Object-Oriented Analysis & Design

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1. Introduction

1.1. Project Context

In today's modern world, social media platforms are a corner stone of our society. As more and more people rely on digital communication channels and online interactions, it has become necessary to have safe, user-friendly platforms that enables ideas to proliferate and reach a wider audience by allowing individuals express themselves genuinely. As we further rely on social media for interaction and expression, our initiative aims to meet the increasing demand for a comprehensive social media network that prioritizes user experience, privacy, and inclusivity. We aspire to create a platform that helps users connect, communicate, and collaborate in meaningful ways, thus enriching the digital landscape and fostering a sense of belonging in an increasingly interconnected world.

1.2. Project Description

Our project involves developing a social media platform that focuses on the user experience. Our platform aims to create connections, facilitate communication, and allow users to share content from all over the world. The platform will have various features, including customizable feeds, messaging capabilities, privacy controls, and individualized user profiles. Users will be able to share text posts and photos, among other things. Our goal is to create a dynamic and inclusive platform that caters to a variety of user needs and preferences. Ultimately, we hope to improve the digital experience by fostering meaningful interactions.

1.3. Report Structure

This project is based on Object-Oriented Analysis and design that aims to analyse and model requirements, model entities, and their interactions, and design a software solution using object-oriented concepts and principles. The following diagrams will be used:

- Domain Class Diagram
- Use Case Diagram
- System Sequence Diagram
- Design Class Diagram
- Sequence Diagram
- State-Chart Diagram

Microsoft Visio will be used to represent and model the required diagrams.

2. Requirements Analysis

2.1. Introduction

Requirements analysis is a critical process in software development that is also known as requirements engineering or requirements gathering. It involves identifying, analysing, documenting, and validating the needs and expectations of stakeholders for a software project. This phase is designed to answer questions like who will use the system, what the system will do, and where and when it will be used. To aid communication and understanding among

stakeholders, the following diagrams will be used: domain class diagram, use case model (which includes a use case diagram, use case description, and system sequence diagram). [1][2]

2.2. Domain Class Diagram

The domain class diagram is a simplified structure that represents the real-world classes of the application domain. These domain classes are what end users interact with while performing their work. The diagram provides a static representation of conceptual classes, attributes, and relationships within the problem domain. It offers an overview of the domain model of a system by describing a set of classes and their relationships, along with their attributes and excluding operations (functions).[1][2][3][4]

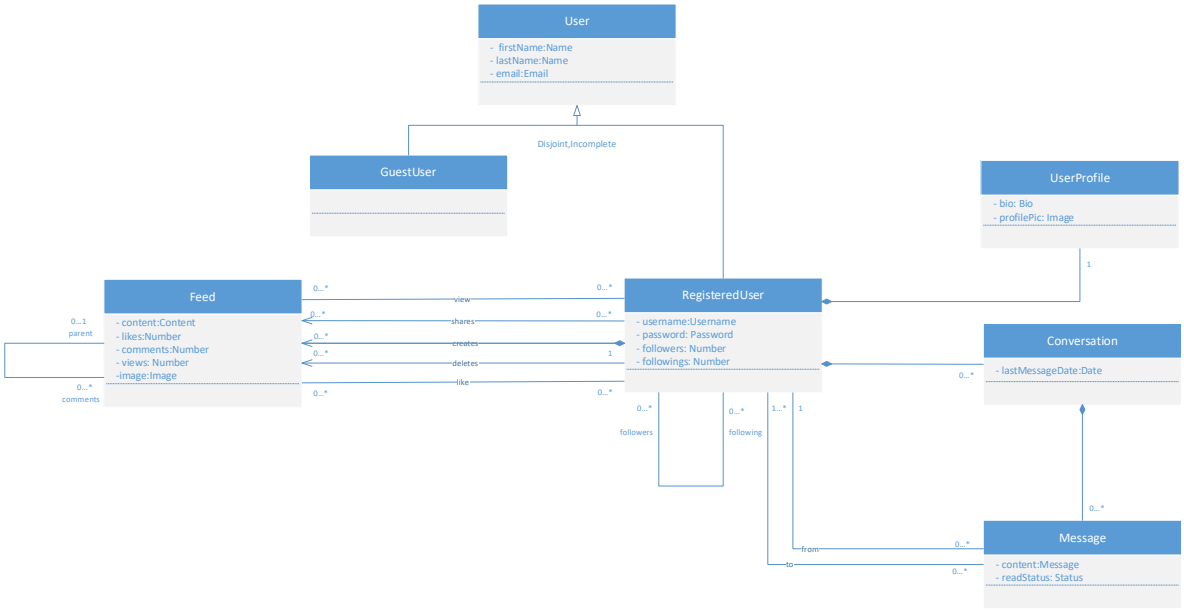

Figure 1 Domain Class Diagram

The above domain class diagram (Figure 1.1) illustrates the elements of the system domain: User, GuestUser,RegisteredUser,Message,Conversation,UserProfile,and Feed.

2.3. Use Case Model

2.3.1. Use Case Diagram

A use case diagram is a type of behavioural diagram that gives an overview of a system's functionality from the user's perspective. It shows how the system interacts with actors to achieve specific goals or tasks. In simpler terms, a use case represents a particular set of activities that are performed to produce a desired output result. [1][2]

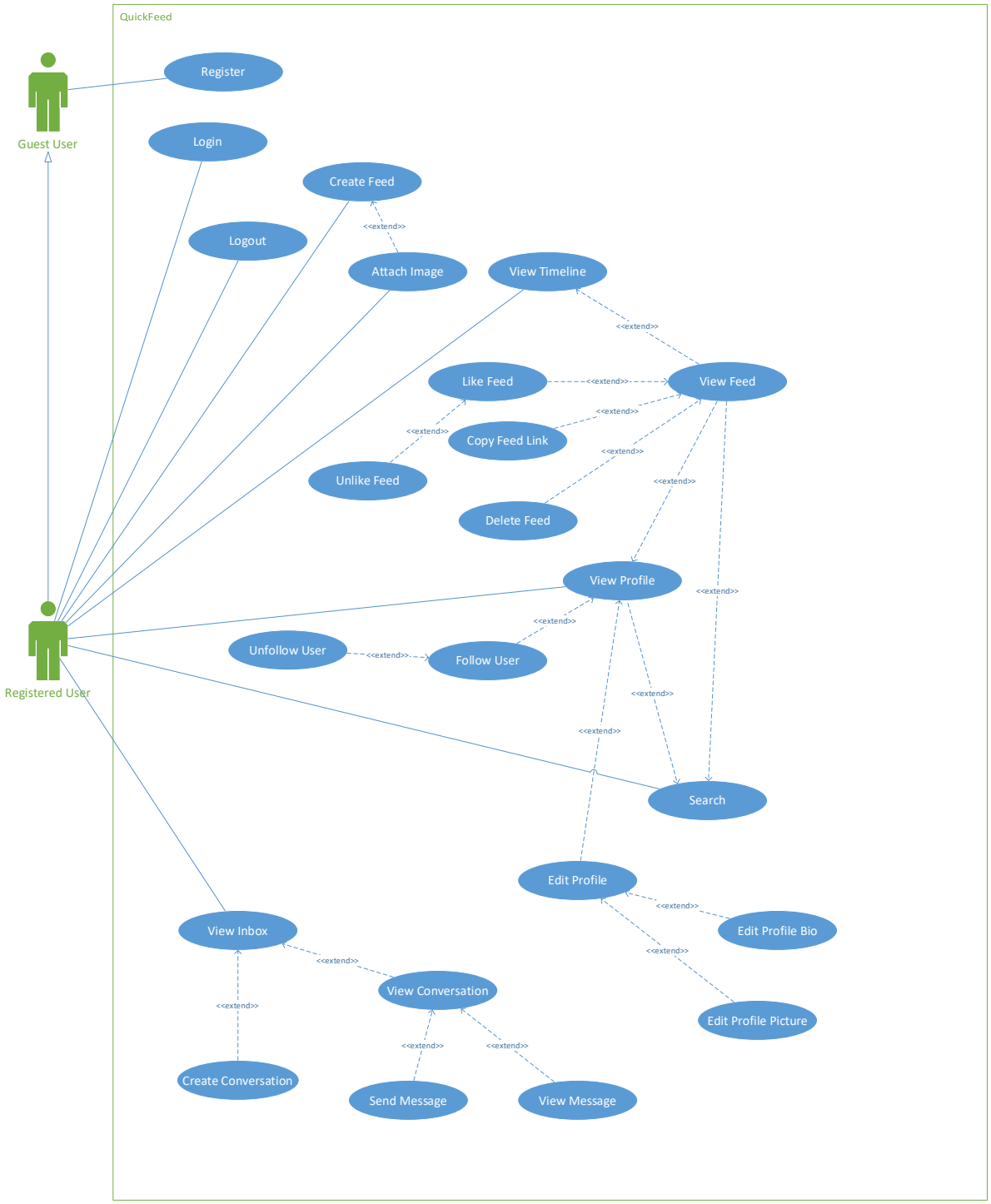

Figure 2 Use Case Diagram

The use case diagram shown in figure 1.2 depicts the functionalities that are available to both guest and registered users. As per the diagram, guest users can create an account and become registered. After registration, they can perform various actions such as creating feeds, deleting their posted feeds, sharing feed links, viewing feeds, searching others' profiles, and even initiating conversations with other registered users.

2.3.2. Use Case Description & System Sequence Diagram

- Use Case Description Table:

  The use case description table is a structured table to represent one or more use cases. The table provides detailed information about each use case identified in the use case diagram.it shows the functionalities of the system in a sequence of steps from the user's perspective and the systems behavior as a response. The use case description table has the following fields: [1][5]

  - ***Use case name:*** Title of the represented use-case.
  - ***Use case description:*** A brief description of the represented use-case.
  - ***Inputs:*** Data required to perform the use-case (actor inputs and system inputs).
  - ***Pre-conditions:*** The conditions that must be true before the use-case can be executed.
  - ***Sources:*** Represents the entity (actor or system) that initiates the interaction.
  - ***Destination:*** Represents the entity (actor or system) that receives the interaction sent by the source.
  - ***Steps:*** The main flow of events or steps that occur during the execution to accomplish the purpose of the use-case.
  - ***Outputs:*** Represents the result or the response that will be displayed after executing the use case.
  - ***Post-conditions:*** The conditions that are expected to be true after the successful completion and execution of the use-case.
  - ***Exceptions:*** Exceptional events that occur preventing the successful flow from executing.

- System Sequence Diagram:

A system sequence diagram is a type of sequence diagram that shows how a system behaves interactively. It illustrates the sequence of use cases that occur when different components and objects within the system interact with each other to complete a process.[1][6]

2.3.2.1. Register

Use-Case Description	
Use-Case Name	Register
Use-Case Description	Enables individuals to create an account on QuickFeed platform
Inputs	First Name, Last Name, Username,Email Address, Password
Pre-Conditions	No existing account with the provided username or email address.
Source	Guest User
Steps	1. The guest user navigates to the registration page. 2. The system presents the registration form. 3. The guest user submits the form with their credentials. 4. The system redirects the user to the home page.
Outputs	Home page
Post-Conditions	• Home page is displayed. • New user account created
Destination	QuickFeed System
Exception	• Invalid input formats: notify the user with 'Invalid input format' error. • If password and confirmation password don't match: notify the user with 'Password doesn't match' error. • Account exists: notify the user with 'Account already exists' error.

Table 1 Register Use Case Description

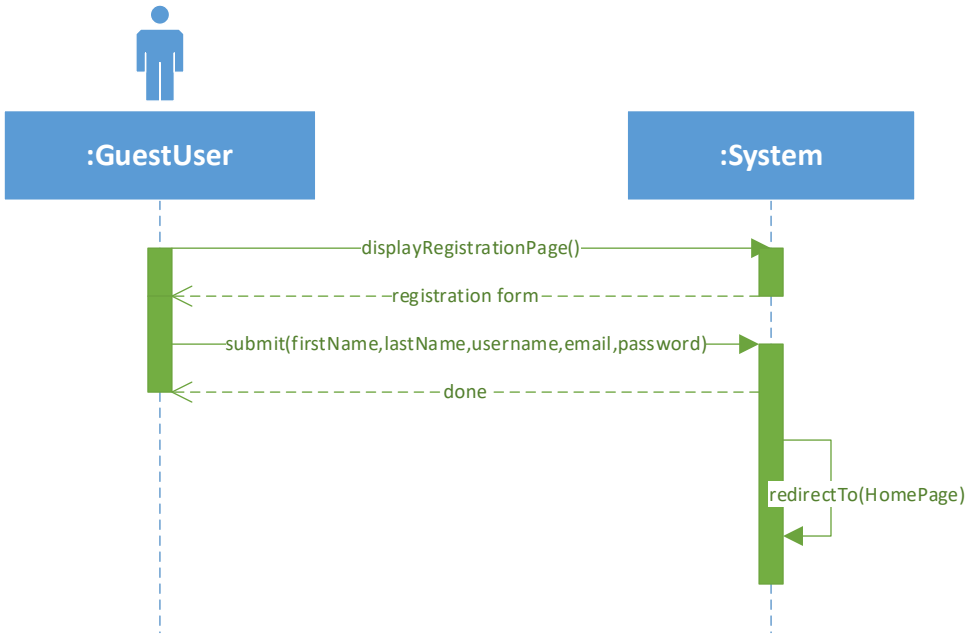

Figure 3 Register System Sequence Diagram

2.3.2.2. Login

Use-Case Description	
Use-Case Name	Login
Use-Case Description	Facilitates user access to the platform.
Inputs	Username,Password
Pre-Conditions	The user has an existing account.
Source	Registered User
Steps	1. The registered user navigates to the login page. 2. The system presents the login form. 3. The registered user submits the form with their credentials. 5. The system redirects the registered user to the home page.
Outputs	Home page
Post-Conditions	• Home page is displayed. • User is logged in.
Destination	QuickFeed System
Exception	• Invalid input formats: notify the user with 'Invalid input format' error. • Invalid account: notify the user with 'Account doesn't exist' error.

Table 2 Login Use Case Description

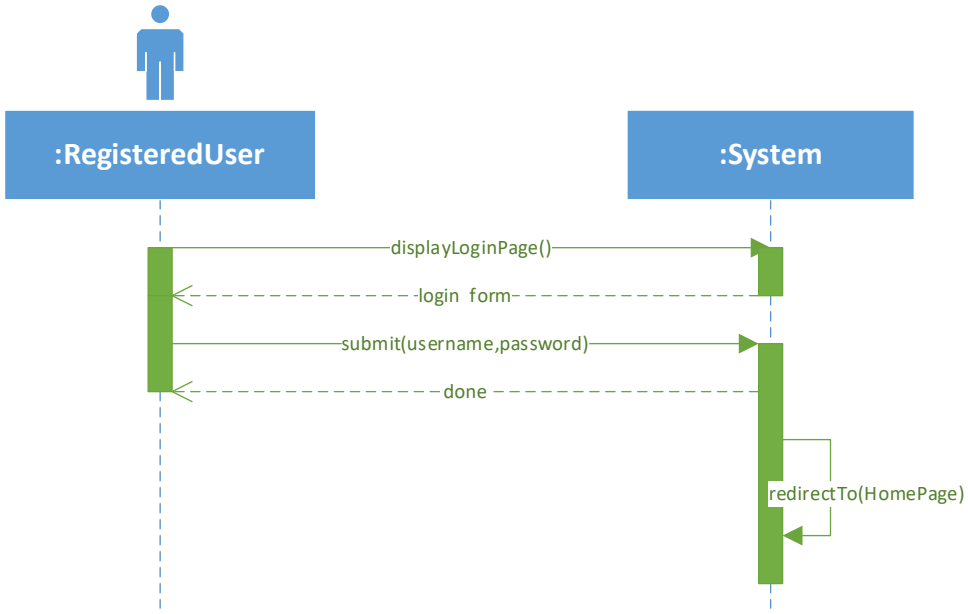

Figure 4 Login System Sequence Diagram

2.3.2.3. Create Feed

Use-Case Description	
Use-Case Name	Create Feed
Use-Case Description	Enables registered users to create and post a feed.
Inputs	Feed Content, registered user ID (system input)
Pre-Conditions	The user is registered.
Source	Registered User
Steps	1. The registered user clicks on the 'Create feed' button. 2. The system presents a modal for the user to create a new feed. 3. The registered user enters the content they want to post. 4. The registered user clicks the submit button to add the post. 5. The system displays an alert notification confirming the action. 6. If the registered user wants to attach an image, then go to attach image use case.
Outputs	• Feed posted. • Alert notification.
Post-Conditions	The registered user and other online users shall be able to see the posted feed.
Destination	QuickFeed System
Exception	If the user tries to submit an empty content the form isn't submitted

