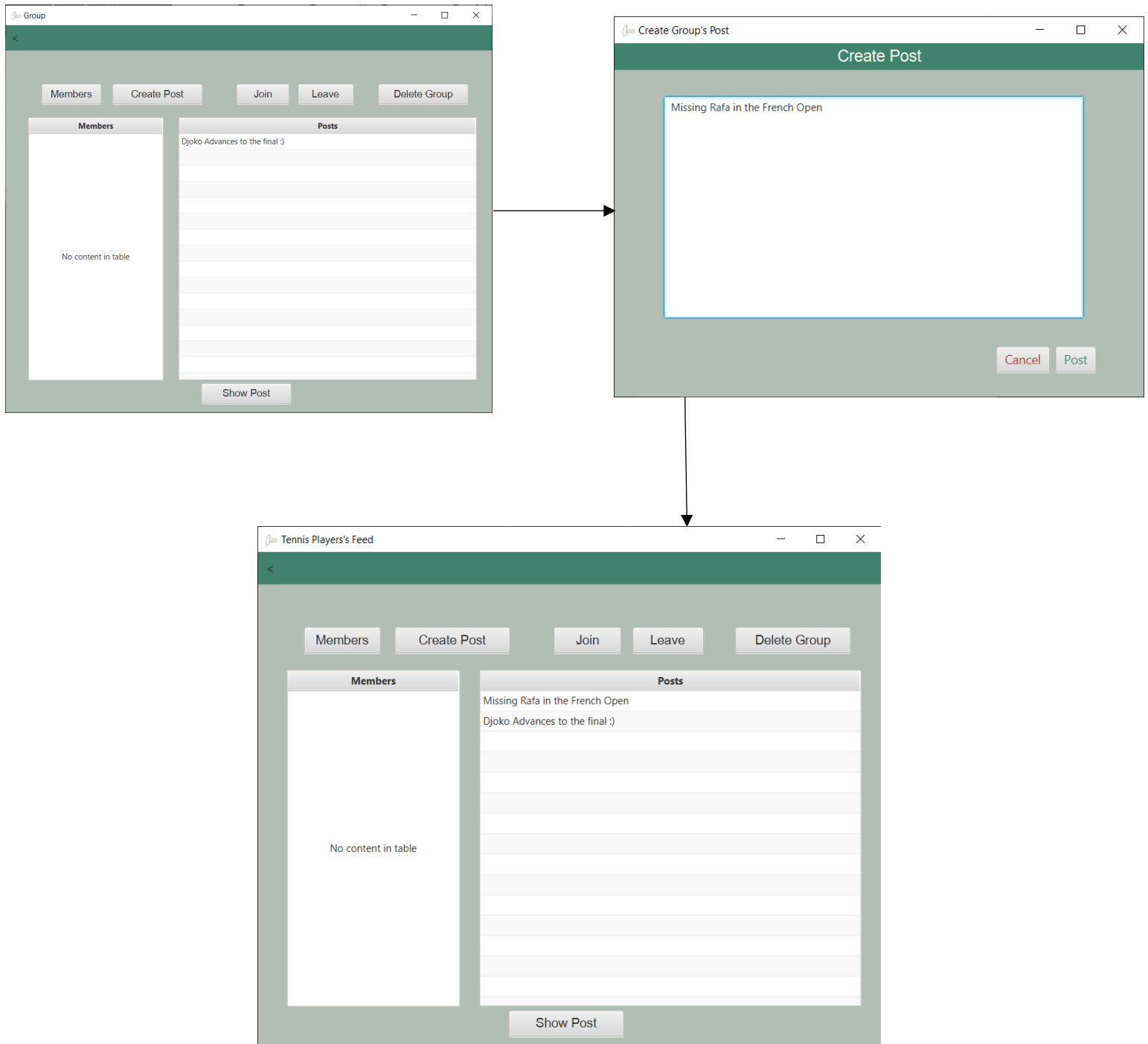
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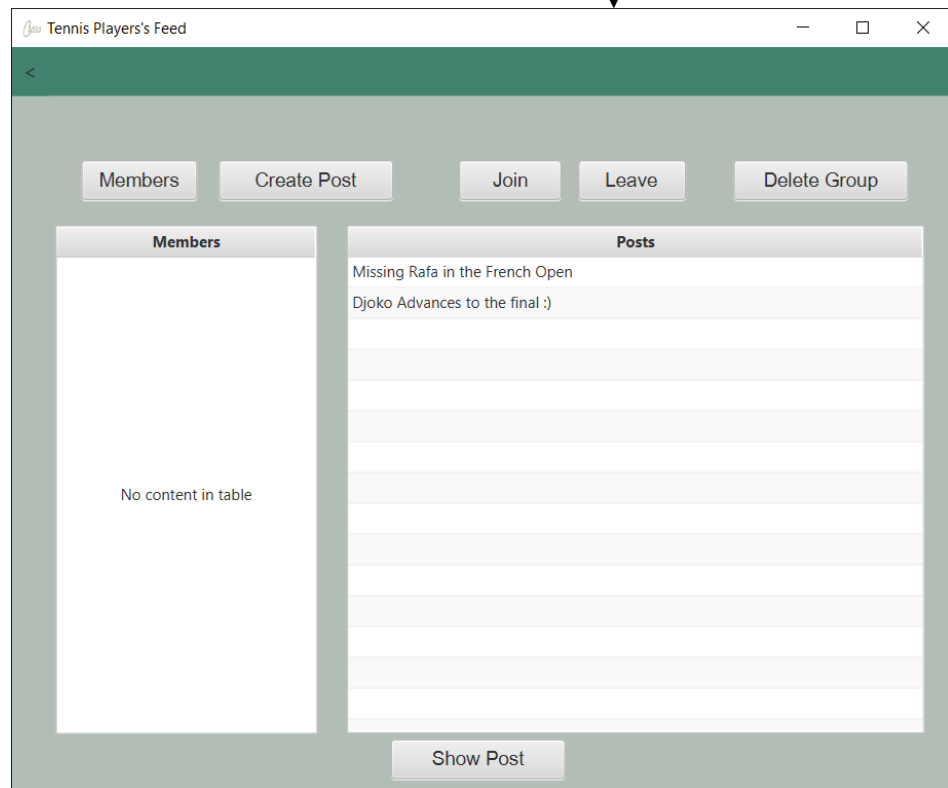
