

# **Twitter-clone App Project**

UML Specification and UI Design Document

## **Group C4:**

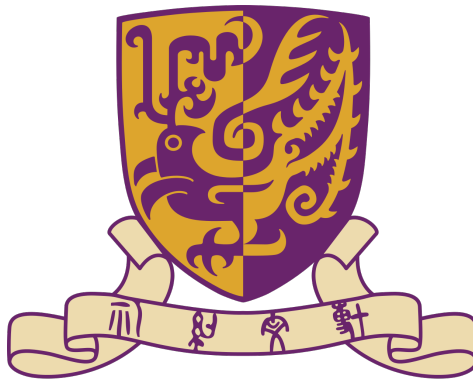
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# 1 UML DESIGN

## 1.1 Component-1 Account Management Component

### 1.1.1 Structural Diagram

Figure 1: UML class diagram for tweet component.

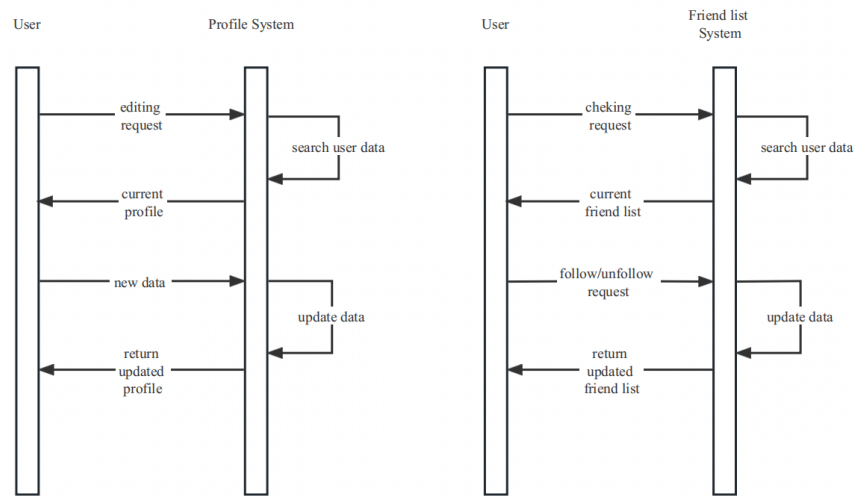


Figure 2: UML sequence diagram for user component.

### 1.1.2 Functionality

The user component allows users to register an account, log in to their accounts, check and manage their accounts, edit their profiles, and check and manage their following and follower lists.

### 1.1.3 Procedures and Functions

Function	Parameter	Description
viewFriendList	userId	Return follower and following list of the user.
viewUserNameCard	userId	Return the user's name card with brief information.
viewUserHomepage	userId	Return the user's homepage.
follow	userId1, userId2	Add User2 into User1's following list.
unfollow	userId1, userId2	Delete User2 from User1's following list.
viewProfile	userId	Return the user's profile.
editProfile	userId,, name of target information to be edited, content(text, picture)	Update user's information in the database and return the updated profile.

## 1.2 Component-2 User Component

### 1.2.1 Structural Diagram

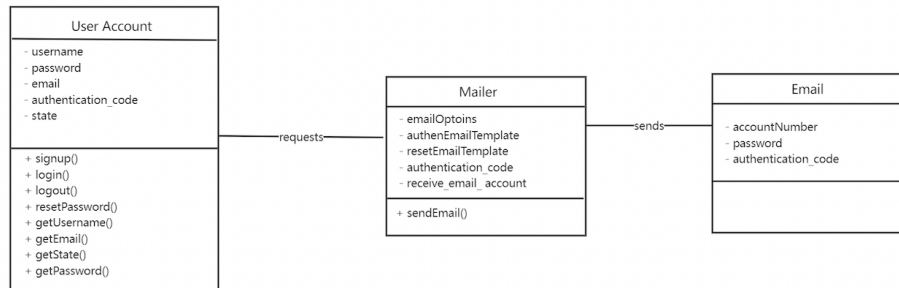


Figure 3: UML class diagram for user login component.

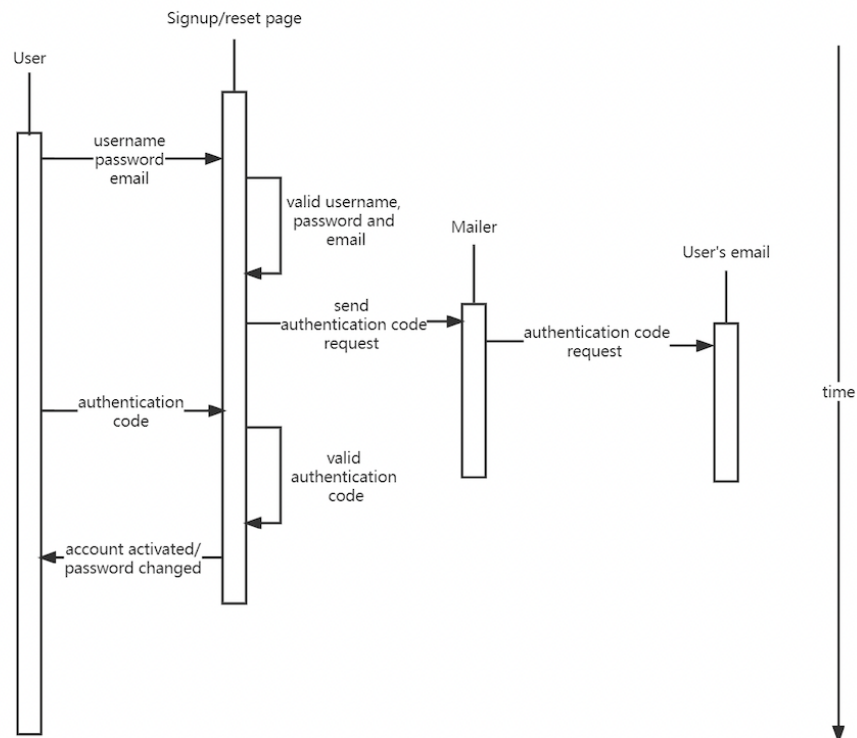


Figure 4: UML class diagram for account management component.

## 1.2.2 UMLs

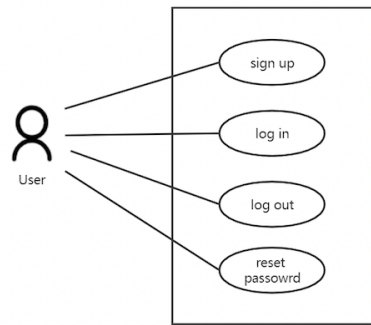


Figure 5: UML use-case diagram for account management component.

