

# Chattoku Developer's Guide



In this guide, we will bring you through Chattoku's implementation details, as well as various things that you can do with this app.

# Tech Stack

Technology	Purposes	Reasons
<b>Git &amp; GitHub</b>	Version control, collaboration, and code review to maintain code quality	It facilitates a seamless collaboration
<b>React Native (Javascript)</b>	Build the front-end of the mobile application	<ol style="list-style-type: none"><li>1. Popular framework (Lot of resources online)</li><li>2. Cross-platform (Easier to develop Android and iOS application together)</li><li>3. Members' familiarity with ReactJS</li></ol>
<b>Firebase</b>	Development of the back-end of the application, including storage and user authentication.	<ol style="list-style-type: none"><li>1. Popular backend service (Many resources on the internet)</li><li>2. Variety of APIs which are useful for the development of Chattoku</li><li>3. Has a free tier pricing plan</li></ol>
<b>Expo</b>	Deployment of the mobile application	Ease of deployment, especially for React Native app
<b>Jest</b>	Software testing for the Chattoku app	<ol style="list-style-type: none"><li>1. Popular testing framework (Various resources online)</li><li>2. Works well with React Native program</li></ol>
<b>Python</b>	Implement the machine learning algorithm to get anime recommendations for users	Python has various libraries that are useful in developing a machine learning model.

<b>Heroku</b>	Deployment of the anime recommendation server	Ease of deployment and members' past experience with Heroku
<b>Postman</b>	API testing for the anime recommendation server	It provides an automated API testing an a free tier service
<b>Jikan API</b>	Fetch anime data from myanimelist server.	It is a free and open-source API which makes getting anime data much easier
<b>Prettier</b>	Code auto formatter	It eases the standardization of code styling

### Other External Libraries used:

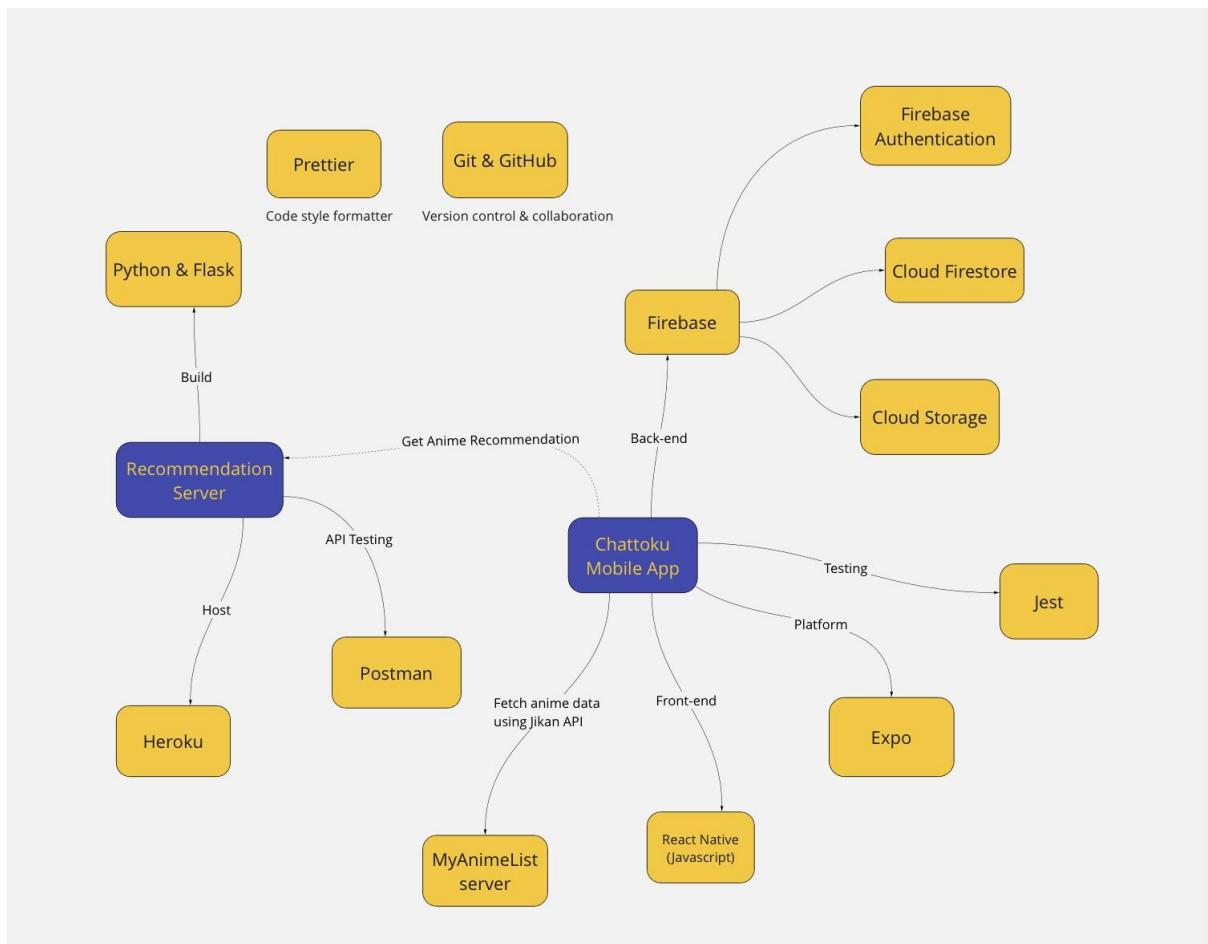
Name	Purposes
@react-navigation	Stack and bottom tabs navigation
axios	Send HTTP requests
dotenv	Enable using environment variable
expo-device	Get information of device used to run Chattoku app
expo-image-picker	Upload image from camera or gallery
expo-linking	Enable user to open link
expo-notifications	Enable push notifications
expo-updates	Enable app to be hosted at Expo
firebase	Firebase APIs to allow Chattoku's front-end to communicate with Firebase server
firebase-admin	Used in testing firebase functionality
styled-components	Creating and abstracting styles for Chattoku's UI components
lodash	Enable delayed function
react-native-elements	UI libraries

react-native-gifted-chat	Used in Chattoku's chat functionality
react-native-vector-icons	Contains various icons that we have used for Chattoku
react-test-renderer	Used in testing, specifically for rendering components and saving snapshots
@testing-library/react-native	Used in testing, specifically for rendering components and simulating actions
firebase-jest-mock	Used in testing firebase authentication and firestore

# Design

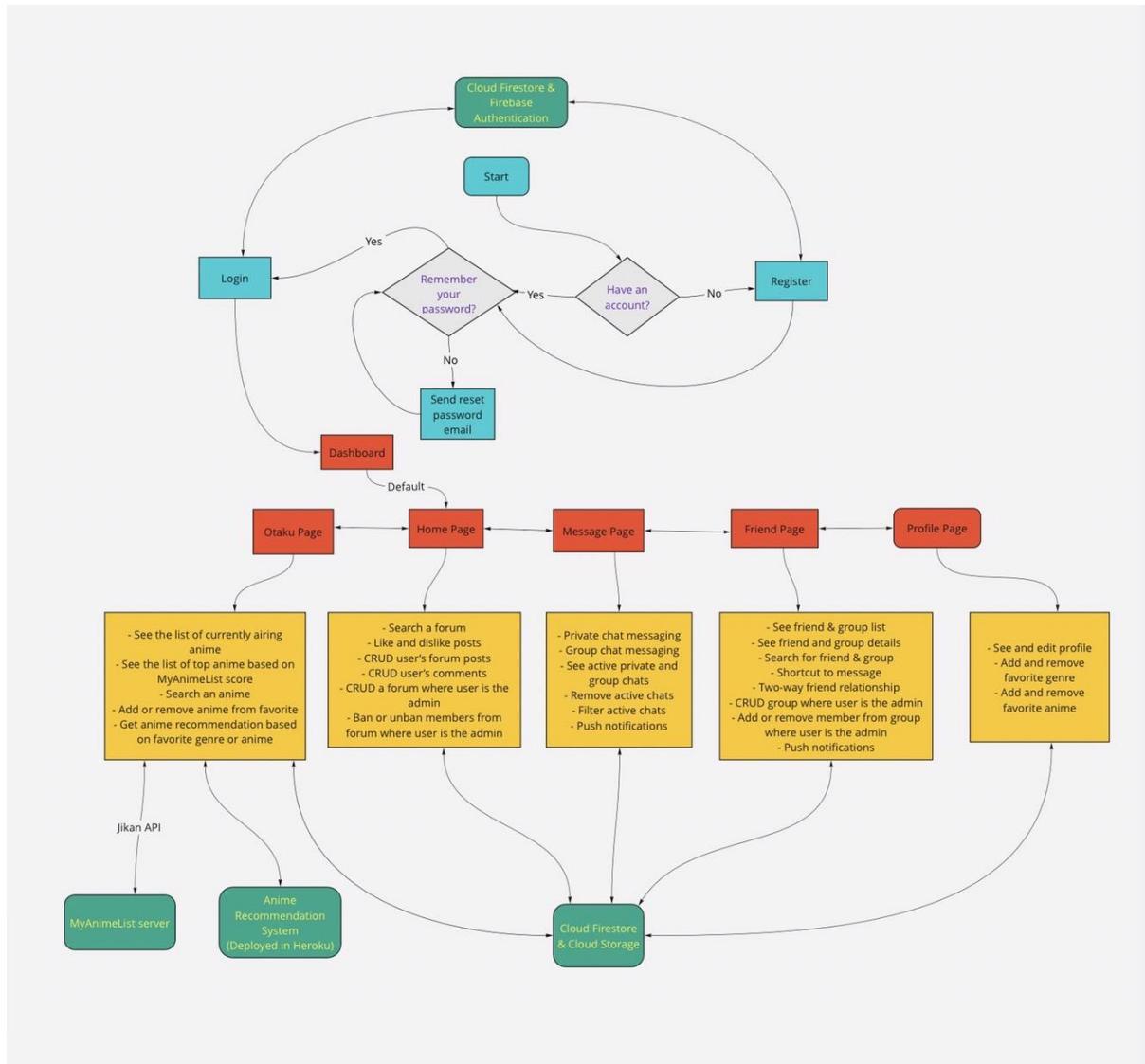
# Software Architecture

Shown below is Chattoku's software architecture.



# Application design flow

Shown below is Chattoku's design flow.



# System Implementation

## ML Powered Anime Recommendation System

Chattoku has an Anime Recommendation System which will provide anime recommendations based on the user's favorite genre or anime.

Chattoku's Anime Recommendation System is mainly built using Python. This system employs Flask to set up a web server easily. The Anime Recommendation System is deployed on Heroku for easy access to its API endpoints to receive recommendations.

To implement Chattoku's Anime Recommendation System, first we need to collect the dataset which will be used to train our model. Using Jikan API and Node JS, we retrieve the data of the top 3000 anime listed in MyAnimeList on 9 June 2022 and save it as a CSV file. Each anime data in the CSV file consists of MyAnimeList ID, score, genres, themes, and demographics as shown below.

Mal_id	Score	Genres	Themes	Demographics
5114	9.14	['Action', 'Adventure', 'Drama', 'Fantasy']	['Military']	['Shounen']
28977	9.08	['Action', 'Comedy', 'Sci-Fi']	['Gag Humor', 'Historical', 'Parody', 'Samurai']	['Shounen']
9253	9.08	['Drama', 'Sci-Fi', 'Suspense']	['Psychological', 'Time Travel']	[]
38524	9.07	['Action', 'Drama']	['Gore', 'Military', 'Survival']	['Shounen']
9969	9.05	['Action', 'Comedy', 'Sci-Fi']	['Gag Humor', 'Historical', 'Parody', 'Samurai']	['Shounen']
39486	9.05	['Action', 'Comedy', 'Drama', 'Sci-Fi']	['Gag Humor', 'Historical', 'Parody', 'Samurai']	['Shounen']
11061	9.05	['Action', 'Adventure', 'Fantasy']	[]	['Shounen']
42938	9.04	['Drama', 'Romance', 'Supernatural']	[]	['Shoujo']
15417	9.04	['Action', 'Comedy', 'Sci-Fi']	['Gag Humor', 'Historical', 'Parody', 'Samurai']	['Shounen']
50265	9.04	['Action', 'Comedy']	['Childcare']	['Shounen']
820	9.03	['Drama', 'Sci-Fi']	['Adult Cast', 'Military', 'Space']	[]
34096	8.99	['Action', 'Comedy', 'Sci-Fi']	['Gag Humor', 'Historical', 'Parody', 'Samurai']	['Shounen']
35180	8.96	['Drama', 'Slice of Life']	['Childcare', 'Iyashikei', 'Strategy Game']	['Seinen']

For each anime, we create its vector representation based on its genres, themes, and demographics. Using K-Nearest Neighbors, for every possible vector  $v$ , we can find 5 animes from the dataset such that its vector representation is nearest to  $v$ . Then, for the 5 datas found, we retrieve its MyAnimeList ID.

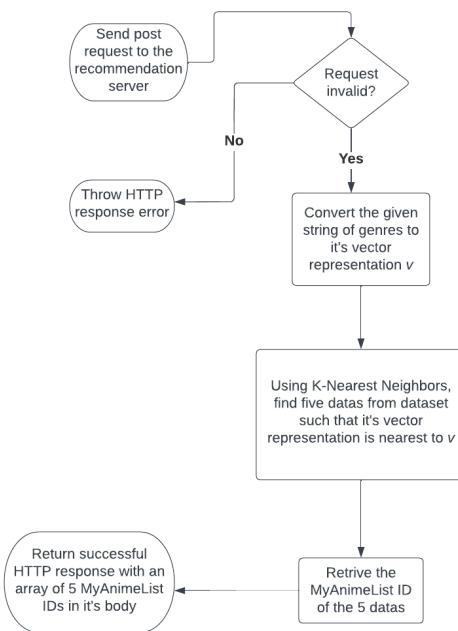
To use the recommendation server, simply send a post request to <https://chattoku-recommendation-system.herokuapp.com/predict>.

The message body of the post request must be a string of anime genres (Genre, Theme, and Demographic listed in [here](#) are all considered as genres in this system). See picture below for example.

```
POST https://chattoku-recommendation-system.herokuapp.com/predict
```

```
Body (Text)
1 ...
2 ... "genres": "Drama, Romance, Music, School"
3 ...
```

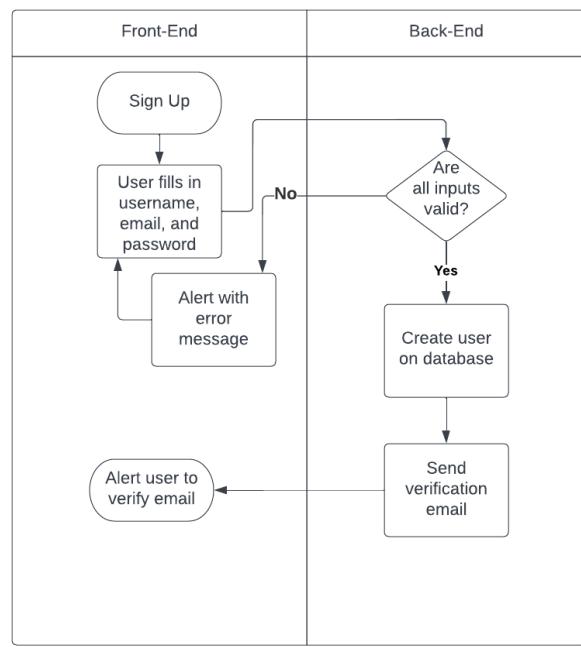
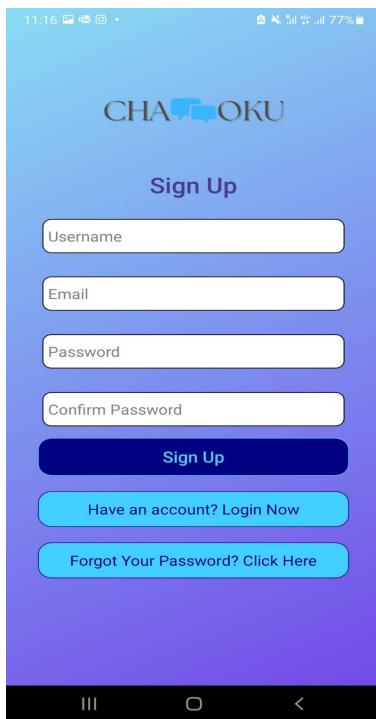
```
Body
1 {
2   "result": [
3     "23273",
4     "6351",
5     "4059",
6     "2927",
7     "8481"
8   ]
9 }
```



# Authentication System

## Account Creation

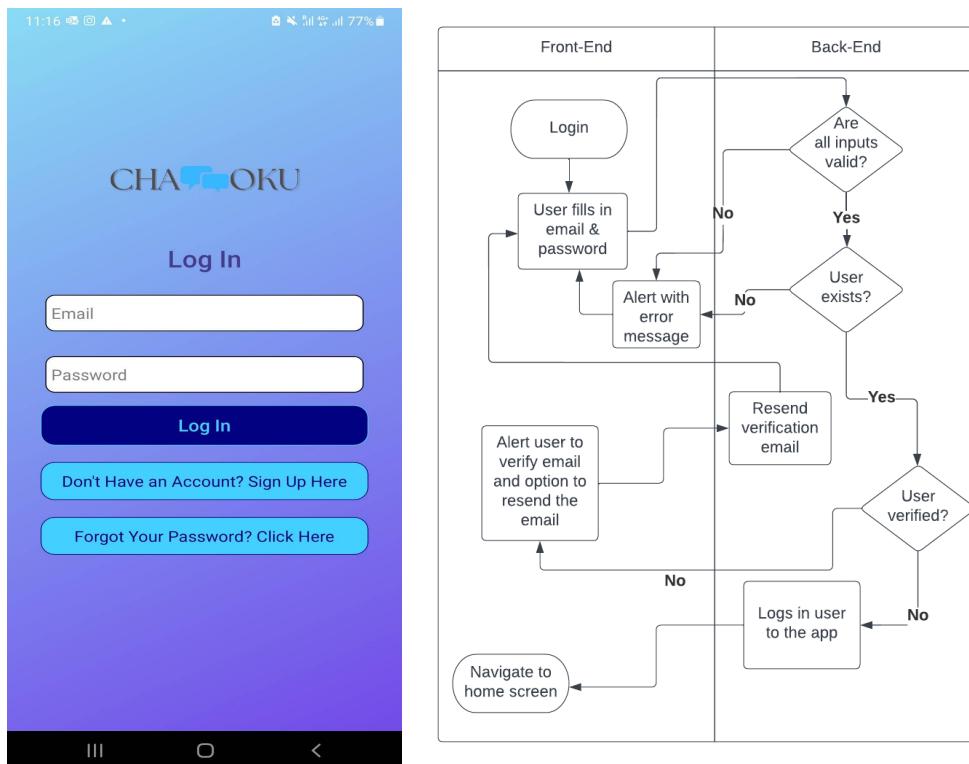
To use the Chattoku app, you must create an account first. If you don't have an account, you simply need to click the *Sign Up* button on the starting screen.