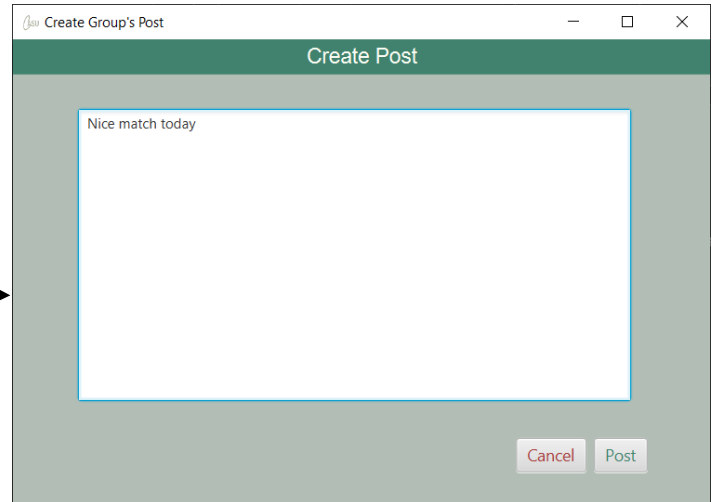
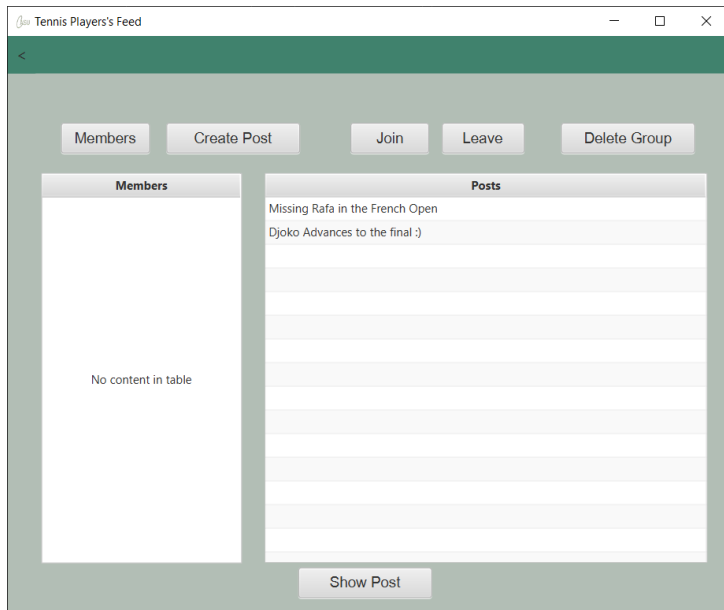
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