Table 3 Create Feed Use Case Description

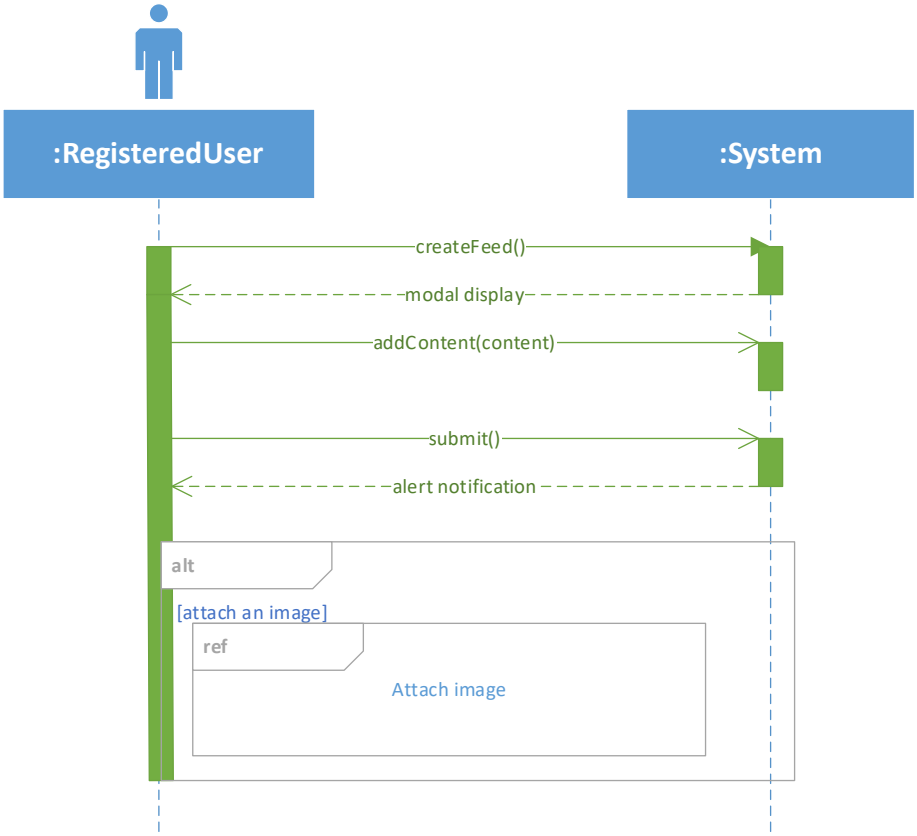

Figure 5 Create Feed System Sequence Diagram

2.3.2.4. Attach Image

Use-Case Description	
Use-Case Name	Attach image
Use-Case Description	Add an image to the created feed.
Inputs	Image
Pre-Conditions	• The user is registered. • The registered user is in the process of creating a new feed
Source	Registered User
Steps	1. The registered user clicks attach image option. 2. The system displays file picker dialog. 3. The registered user adds the desired image.
Outputs	• Selected image is attached to the composed feed.
Post-Conditions	The selected image is successfully attached, and the registered user can view it.
Destination	QuickFeed System
Exception	If the user wants to attach an image without adding text content: 4. The user clicks on the 'Create feed' button. 5. The system presents a modal for the user to create a new feed. 6. The registered user clicks attach image option. 7. The system displays file picker dialog. 8. The registered user adds the desired image. 9. The system displays the image. 10. The system displays an alert notification confirming the action.

Table 4 Attach Image Use Case Description

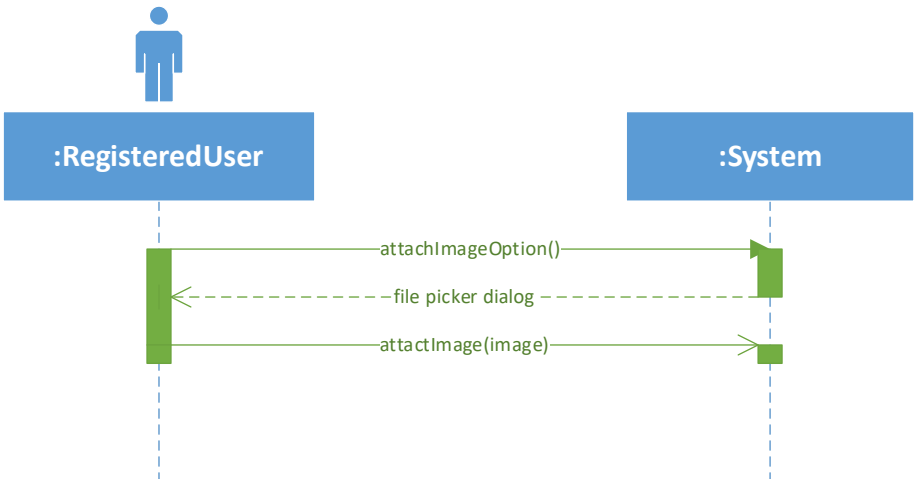

Figure 6 Attach image System Sequence Diagram

2.3.2.5. *View Timeline*

Use-Case Description	
Use-Case Name	View Timeline
Use-Case Description	Enable registered users to view and scroll through the timeline.
Inputs	Registered user ID (system input)
Pre-Conditions	The user is registered.
Source	Registered User
Steps	1. The registered user navigates to the timeline section within the platform. 2. The system loads feeds of the other followed users. 3. The system dynamically loads more feeds as the user scrolls. 4. If the registered user wants to view a feed, then go to view feed use case.
Outputs	Feeds
Post-Conditions	The registered user successfully views the timeline content.
Destination	QuickFeed System
Exception	If no feeds are available to display in the timeline: Show a “No available Feeds” message.

Table 5 View Timeline Use Case Description

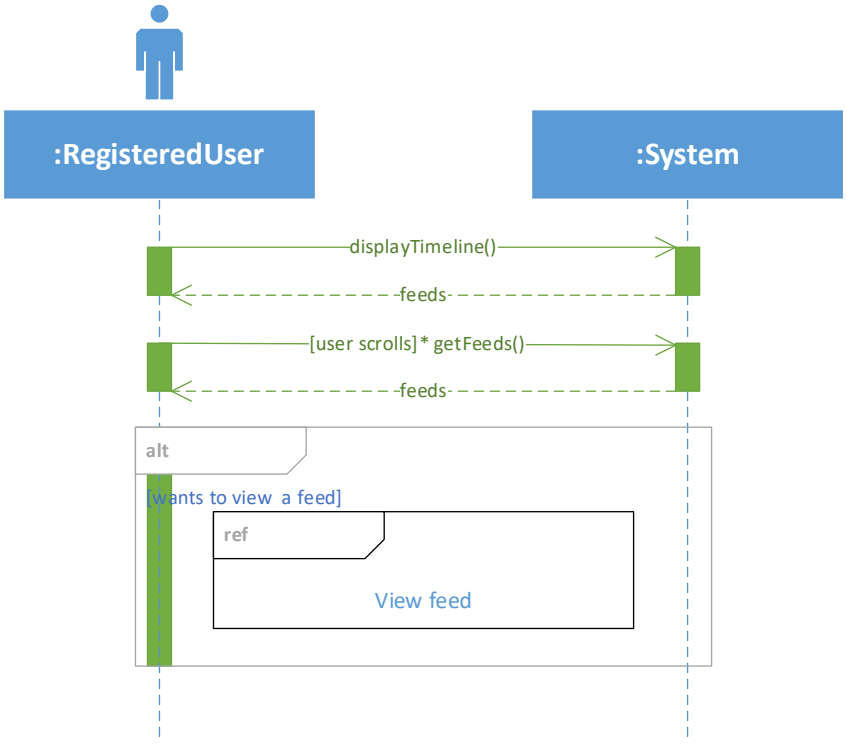

Figure 7 View Timeline System Sequence Diagram

2.3.2.6. *View Feed*

Use-Case Description	
Use-Case Name	View Feed
Use-Case Description	Enable registered users to view feeds.
Inputs	Feed ID (system input)
Pre-Conditions	• The user is registered. • Feed is available.
Source	Registered User
Steps	1. The registered user selects a feed to view in detail. 2. The System displays the feed. 3. If the registered user wants to like a feed, then go to like feed use case. 4. If the registered user wants to delete a feed, then go to delete feed use case. 5. If the registered user wants to share a feed link, then go to share feed link use case.
Outputs	Feeds
Post-Conditions	The registered user successfully views the timeline content.
Destination	QuickFeed System
Exception	None

Table 6 View Feed Use Case Description

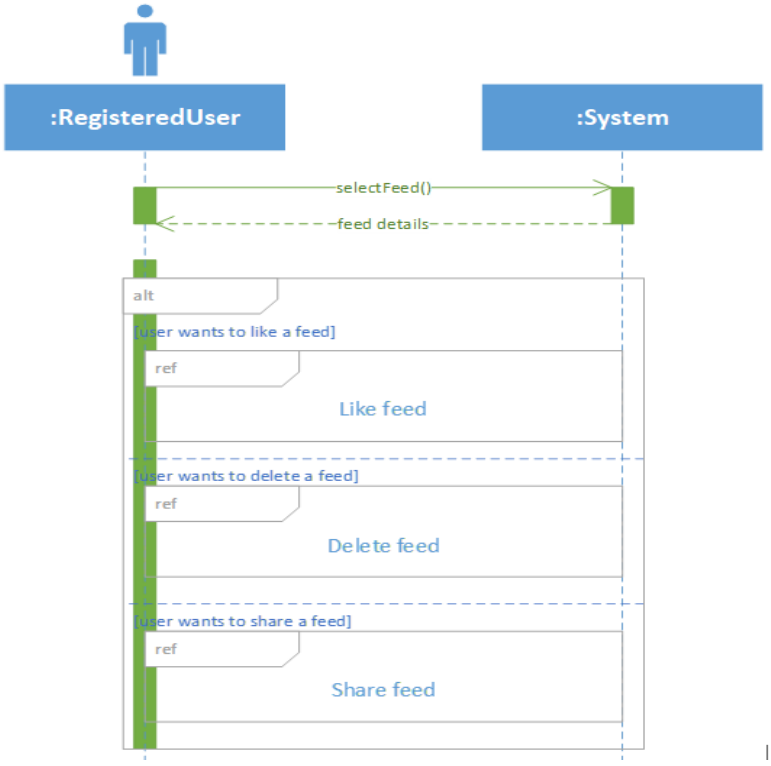

Figure 8 View Feed System Sequence Diagram

2.3.2.7. Like Feed

Use-Case Description	
Use-Case Name	Like Feed
Use-Case Description	Allows registered users to like feeds.
Inputs	Feed ID (system input), registered user ID (system input)
Pre-Conditions	• The user is registered • The feed is available • The feed is not liked by user
Source	Registered User
Steps	1. The registered user clicks on the heart icon associated with the feed to add their like to the feed. 2. The system updates the feed view. 3. The system displays an alert notification confirming the action. 4. If the registered user wants to dislike the feed, then go to dislike feed use case.
Outputs	• Heart icon changes • Updated like count for the feed. • Alert notification
Post-Conditions	The feed's likes counter will be updated
Destination	QuickFeed System
Exception	None

Table 7 Like Feed Use Case Description

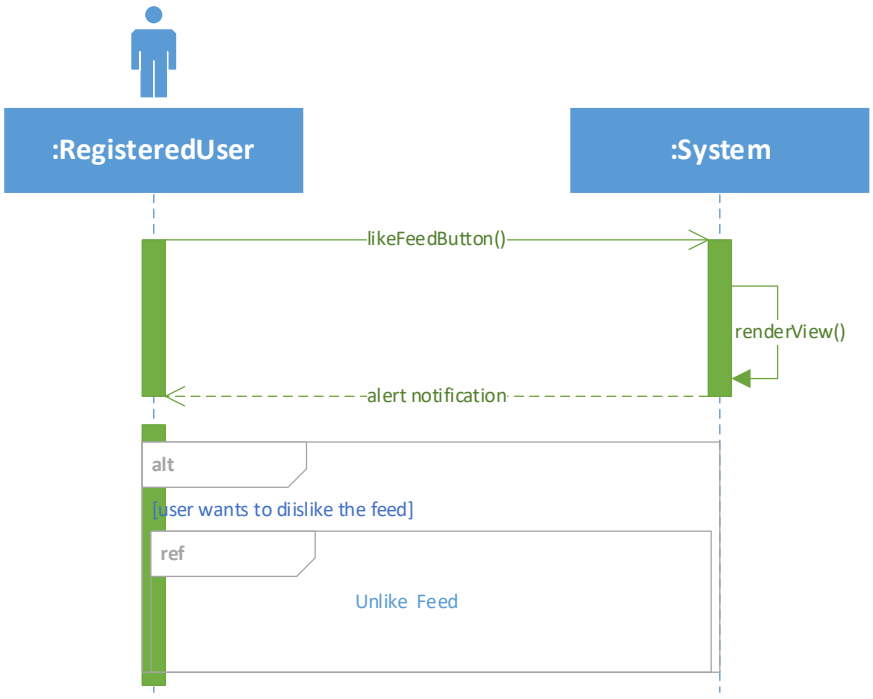

Figure 9 Like Feed System Sequence Diagram

2.3.2.8. Unlike Feed

Use-Case Description	
Use-Case Name	Unlike Feed
Use-Case Description	Allows registered users to unlike liked feeds.
Inputs	Feed ID (system input), registered user ID (system input)
Pre-Conditions	• The user is registered • The feed is available • The feed is liked by user
Source	Registered User
Steps	1. The registered user clicks on the heart icon associated with the feed to remove their like from the feed. 2. The system updates the feed view.
Outputs	• Heart icon changes • Updated like count for the feed.
Post-Conditions	The feed's likes counter will be updated
Destination	QuickFeed System
Exception	None

Table 8 Unlike Feed Use Case Description

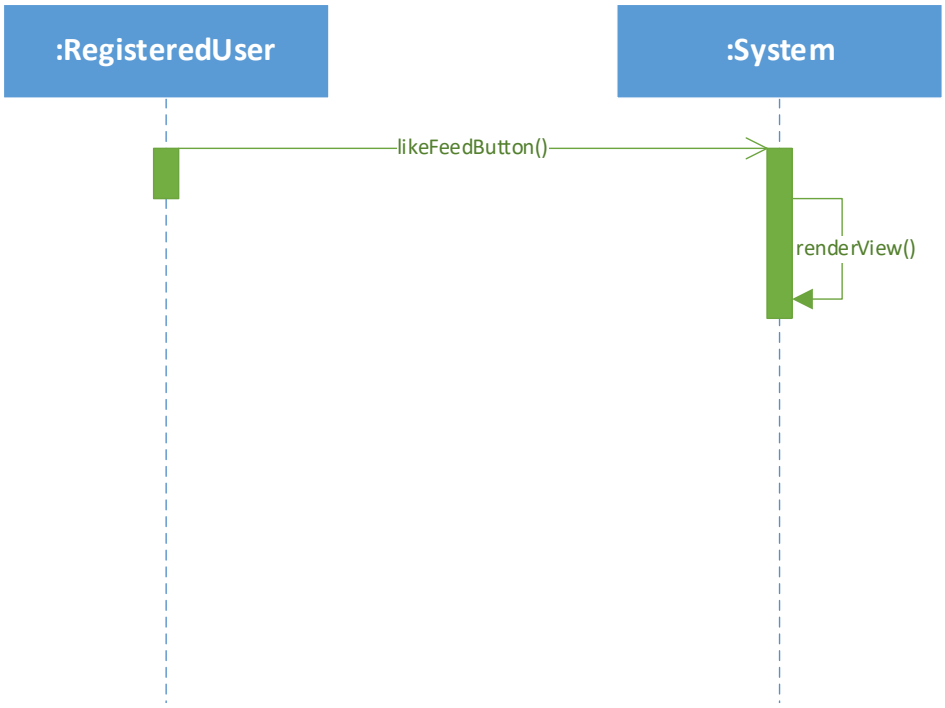

Figure 10 Dislike Feed System Sequence Diagram

2.3.2.9. Copy Feed Link

Use-Case Description	
Use-Case Name	Copy Feed Link
Use-Case Description	Enable registered users to copy the selected feed link (URL).
Inputs	Feed ID (system input)
Pre-Conditions	• The user is registered. • Feed is available
Source	Registered User
Steps	1. The registered user clicks on the share icon associated with the feed. 2. The system generates a unique link for the feed to be copied. 3. The system copies the feed link to the user's clipboard. 4. The system displays an alert notification confirming the action.
Outputs	• Generated feed link • Alert notification
Post-Conditions	The feed link is copied to the user's clipboard.
Destination	QuickFeed System
Exception	None