Provide your username, email address, and password to create a new account. As you will need to verify your email, do register with your valid email address. Note that each username must consist of alphanumeric characters and it must be unique for each account. Furthermore, the password must be at least 6 characters long. Therefore, you may encounter a situation where the system rejects your registration. If this happens, simply change your email, username or password, depending on the error message shown. After successful sign up, a verification email will be sent to the chosen email (check your spam folder). You must verify your email first before logging in to the app.

## Login System

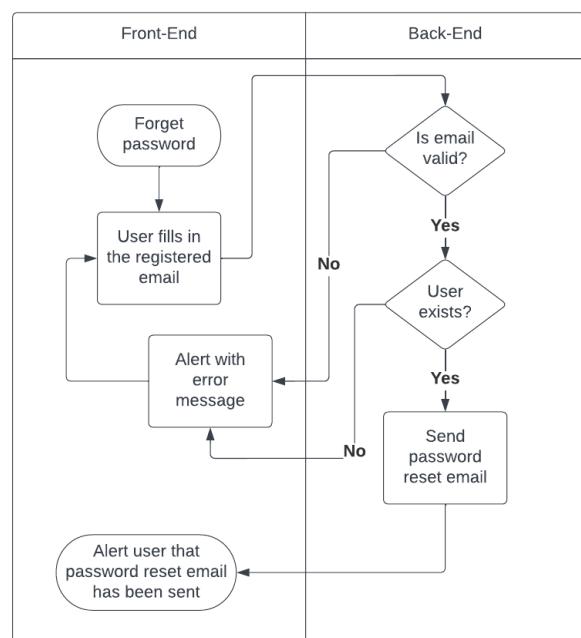
If you already have an account, simply login into your account by filling your registered email and password. If you have verified your email, you will be navigated to the home page of Chattoku. Else if you haven't verified your email, an alert with an option to resend verification email will be prompted to you.



In case you forget about your password, you can also click on the Forget Password button and reset your password.

## Forgot Password System

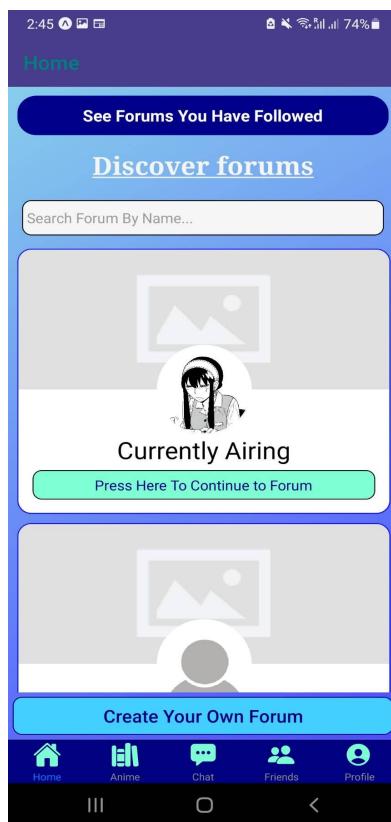
If you forgot about your password, Chattoku can help you to reset your password. To do that, in the *Forgot Password* page, simply fill in your registered email and click on *Send Password Reset Email* button. An email to help reset your password will be sent to you. Do note that the new password must be at least six characters. After changing your password, you can go to the *Login* page and log in with your new password.



# Forum System

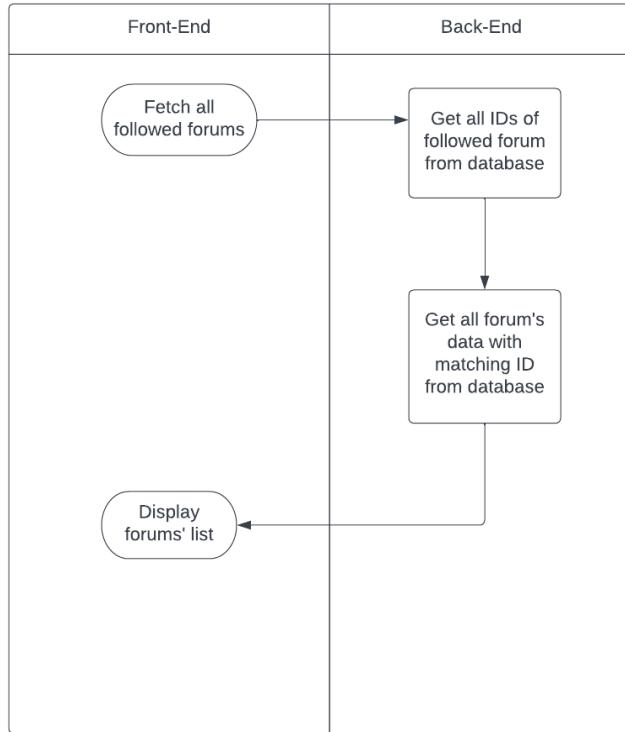
## Forum List Page

After successful login, you will be navigated to this page by default. On this page, you can see lists of available forums. To create your own forum, simply click on the button at the bottom of the page, and you will be navigated to the *Add Forum Page*. If you want to view the details of a specific forum, you can press the *Continue* button that is available for each forum, and the system will navigate you to the *Forum Home* page. Else if you want to see the list of forums that you've followed, simply click on the button at the top of the page, and you will be navigated to the *Followed Forum* page.



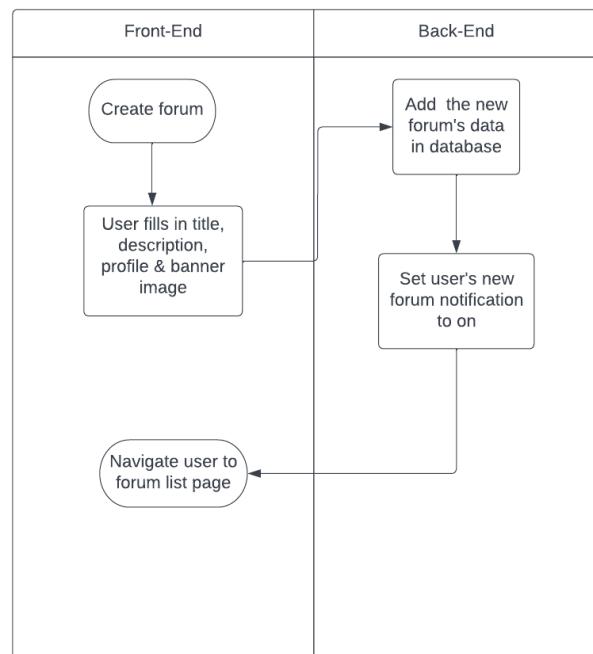
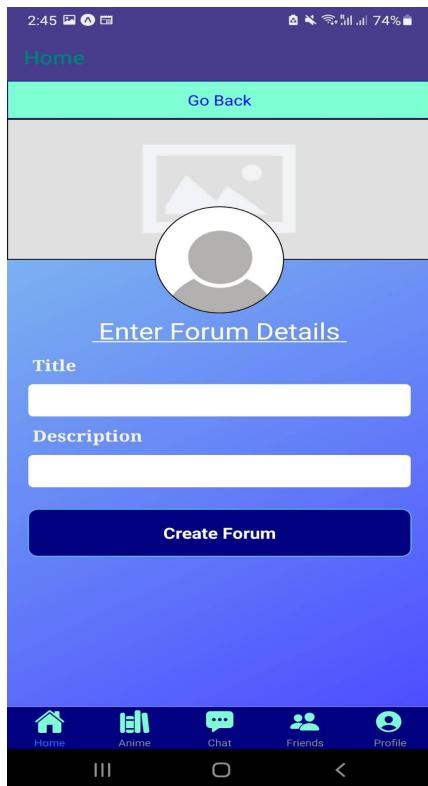
## Followed Forum Page

On this page, you can see the list of forums that you've followed. To go back to the Forum List page, you can just press the *Discover New Forums* button.



## Add Forum Page

On this page, you can create your own forum. To customize the banner or profile of the forum, simply press the corresponding part, and then you can choose to pick the image from the library or camera. Do note that the forum that you've created is considered as your followed forum, and you will be notified whenever there is a new post in that forum.

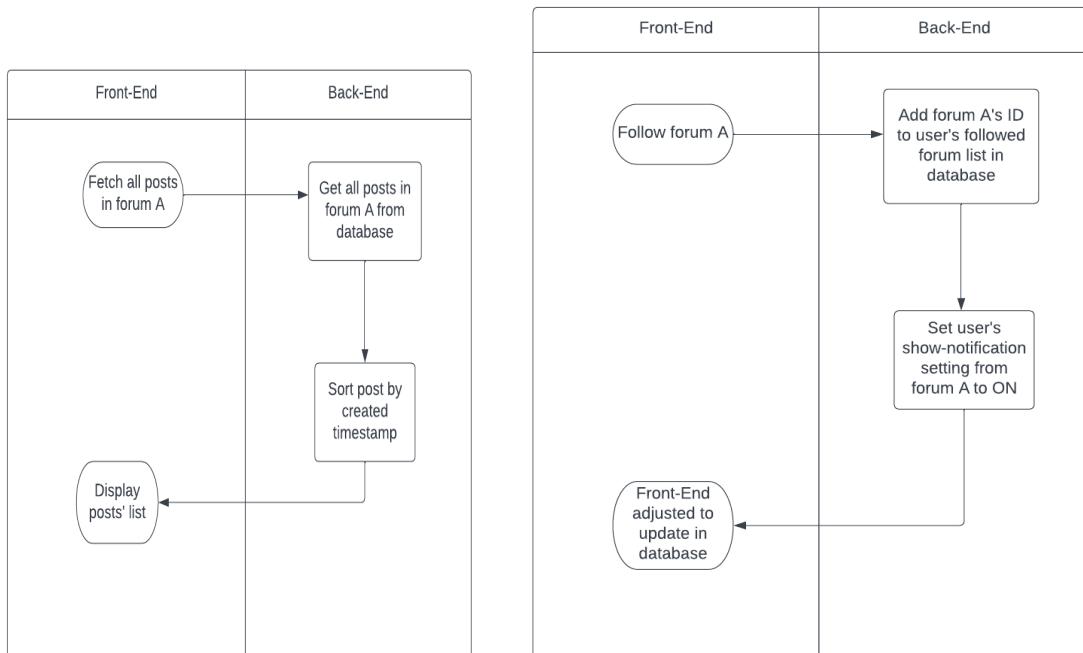
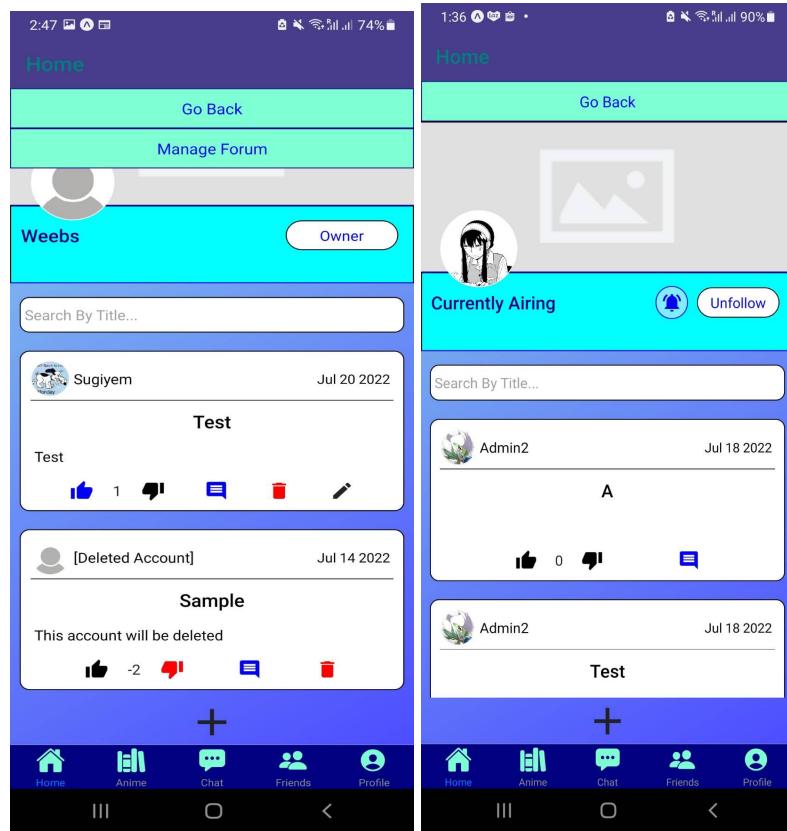


## **Forum Home Page**

On this page, you can see all the posts that have been created in a specific forum. To add a new post, simply click on the Plus symbol on the bottom of the page, and you will be navigated to the Add Post page. On each post, there will be *Thumbs-Up*, *Thumbs-Down*, and Comment icons. If you press the *Thumbs-Up* icon, the like counter will be increased. Else if you press the *Thumbs-Down* icon, the like counter will be decreased. Quite different from the previous two icons, clicking the *Comment* icon will navigate you to the *Forum Post* page, which consists of all the comments to the current post.

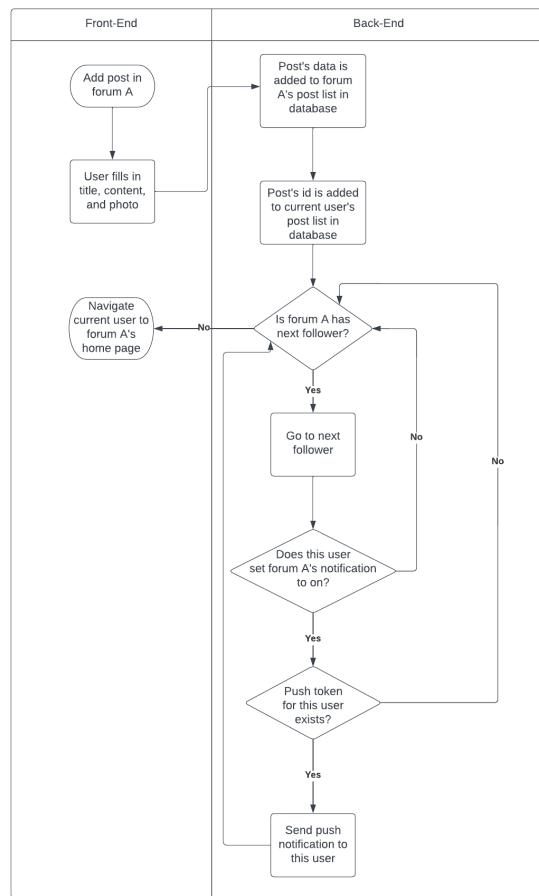
Beside the three icons explained before, there are two additional icons that you might see on a specific post. The first one is the *Remove* icon, which will permanently delete the corresponding post from the forum. Remove icon is accessible only for the creator of the post, as well as the forum's owner and admins who had received the authority to delete the post. The other additional icon is the *Edit* icon, which will navigate the current user to the *Edit Post* page if clicked. This icon is accessible only for the creator of the post.

The header of this page is also worth explaining. If you are the owner or admins of the forum, you will have access to the *Manage Forum* button. Furthermore, if you are the owner of the forum, there will be an Owner badge on the header of the forum. Else, if you are not the owner of the forum, there will exist a *Follow* or *Unfollow* button on the header, depending on whether you follow the forum or not.



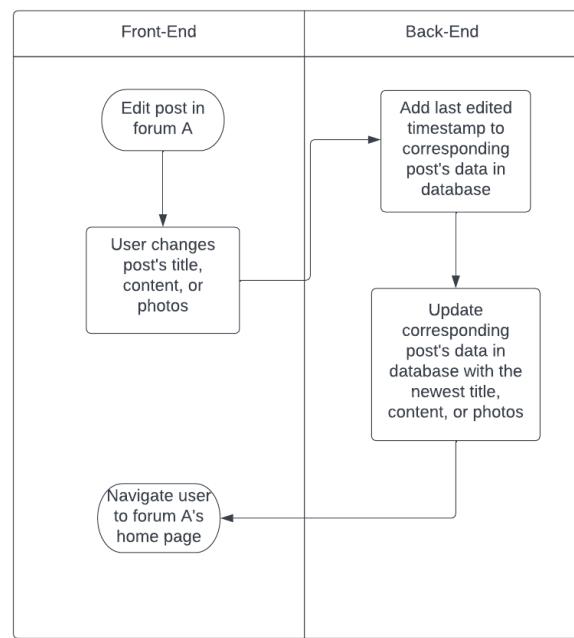
## Add Post Page

On this page, you can create your own post for a specific forum. Do note that you can add at maximum 10 images for each post. After successful post creation, you will be navigated back to the corresponding *Forum Home* page.



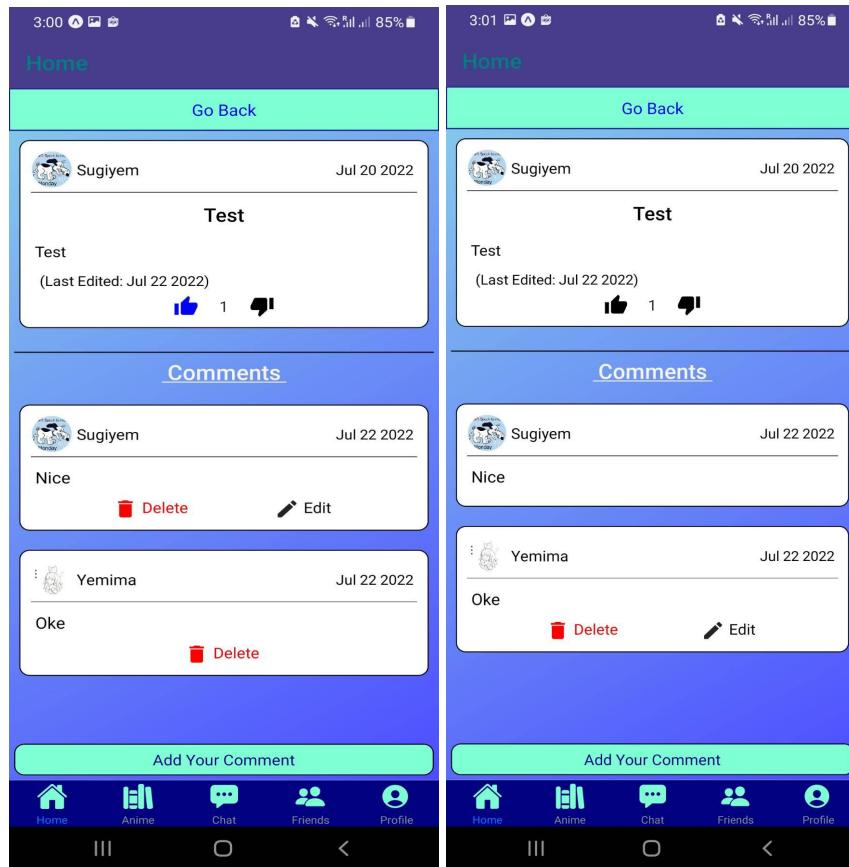
## Edit Post Page

On this page, you can edit the post that you've created. Do note that you can add at maximum 10 images for each post. After successful edit, you will be navigated back to the corresponding *Forum Home* page.