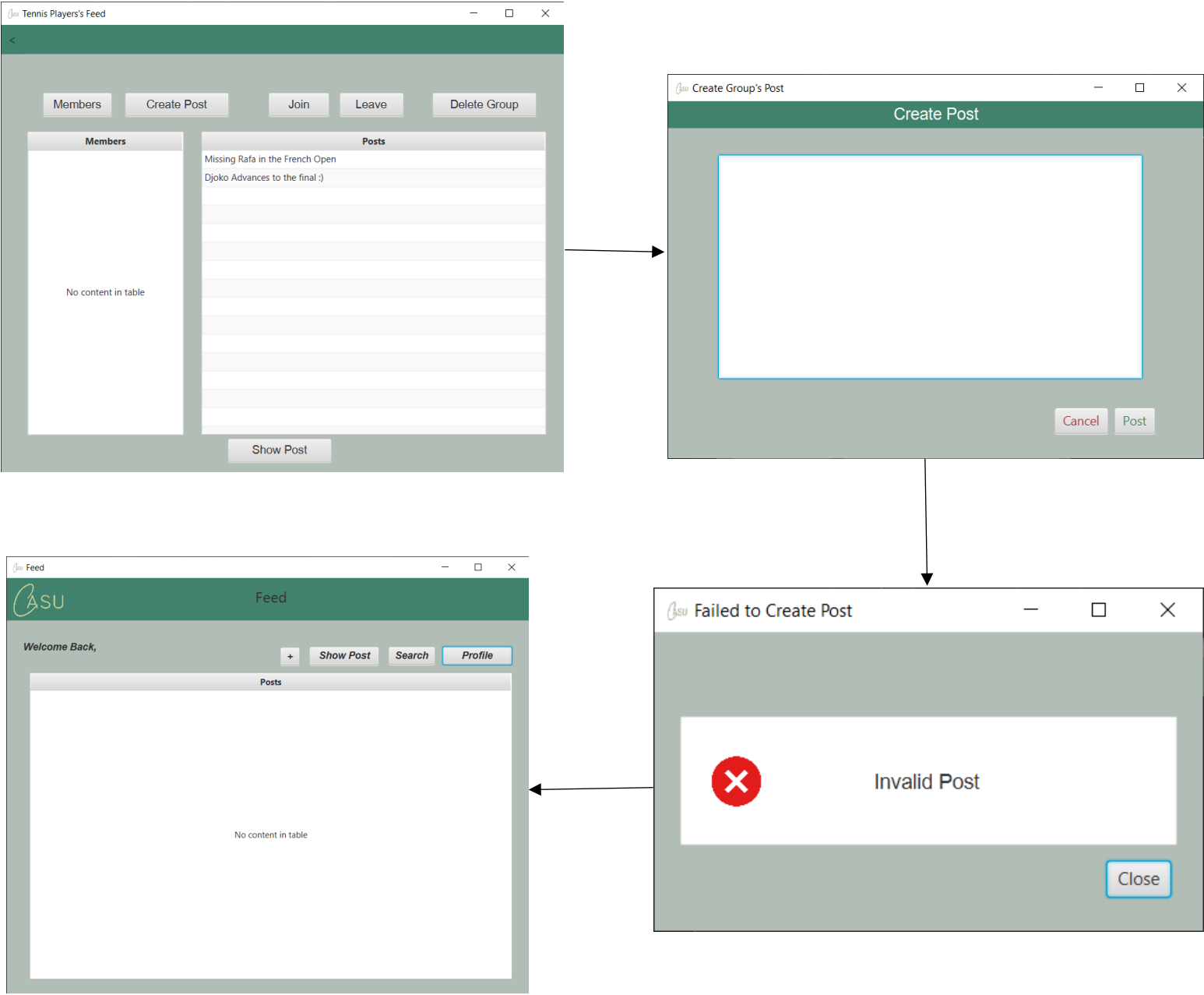
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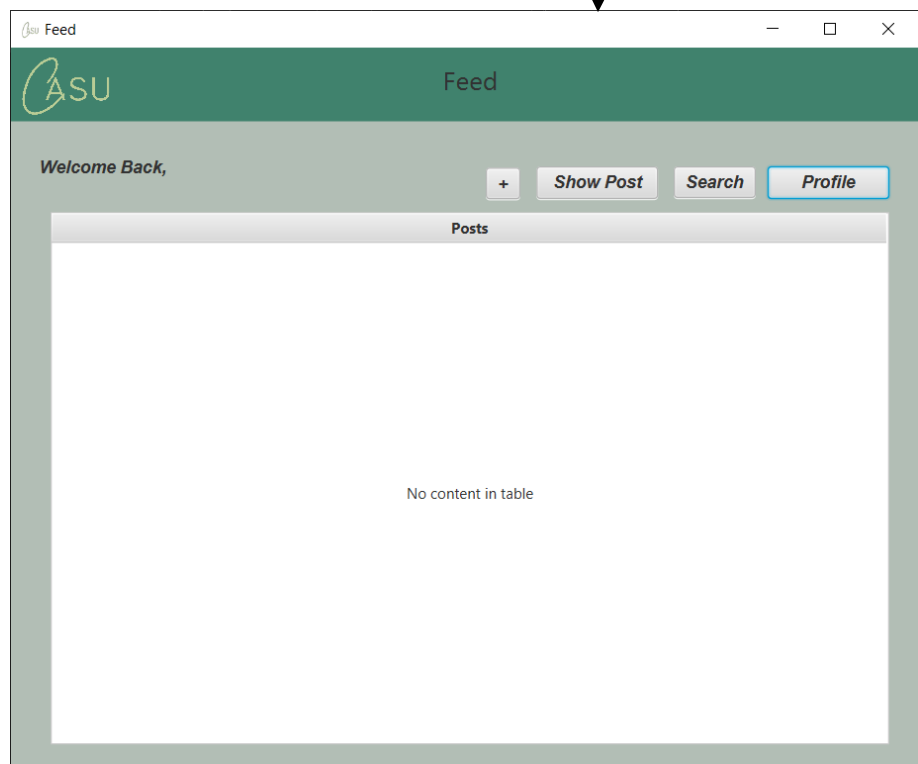