Table 9 Copy Feed Link Use Case Description

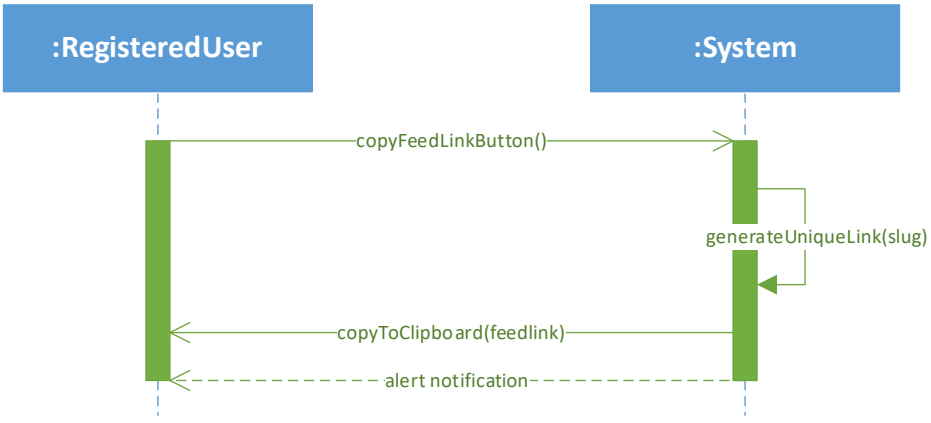

Figure 11 Copy Feed Link System Sequence Diagram

2.3.2.10. Delete Feed

Use-Case Description	
Use-Case Name	Delete Feed
D	Enable registered users to delete their posted feeds.
Inputs	• Feed ID (system input) • Registered User ID (system input)
Pre-Conditions	• The user is registered. • Feed is available. • The feed is created by this user.
Source	Registered User
Steps	1. The registered user clicks on the delete icon associated with the feed. 2. The system updates the view. 3. The system displays an alert notification confirming the action.
Outputs	• Feed Deleted • Alert notification
Post-Conditions	• The feed is deleted • The feed is no longer available for other users.
Destination	QuickFeed System
Exception	None

Table 10 Delete Feed Use Case Description

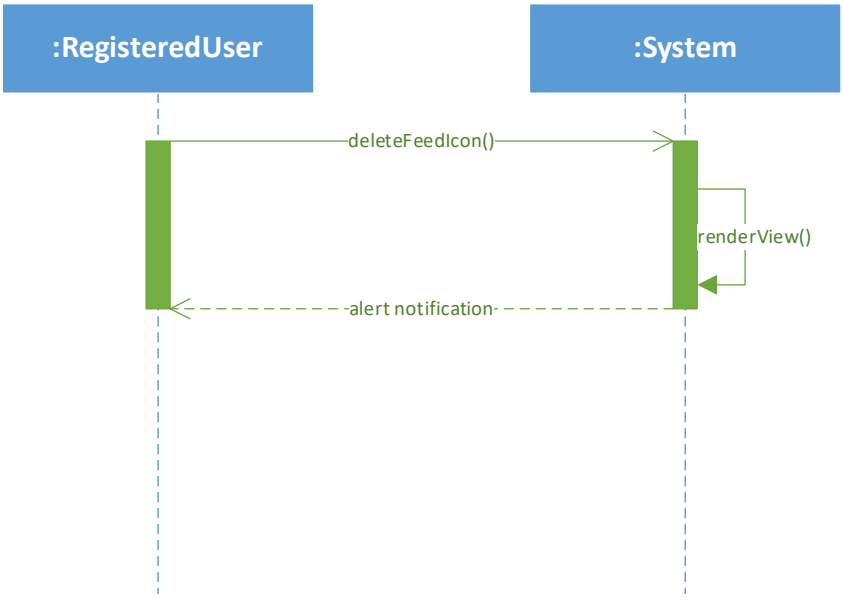

Figure 12 Delete Feed System Sequence Diagram

2.3.2.11. Search

Use-Case Description	
Use-Case Name	Search
Use-Case Description	Enable registered users search feeds content or other user's profiles.
Inputs	Search query
Pre-Conditions	• The user is registered.
Source	Registered User
Steps	1. The registered user clicks on the search input field in the top navigation bar to activate it. 2. The registered user submits the search query by clicking on the search icon. 3. The system displays the search results. 4. If the registered user wants to view a feed, then go to view feed use case. 5. If the registered user wants to view a profile, then go to view profile use case.
Outputs	Search results
Post-Conditions	The user successfully views the search results.
Destination	QuickFeed System
Exception	If the search query returns no matching results: display a message "No results found".

Table 11 Search Use Case Description

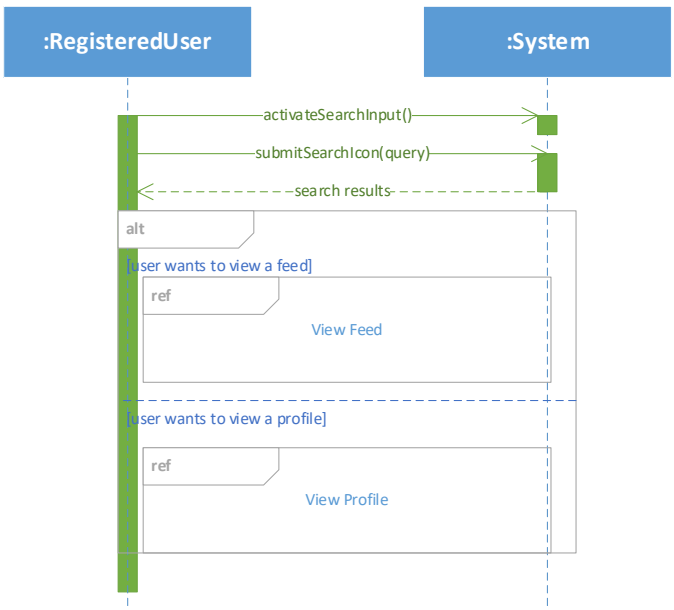

Figure 13 Search System Sequence Diagram

2.3.2.12. View Profile

Use-Case Description	
Use-Case Name	View Profile
Use-Case Description	Enable registered users to view theirs and other users' profiles.
Inputs	Chosen User ID (system input)
Pre-Conditions	The user is registered.
Source	Registered User
Steps	1. The registered user selects their desired profile to view. 2. The system displays the selected user's information, including username, full name,bio,profile picture, and posted feeds. 3. If the registered user wants to edit their profile, then go to the edit profile use case. 4. If the user wants the follow the user, then go to follow user use case.
Outputs	User's profile information
Post-Conditions	The user successfully views the profile information.
Destination	QuickFeed System
Exception	• If the registered user wishes to view their profile profiles: 1. The registered user navigates to their profile page. 2. The system displays the user's information, including username,full name,nio,profile picture,and posted feeds. • If profile is not found: display a message "Profile Not Found".

Table 12 View Profile Use Case Description

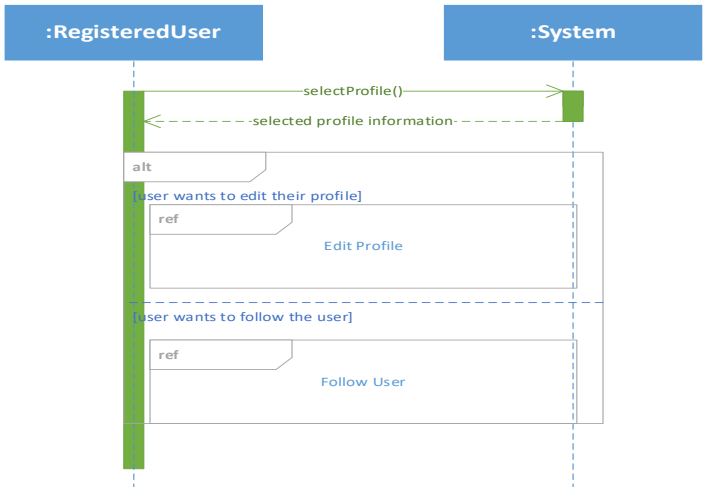

Figure 14 View Profile System Sequence Diagram

2.3.2.13. Follow User

Use-Case Description	
Use-Case Name	Follow user
Use-Case Description	Enable registered users to follow other users.
Inputs	• Chosen User ID (system input) • Registered user ID (system input)
Pre-Conditions	• The user is registered. • User is available. • The user is currently not following the user they wish to follow. • Not the registered user own profile
Source	Registered User
Steps	1. The registered user clicks on the follow button to follow the user. 2. The system renders the view. 3. The system displays an alert notification to confirm the action. 4. If the registered user wants to unfollow the followed user, then go to unfollow user use case.
Outputs	• Alert notification • Updated user's profile followers counter for the followed user • Follow button changes
Post-Conditions	• The follows counter will be updated • The followed user is added to the user's list of followed users.
Destination	QuickFeed System
Exception	None

Table 13 Follow User Use Case Description

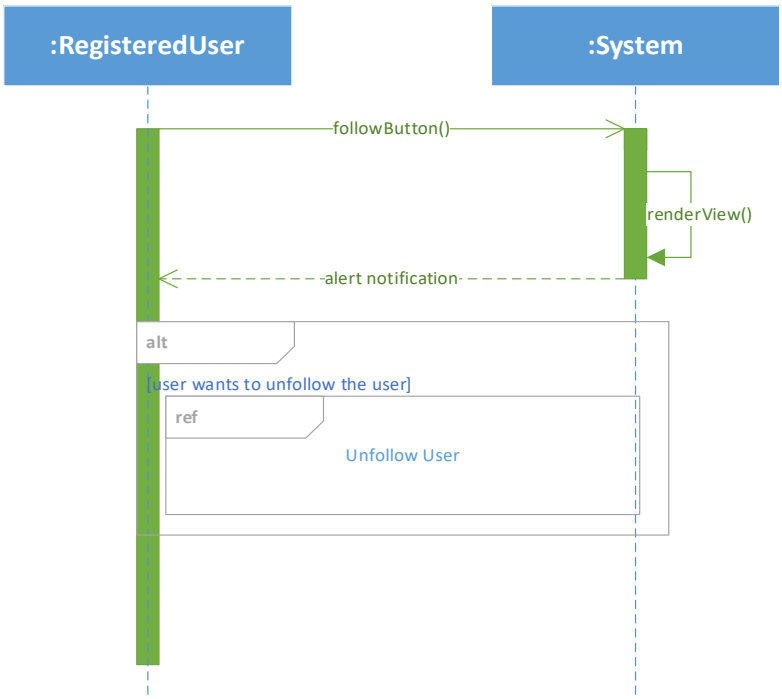

Figure 15 Follow User System Sequence Diagram

2.3.2.14. Unfollow User

Use-Case Description	
Use-Case Name	Unfollow user
Use-Case Description	Enable registered users to unfollow currently followed users.
Inputs	• Chosen User ID (system input) • Registered user ID (system input)
Pre-Conditions	• The user is registered. • User is available • The user is currently following the user they wish to unfollow. • Not the registered user own profile
Source	Registered User
Steps	1. The user clicks on the unfollow button to unfollow the user. 2. The system renders the view.
Outputs	• Updated user's profile followers counter for the followed user • Follow button changes
Post-Conditions	• The follows counter will be updated • The followed user is removed from the user's list of followed users.
Destination	QuickFeed System
Exception	None

Table 14 Unfollow User Use Case Description

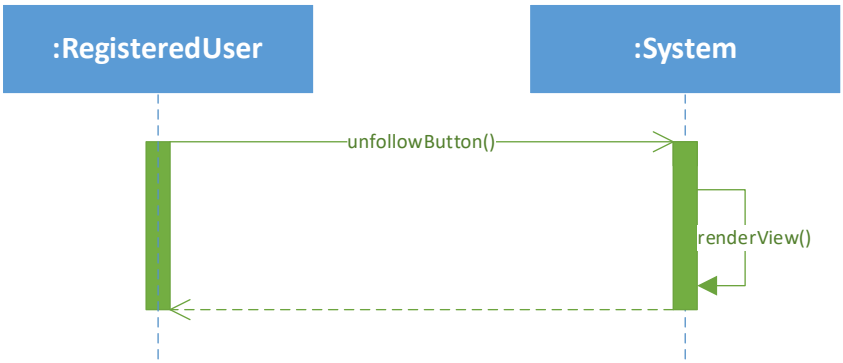

Figure 16 Unfollow User System Sequence Diagram

2.3.2.15. Edit Profile

Use-Case Description	
Use-Case Name	Edit Profile
Use-Case Description	Enable registered users to edit their profile's information.
Inputs	User ID (system input)
Pre-Conditions	• The user is registered. • The registered user is on their own profile.
Source	Registered User
Steps	1. The registered user clicks on their profile settings icon. 2. The system displays the user's current profile information (bio and profile picture). 3. If the registered user wants to edit their profile picture, then go to edit profile picture use case. 4. If the registered user wants to edit their profile bio, then go to edit profile bio use case.
Outputs	• Current profile information.
Post-Conditions	• None
Destination	QuickFeed System
Exception	None

Table 15 Edit Profile Use Case Description

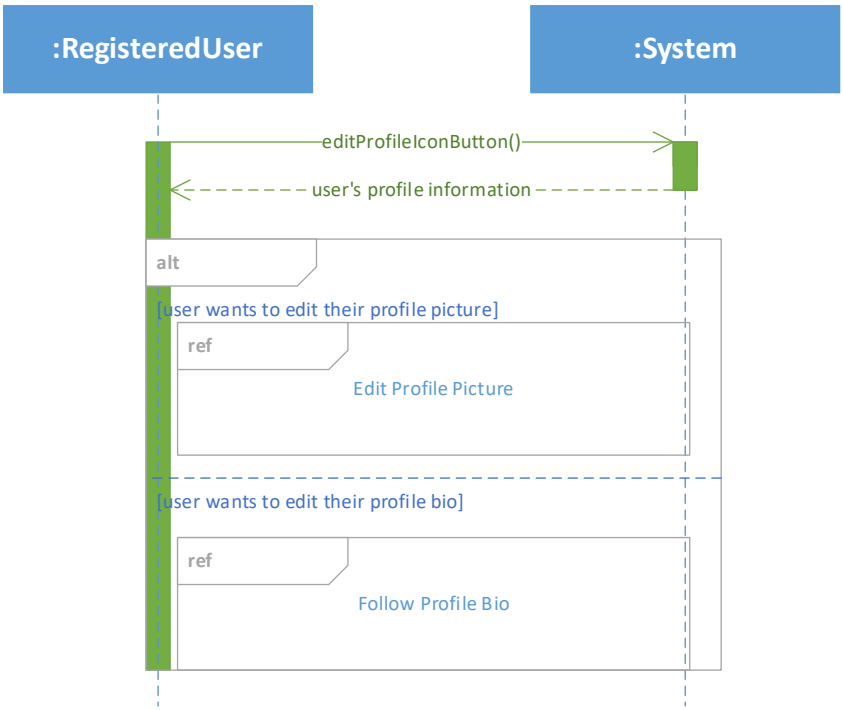

Figure 17 Edit Profile System Sequence Diagram

2.3.2.16. Edit Profile Bio

Use-Case Description	
Use-Case Name	Edit Profile bio
Use-Case Description	Enable registered users to edit their profile's bio.
Inputs	User ID (system input), bio
Pre-Conditions	• The user is registered.
Source	Registered User
Steps	1. The registered user clicks on the bio input field to activate it. 2. The registered user submits the updated bio by clicking on the save button. 3. The system displays an alert notification confirming the action.
Outputs	• Alert notification • Updated bio
Post-Conditions	• The bio is successfully updated
Destination	QuickFeed System
Exception	None

Table 16 Edit Profile Bio Use Case Description

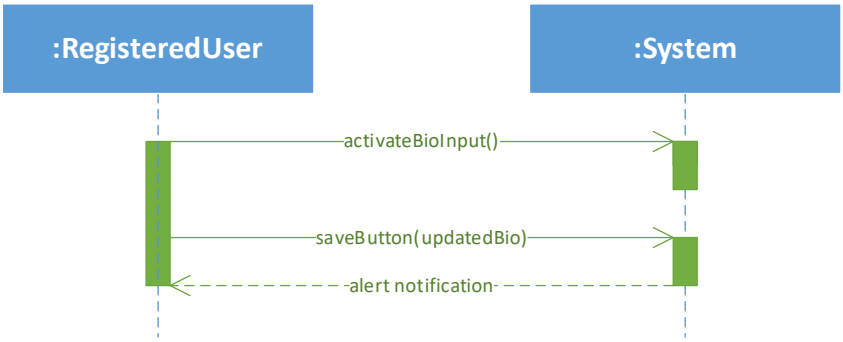

Figure 18 Update Profile Bio System Sequence Diagram

2.3.2.17. Edit Profile Picture

Use-Case Description	
Use-Case Name	Edit Profile picture
Use-Case Description	Enable registered users to edit their profile's picture.
Inputs	User ID (system input), profile picture
Pre-Conditions	• The user is registered.
Source	Registered User
Steps	1. The registered user clicks their image to choose to replace it. 2. The system displays file picker dialog. 3. The registered user submits the updated profile picture by clicking on the save button. 4. The system displays an alert notification confirming the action.
Outputs	• Alert notification • Updated profile picture
Post-Conditions	• The profile picture is successfully updated
Destination	QuickFeed System
Exception	If the user clicks on the save button without uploading an image, no changes occur to the profile picture.