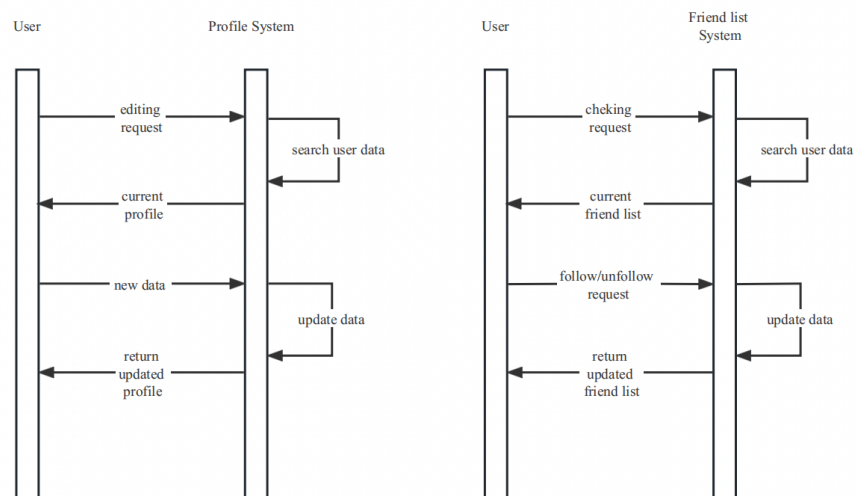


Figure 6: UML sequence diagram for account management component.

## 1.2.3 Functionality

The user component allows users to register an account, log in to their accounts, check and manage their accounts, edit their profiles, and check and manage their following and follower lists.

### 1.2.4 Procedures and Functions

Function	Parameter	Description
viewFriendList	userId	Return follower and following list of the user.
viewUserNameCard	userId	Return the user's name card with brief information.
viewUserHomepage	userId	Return the user's homepage.
follow	userId1, userId2	Add User2 into User1's following list.
unfollow	userId1, userId2	Delete User2 from User1's following list.
viewProfile	userId	Return the user's profile.
editProfile	userId,, name of target information to be edited, content(text, picture)	Update user's information in the database and return the updated profile.

## 1.3 Component-3 Tweet Component

### 1.3.1 Structural Diagram

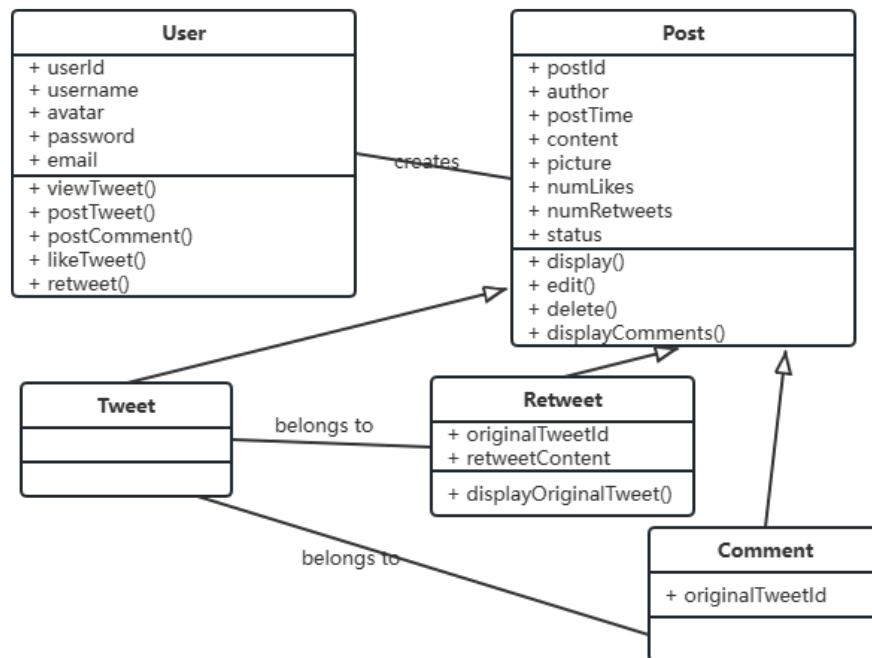


Figure 7: UML class diagram for tweet component.

### 1.3.2 UMLs

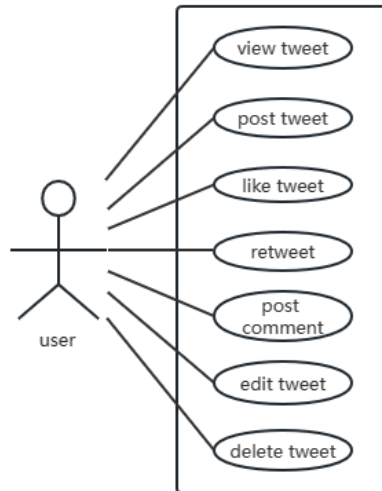


Figure 8: UML use-case diagram for tweet component.

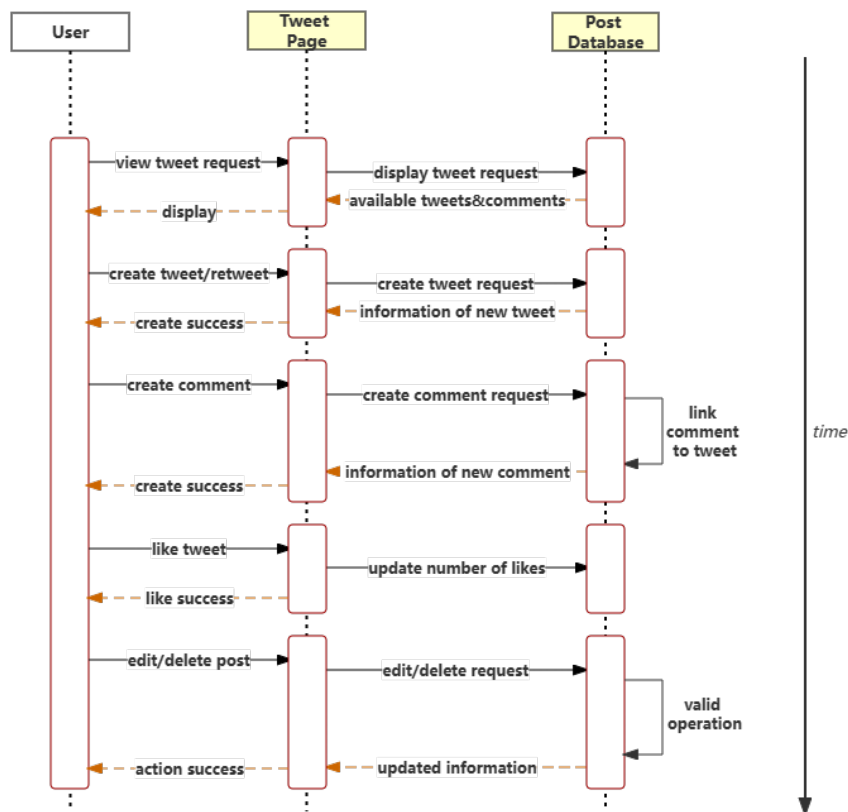


Figure 9: UML sequence diagram for tweet component.