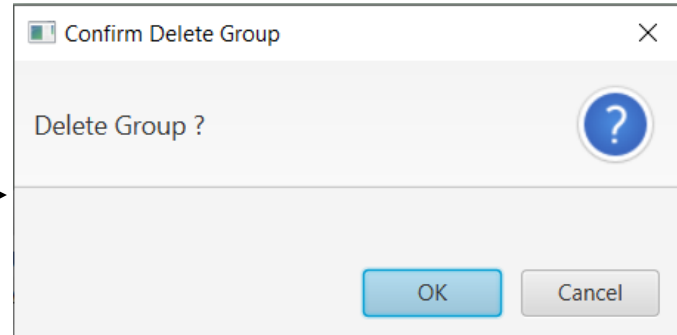
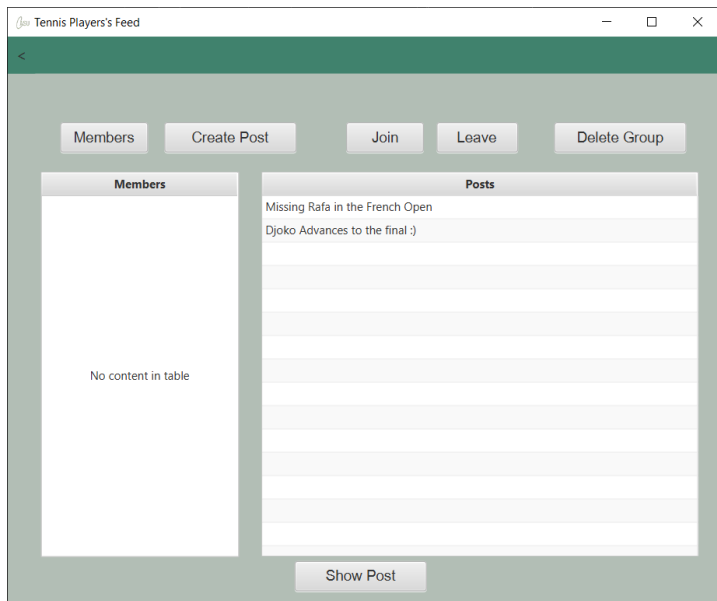
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