Table 17 Edit Profile Picture Use Case Description

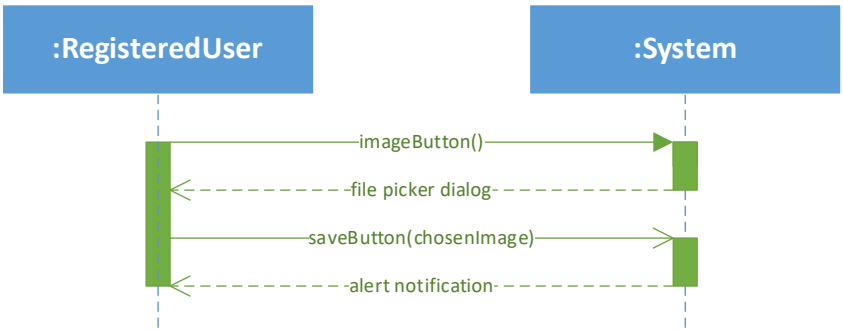

Figure 19 Edit Profile Picture System Sequence Diagram

2.3.2.18. View Inbox

Use-Case Description	
Use-Case Name	View Inbox
Use-Case Description	Enable registered users to view a list of their conversations.
Inputs	User ID (system input)
Pre-Conditions	The user is registered.
Source	Registered User
Steps	1. The registered user clicks on the inbox section icon. 2. The system displays a list of conversations. 3. If the registered user wants to create a new conversation, then go to create conversation use case. 4. If the registered user wants to view a conversation, then go to view conversation use case.
Outputs	List of conversations
Post-Conditions	The registered user successfully views their inbox.
Destination	QuickFeed System
Exception	None

Table 18 View Inbox Use Case Description

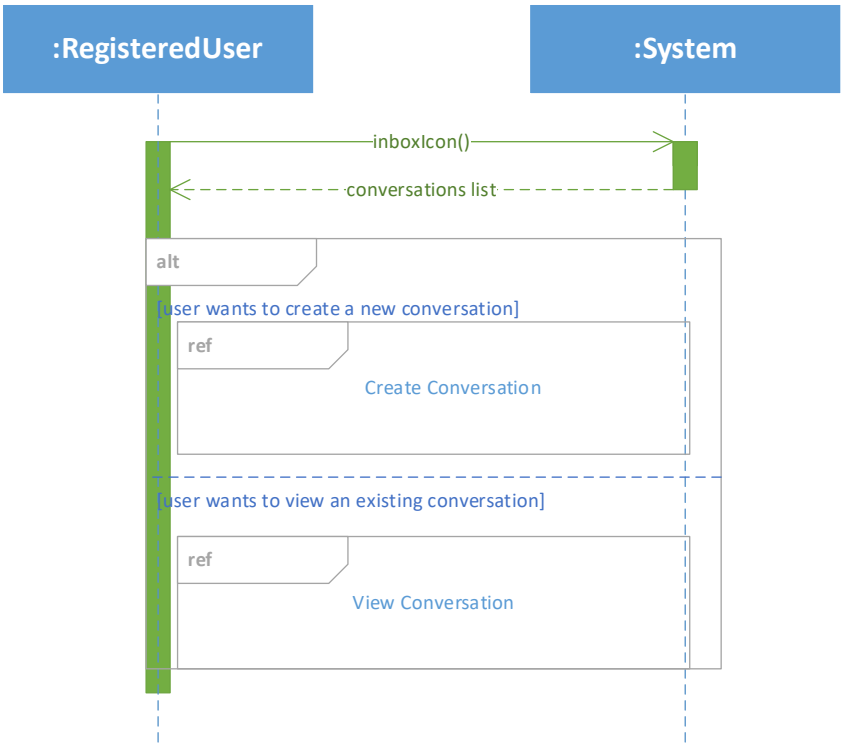

Figure 20 View Inbox System Sequence Diagram

2.3.2.19. View Conversation

Use-Case Description	
Use-Case Name	View Conversation
Use-Case Description	Enable registered users to view a conversation.
Inputs	User ID (system input), Conversation ID (system input)
Pre-Conditions	• The user is registered. • The conversation is available
Source	Registered User
Steps	1. The registered user selects a specific conversation to view. 2. The system displays the entire conversation thread between the registered user and the selected user. 3. Perform view message use case. 4. If the registered user wants to send a new message, then go to send message use case.
Outputs	Messages exchanged within the selected conversation.
Post-Conditions	The registered user successfully views their inbox.
Destination	QuickFeed System
Exception	None

Table 19 View Conversation Use Case Description

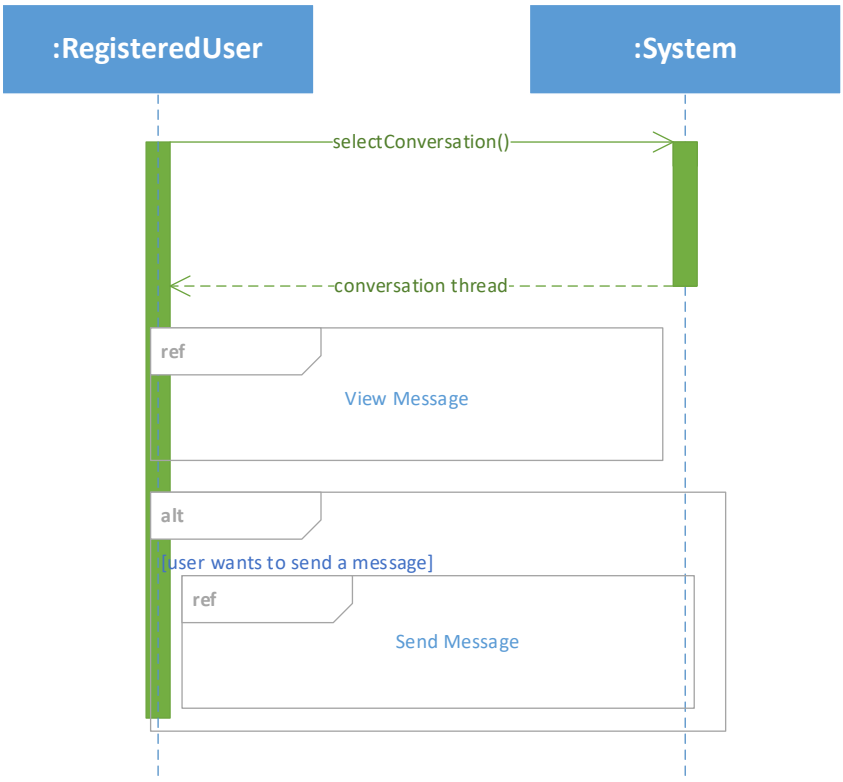

Figure 21 View Conversation System Sequence Diagram

2.3.2.20. Create Conversation

Use-Case Description	
Use-Case Name	Create Conversation
Use-Case Description	Enable registered users to create a conversation.
Inputs	Registered User ID (system input), Chosen User ID(system input)
Pre-Conditions	• The user is registered. • The conversation doesn't exist with the chosen user.
Source	Registered User
Steps	1. The registered user clicks on the create button create to create new conversation. 2. The system displays list of users to choose from. 3. The registered user selects the recipient. 4. The system redirects the user to the conversation.
Outputs	Newly created conversation with the selected recipient.
Post-Conditions	The registered user is successfully redirected to the conversation.
Destination	QuickFeed System
Exception	None

Table 20 Create Conversation Use Case Description

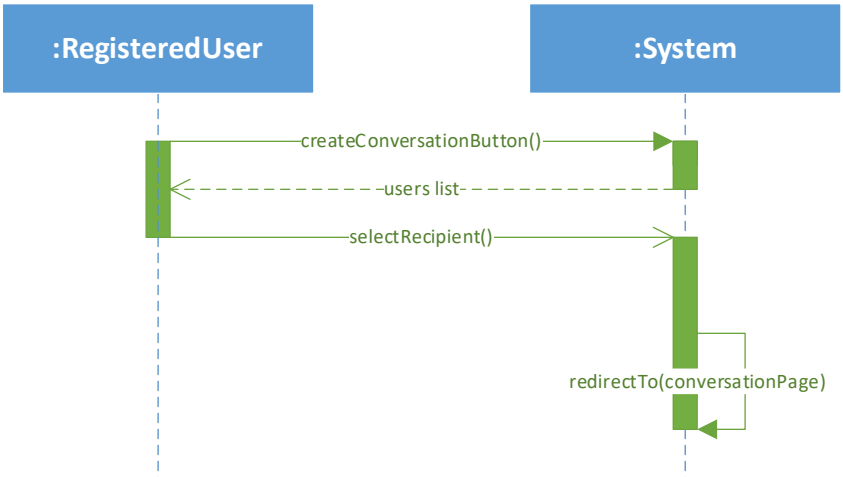

Figure 22 Create Conversation System Sequence Diagram

2.3.2.21. Send Message

Use-Case Description	
Use-Case Name	Send message
Use-Case Description	Enable registered users to send messages to others.
Inputs	Message, conversation ID (system input),User ID (system input)
Pre-Conditions	• The user is registered. • The conversation exists.
Source	Registered User
Steps	1. The registered user sends the message content they want by clicking on the send button. 2. The system updates the conversation view.
Outputs	Message added to the conversation view
Post-Conditions	• The registered user successfully sends a message. • The sent message is added to the conversation.
Destination	QuickFeed System
Exception	None

Table 21 Send Message Use Case Description

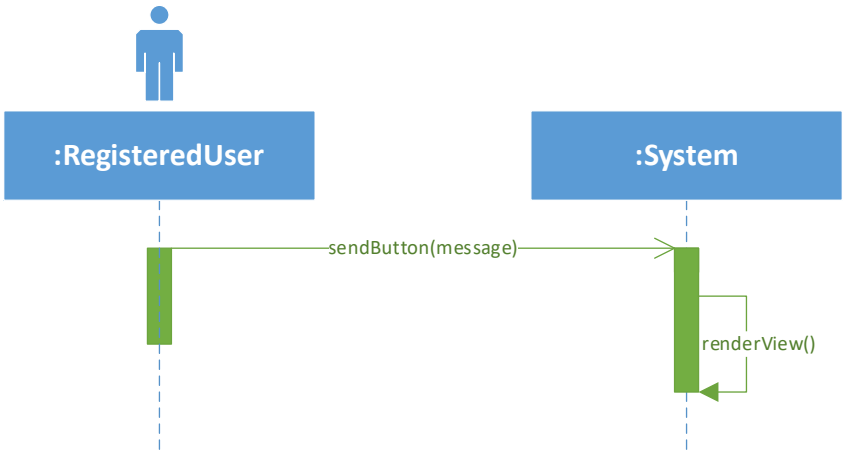

Figure 23 Send Message System Sequence Diagram

2.3.2.22. View Messages

Use-Case Description	
Use-Case Name	View messages
Use-Case Description	Enable registered users to view received messages.
Inputs	conversation ID(system input),User ID (system input)
Pre-Conditions	• The user is registered. • The conversation exists.
Source	Registered User
Steps	1. The registered user views the messages. 2. The system changes the unread messages status to read. 3. The system updates the view.
Outputs	Received Messages
Post-Conditions	Unread messages status must update for the sender.
Destination	QuickFeed System
Exception	None

Table 22 View Message Use Case Description

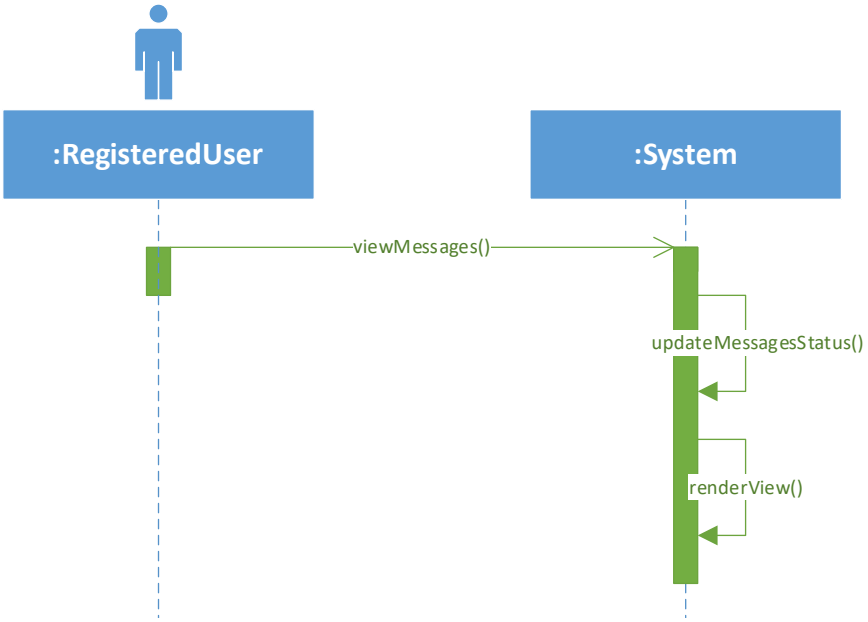

Figure 24 View Messages System Sequence Diagram

2.3.2.23. Logout

Use-Case Description	
Use-Case Name	Logout
Use-Case Description	Enable registered users to logout from their current session.
Inputs	User ID (system input)
Pre-Conditions	• The user is registered.
Source	Registered User
Steps	1. The registered user clicks on logout button. 2. The system redirects the registered user to the login page.
Outputs	User is redirected to login page.
Post-Conditions	• The registered user shall not access their account. • The registered user is logged out.
Destination	QuickFeed System
Exception	None

Table 23 Logout Use Case Description

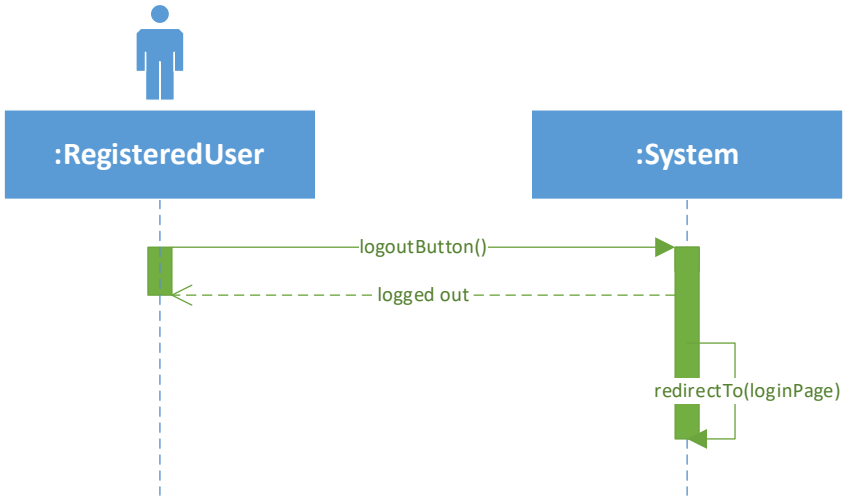

Figure 25 Logout System Sequence Diagram

2.4. Conclusion

In this chapter, we provided a comprehensive overview of the requirements analysis process for our developed application. We explained the necessary diagrams that were used for modelling the requirements and displaying the events' flow. These diagrams began with the use case diagram and continued with the system sequence diagram. We also illustrated the static relationship between the real-world entities by using a domain class diagram. Furthermore, in the upcoming chapter, we will demonstrate the system design phase and elaborate on how we plan to find a solution for our application.