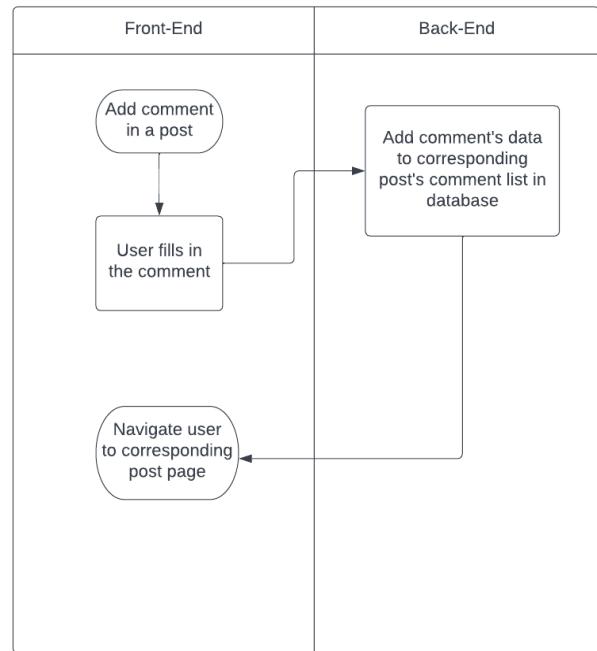
## Forum Post Page

On this page, you can see the main post at the top of the page, followed by all the comments of the post on the section below it. To add a new comment, simply click on the *Add Comment* button on the bottom of the page, and you will be automatically navigated to the *Add Comment* page. Additionally, there are two icons that you might see in each comment. The first is the Delete icon, which will permanently remove the corresponding comment when pressed. This Delete icon is only accessible for the writer of the comment, as well as the forum's owner and admins who had received the authority to delete the comment. The other additional icon is the Edit icon, which will navigate the current user to the *Edit Comment* page if clicked. This icon is accessible only for the commenter.



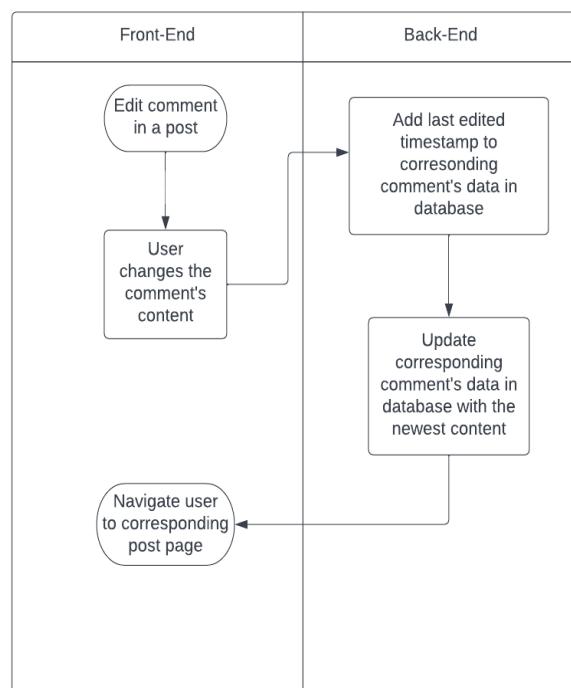
## Add Comment Page

On this page, you can add a comment to a specific post. After successful comment creation, you will be navigated back to the corresponding *Forum Post* page.



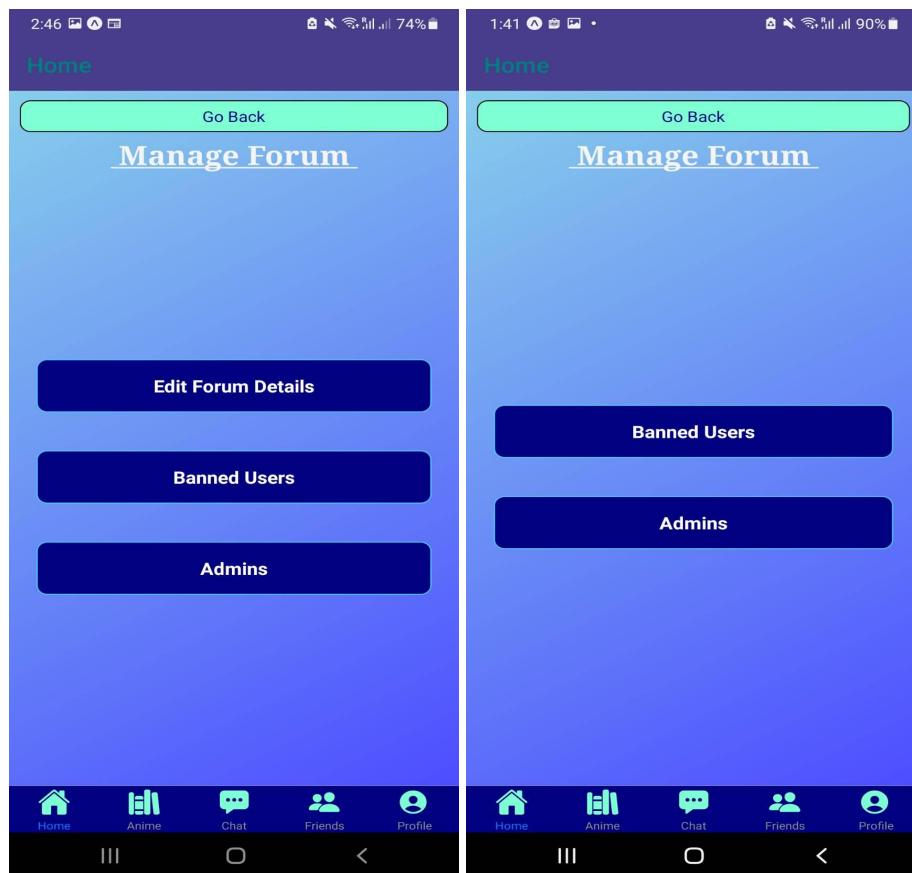
## Edit Comment Page

On this page, you can edit the comment that you've created. After successful edit, you will be navigated back to the corresponding *Forum Post* page.



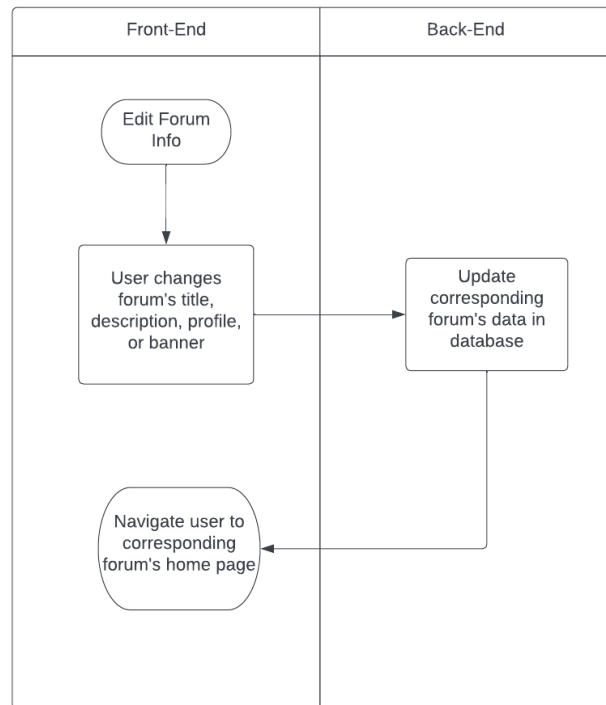
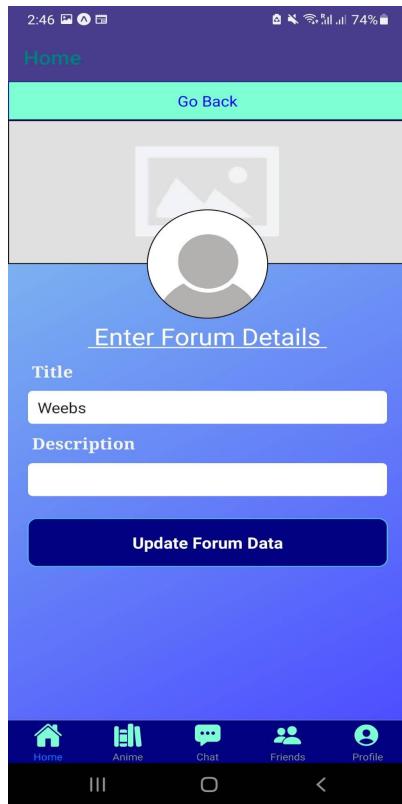
## Manage Forum Page

This page is available only for the owner and admin of a specific forum. If you are the admin of the forum, there will be two buttons available, *Banned Users* button, which will navigate you to the Banned List page when pressed, and *Admins* button, which will navigate you to the Admin List page if clicked. If you are the owner of the forum, you can access the two buttons explained before, as well as the *Edit Forum* buttons, which will navigate you to the *Edit Forum* page.



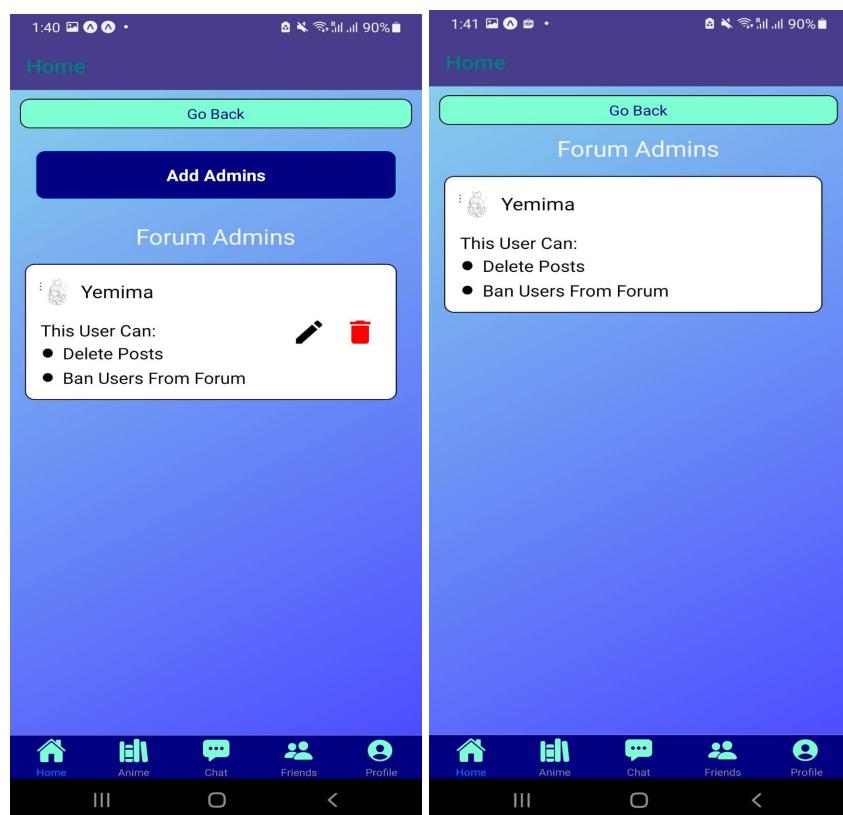
## Edit Forum Page

This page is accessible only for the owner of the forum. Here, you can customize the title, description, profile, and banner of the forum. After successful edit, you will be navigated back to the *Forum Home* page.



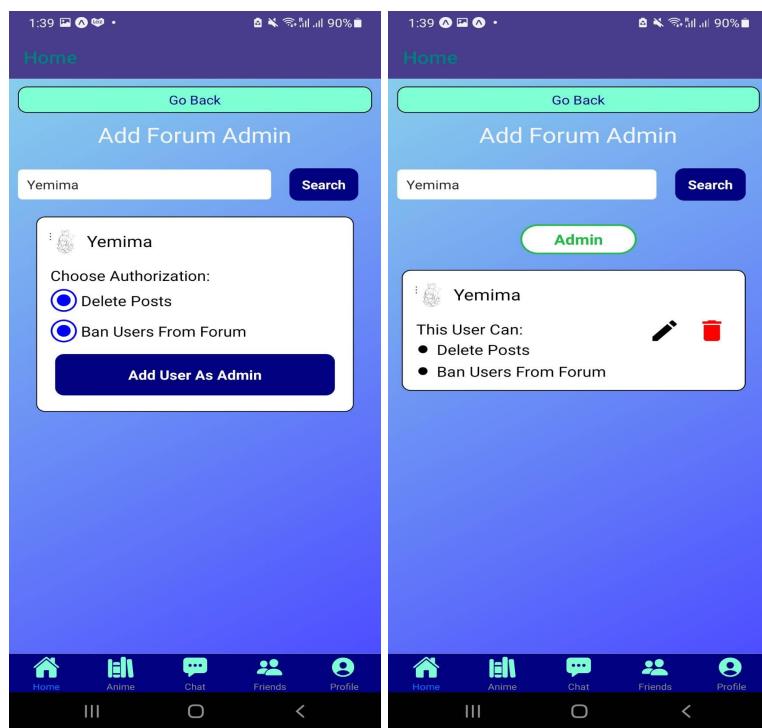
## Admin List Page

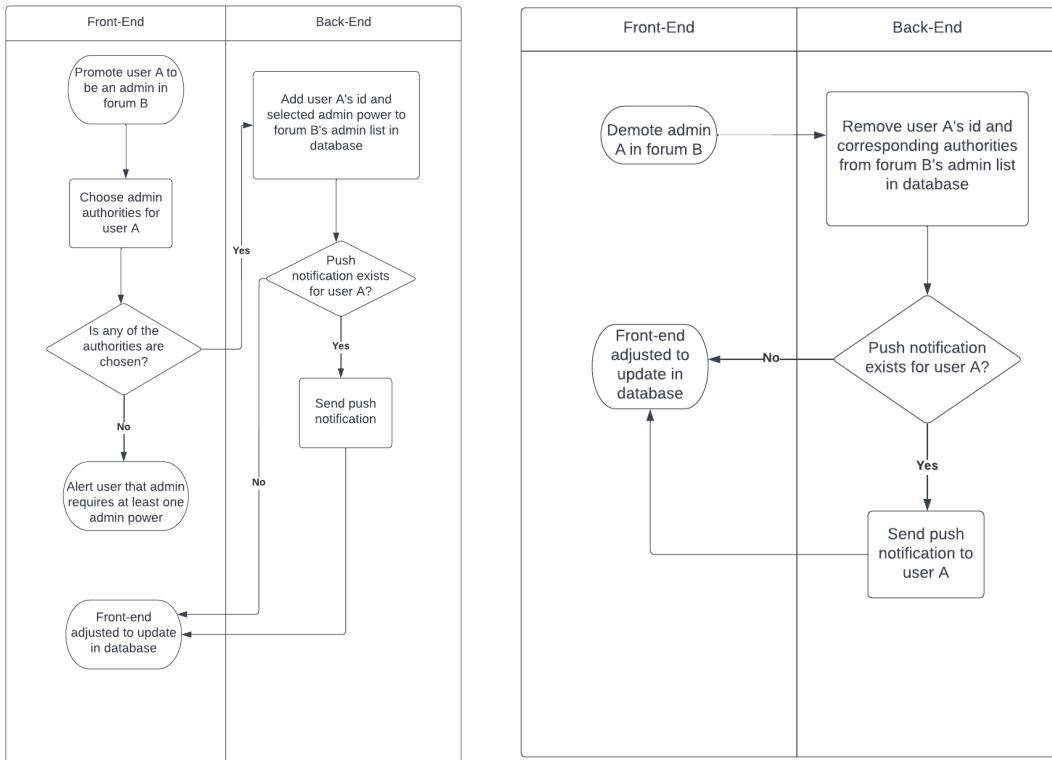
This page is available only for the owner and the admins of the forum. If you are the admin of the forum, you will see the list of all the admins of the forum. Else, if you are the owner of the forum, you can see the list of all the admins of the forum, as well as the access to *Edit* and *Remove* icon for each admin. If the *Edit* icon is pressed, you can edit the authorities of the corresponding admin. Else if the *Remove* icon is clicked, the corresponding admin will be demoted. Furthermore, as the owner of the forum, you also have access to *Add Admins* button which will navigate you to the *Add Admin* page when clicked.



## Add Admin Page

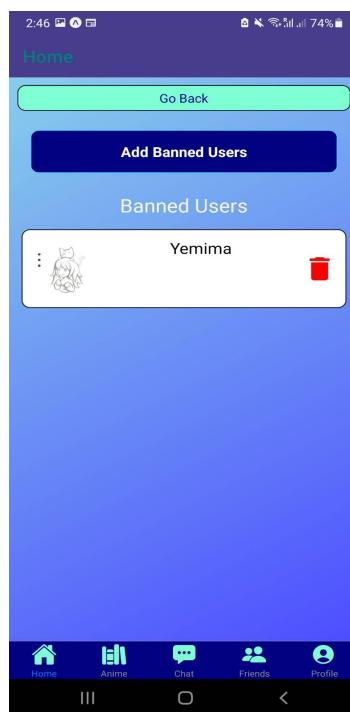
This page is only available for the owner of the forum. As the owner of the forum, you can promote other users to be the admin of the forum. To do that, simply fill in the exact username of the user that you want to promote, and press the *Search* button. After that, if user exists, choose the admin power that you intend to give and click the *Add User As Admin* button. Do note that in order to successfully promote a user, you need to give at least one authorization.