### 1.3.3 Functionality

The tweet component allows users to view tweets, post new tweets, and perform operations after the tweets have been displayed. Users can perform like, comment, retweet on the tweets, and the database containing tweets, retweets and comments will be updated accordingly. What's more, users are able to edit or delete a tweet/retweet/comment created by themselves, as long as a validation of this action is performed.

### 1.3.4 Procedures and Functions

Function	Parameter	Description
viewTweet	userId, type	Return tweets required by the user and type (view all tweets, view tweets of followers, view a single tweet).
postTweet	userId, content, picture, status	Add a new tweet into the post database.
postComment	userId, tweetId, content, picture, status	Add a new comment under this tweet into the post database.
likeTweet	userId, tweetId	Increase the number of likes of this tweet by 1, and add this tweet to the liked list of the user.
retweet	userId, tweetId, content, status	Add a new retweet of this tweet into the post database.
display	postId	Return the detailed information of a post (tweet, retweet or comment) and display on the screen.
edit	userId, postId, new-Content, newStatus	Modify the content or status of a post (tweet, retweet or comment).
delete	userId, postId	Remove a post (tweet, retweet or comment) from the post database.
displayComments	tweetId	Return all the comments under this tweet.
displayOriginalTweet	retweetId	Return the original tweet of this retweet.



## 1.4 Component-4 Searching Component

### 1.4.1 Structural Diagram

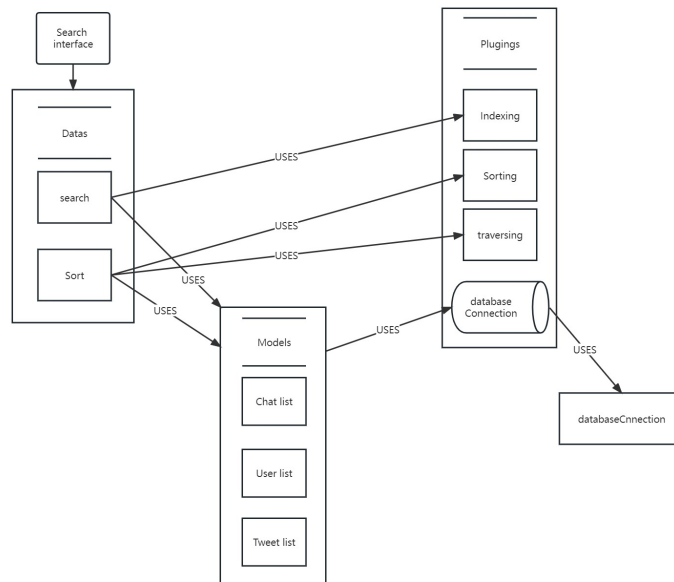


Figure 10: Search System Structural Diagram: Illustrating the components and their relationships for executing a search query and retrieving relevant tweets, users, and chat messages in the Twitter-Clone app

### 1.4.2 UMLs

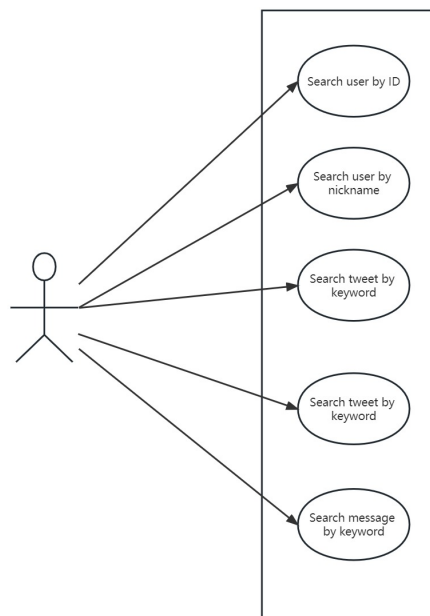


Figure 11: Search System Use Case Diagram: Capturing the key functionalities and user interactions for searching tweets, users, and chat messages in the Twitter-Clone app

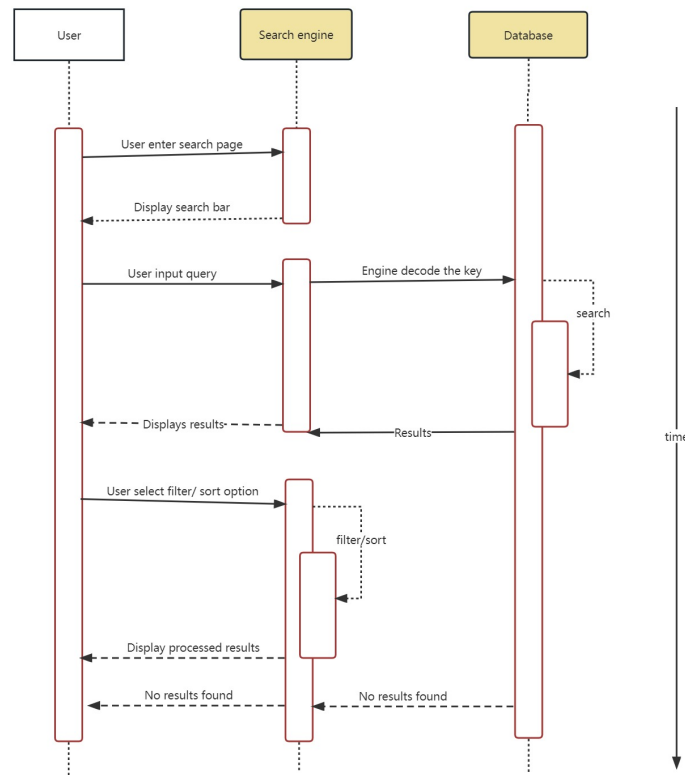


Figure 12: Search System Sequence Diagram: Illustrating the flow of actions and interactions between components for executing a search query and retrieving relevant tweets, users, and chat messages in the Twitter-Clone app.

### 1.4.3 Functionality

The search system in the Twitter-Clone app allows users to search for all available tweets, local chats, and all users in one query. Users can enter a keyword or a phrase in the search bar, and the system will retrieve all the relevant results from the database. Users can further filter the results by applying various filters such as date, location, sentiment, and hashtags. Users can also sort the results based on relevance, date, popularity, or user rating. The system uses advanced search algorithms and natural language processing techniques to provide accurate and relevant search results. The search system also includes a search history feature that allows users to view their previous searches and reuse them. Overall, the search system provides an efficient and effective way for users to find the information they need in the Twitter-Clone app.