3. Software Design

3.1. Introduction

In the previous chapter, we discussed the requirements and their modelling process. Therefore, in this chapter, we will move on to the design phase to find the optimal solution for our application. We will decompose the system into subsystems or modules, illustrate the connections between them, and present the architecture of our application.

3.2. Design Class Diagram

A design class diagram is a type of visual representation that displays the design structure of a system in terms of classes and their relationships. This diagram includes operations and extra classes to illustrate the organization of the system. It is like the domain class diagram but provides more detailed information about the system's design.[1][4]

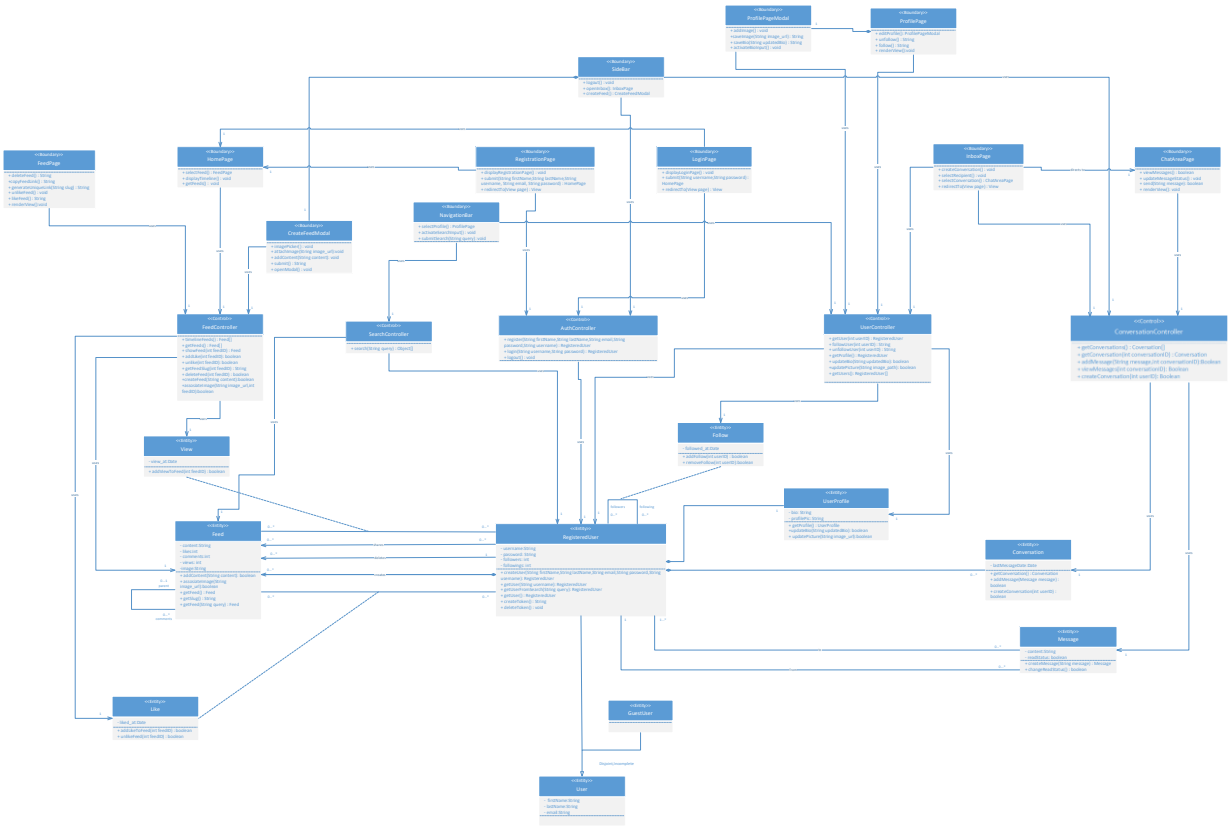

Figure 26 Design Class Diagram

This design class diagram outlines the system's architecture using three main class types: entities, controls, and boundaries. Entities contain the system's fundamental data and represent the main objects manipulated by the system. Controls regulate the flow of operations and business logic within the system, managing interactions between entities and boundaries. Boundaries serve as interfaces between the system and its external environment, handling input and output interactions.

3.3. Sequence Diagram

A sequence diagram is a graphical representation that depicts the interactions between objects while performing a specific task. It showcases the order of messages exchanged and the lifeline of each object involved. Unlike a system sequence diagram that captures only external interactions, a sequence diagram illustrates the internal interactions between actors and classes inside the system. It provides more detailed information than a system sequence diagram.[1][3]