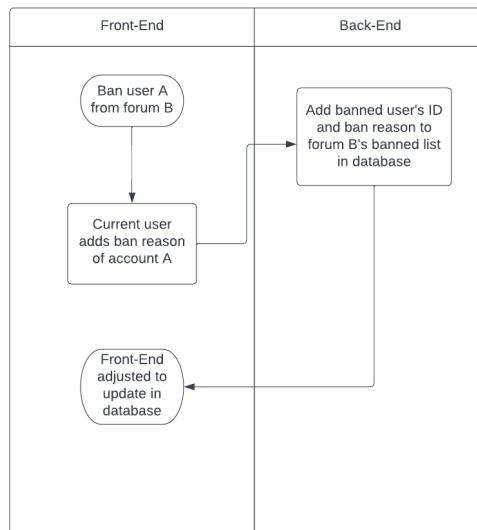
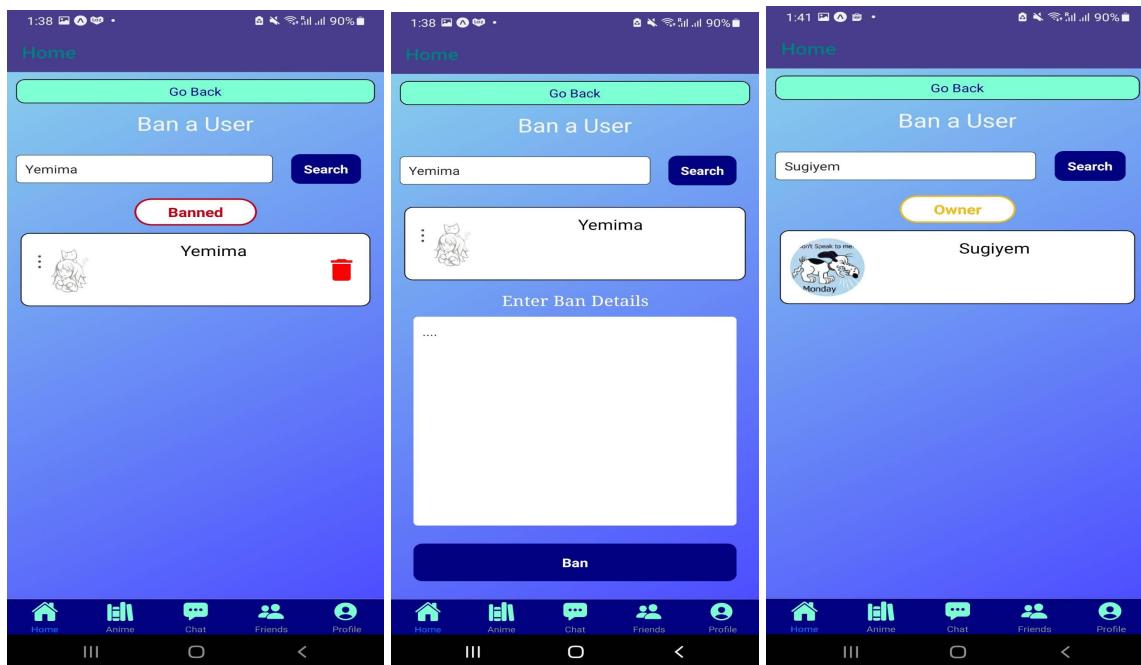
## Banned List Page

This page is only available for the owner and the admins of the forum. If you are an admin who doesn't have the authority to ban users, you can only see the *Go Back* button and the list of currently banned accounts. Else, if you are the owner of the forum or admin who has the authority to ban users, you can see the *Add Banned Users* button, as well as the *Remove* icon for every banned account. Clicking the *Add Banned Users* button will navigate you to the Add Banned page. Expectedly, pressing the *Remove* icon will unban the corresponding user.



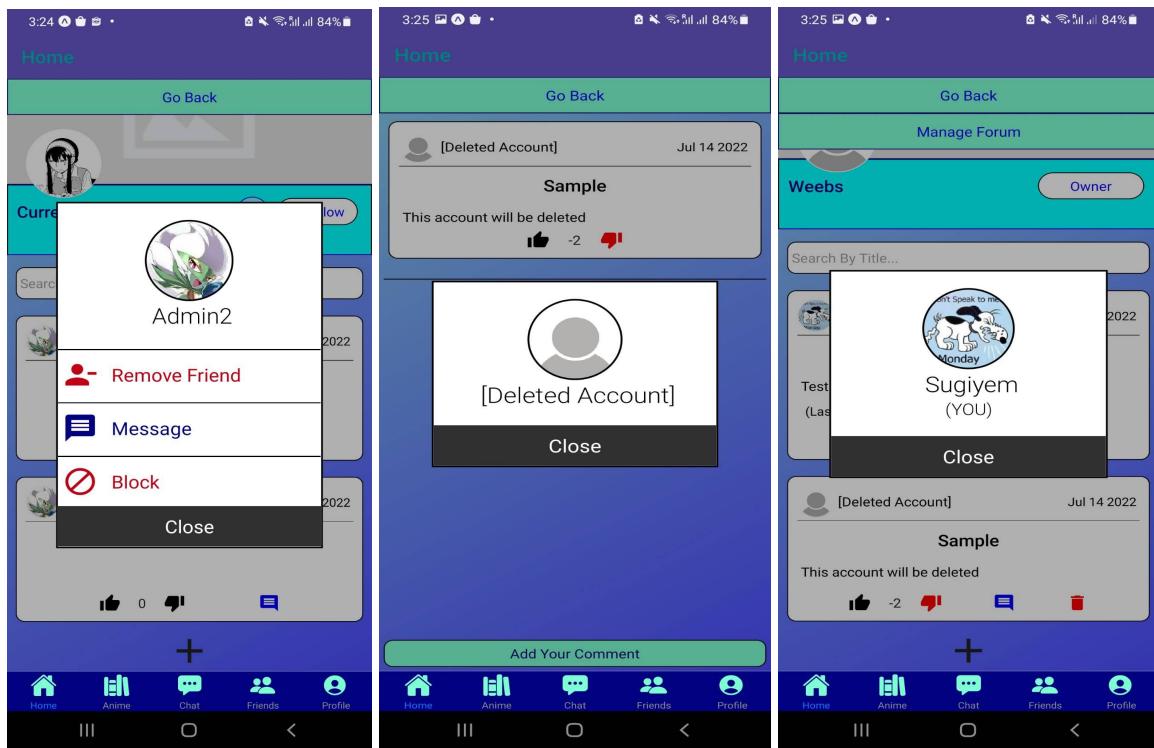
## Add Banned Page

This page is only accessible for the owner of the forum, as well as all the admins who received the authority to ban users. On this page, you can ban other users by searching its exact username. By default, a regular admin can only ban other non-admins. On the other hand, the owner of the forum can ban every user.



## Profile Overlay

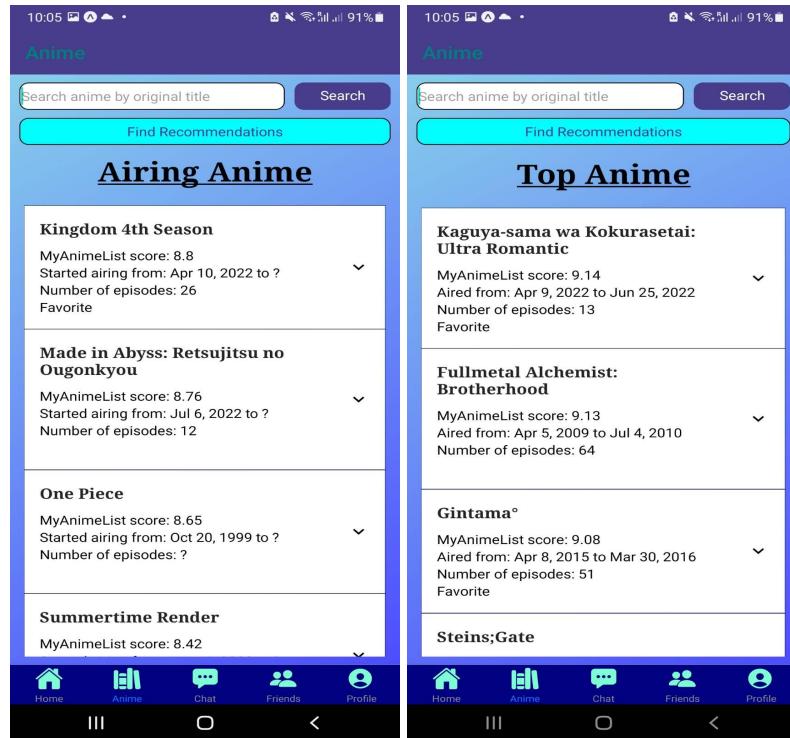
To improve user's experience, each user's avatar in the Forum Section will be pressable, and an overlay will be shown whenever it is clicked, as shown below. With this, you can easily add another user as a friend, send private messages, or even block a malicious user.



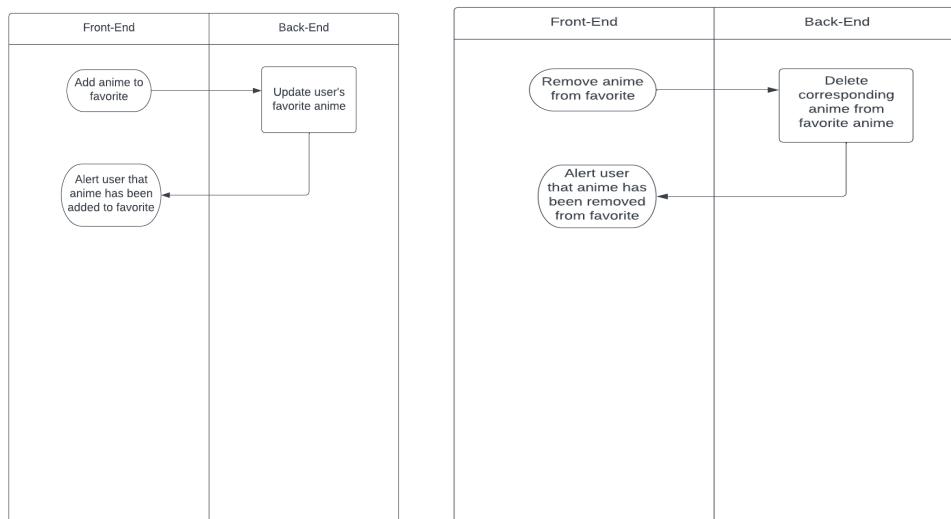
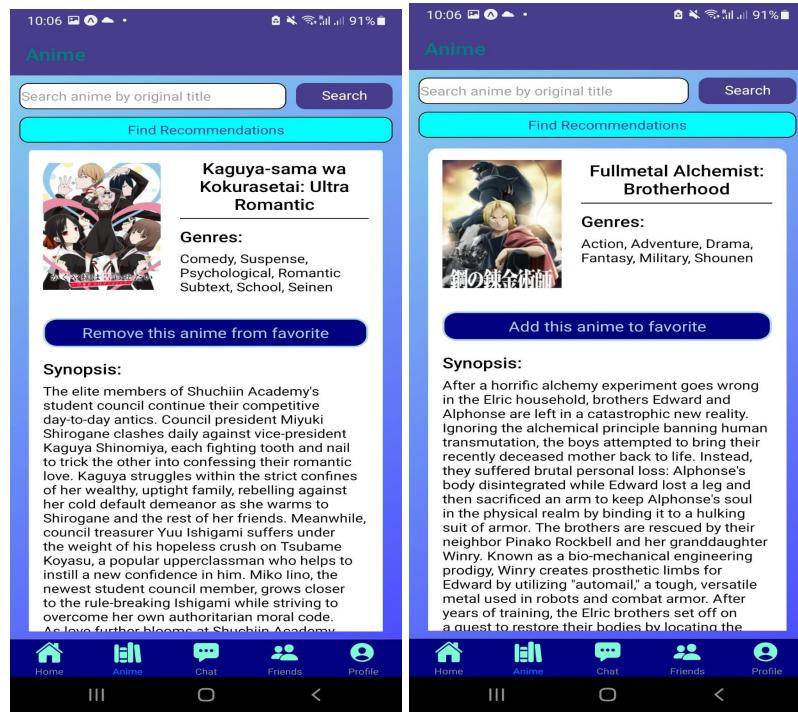
# Anime Section

## Anime Home Page

By default, if you click on the anime part on the bottom tab, it will navigate you to the *Anime Home* page, which consists of *Anime Search Bar*, *Find Recommendations* button, list of airing anime, followed by a list of top anime when you scroll down.



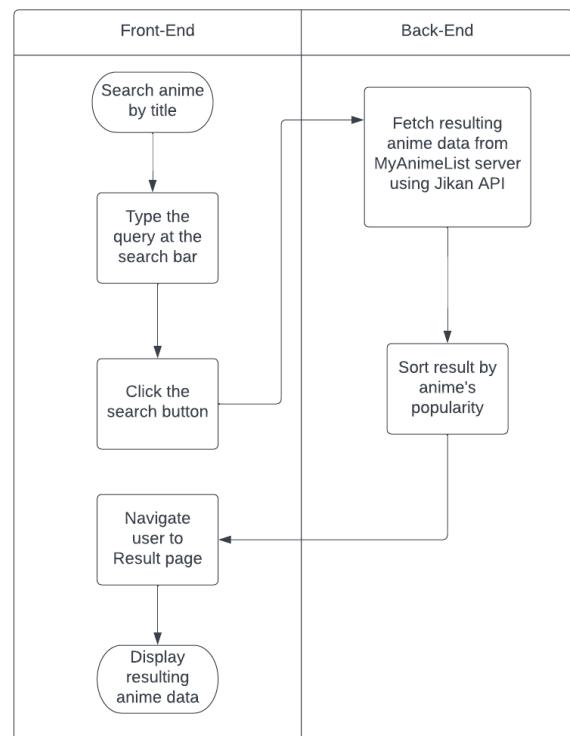
If you click on the right part of a specific anime, it will display you with some data regarding this anime. Furthermore, if this anime is listed as your favorite, it also shows the *Remove anime from favorite* button which will delete this anime from the user's favorite list if clicked. Conversely, if this anime is not listed as your favorite, it shows the *Add anime to favorite* button which if pressed, will add the corresponding anime to the user's favorite list.



In chattoku, you can also search for a specific anime based on its original title. Simply write your query title in the *Anime Search Bar* and click on the *Search* button. This will navigate you to the *Anime Result* page where users can see the list of searched anime. Another primary functionality of Chattoku is the anime recommendation system. To use this functionality, first you need to click on the *Get Recommendation* button which can be found on the top of *Anime Home* page. This will then navigate you to the *Recommendation Choices* page.

## Anime Search Page

On this page, you can see the list of anime that matches with your query. By default, the anime will be sorted in MyAnimeList popularity order, where the most popular result will be displayed at the top. Furthermore, if you want to search anime with another query, simply use the *Anime Search Bar* at the top again.



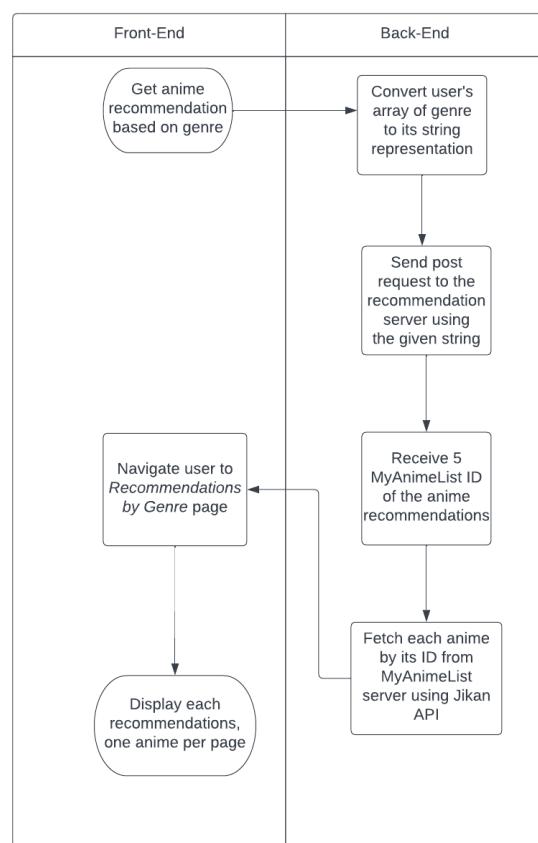
## Recommendation Choices Page

On this page, there will be two primary buttons which you can press, *Recommendation from anime*, or *Recommendation from genre*. If you press the *Recommendation from anime* button, you will be navigated to the *Favorite Anime* page where you can see the list of your favorite anime. Else, if you click on the *Recommendation from genre* button, you will be navigated to *Recommendations By Genre* page.



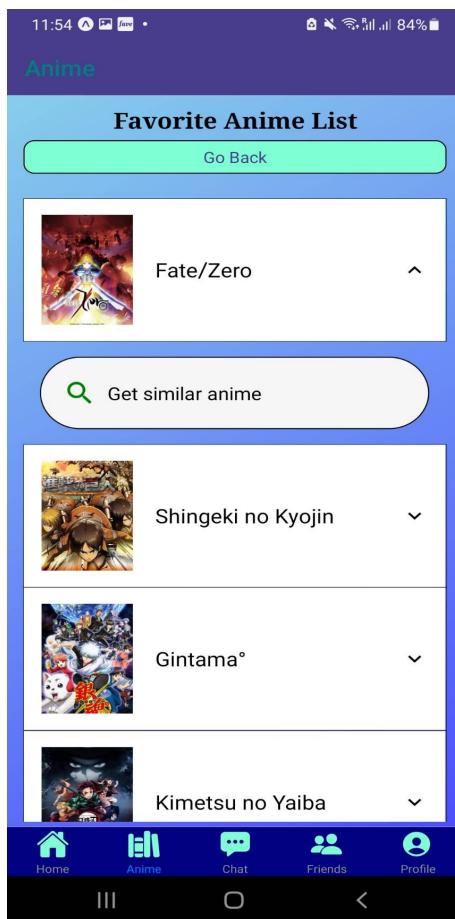
## Recommendations by Genre Page

On this page, you will see all anime recommendations based on your favorite genre. Each page will have the data of one specific anime. To find another anime that is recommended to you, simply click on the *Next recommendation* or *Previous recommendation* button. By default of the recommendation system, you can only get five anime recommendations. However, you can still get another recommendation based on your favorite genre by editing your genre lists and go back to this page.