#### 1.4.4 Procedures and Functions

Function	Parameter	Description
encode(query)	query: string	Encodes the user's search query into a format that can be processed by the search engine.
search(key)	key: encoded data	Searches the database for tweets, users, and chat messages that match the encoded search query.
setFilter(results, filter)	results: list of tweets, users, and chats; filter: dictionary	Filters the search results based on user-selected filters, such as date, location, or sentiment. Returns a new list of filtered results.
edit()	None	Allows the user to edit the search query and update the search results.
display()	None	Displays all search results in the user interface, including tweets, users, and chat messages.
sort(method)	method: string	Sorts the search results based on the user-selected sorting method, such as relevance or date. Returns a new list of sorted results.
edit	userId, postId, newContent, newStatus	Modify the content or status of a post (tweet, retweet or comment).

### 1.5 Component-5 Private Chat Component

#### 1.5.1 Structural Diagram

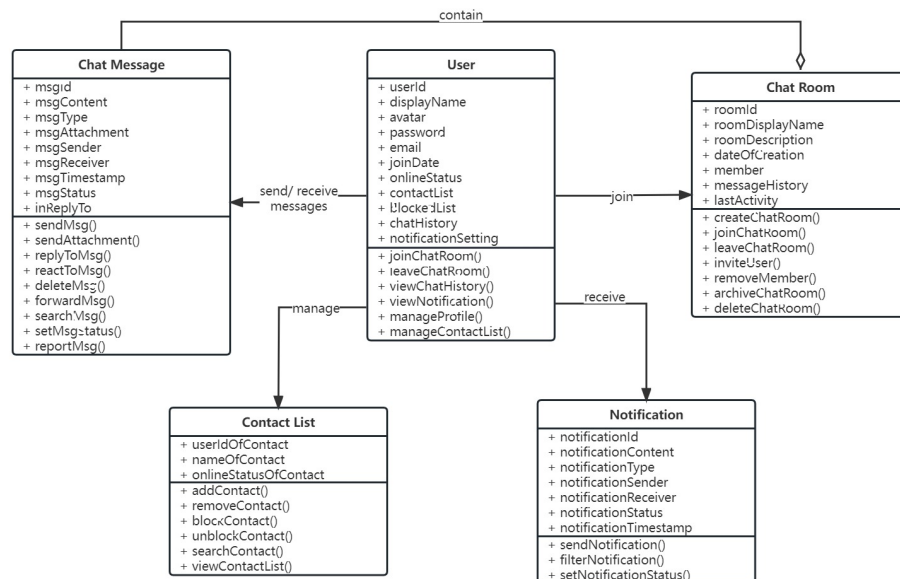


Figure 13: Private Chat System Structural Diagram: Illustrating the components and their relationships for sending or receiving messages, joining chat rooms, managing contact list, receiving new-message notifications, and displaying various chat messages in chat rooms in the Twitter-Clone app.

### 1.5.2 UMLs

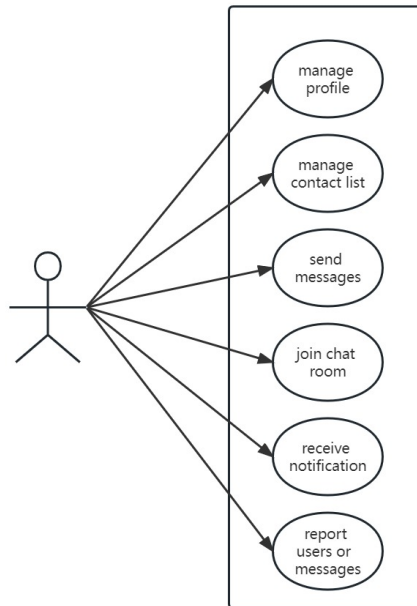


Figure 14: Private Chat System Use Case Diagram: Capturing the key functionalities and user interactions for managing their profile to be displayed on the chat interface, managing their contact list, sending direct messages, joining chat rooms, receiving new-message notifications, and reporting users or messages in the Twitter-Clone app.

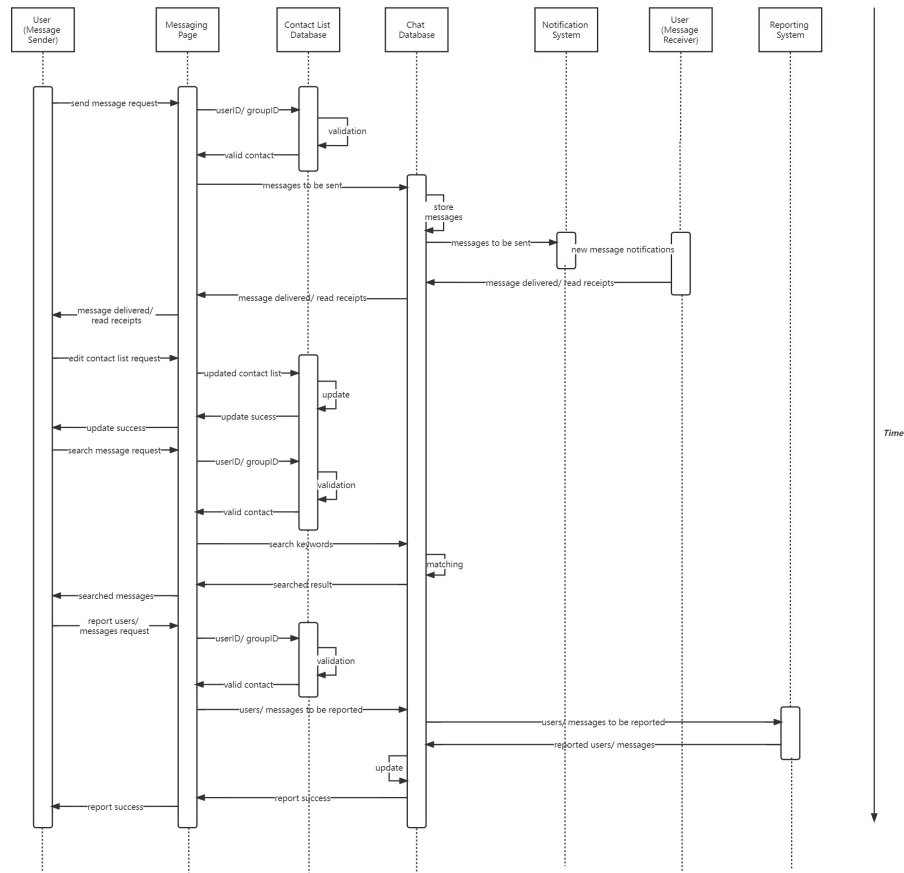


Figure 15: Private Chat System Sequence Diagram: Illustrating the flow of actions and interactions between components for sending direct messages, editing their contact list, searching for messages, and reporting users or messages in the Twitter-Clone app.