3.3.1. Register

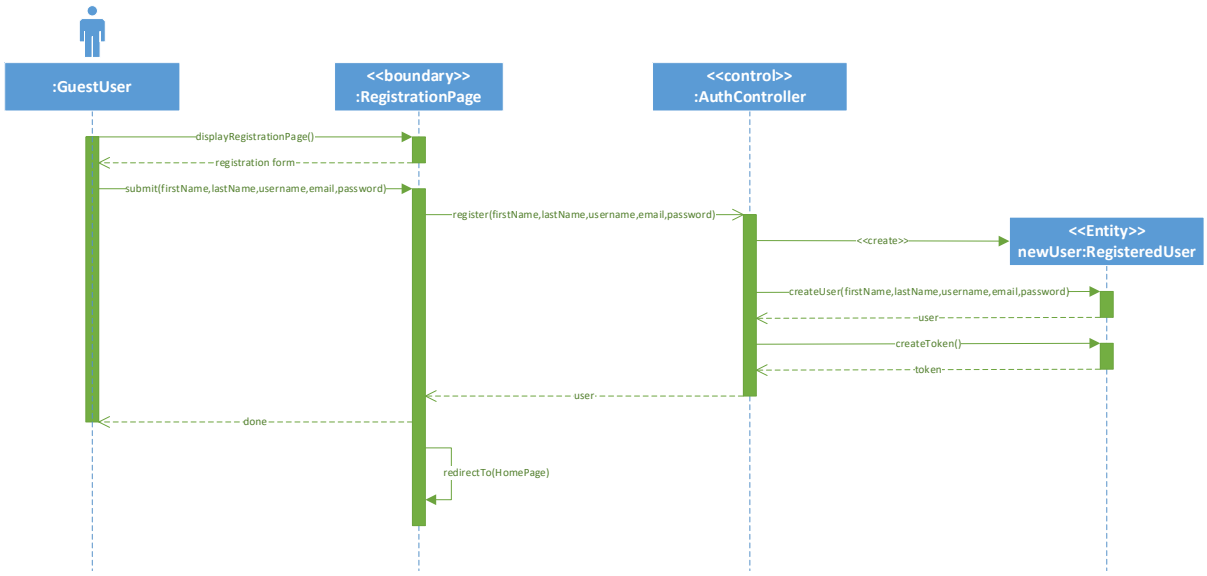

Figure 27 Register Sequence Diagram

3.3.2. Login

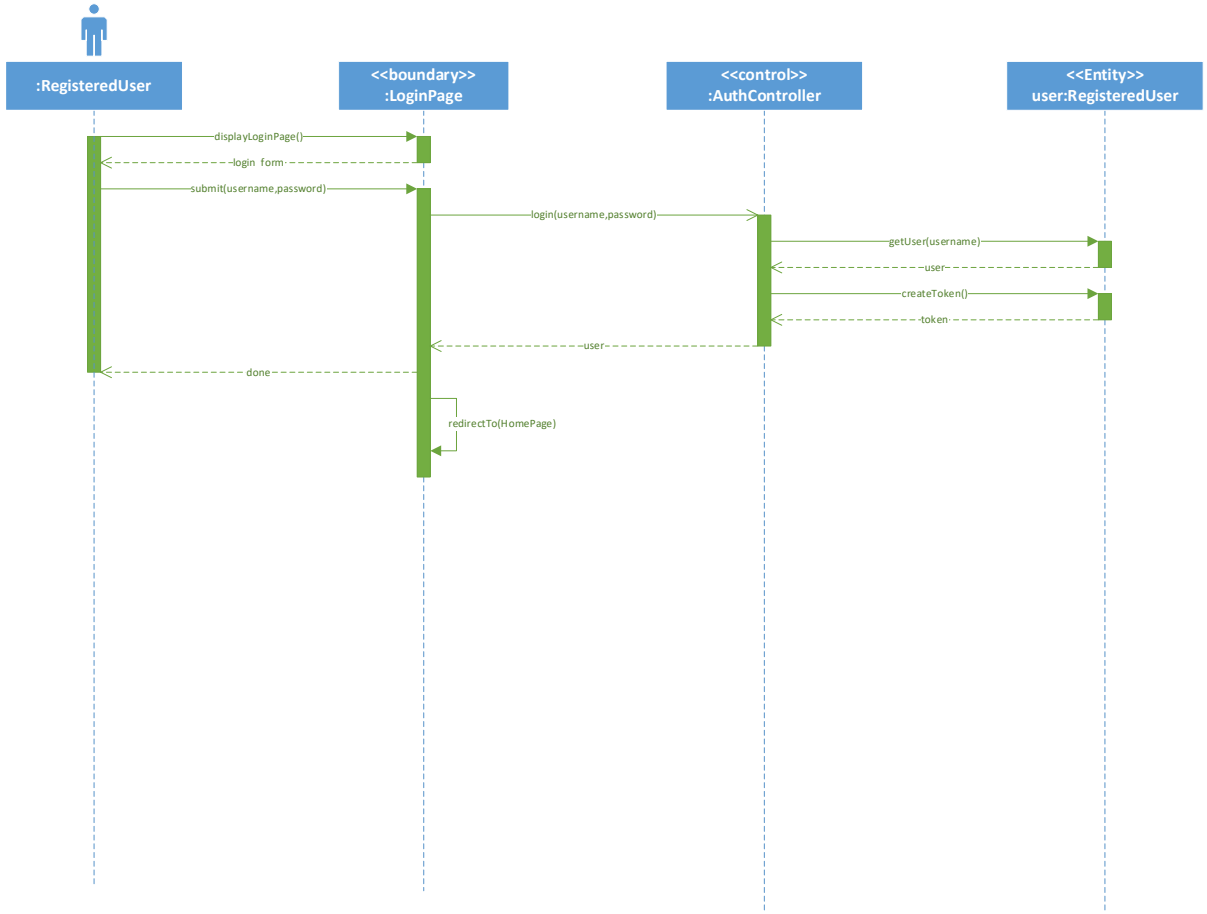

Figure 28 Login Sequence Diagram

3.3.3. *Create Feed*

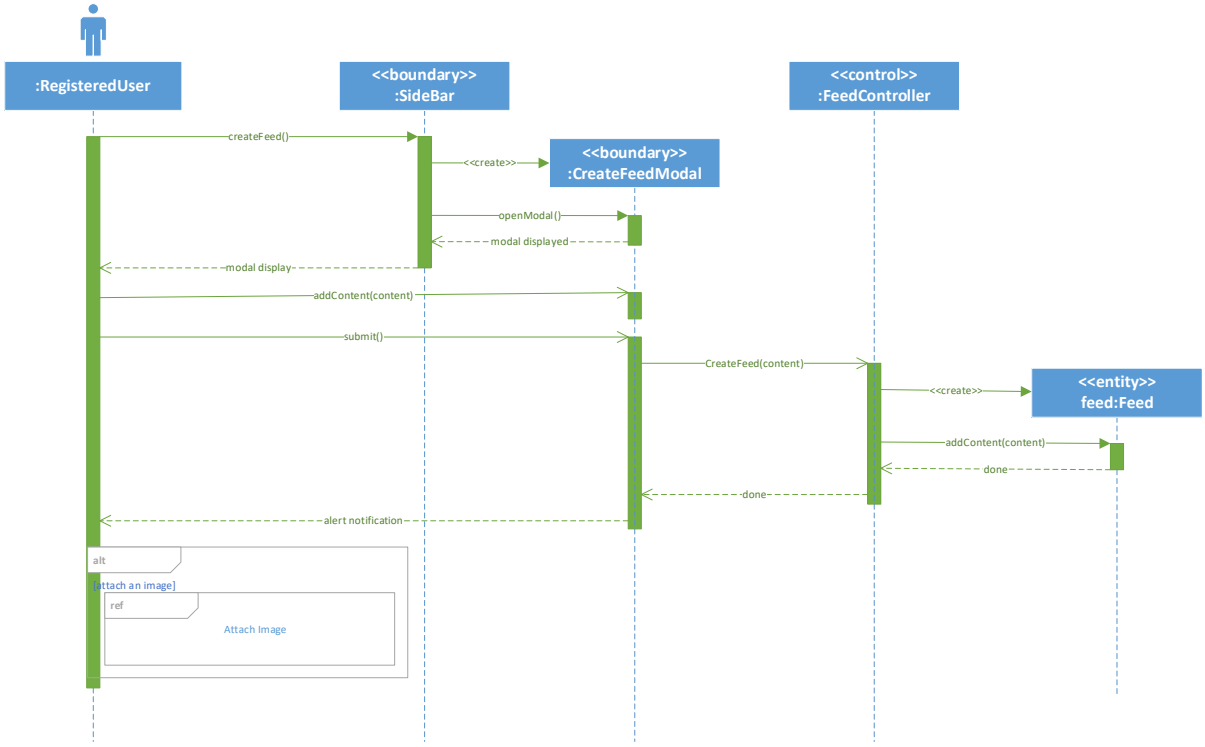

Figure 29 Create Feed Sequence Diagram

3.3.4. *Attach Image*

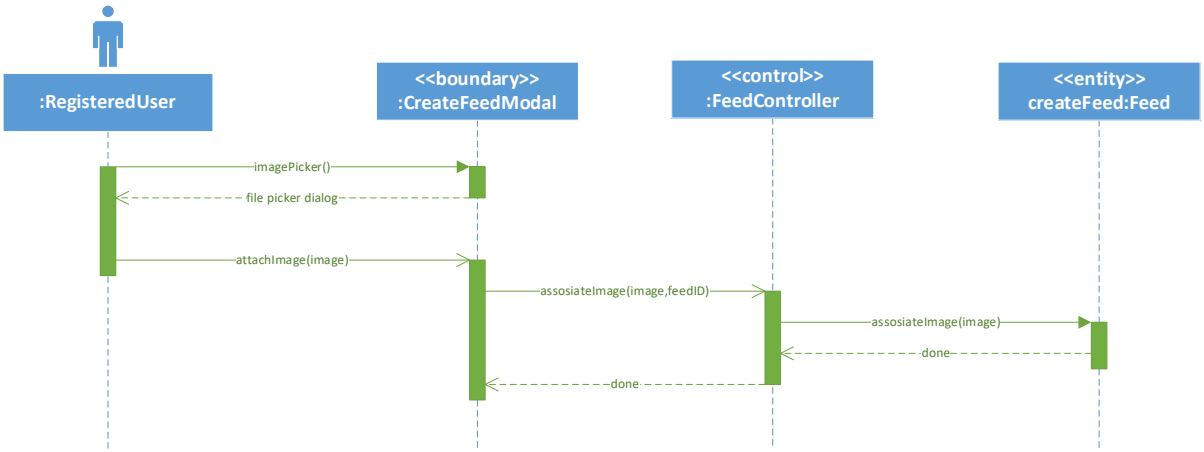

Figure 30 Attach Image Sequence Diagram

3.3.5. *View Timeline*

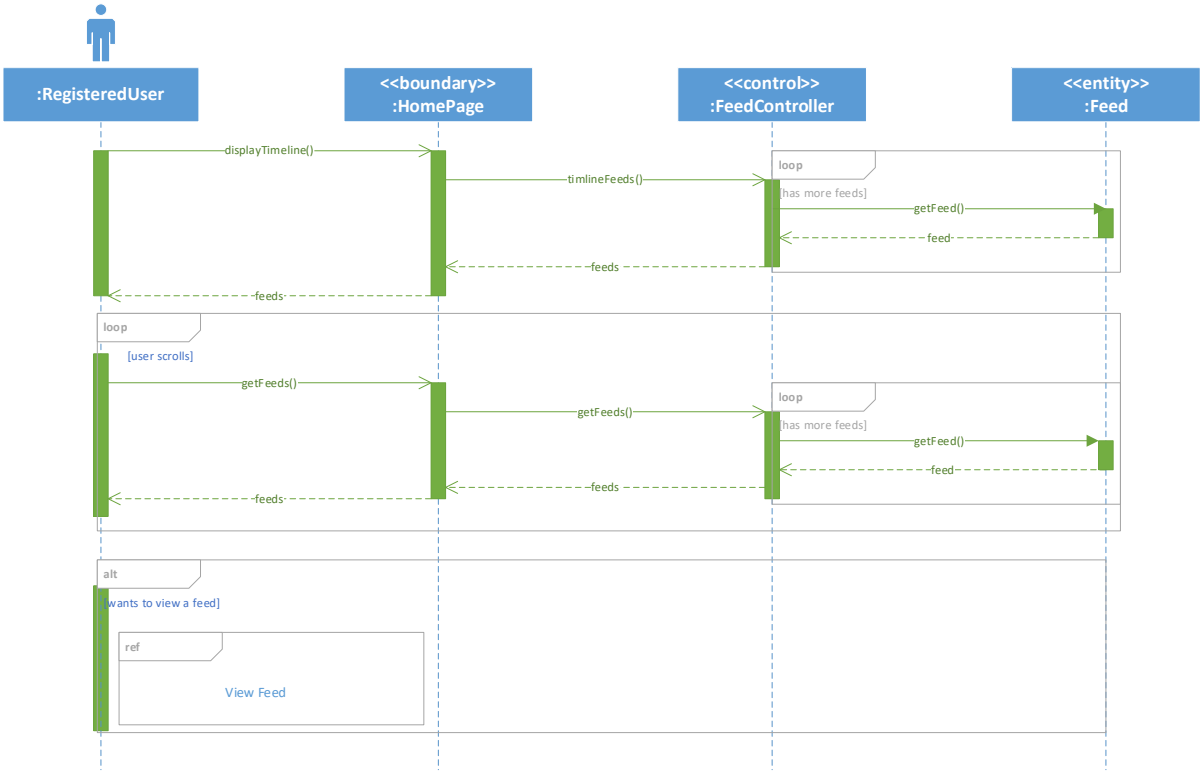

Figure 31 View Timeline Sequence Diagram

3.3.6. *View Feed*

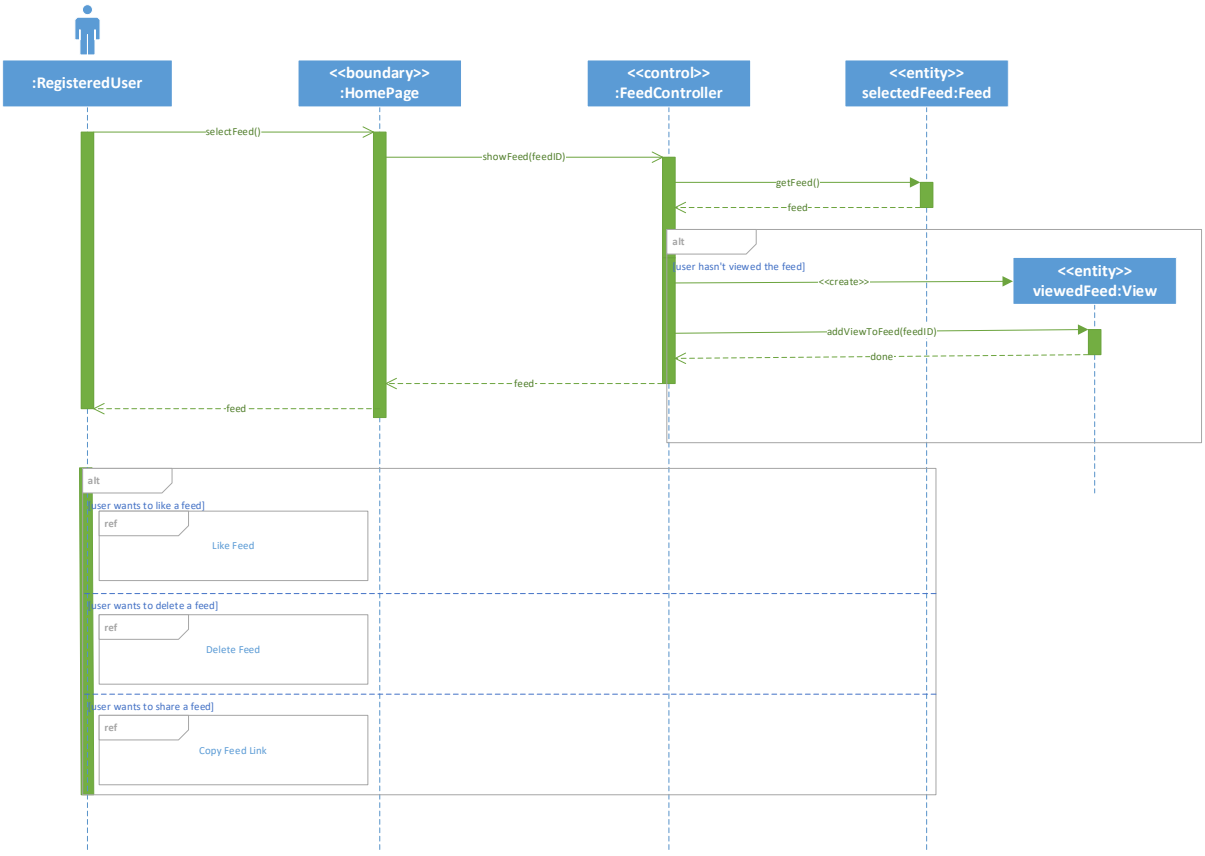

Figure 32 View Feed Sequence Diagram

3.3.7. Like Feed

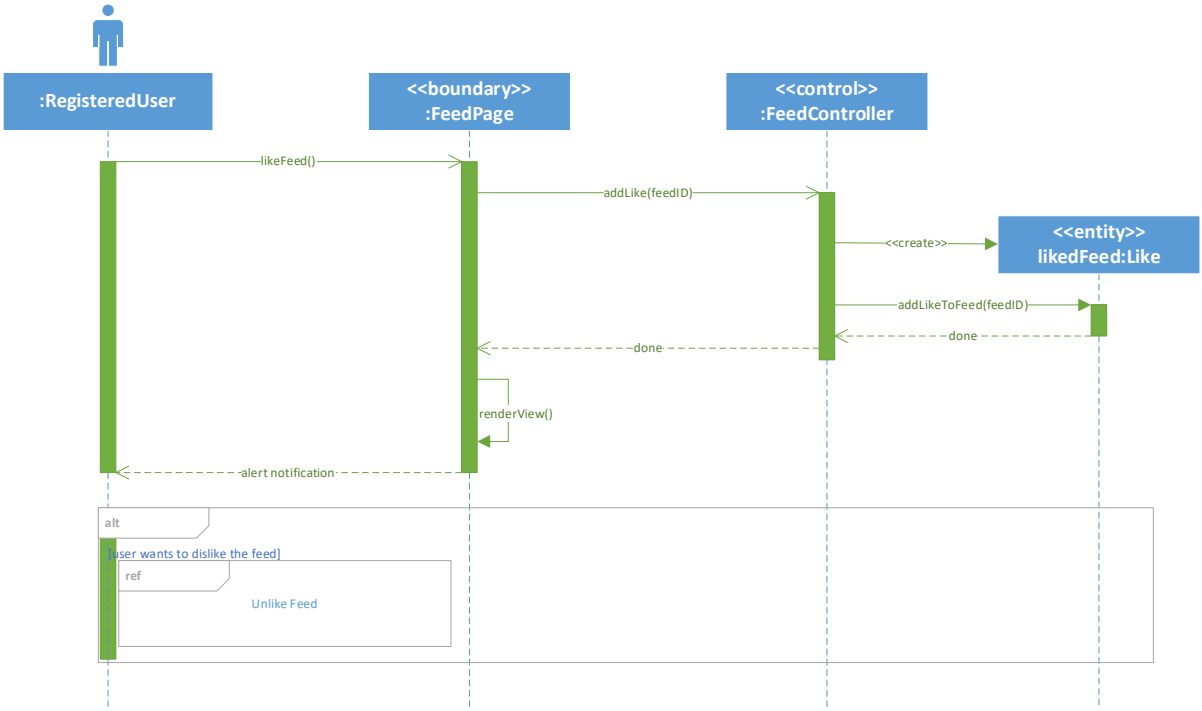

Figure 33 Like Feed Sequence Diagram

3.3.8. Unlike Feed

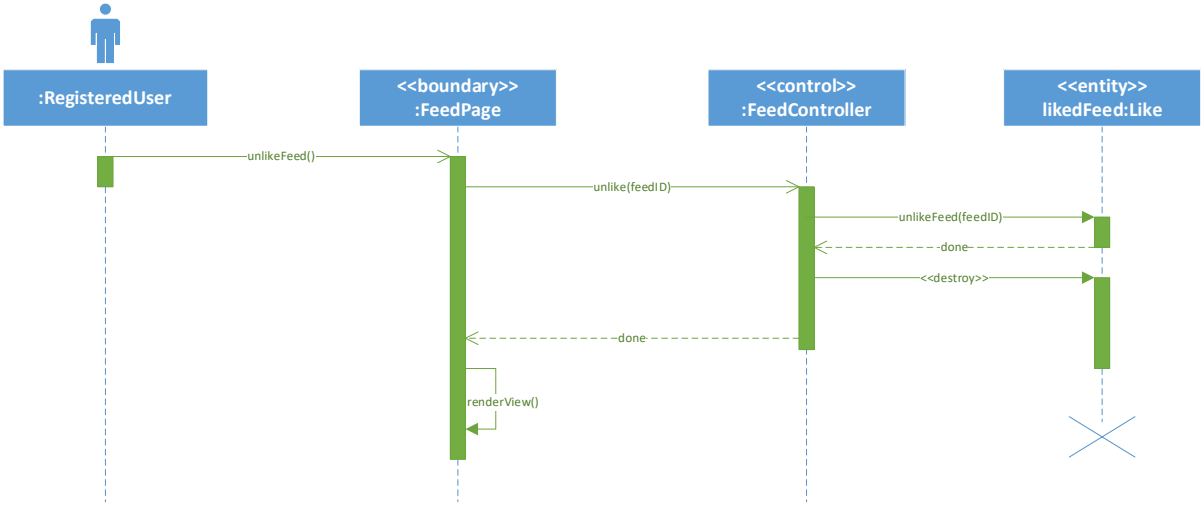

Figure 34 Unlike Feed Sequence Diagram

3.3.9. Copy Feed Link

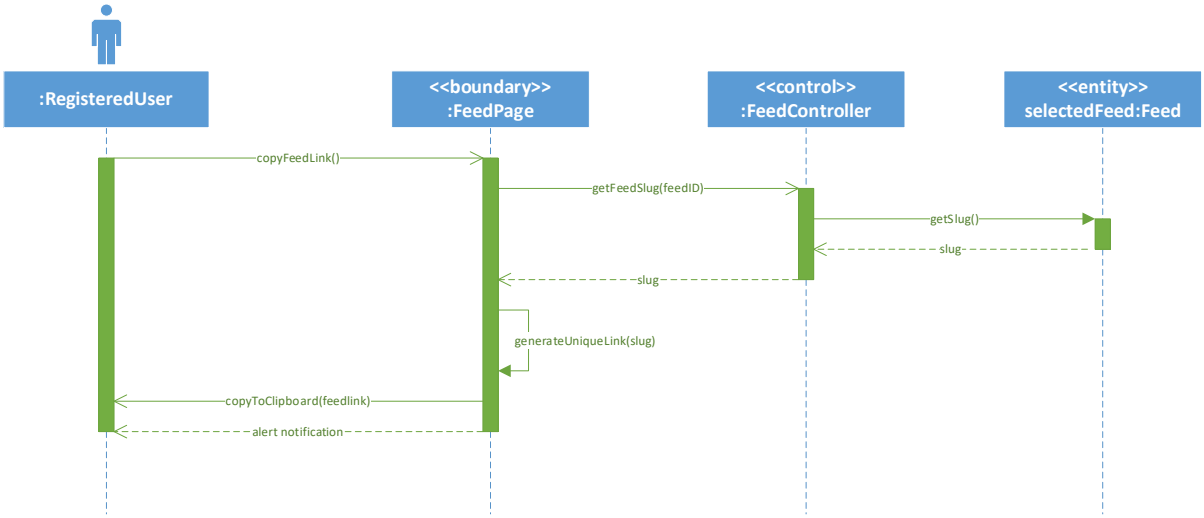

Figure 35 Copy Feed Link Sequence Diagram