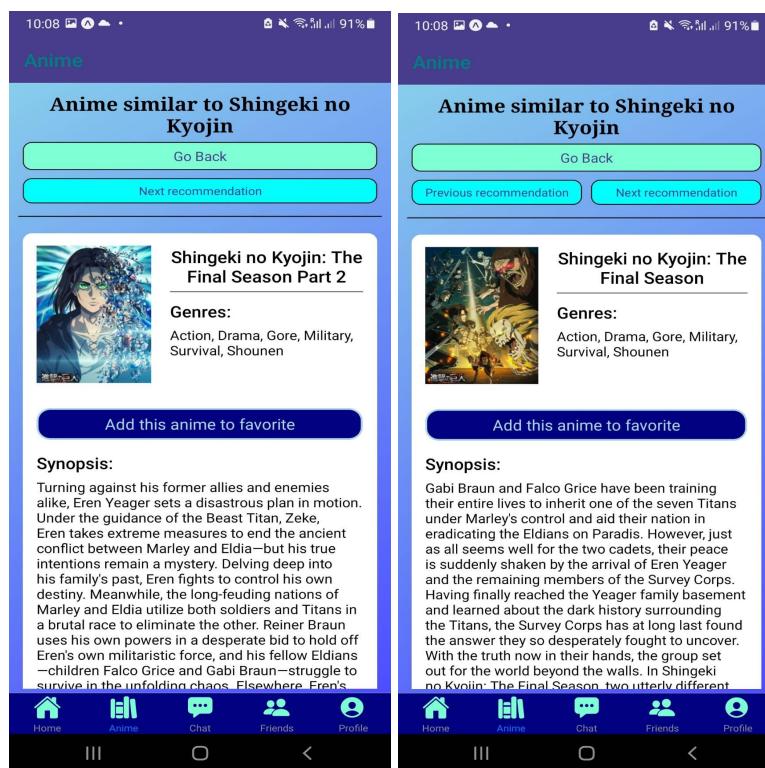
## Favorite Anime page

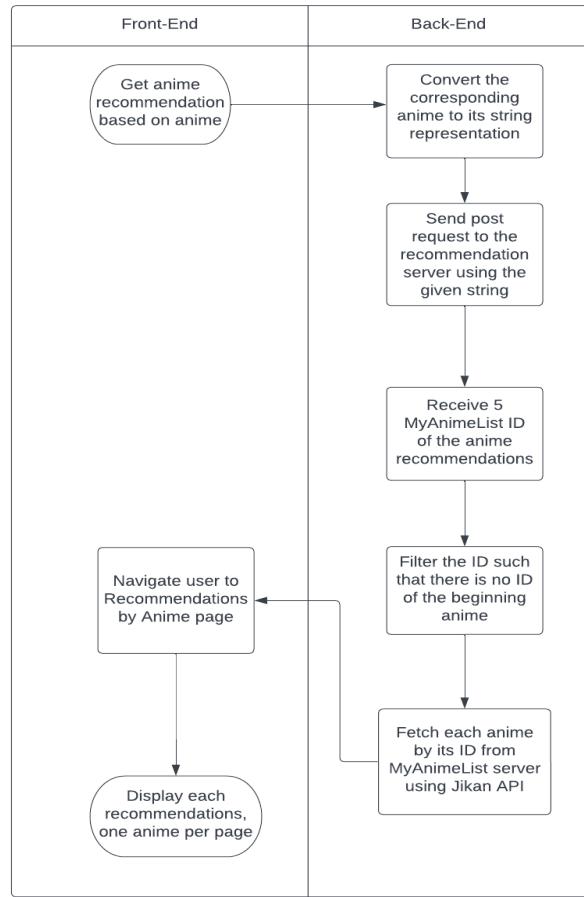
On this page, you will see the list of your favorite anime. To get the recommendation, you can just click on the right part of any of your favorite anime. Then, the *Get similar anime* icon will be displayed. Simply press the Get similar anime icon, and you will be navigated to *Recommendations by Anime* page.



## Recommendations by Anime Page

On this page, you will see all anime recommendations which are similar to the chosen favorite anime. Each page will have the data of one specific anime. To find another anime which is similar to this picked favorite anime, simply click on the *Next recommendation* or *Previous recommendation* button. By default of the recommendation system, you can only get either four or five anime recommendations. However, you can view another anime recommendation by going back to the Favorite Anime page and choosing a different favorite anime.



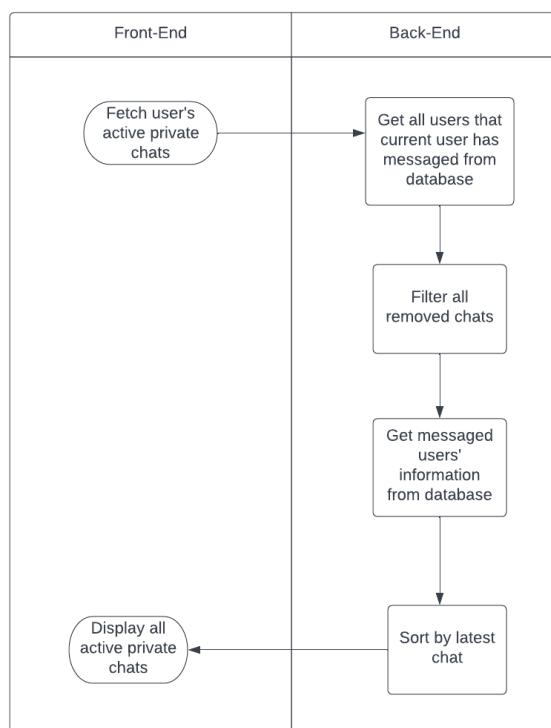


# Chat System

## Private Chat List Page

If you click on the *Chat* icon on the bottom tab, you will be navigated to the *Private Chat List* page where you can see all your active private chats. On each chat, we can check the time and text of the last message. Furthermore, there is also an exclamation badge to indicate whether you've read the last message on the corresponding chat or not.

If you press the right side of a specific chat, two additional icons will be shown. The first one is the Open Message icon, which will navigate you to the corresponding Private Messaging page when pressed. The other one is the Remove icon, which will remove the pressed chat from your active private chat list. Do note that pressing the Remove icon won't remove any message in the corresponding chat.

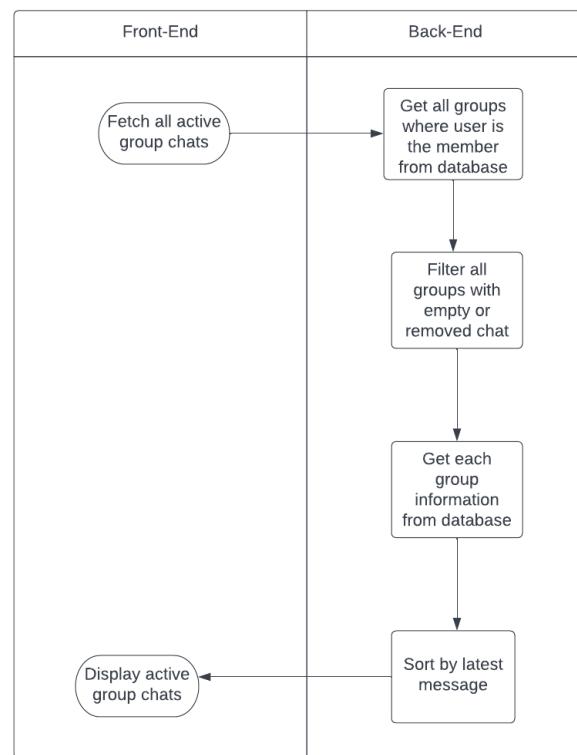
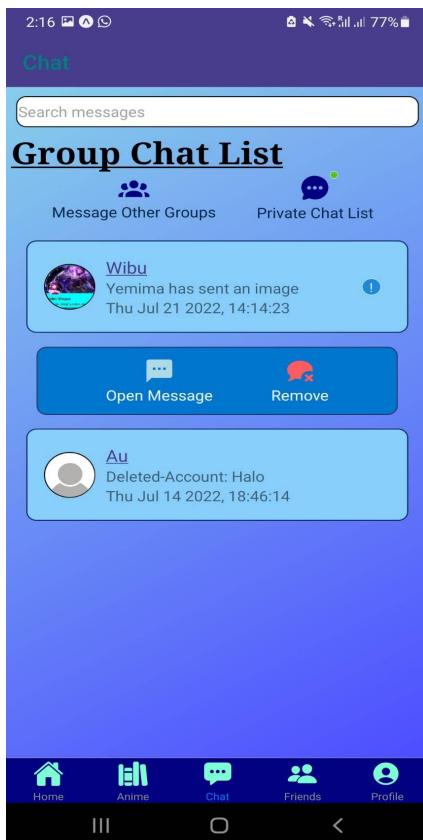


At the top of the chat lists, there is a *Group Chat* icon which will navigate you to the Group Chat List page once you click it. If you have an unread group message, there will be a notification badge on this button. If you want to send a message to other users, simply click on the *New Message* icon and it will navigate you to the *Add Message* page.

## Group Chat Lists Page

On the Group Chat List page, you can see all your active group chats. Similar to the Private Chat List page, the text and time of the last message sent on each chats will be displayed. Furthermore, for each chats, there is also a label to indicate whether you've read the last message in it or not.

If you click on the right part of a specific group chat, two additional icons, Open Message and Remove will be displayed. Pressing the Open Message icon will navigate you to the corresponding Group Messaging page. Else, pressing the Remove icon will remove the clicked chat from the active group chat list.

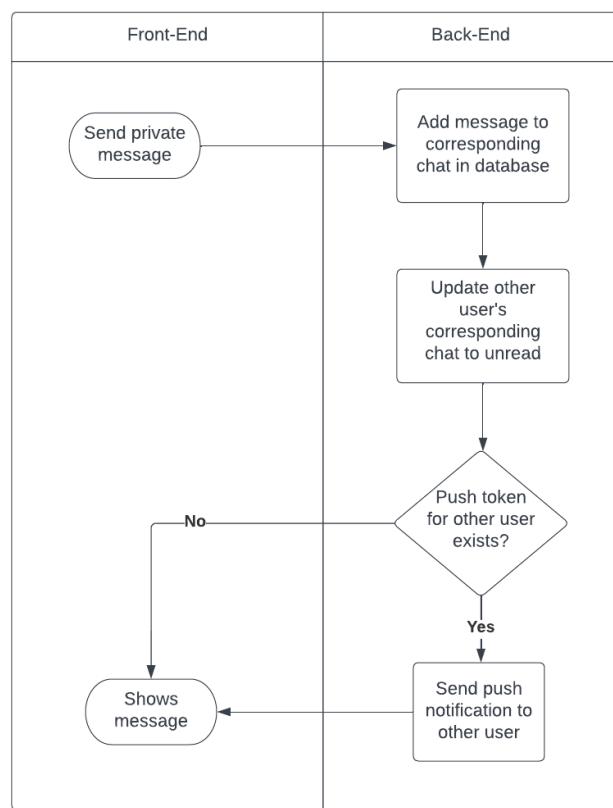
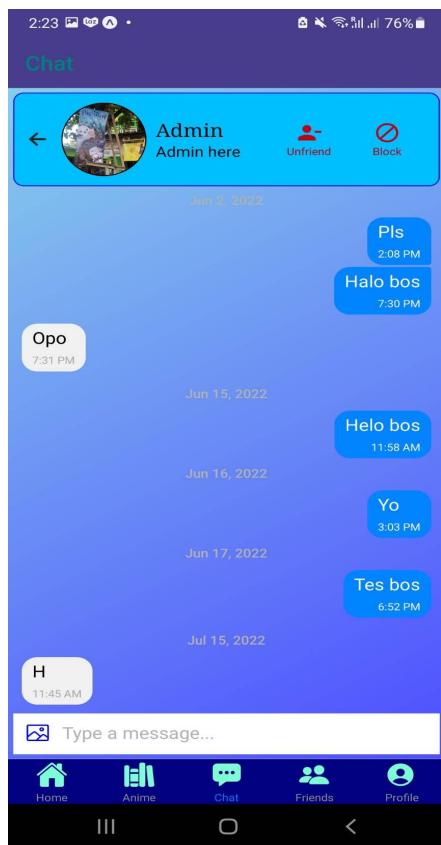


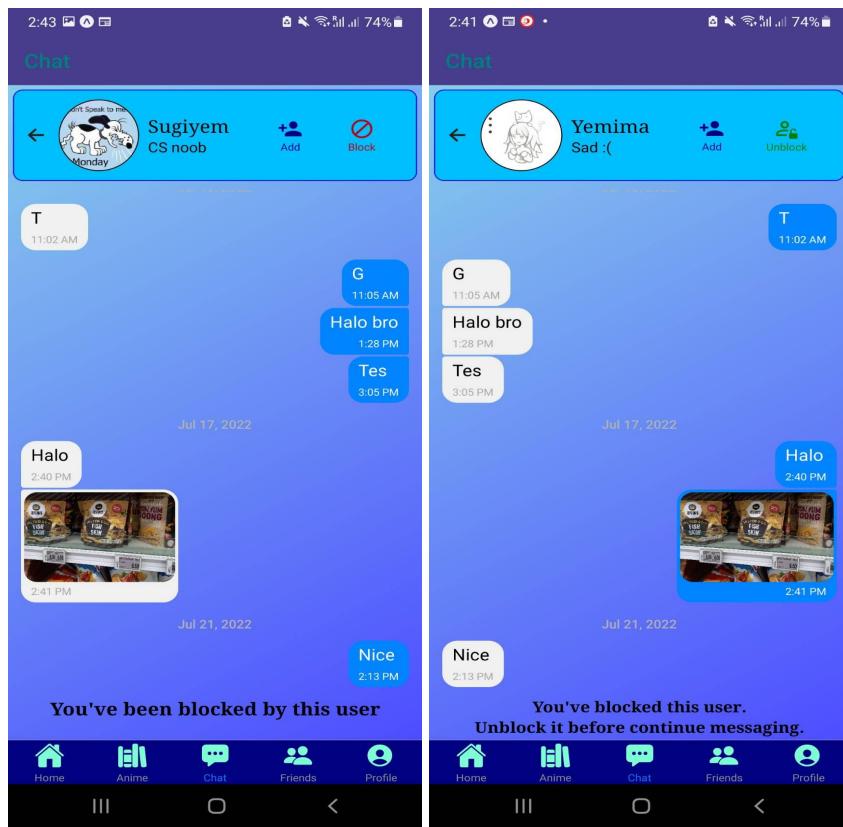
At the top of the chat lists, there is a *Private Chat* button which will navigate you back to active private chat lists once you click it. If you have an unread private message, there will be a *notification* badge on this button. If you want to send a message to other groups, simply click on the *Message other groups* button and it will navigate you to the Group List page, where you can see all groups that you've joined.

## Private Messaging Page

This page is where you send private messages with a specific user. You can send messages similar to other messenger apps. By clicking on the Photo icon located on the bottom left of the page, you can send an image to other user. When you send a private message, the recipient of the message will get a push notification to notify he/she that there is a new message from you. Do note that if the other user blocks you, or is blocked by you, you can't send any private message.

For user's ease of use, we also provide various shortcuts in the header of the page. For example, you can block the other user by simply pressing the *Block* icon on the header. Similarly, you can also send a friend request by clicking the *Add Friend* icon on the header.

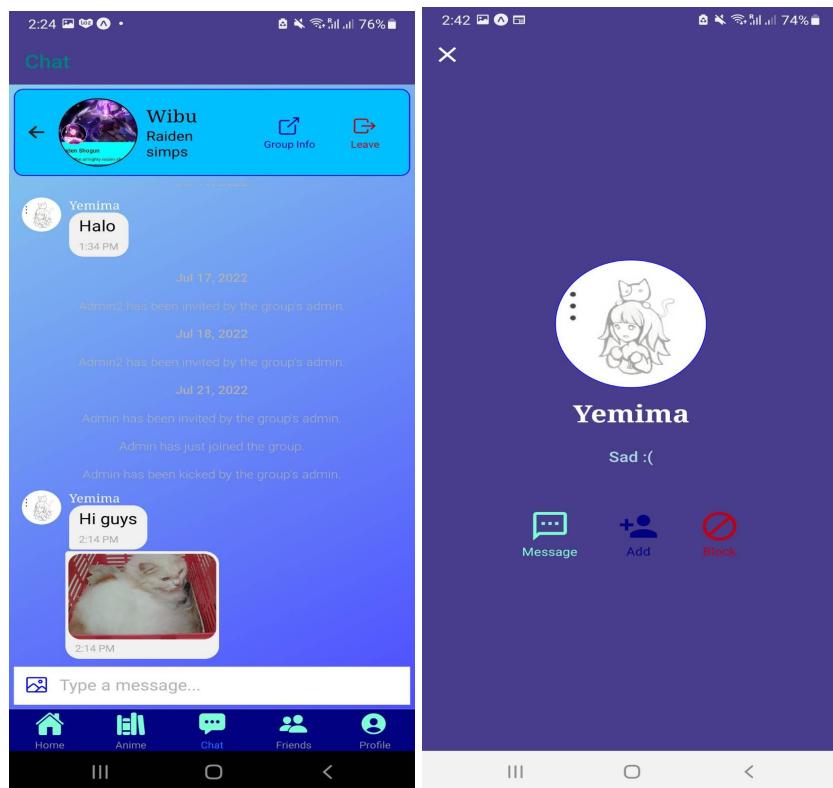


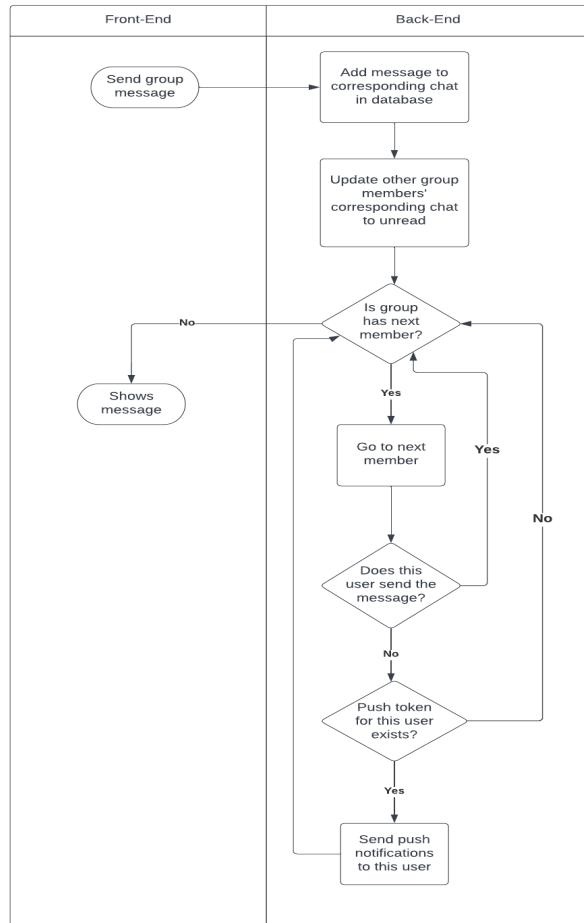


## Group Messaging Page

This page is where you send group messages with a specific group. Similar to the Private Messaging page, you can send messages and photos just like in other messenger apps. When you send a message in a group, all members of the group will get a push notification to notify them that there is a new message from the current group.