### 1.5.3 Functionality

The private chat system in the Twitter-Clone app allows users to send direct messages with attachments to other users or in group chats. Upon sending messages, delivered or read receipts will be generated let the message sender know the status of the sent messages. Regarding the group chat function, users can create new chat rooms, invite other users to join the chat rooms, join or leave chat rooms, and even archive or delete chat rooms. After sending direct messages, users may choose to delete the messages sent when necessary. With the messaging tool, users can also search for previous messages, view the chat history, reply to others' messages, react to their words, or even forward messages to other users.

Apart from sending messages to others, users can also manage their profile and own contact list. Through profile management, users can decide the displayed information such as displayed name to other users in the chat room, based on their own preference. Through contact list management, users can view their contact list, and add or remove users from their contact list accordingly. Thanks to the contact list tool, they can send direct messages to their contacts more conveniently. If they do not want to receive messages from specific users, they can even block them.

#### 1.5.4 Procedures and Functions

Function	Parameter	Description
sendMsg()	sender, receiver, messages, timestamp	Send direct messages to other users.
sendAttachment()	attachments	Attach photos, GIFs, or videos in messages.
replyToMsg(), reactToMsg()	referencedMsg, newMsg/ reaction	Reply/ react to others' messages.
deleteMsg()	deletedMsg	Delete sent messages.
forwardMsg()	forwardedMsg, target	Forward messages to others.
searchMsg()	keywords	Search messages in chat,
setMsgStatus()	msgStatus	Set message status to delivered or read.
reportMsg()	reportedMsg	Report messages.
createChatRoom()	nameOfRoom, participants	Create new chat room.
joinChatRoom(), leaveChatRoom	chatRoomID	Join/ leave existing chat room.
inviteUser(), removeMember()	chatRoomID, participants	Invite/ remove users to/ from existing chat room.
archiveChatRoom(), deleteChatRoom()	chatRoomID	Archive/ delete existing chat room.
manageProfile()	displayName, avatar	Manage the display of profile to other users in chat.
manageContactList()	oldContact, new-Contact	Manage the contact list inside chat for convenience. Subfunctions include addContact(), removeContact(), blockContact(), unblockContact(), searchContact(), and viewContactList().
sendNotification()	newMsg, sender	Notify user when there are new incoming direct messages.
filterNotification()	notificationPreference	Set notification preference.
setNotificationStatus()	status	Set notification status to read or unread.

## 2 UI DESIGN

### 2.1 View-1 Main page

#### 2.1.1 Description of the image

There is user info, a universal navigation bar on the left of the view, which exists in most pages. On the right there is also a rightpane, lists the developers. In the middle there is the homepage displaying the latest tweets globally.

## 2.1.2 Screen Images

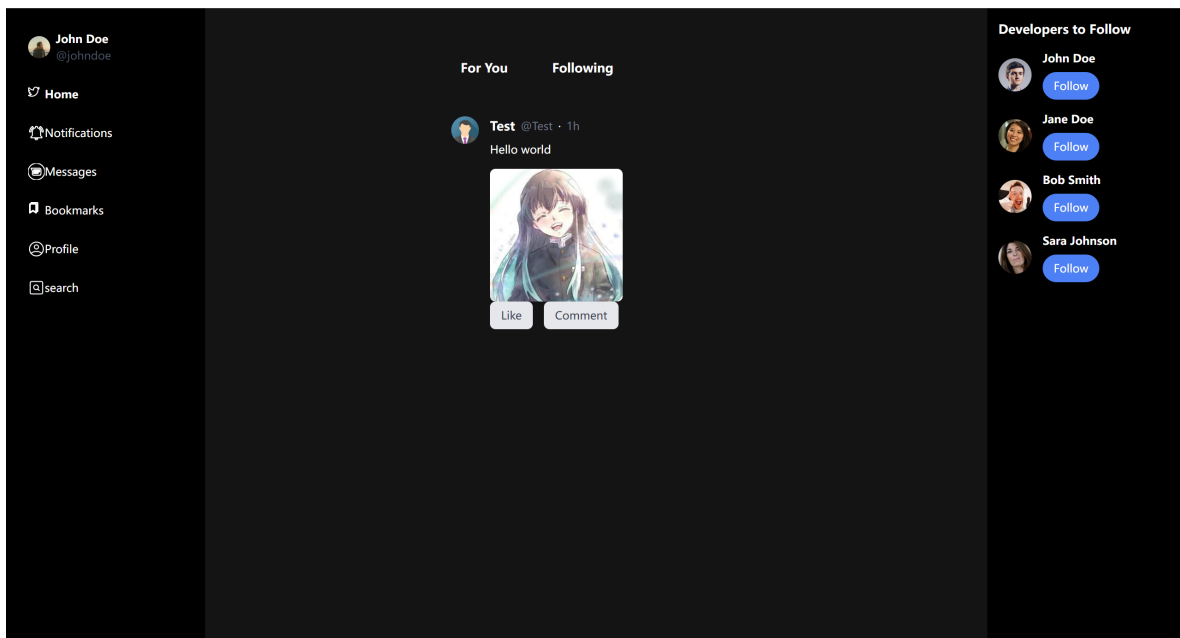


Figure 16: main page.

## 2.1.3 Objects and Actions

There is 3 component in main page:

- Leftpane: If user click his profile picture, he will be redirected to his profile page, where he can do some modifications. And he will be derected to certain page upon clicking on the buttons in the navigation bar.
- Rightpane: Also universal, lists all developers. Users can follow them by clicking the "Follow" button.
- Home page: In home page, we display universal tweet entries. There is also two button at the top where user can choose whether they want to see their firends' post or all post. Clicking on any of the entries will enter the tweet content page.

## 2.2 View-2 Tweet Display Page

### 2.2.1 Description of the view

The tweet display page contains the tweet context display, the comment input box and the comments display. The tweet context display shows the detailed information of the tweet, including its author, post time, content, number of likes and retweets, followed by a few buttons to take actions. The comment input box is for user to input and post their comments. The comments display is a list of all comments of this tweet, each followed by their action buttons.