3.3.10. Delete Feed

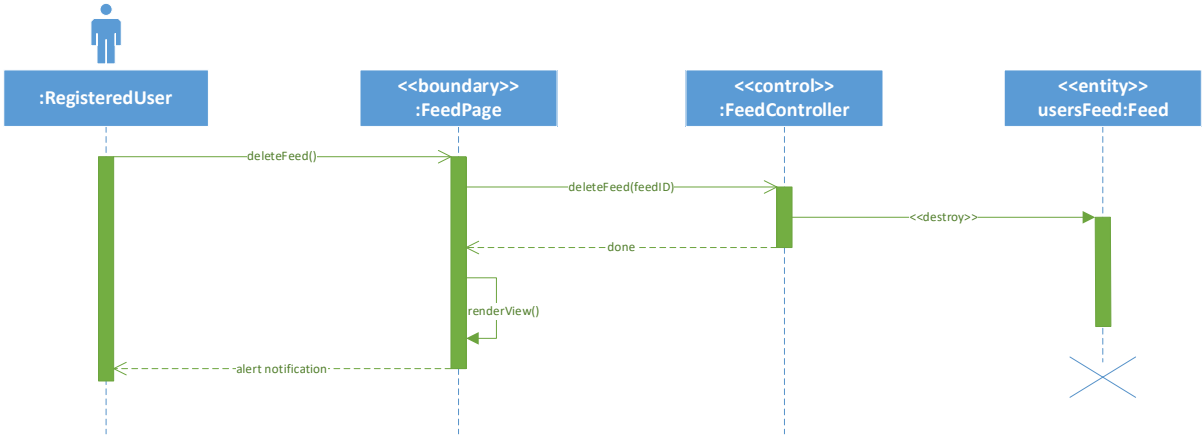

Figure 36 Delete Feed Sequence Diagram

3.3.11. Search

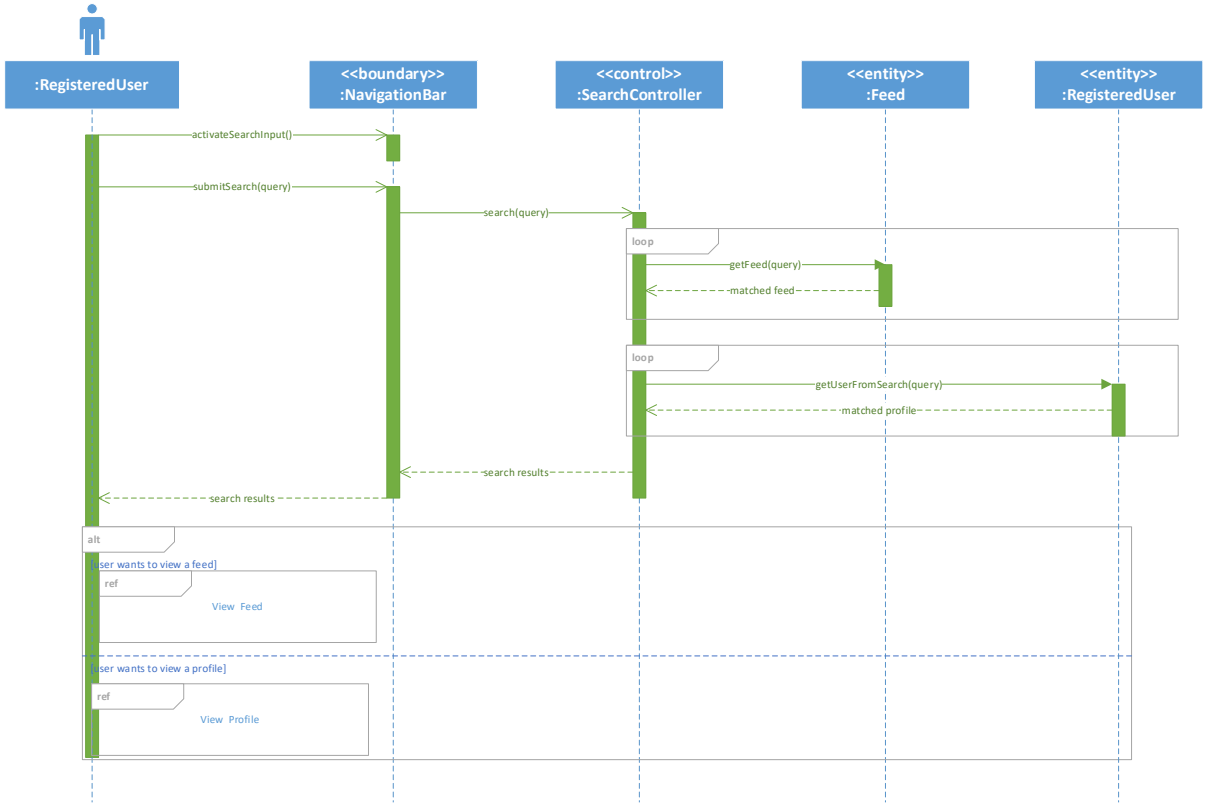

Figure 37 Search Sequence Diagram

3.3.12. View Profile

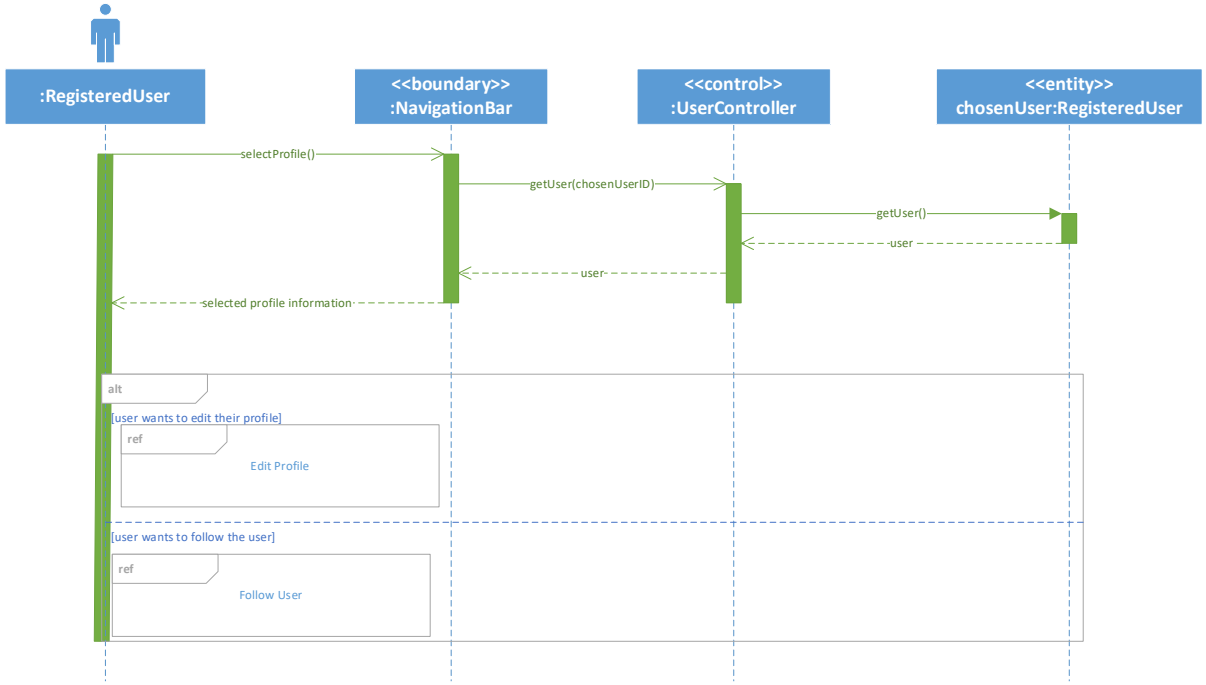

Figure 38 View Profile Sequence Diagram

3.3.13. Follow User

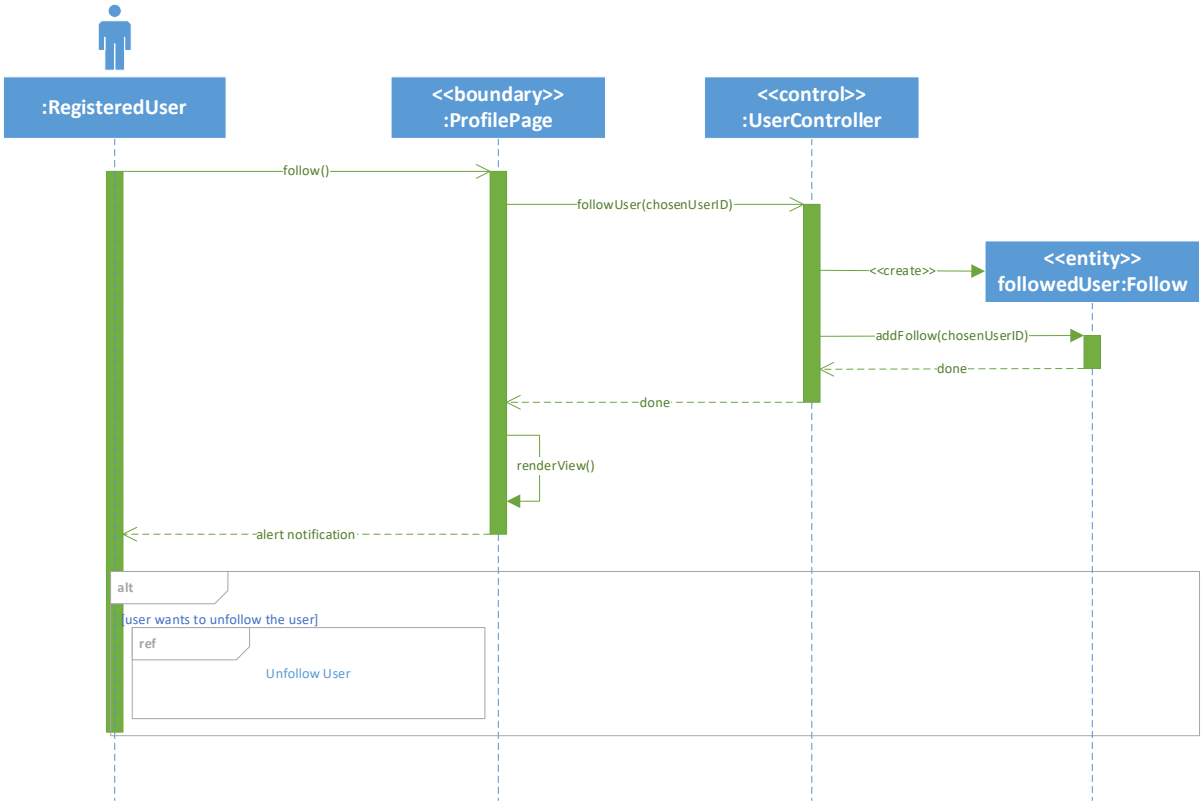

Figure 39 Follow User Sequence Diagram

3.3.14. Unfollow User

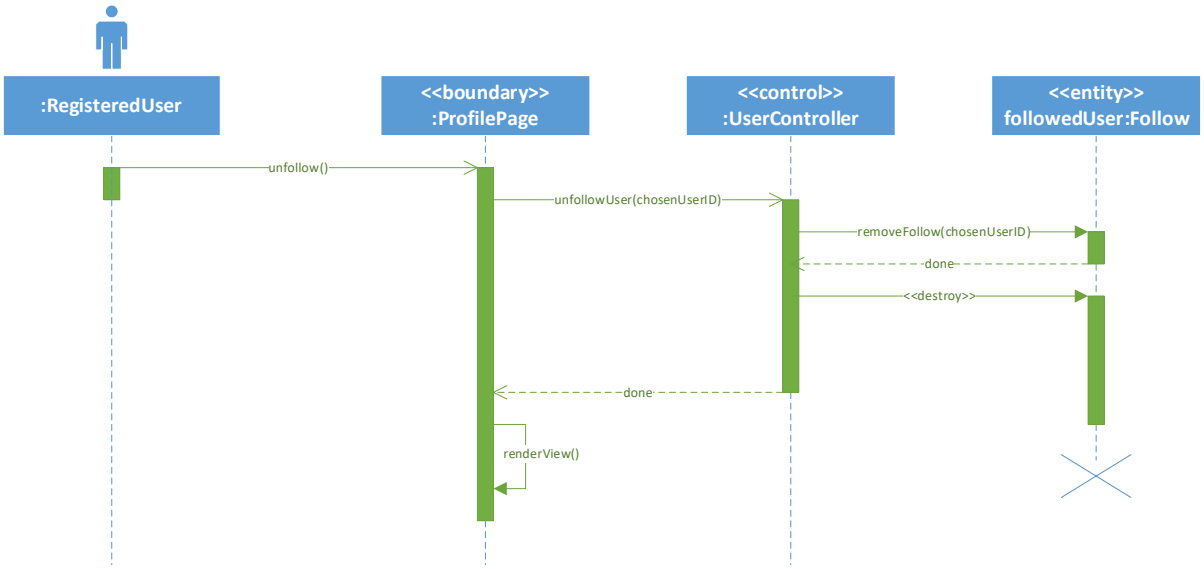

Figure 40 Unfollow User Sequence Diagram

3.3.15. Edit Profile

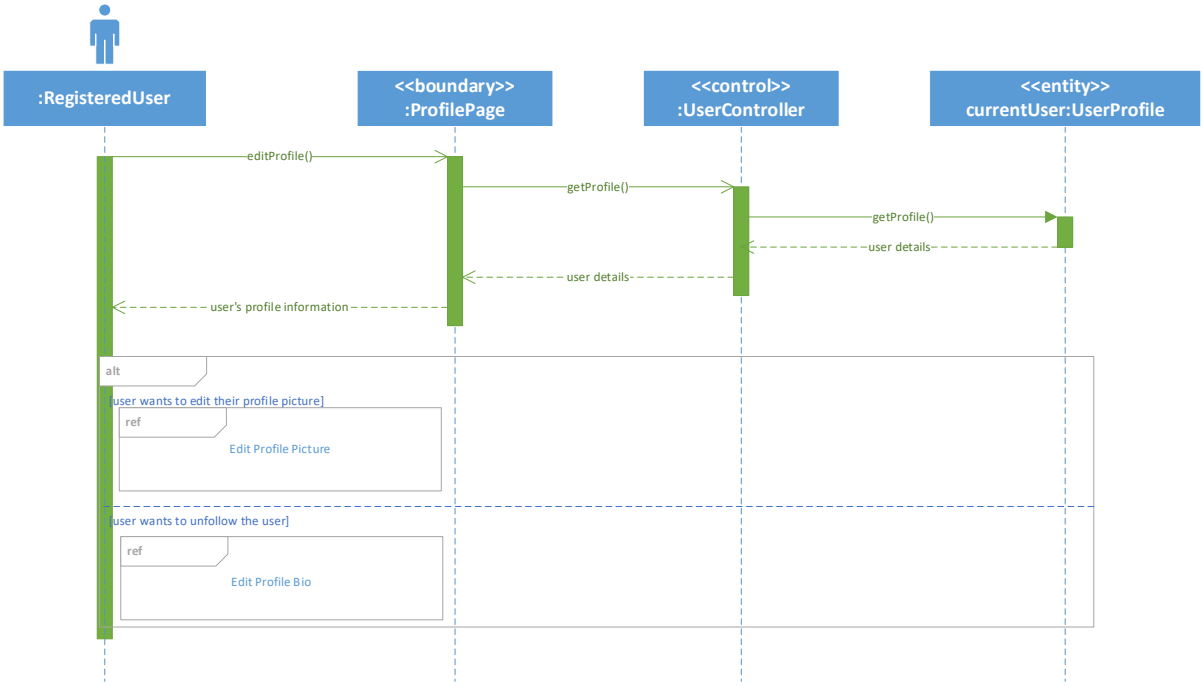

Figure 41 Edit Profile Sequence Diagram

3.3.16. Edit Profile Bio

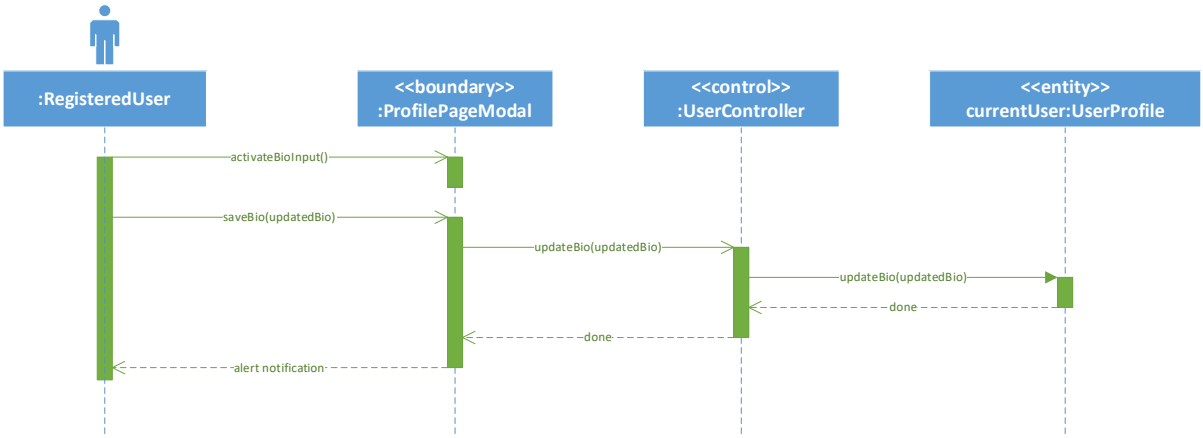

Figure 42 Edit Profile Bio Sequence Diagram

3.3.17. Edit Profile Picture

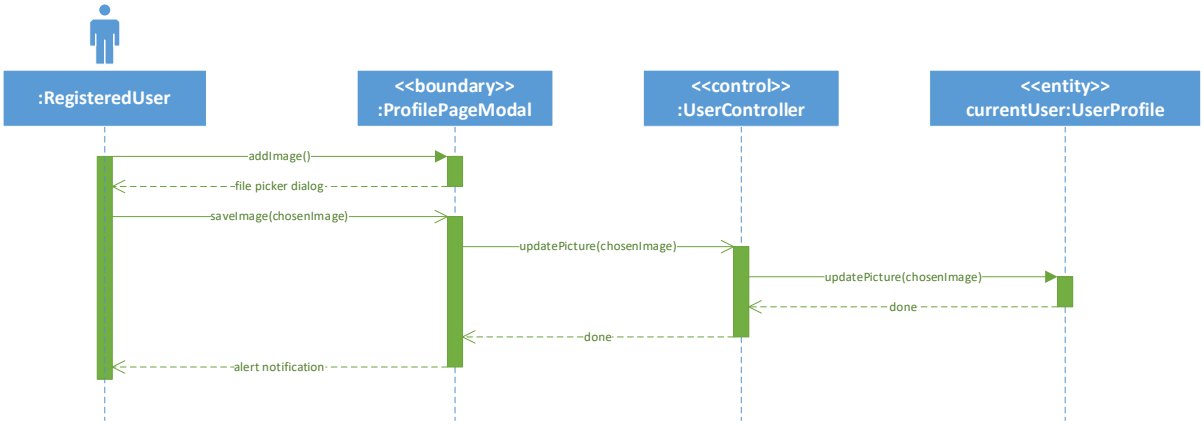

Figure 43 Edit Profile Picture Sequence Diagram

3.3.18. View Inbox

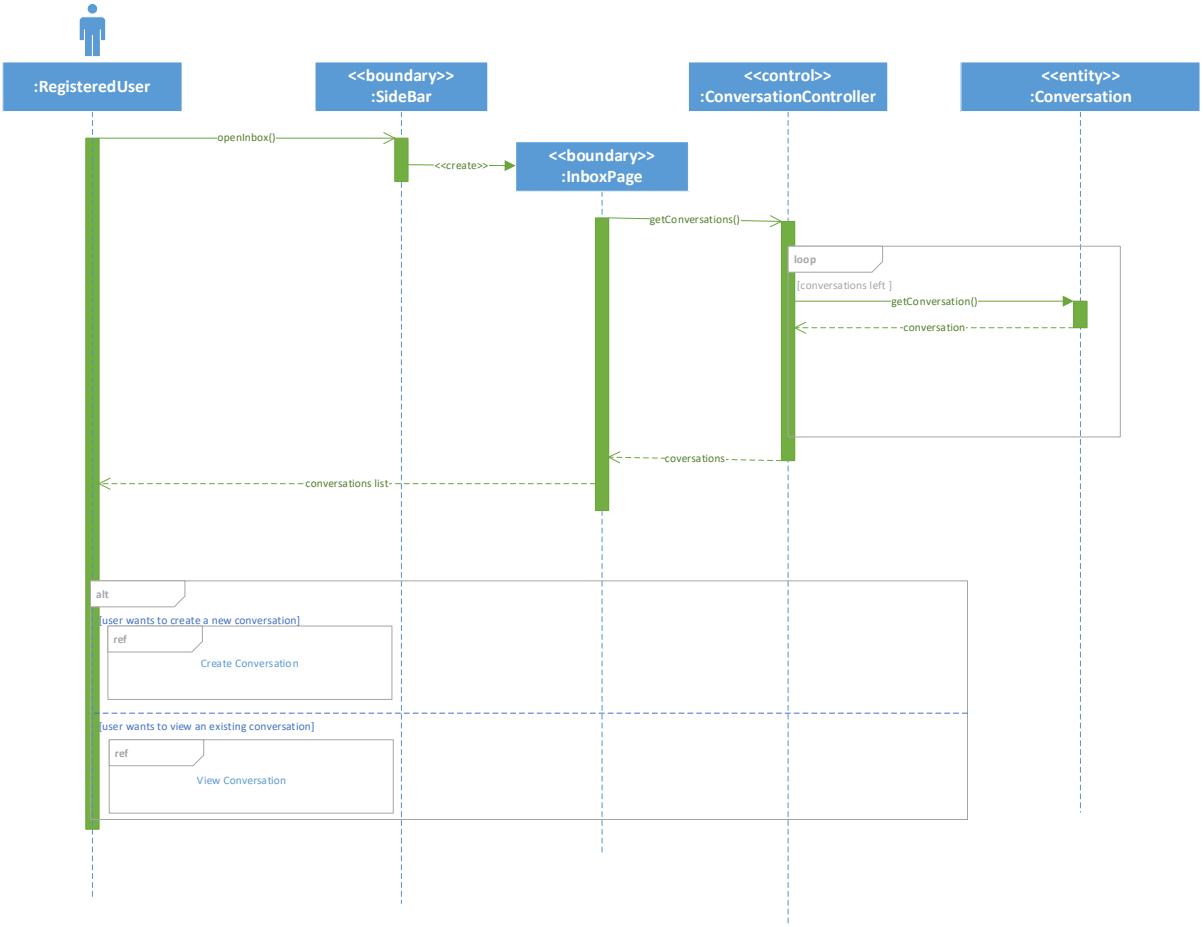