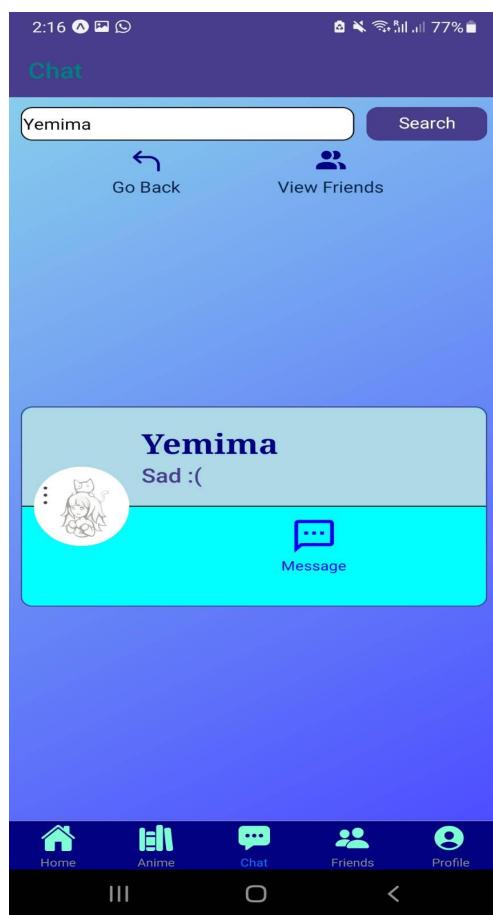
Additionally, in the header of the chat, there will be two additional icons, *Group Info*, which will navigate you to the group info page when pressed, and *Leave*, which will cause you to leave the current group if pressed. Furthermore, for better client experience, you can click on the avatar of the other user, and it will show a shortcut for you to interact with this user, as shown in the image below.





## Add Message Page

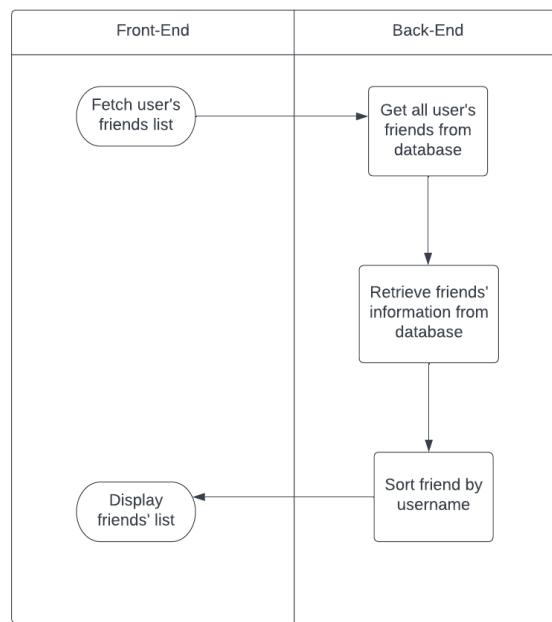
On this page, you can send a new message to other users. To do that, simply write the exact username of the user which you want to send a message to, and click the search button. Each click will render the page differently, according to the existence of a user with such username. When a searched user exists, a *Message* icon will be shown. If you press that icon, you will be navigated to the *Private Messaging* page with the corresponding user.



# Friend & Blocking System

## Friend List Page

If you click on the Friends icon on the bottom tab, you will be navigated to the *Friend List* page, which displays all the users that have been added as your friend. By using the search bar at the top, you can also search for your friend with a specific username.



At the top of the lists, there are four additional icons. If you want to add another user as a friend, simply click on the *Add Friends* button and it will navigate you to the *Add Friend* page. If you want to see your group's list, you can click on the *Groups* button and it will navigate you to the *Group List* page. If you click on the *Blocked* icon, you will be navigated to the *Blocked List* page. Else if you press the *Pending* icon, you will be navigated to the *Pending Request* page. Additional thing to note is that there will be a green badge in the *Pending* icon to indicate if there is a pending friend request that needs your response.

At the friend lists on the Friend List page, If you click on the right part of a specific friend, it will show four additional icons, *Message*, *Block*, *View Details*, and *Unfriend*. If you click on the *Unfriend* button, it will remove this user from your friend list. Else, if you press the *Block* icon, this user will be unfriended and blocked. Else, if you click on the *Message* button, the screen will navigate to a direct messaging page between you and this friend which has been covered in previous part. Else, if you press the *View Details* button, you will be navigated to the *Friend Info* page where you can see this user's information.

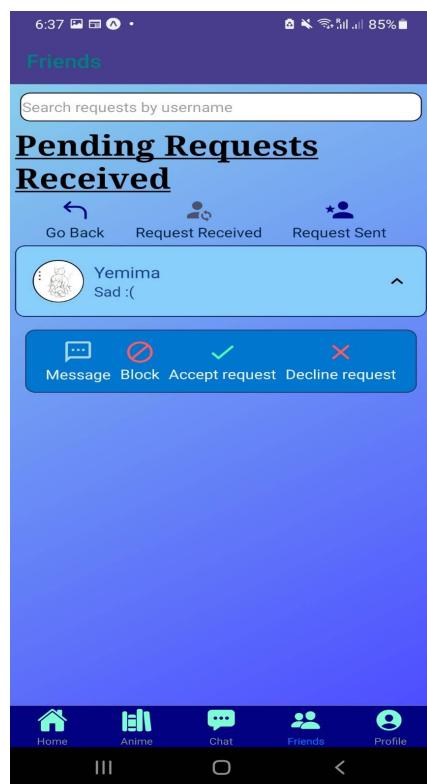
## Friend Info Page

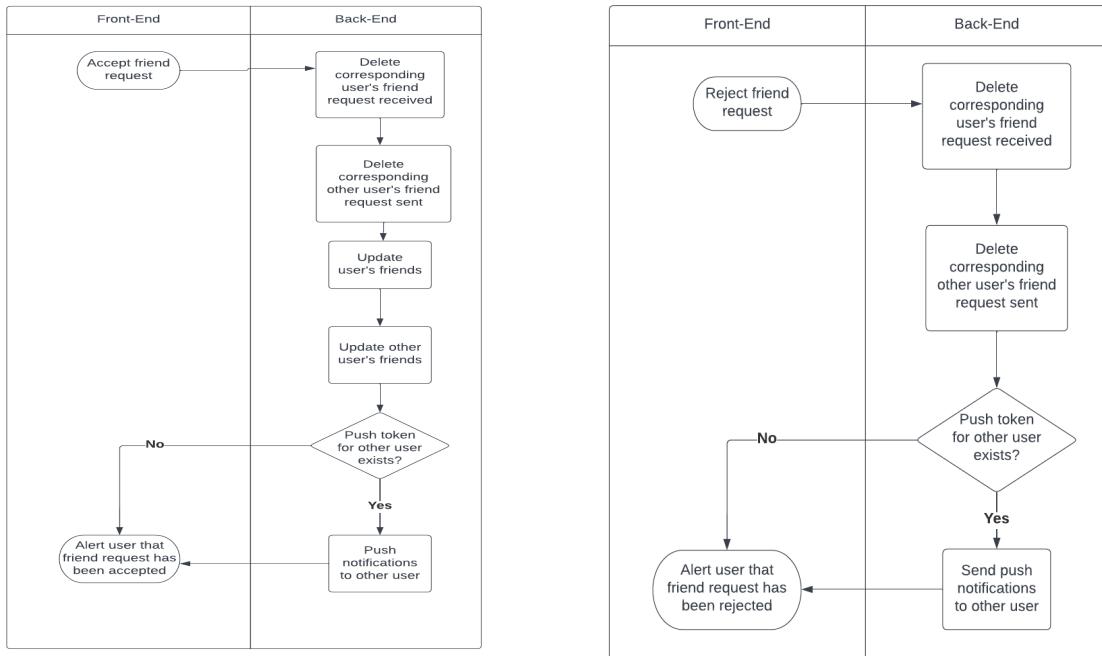
On this page, you can see your friend's basic information such as profile picture, username, and bio. Additionally, you can also view the *Friends Only* information such as the user's favorite anime and genre.



## Pending Request Page

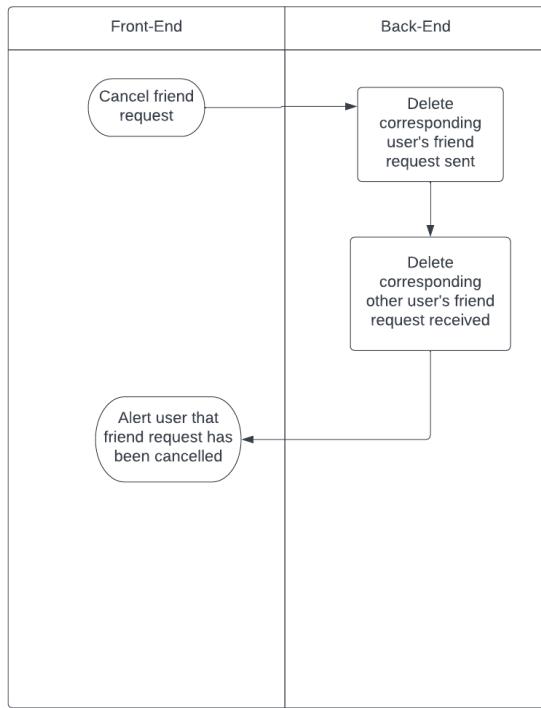
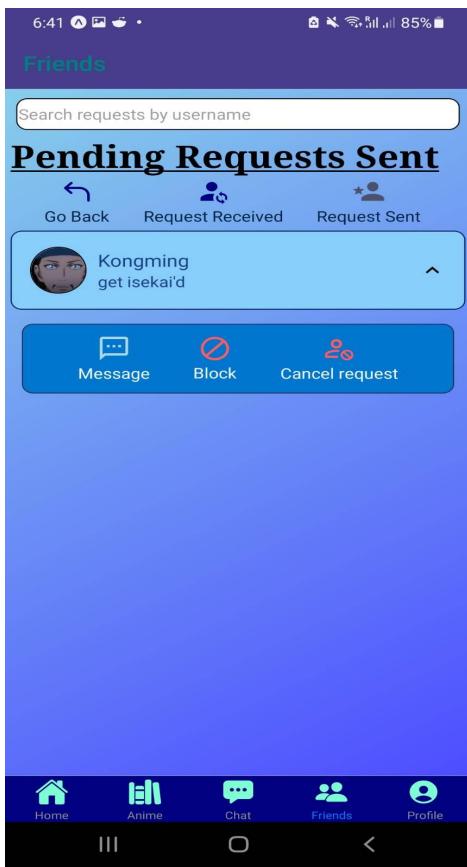
By default, you will see the list of all pending friend requests that you have received on this page. If you click on the right side of a specific user, it will display three additional icons, *Message*, which have been covered before, *Accept request*, which will accept the corresponding friend request if clicked, and *Reject request*, which will reject the corresponding friend request if pressed. Furthermore, if you accept or reject a friend request sent by another user, this user will get notification telling that its friend request has been accepted (or rejected).





You can also see the list of all pending friend requests that you have sent by clicking the Send Request Icon on the top right of the page. Conversely, if you want to go back to the list of all pending friend requests that you have received, you can simply click on the Received request Icon.

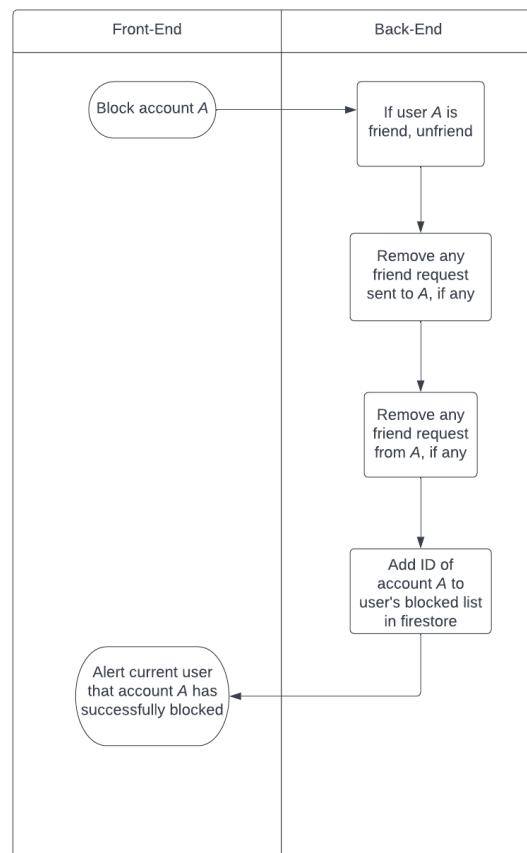
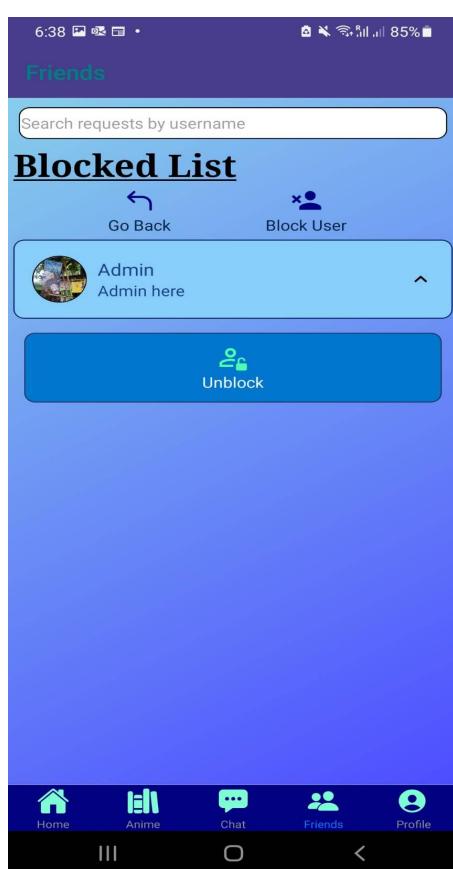
Similarly, if you click on the right side of a specific user in the list of all pending requests that you have sent, two additional buttons will be shown. The first icon is *Message*, which has been explained before. The other is the *Cancel Request* icon, which will cancel the corresponding friend request that you've sent.



## Blocked List Page

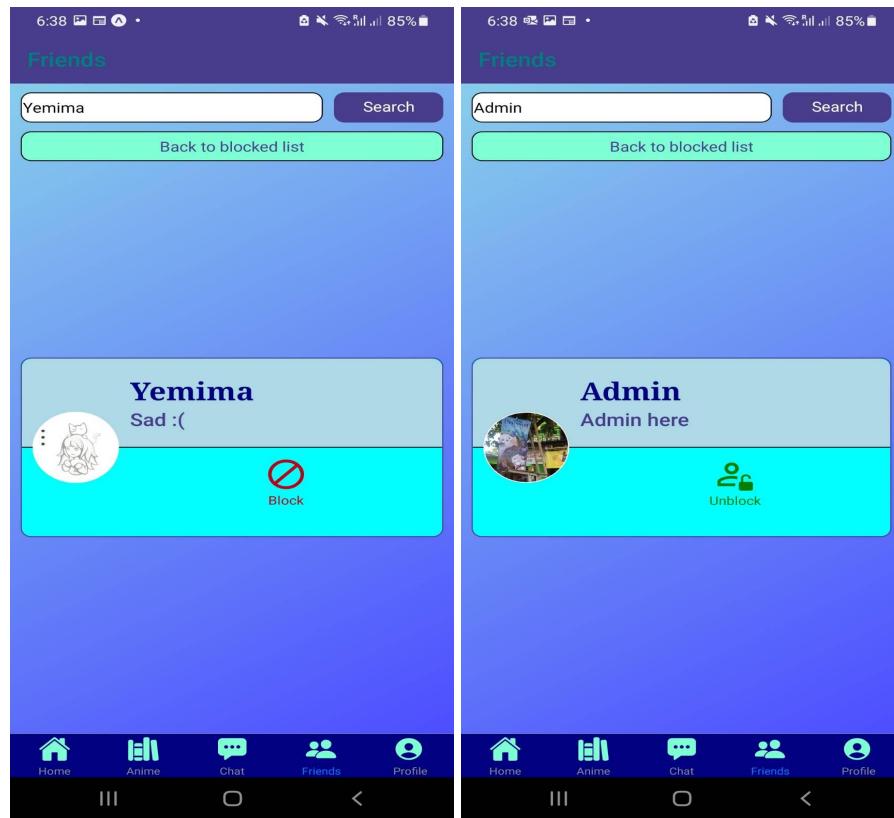
On this page, you will see the list of users that you've blocked. If you click on the right side of a specific user, an Unblock icon will be displayed. When you press this icon, the corresponding user will be unblocked.

At the top of this page, there is also the *Block User* icon. If you click this icon, you will be navigated to the *Block User* page, where you can block other users.