## 2.2.2 Screen Images

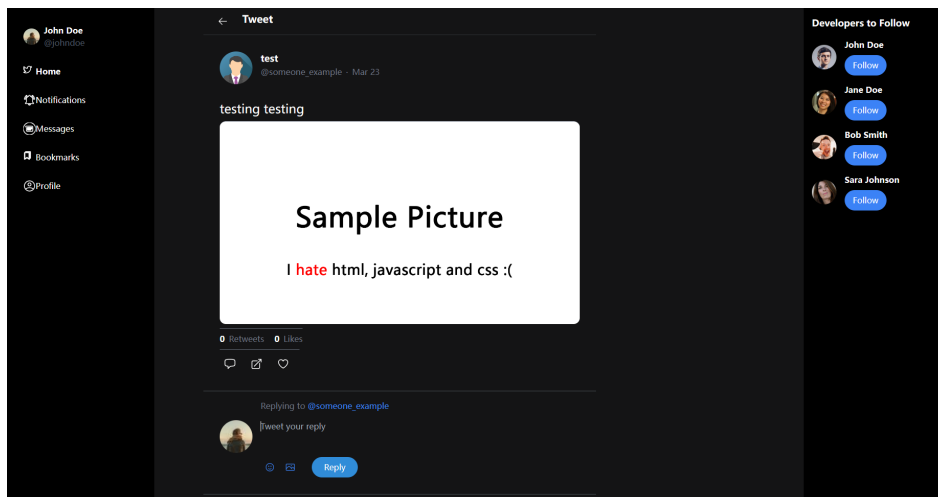


Figure 17: Tweet content display and comment input box

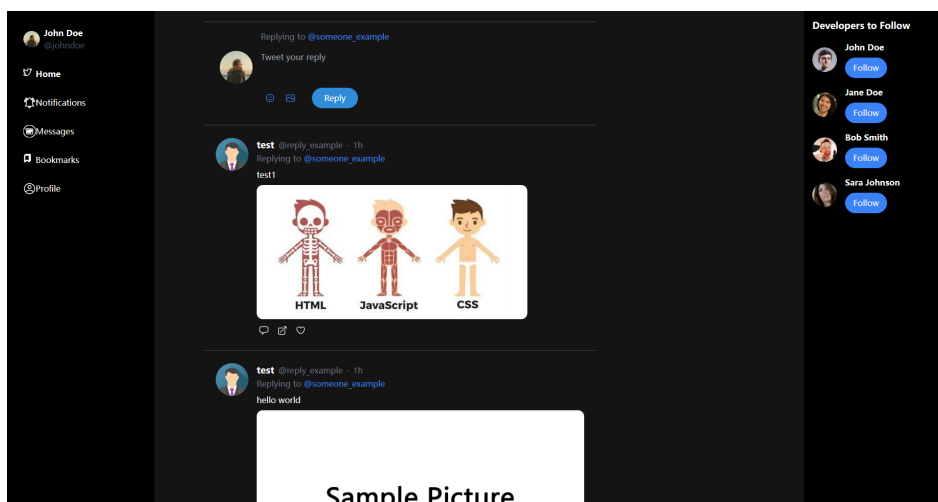


Figure 18: Comments display

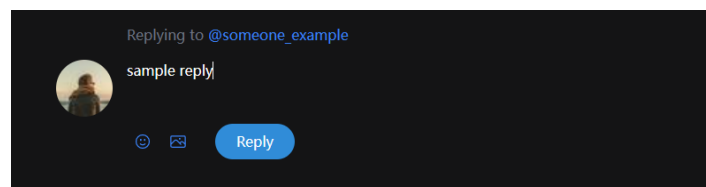


Figure 19: Input into the comment input box



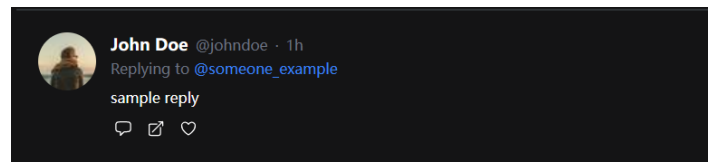


Figure 20: On successful reply, the comment will be displayed

### 2.2.3 Objects and Actions

When entering the tweet display page, the tweet content and comments will be displayed.

If user clicks on the return button on the top, he/she will return to the previous page.

If user clicks on the avatar or name of the tweet author or a comment author, he/she will enter the profile page of that author.

If user clicks on the comment/retweet/like button under the tweet content display or a comment display, he/she will perform the corresponding comment/retweet/like action.

If user enters something in the comment input box and clicks the "Reply" button, he/she will post a comment, and the comment will appear under this tweet. If nothing is entered, the "Reply" button is disabled.

## 2.3 View-3 Search page

### 2.3.1 Description of the view

The search system's view in the Twitter-Clone app includes a left pane with the user's search history and a search bar floating at the top of the interface. Once the user enters their search query and clicks the search button, the search results are displayed on the right side of the interface. The search results may include a mix of tweets, users, and chat messages that match the search query. The tweets and users are displayed in a format similar to the Twitter-Clone app's standard tweet and user interfaces, with text, images, and other relevant information displayed. The user can interact with the search results, such as clicking on a user to view their profile or clicking on a tweet to view its full content. Overall, the search system's view is designed to be intuitive and easy to use, allowing the user to quickly search for and find relevant content within the Twitter-Clone app.

## 2.3.2 Screen images

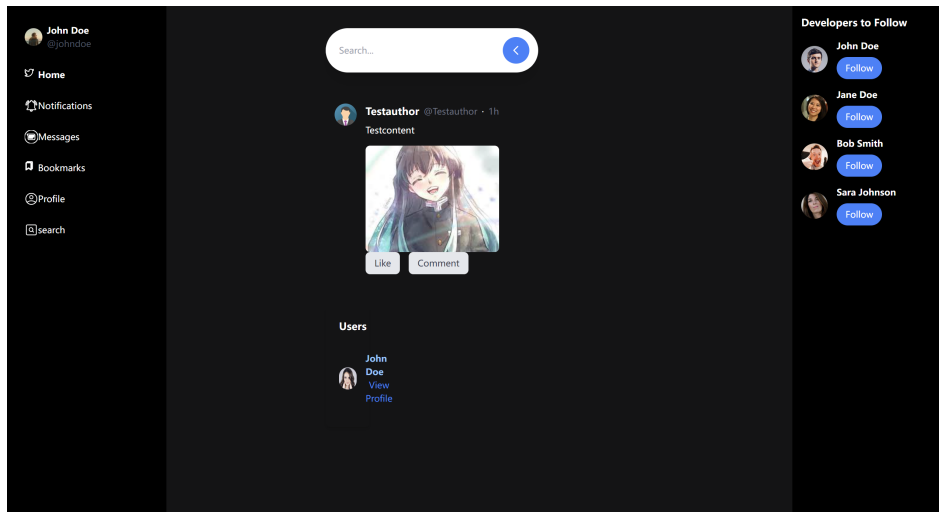


Figure 21: Search page: there is leftPane, and a typable search bar floating at the top, and some search results including a tweet and a user.

## 2.3.3 Objects and actions

In the search system for the Twitter-Clone app, there are several objects and actions that the user can interact with. The left pane displays the user's search history, allowing them to quickly access previous search queries and results. The input box is where the user enters their search query, and the search button initiates the search process. Once the search is complete, the search results are displayed on the right side of the interface. The results may include a mix of tweets and users that match the search query. The user can interact with the results by clicking on a user to view their profile or clicking on a tweet to view its full content.

Overall, the objects and actions in the search system are designed to provide the user with a seamless and efficient search experience, allowing them to quickly find relevant content within the Twitter-Clone app.

## 2.4 View-4 Friend List Page

### 2.4.1 Description of the view

This page displays the a user's name, ID, and his/her following and follower list. The user can choose to follow, unfollower a user, or view the information of a user in the follower list and unfollow a user in the following list.

## 2.4.2 Screen Images

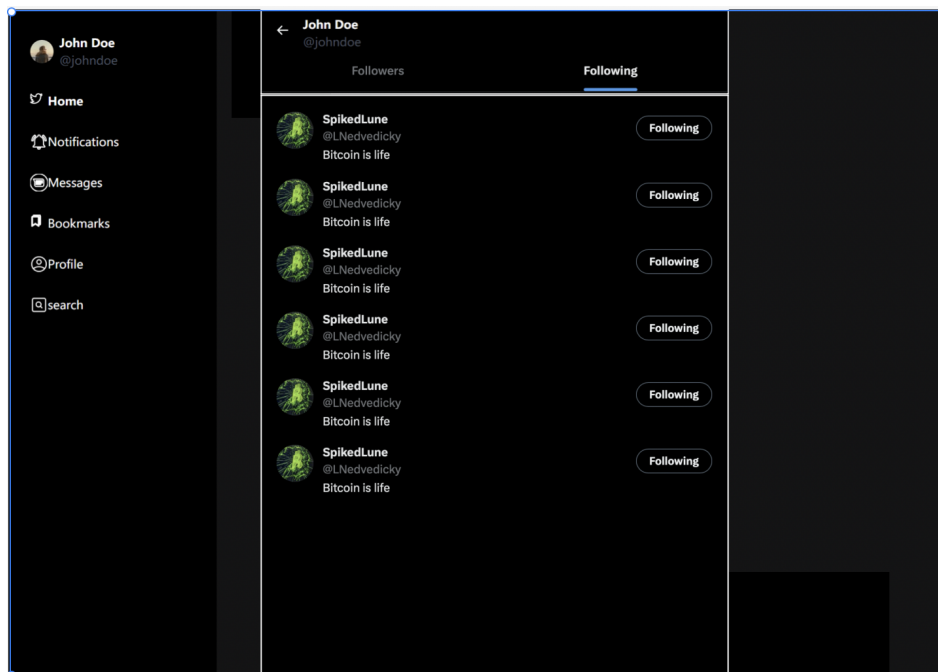


Figure 22: following list

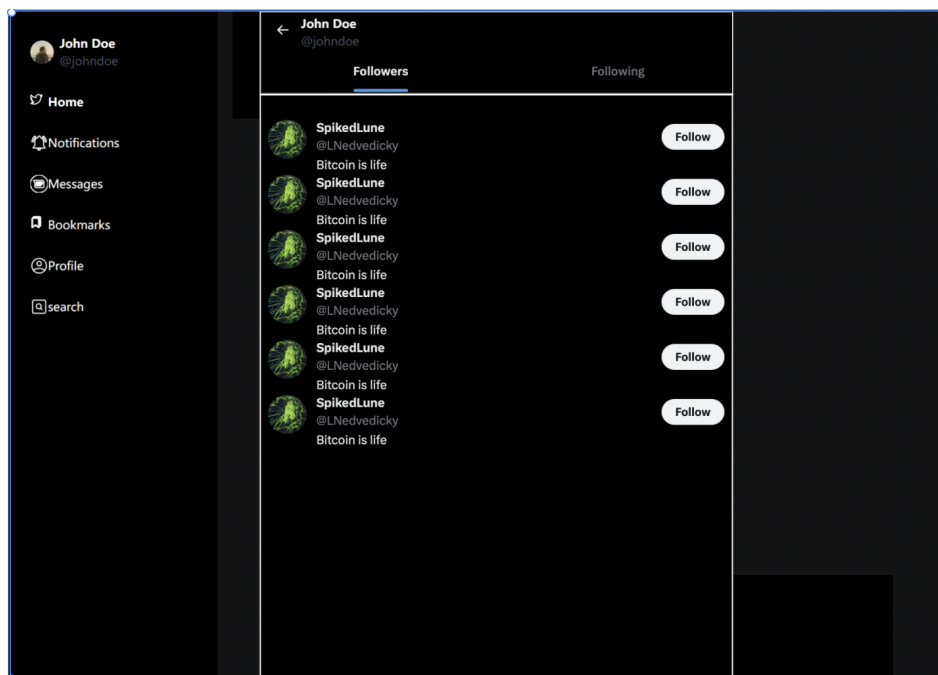


Figure 23: follower list

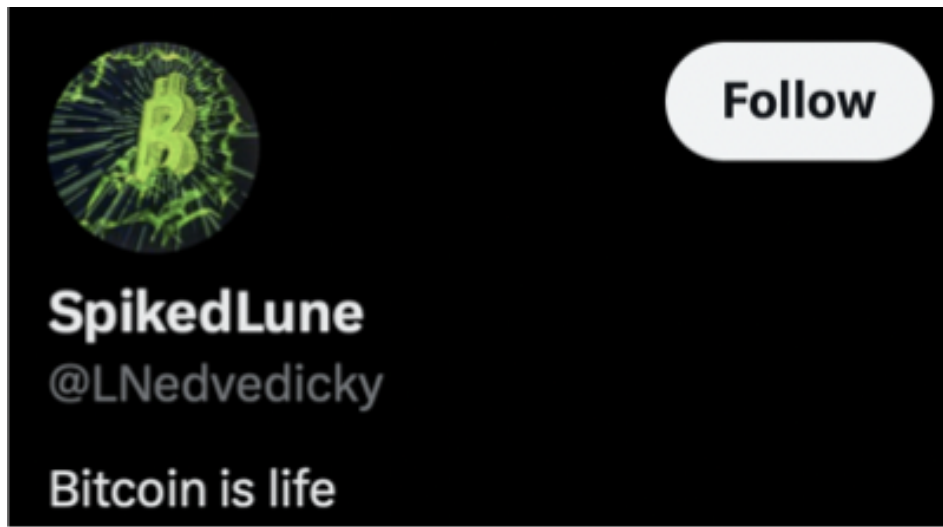


Figure 24: User name card

### 2.4.3 Objects and Actions

When click on the 'unfollow' button of one user in the following list, the user will disappear from the list.

When the mouse hovers on one of the users in the follower or following list, a name card will pop up. If the user clicks on the name card, the host user can go to the chosen user's homepage.

## 2.5 View-5 Private Chat Page

### 2.5.1 Description of the view

This private chat page displays the contact list, with the display name of contact person, his/her user-name, the latest message and message timestamp displayed on the left. Also, there is a place for users to search users from their contact list. Chat content are displayed on the right part of the page.