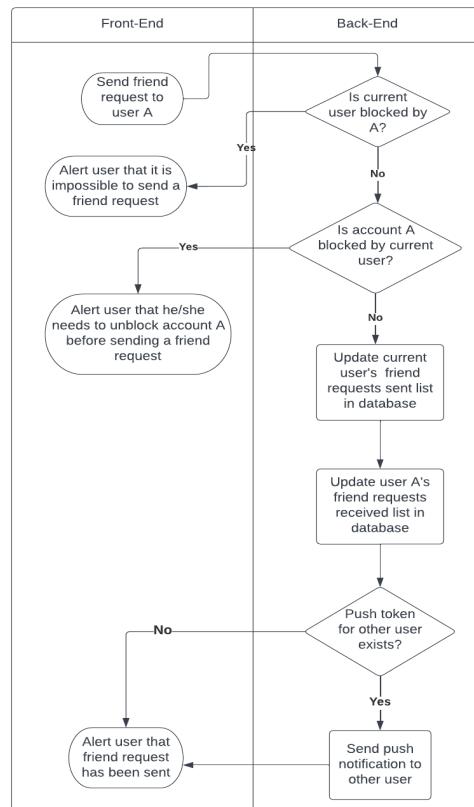
## Block User Page

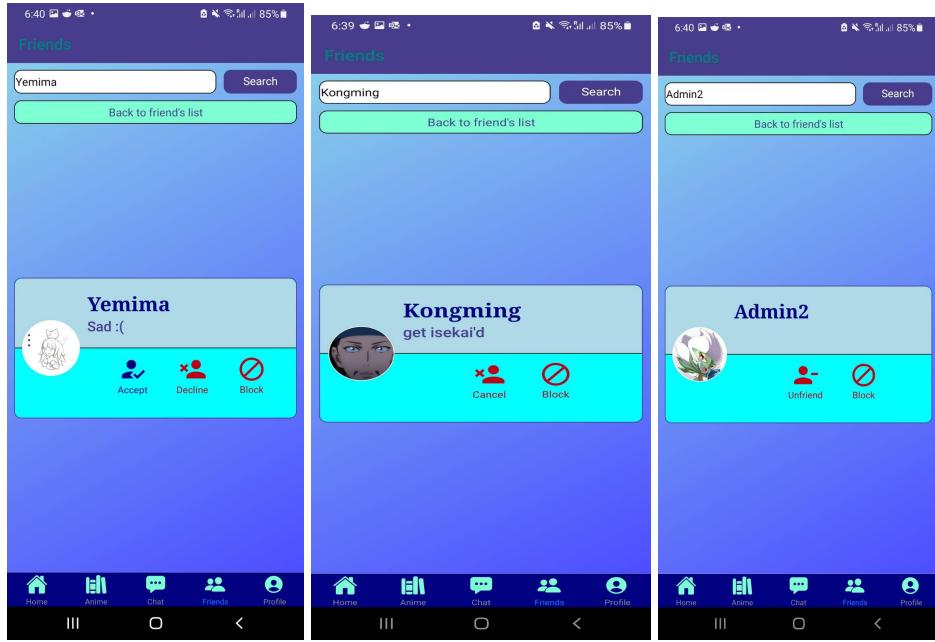
On this page, you can block other users. To do that, simply write the exact username of the user which you want to block, and click the search button. Each click will render the page differently, according to the existence of a user with such username, and whether the user found is already blocked or not. When the user found is already blocked, the Unblock icon, which will unblock the corresponding user if pressed, is shown. Else if the user found is not yet blocked, the Block icon, which will block the corresponding user if clicked, is shown. Do note that by blocking a specific user, any friend relation or request, if any, will be removed. Additionally, the blocked user won't be able to send private messages or friend requests to you. The converse is also true, you won't be able to send private messages or friend requests to the blocked user as long as you haven't unblocked it.



## Add Friend Page

On this page, you can add other users as a friend. To do that, simply write the exact username of the user which you want to add as a friend on the search bar, and click the **search** button. Each click on will render the page differently, according to the existence of a user with such username, and the friendship status between user found and you. Do note also that you won't be able to send a friend request to a user that you have blocked, or a user that blocks you.





# Group System

## Group List Page

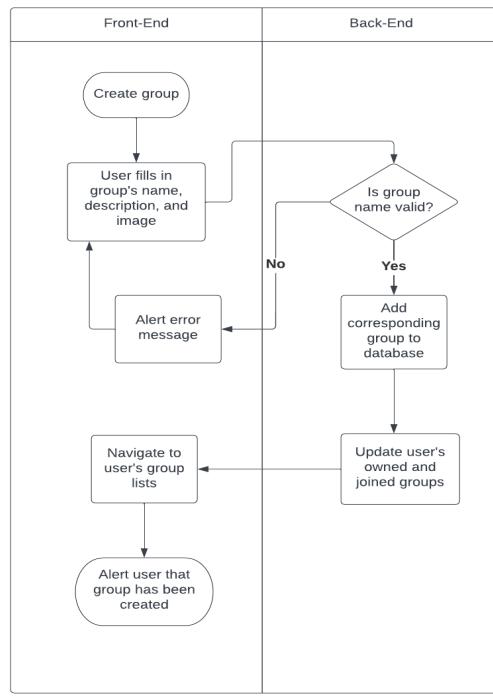
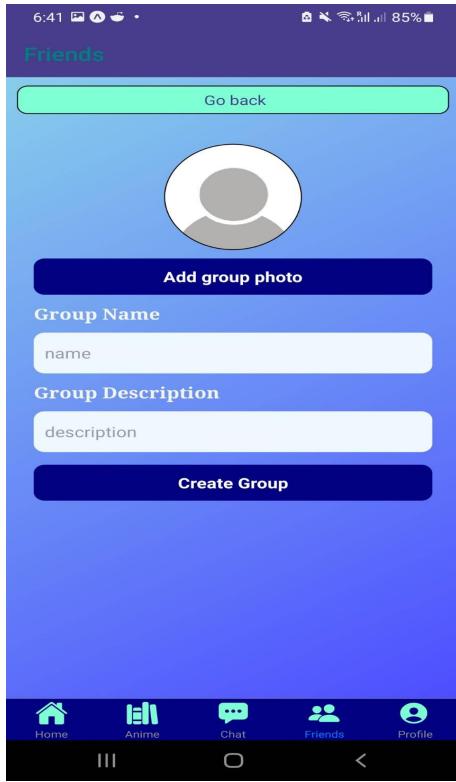
On this page, you will see the list of groups that you've joined. If you click on the right side of a specific group, it will display three additional icons, *Detail*, which will navigate user to *Group Info* page if clicked, *Message*, which will navigate user to Messaging page of this group when pressed, and *Leave Group*, which will let user to left this group once clicked.



On top of the group lists there is also the *Add Group* icon and the *Group Invitations* icon. If you click on the *Add Group* icon, you will be navigated to the *Create Group* page where you can make your own group. Otherwise, if you click on the *Invitation* icon, you will be navigated to the *Group Invitations* page where you can see the list of group invitations that you have. Additionally, if you have a pending group invitation, a notification badge will be shown in the *Invitation* icon.

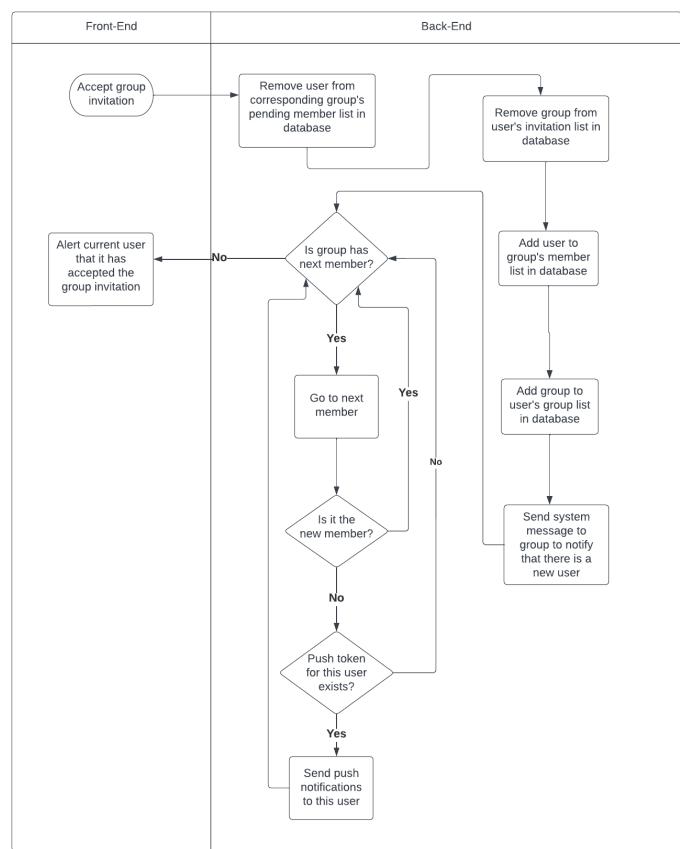
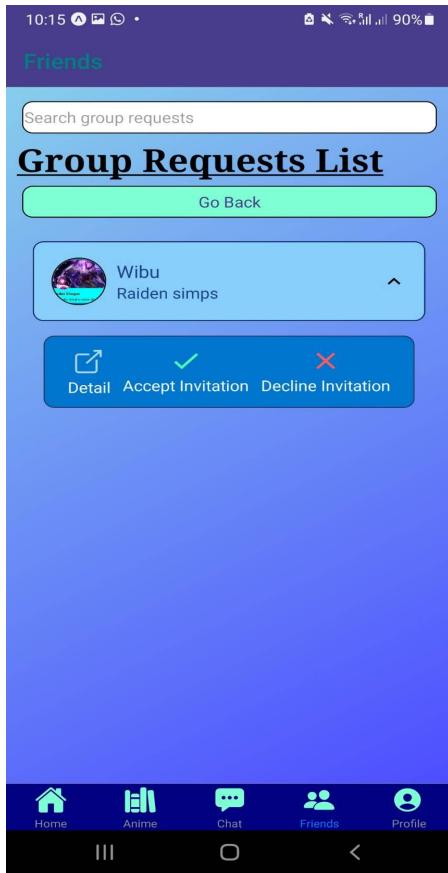
## Group Creation Page

On this page, you can create a new group. To do that, simply choose the group name, description, image, and then click on the *Create Group* button. Note that you can't create a group if its name is empty.



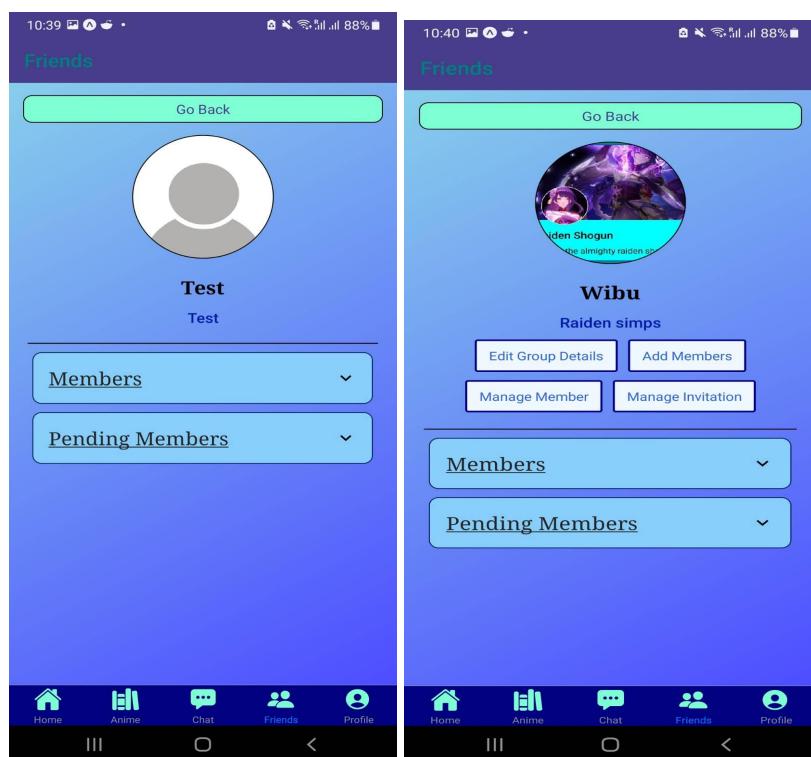
## Group Invitations Page

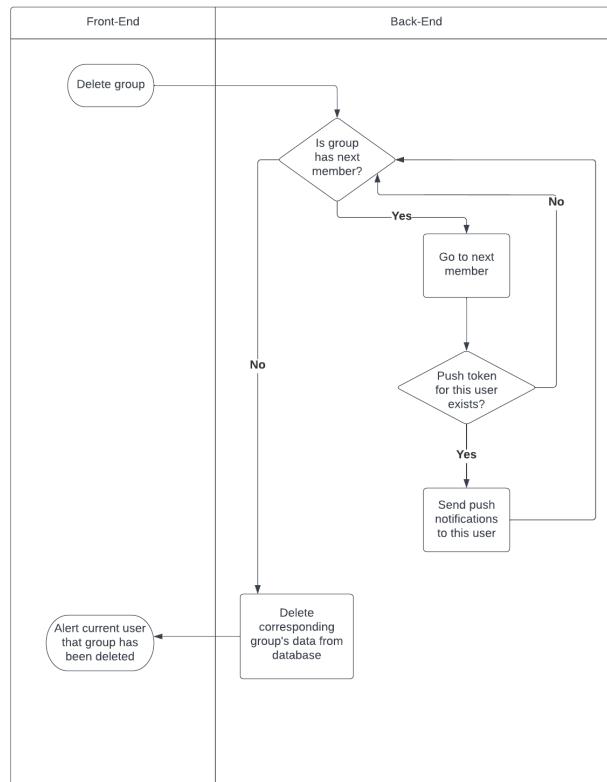
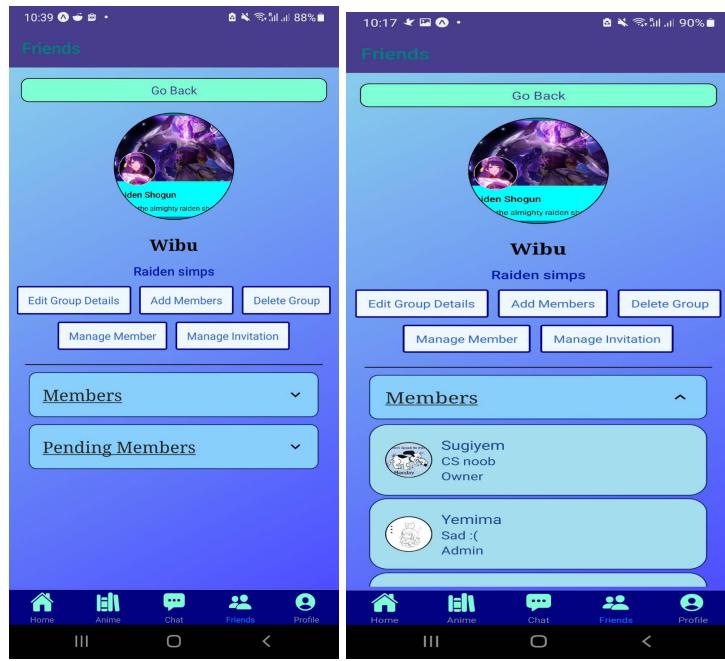
On this page, you will see the list of all group invitations that you have received. If you click on the right side of a specific group, it will display three additional icons, *Detail*, which will navigate you to the *Group Request Info* page, *Accept invitation*, which will accept this group invitation if clicked, and *Reject invitation*, which will reject this group invitation if pressed. Additionally, if you accept a group invitation, every member of the corresponding group will be notified that there is a new member in the group.



## Group Info Page

On this page, you can see the details of a specific group. By default, you can see the group's name, picture, description, list of members, and list of pending members. If you are the admin of the group, there will be 4 additional buttons shown on this page. Those buttons are the *Edit Group Details* button, which will navigate you to the *Edit Group* page if pressed, *Manage Members* button, which will navigate you to *Manage Member* page when clicked, *Manage Invitations* page, which will navigate you to *Manage Invitation* page if when pressed, and *Add Members* button, which will navigate you to *Add Member* page if clicked. Additionally, if you are the owner of the group, you will have access to four previous buttons, as well as the *Delete Group* button, which will permanently delete the group if clicked. Do note that if you delete a group, all the group members will receive a push notification.





## Group Request Info Page

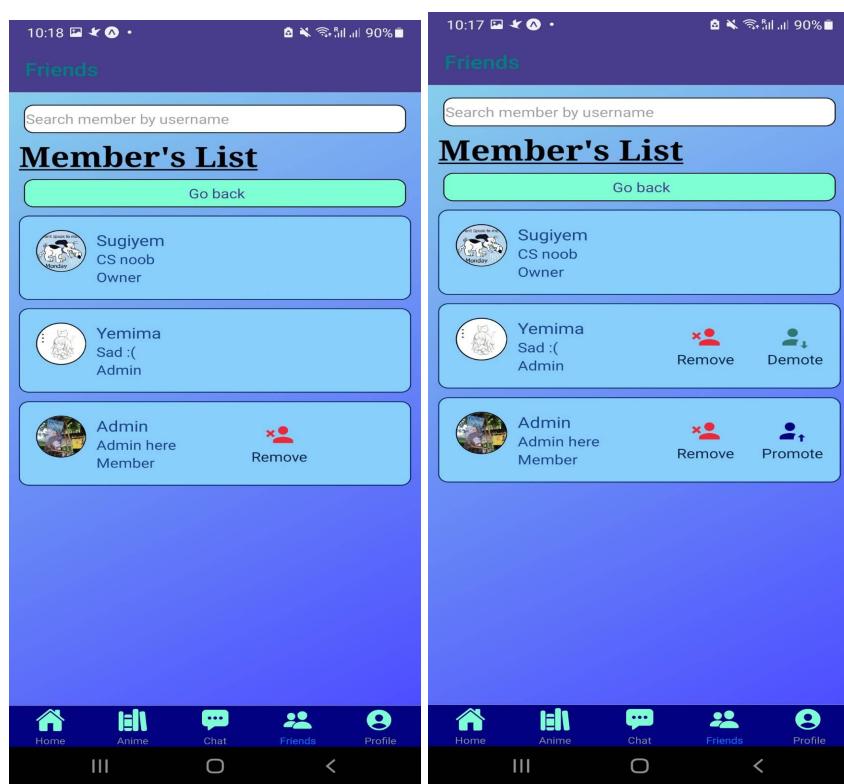
On this page you can see the details regarding a specific group that invites you. By default, you can only see the group's name, picture, description, as well as the list of members in the group.

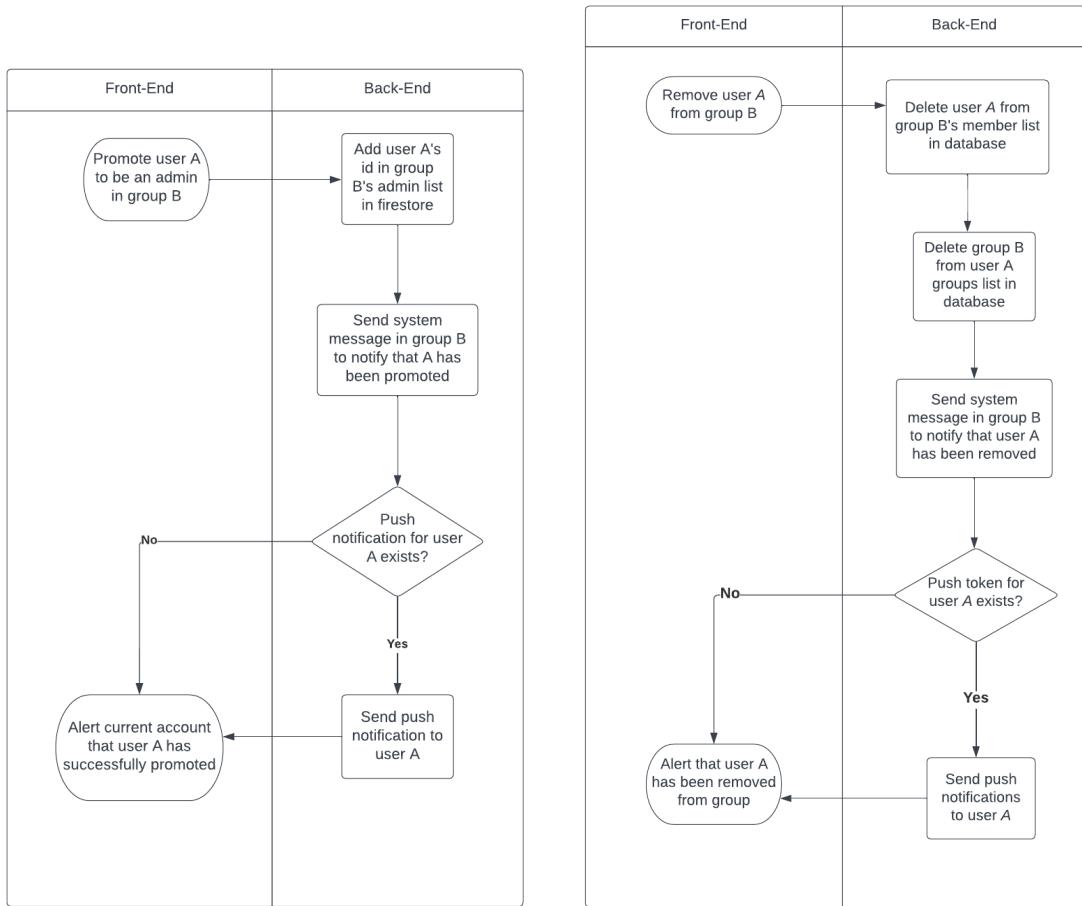


## Manage Group Members Page

This page is only visible for the group's admin and owner. By default, this page will display the list of all group's members. If the current user is only a group admin, it can remove any group non-admins on this page. Else, if the current user is the group owner, it can remove any group members (admin and non-admin), as well as promoting a member to admin, and vice versa. Do note that if you are the owner of the group, promoting a member to admin will give it the ability to invite other users and remove non-admin group members.

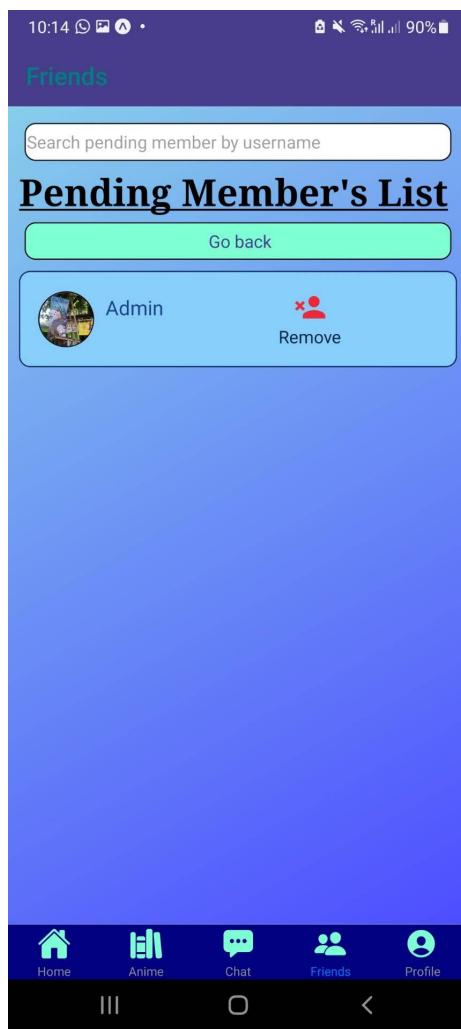
Additionally, promoting member to admin, demoting admin to member, and removing member from the group will send a push notification to the corresponding user.





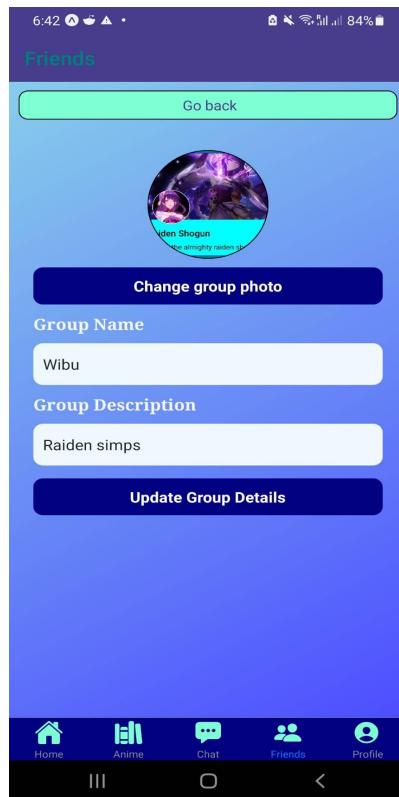
## Manage Group Invitations Page

This page is only visible for the group's admin and owner. By default, this page will display the list of pending members of the group (users that have been invited to the group but haven't responded to the invitation). As the admin of the group, you can remove any pending member shown on this page.



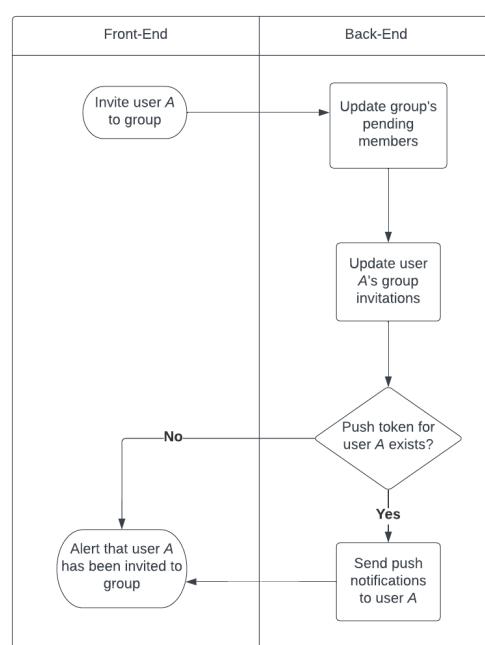
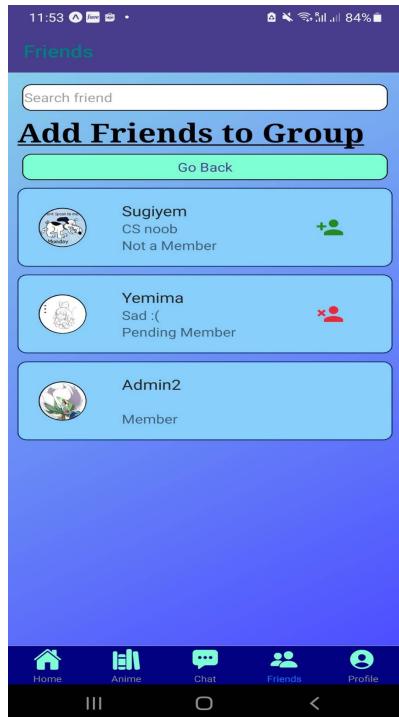
## Edit Group Page

This page is only visible for the group's admin and owner. In this page, you can update your group's name, picture, and description. After customizing your group's profile, don't forget to press the Update Group Details button to submit the change. Do note that the group's name must be a non-empty string.



## Add Members Page

This page is only visible to the group's admin and owner. On this page, you can add another user to your group. By default, this page will display a list of your friends and their group role (whether they are a member, pending member, or non-member). As the admin of the group, you can invite non-members and cancel the pending member's invitation shown on this page. Do note that you can't remove member in this page (you can do it in the *Manage Members* page).



# Profile System

## Profile Info Page

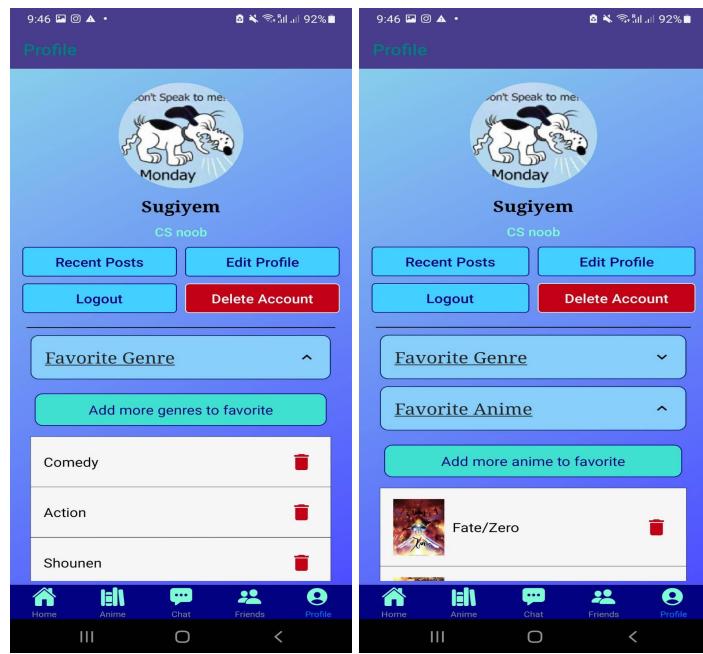
If you click on the profile part in the bottom tab, it will navigate you to the *Profile Info* page by default.



If you click on the *Logout* button, it will sign you out of the application and navigate you back to the login page. If you click on the *Edit Profile* button, it will bring you to the *Edit Profile* page.

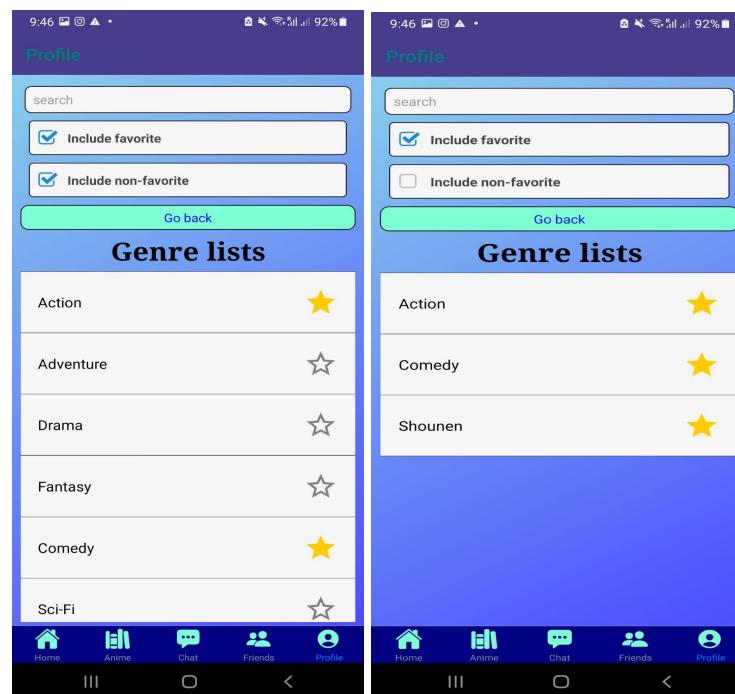
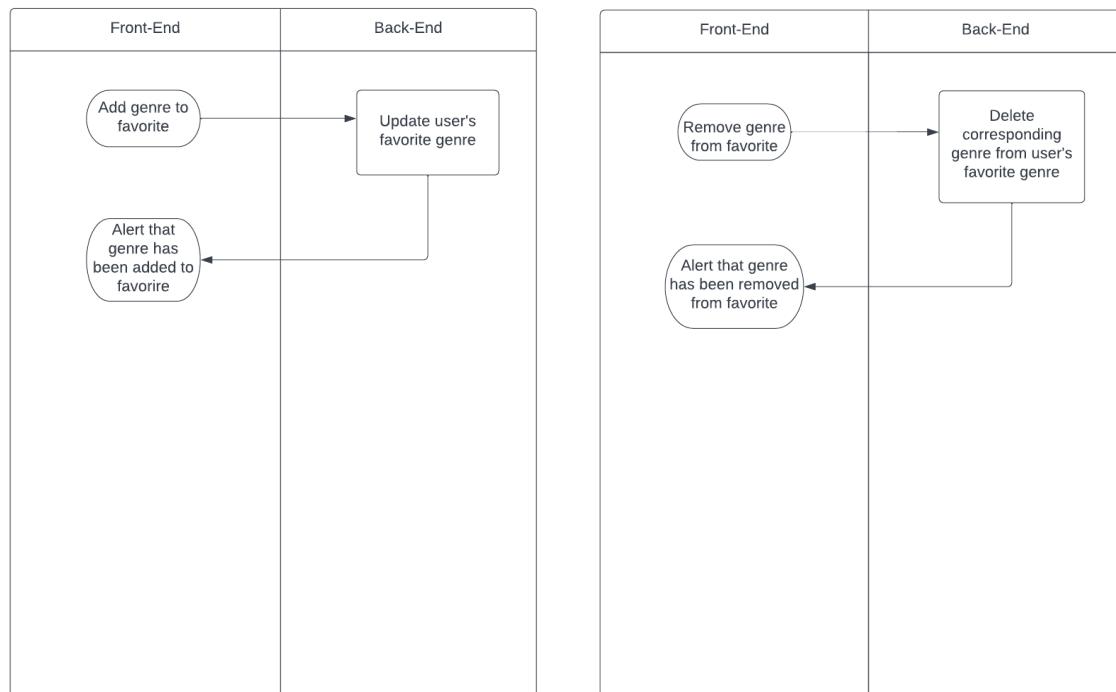
If you click on the right part of the *Favorite Genre* title, it will display your current list of favorite genres. Alternatively, if you click on the right part of the *Favorite Anime* title, it will display your current list of favorite animes. Furthermore, if you swipe each of your favorite anime or genre, it will render a *remove* button, which when you click, will remove the specific anime or genre from your favorite list.

If you click on the *Add more anime to favorite* button, it will navigate you to the anime page which has been covered before. If you click on the *Add more genre to favorite*, it will navigate you to the *Genre* page, which consists of all available genres to choose as your favorite.



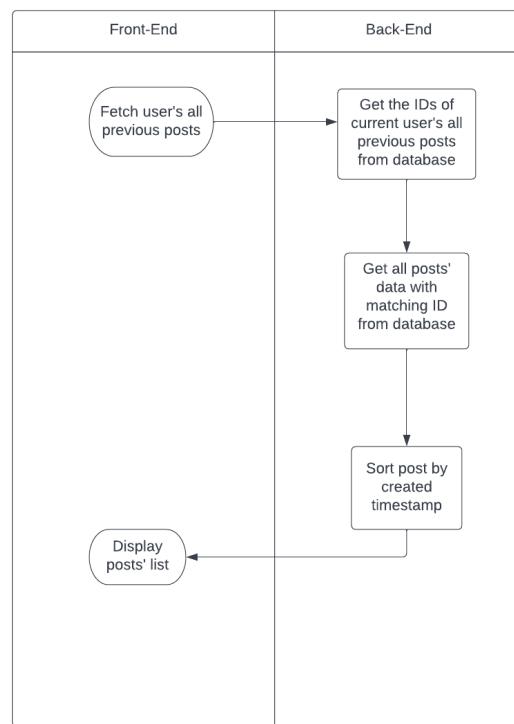
## Genre Page

On this page, if you swipe a genre which is listed as your favorite, it will render a *remove* button which will remove it from your favorite list. In contrast, if you swipe a genre which is not listed as your favorite, it will render an *add* button which will add it to your favorite list. Furthermore, you can also filter a genre by its name and its status (whether it is listed as your favorite or not).



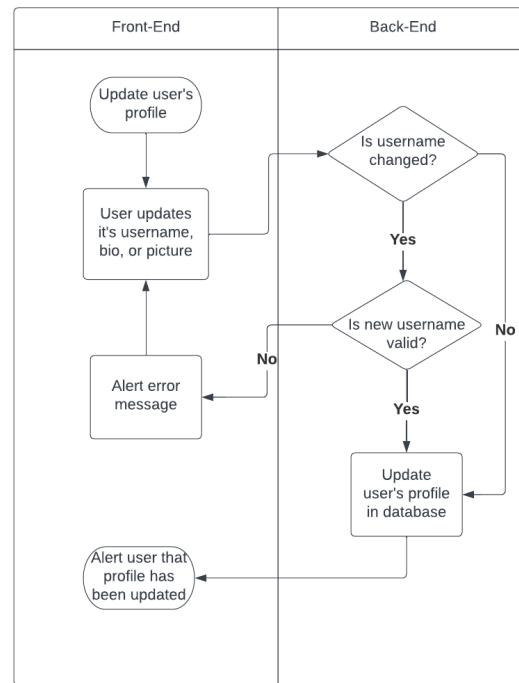
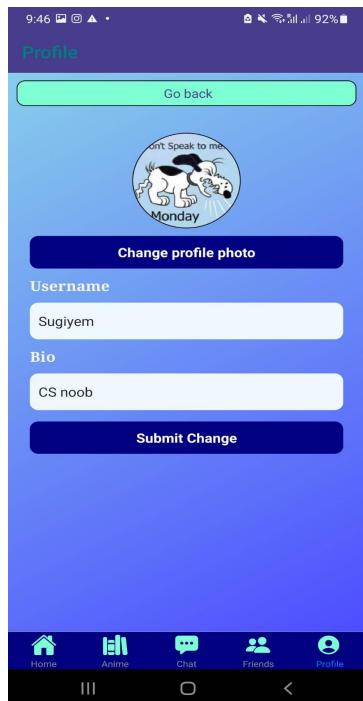
## Previous Forum Post Page

On this page, you can see all previous posts that you have created. By default, this post is sorted by its created timestamp.



## Edit Profile Page

On this page, you can customize your username, bio, and profile picture. Note that username must contain alphanumeric characters and is unique for each user. Hence, there might be a situation where you can't change to a specific username. After customizing your profile, don't forget to click on the *Submit Change* button to save your changes.



# Notification System

Because we implement the app in two different platforms, standalone app for android, and expo-hosted for iOS, there are some differences between how notification systems are implemented. For the expo-hosted app for iOS, the notification system is implemented using Expo-Notification. However, for the standalone android app, the notification system is implemented using Expo-Notification and Firebase Cloud Messaging (FCM).