### 2.5.2 Screen Images

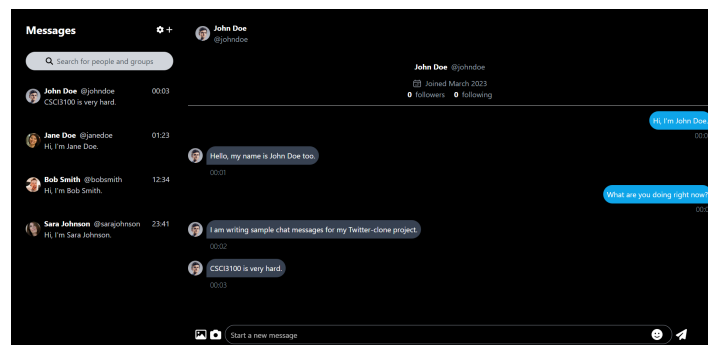


Figure 25: Private chat display with contact list and chat contents

### 2.5.3 Objects and Actions

When entering the private chat page, the contact list and direct message page will be displayed.

If user clicks on the chat box on the left, he/she can chat with that selected user. After typing messages on the input box located at the bottom, user can send his/her messages to others by clicking the 'plane' button.

## 2.6 View-6 Login/ Signup Page

### 2.6.1 Description of the view

This page displays the login/ signup page. Users are required to enter the required personal information for login/ signup purposes according to the screenshots.

### 2.6.2 Screen Images

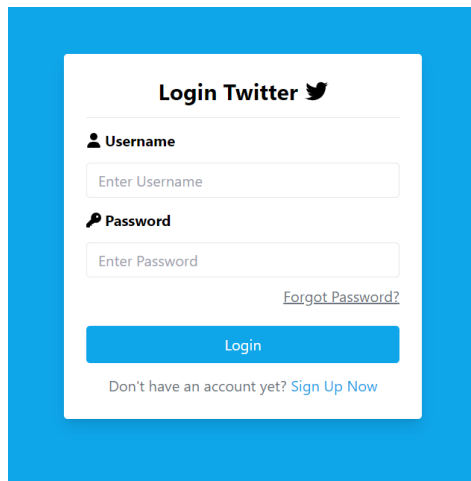
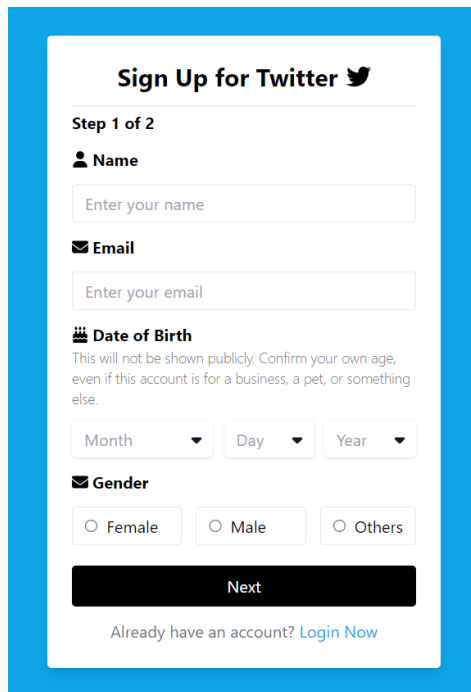

A screenshot of the Twitter login interface. It features a white login box centered on a solid blue background. The box is titled "Login Twitter" with the Twitter bird icon. Below the title, there are two input fields: "Username" with a person icon and "Password" with a key icon. Each field has a placeholder text "Enter Username" and "Enter Password" respectively. To the right of the password field is a link that says "Forgot Password?". Below the input fields is a blue "Login" button. At the bottom of the box, there is a link that says "Don't have an account yet? Sign Up Now".

Figure 26: Login Box

The image shows the first step of the Twitter sign-up process. It is titled "Sign Up for Twitter" with the Twitter bird logo. Below the title, it says "Step 1 of 2". The first section is "Name", with a text input field labeled "Enter your name". The second section is "Email", with a text input field labeled "Enter your email". The third section is "Date of Birth", with a note: "This will not be shown publicly. Confirm your own age, even if this account is for a business, a pet, or something else." Below this note are three dropdown menus for "Month", "Day", and "Year". The fourth section is "Gender", with three radio button options: "Female", "Male", and "Others". At the bottom, there is a black "Next" button and a link that says "Already have an account? Login Now".

**Sign Up for Twitter** 

**Step 1 of 2**

**Name**

Enter your name

**Email**

Enter your email

**Date of Birth**

This will not be shown publicly. Confirm your own age, even if this account is for a business, a pet, or something else.

Month Day Year

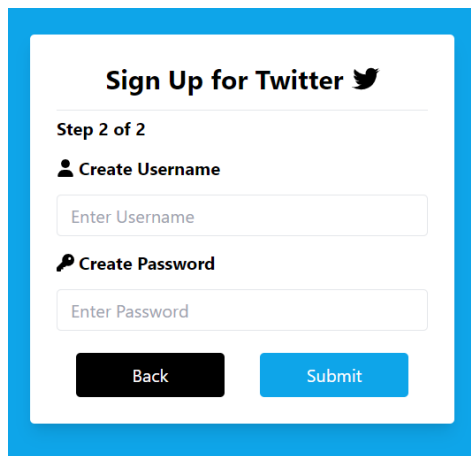
**Gender**


☐ Female ☐ Male ☐ Others

**Next**

Already have an account? [Login Now](#)

Figure 27: Signup Box (Page 1)

The image shows the second step of the Twitter sign-up process. It is titled "Sign Up for Twitter" with the Twitter bird logo. Below the title, it says "Step 2 of 2". The first section is "Create Username", with a text input field labeled "Enter Username". The second section is "Create Password", with a text input field labeled "Enter Password". At the bottom, there are two buttons: a black "Back" button and a blue "Submit" button.

**Sign Up for Twitter** 

**Step 2 of 2**

**Create Username**

Enter Username

**Create Password**

Enter Password

**Back** **Submit**

Figure 28: Signup Box (Page 2)

### 2.6.3 Objects and Actions

When entering the login/ signup page, the login/ signup box will be displayed.

There is a 'forgot password' button directing users to the re-set password page. Also, users can easily navigate from login page to signup page by clicking the blue button at the bottom of the display box, and vice versa.

For login page, a login box with username and password field will be displayed. A user can login to Twitter by clicking the login button.

For signup page, various information are required to be input by users, including name, email, date of

birth, and gender. Also, they need to create their username and password to create a Twitter account. If user clicks on the next button on page 1, he/she will go to the next page. If user clicks on the back button on page 2, he/she will return to the previous page.