Figure 44 View Inbox Sequence Diagram

3.3.19. View Conversation

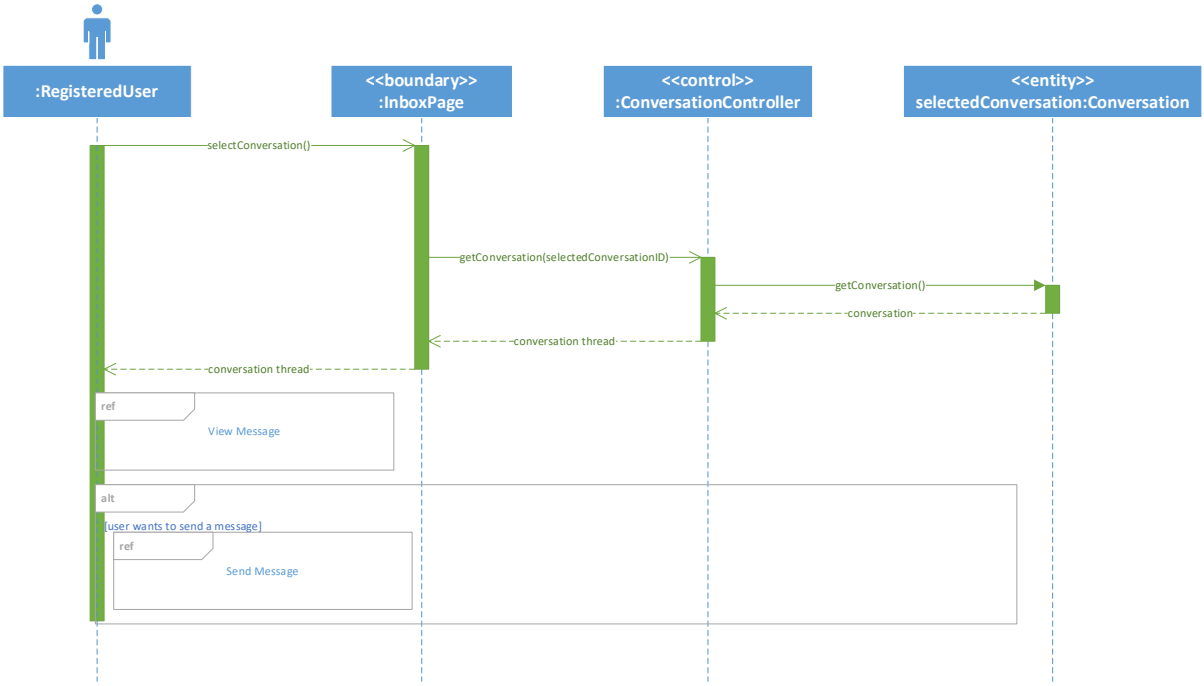

Figure 45 View Conversation Sequence Diagram

3.3.20. Send Message

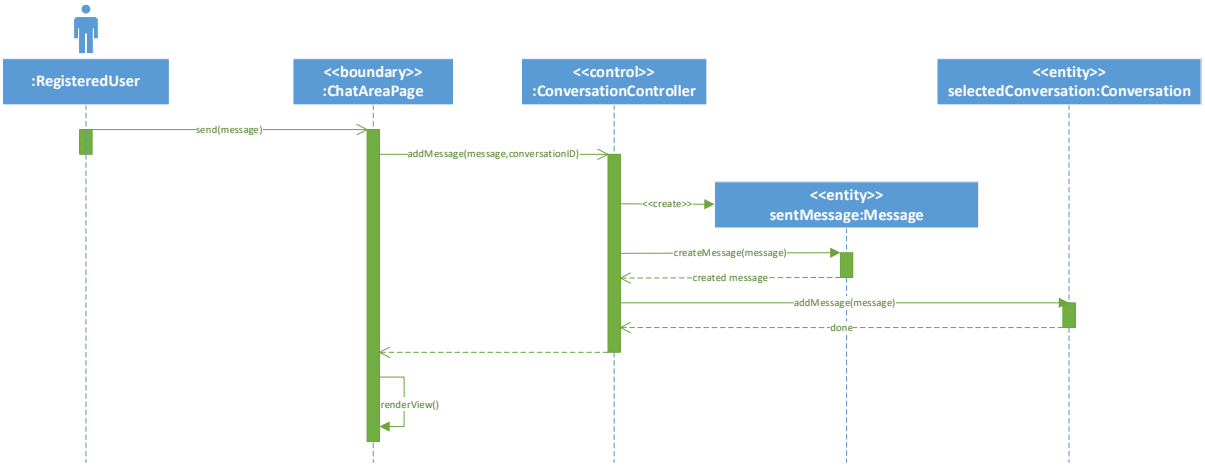

Figure 46 Send Message Sequence Diagram

3.3.21. View Message

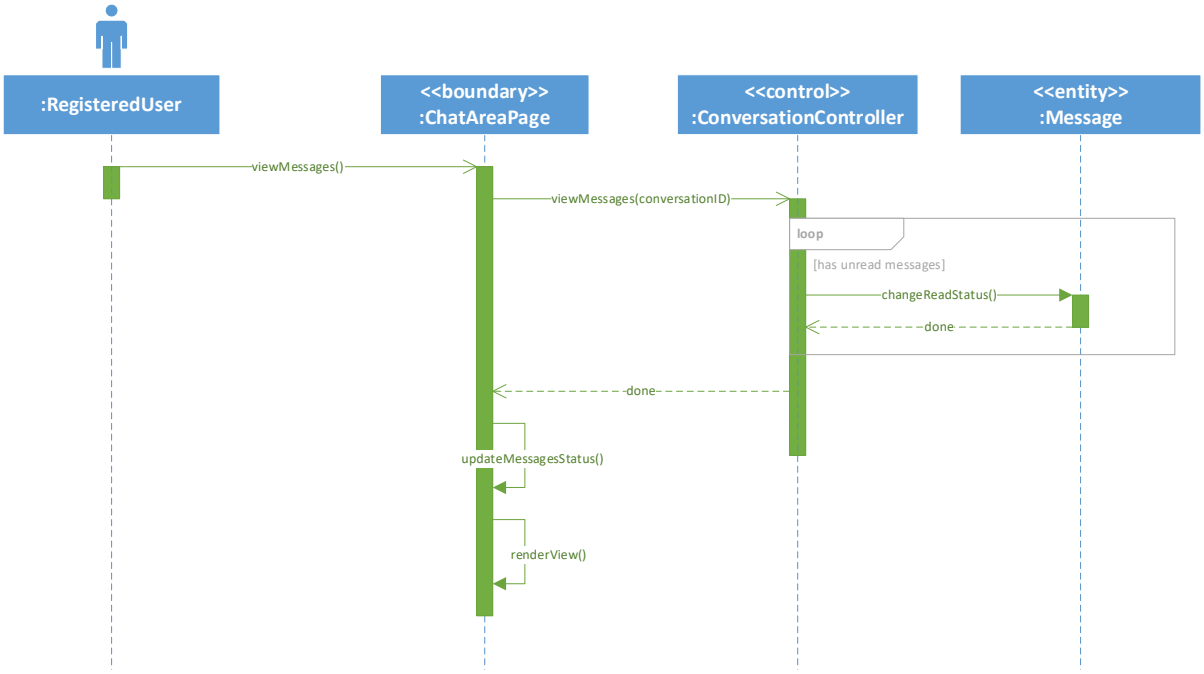

Figure 47 View Message Sequence Diagram

3.3.22. Create Conversation

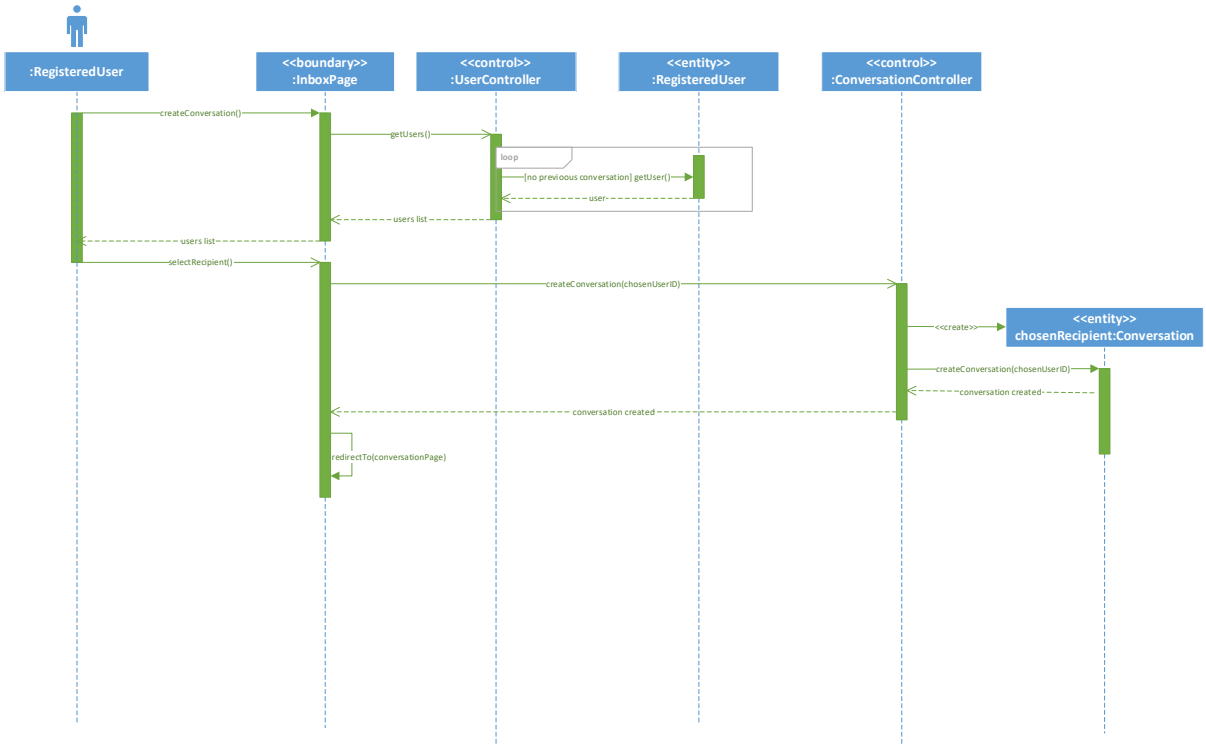

Figure 48 Create Conversation Sequence Diagram

3.3.23. Logout

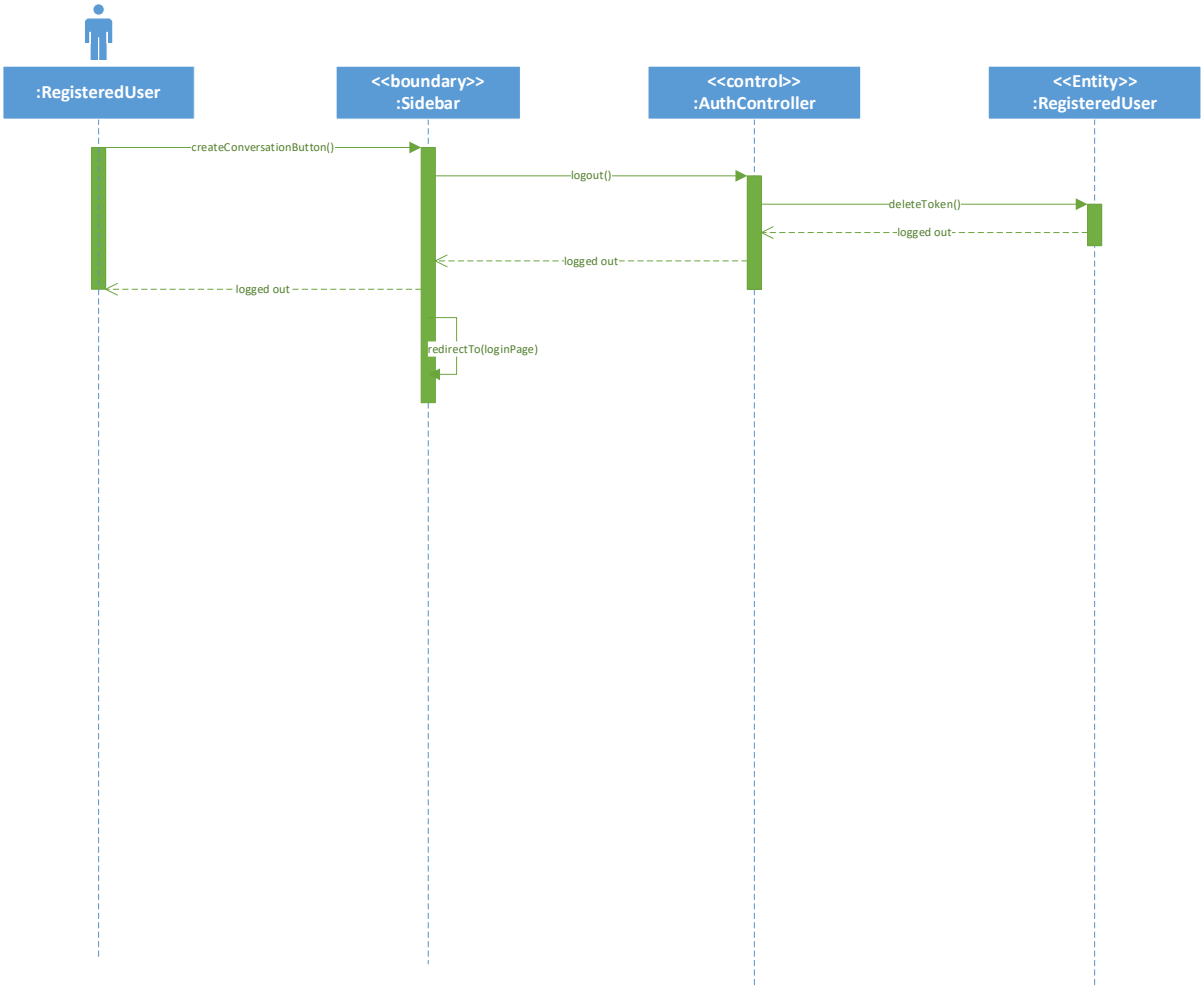

Figure 49 Logout Sequence Diagram

3.4. State-Chart Diagram

A state-chart diagram is a type of behavioural diagram that visually represents the different states an object can be in during its lifecycle and the events that trigger transitions between those states. They provide a structured way to represent states, events, and transitions, making complex system logic more approachable.[1][7]

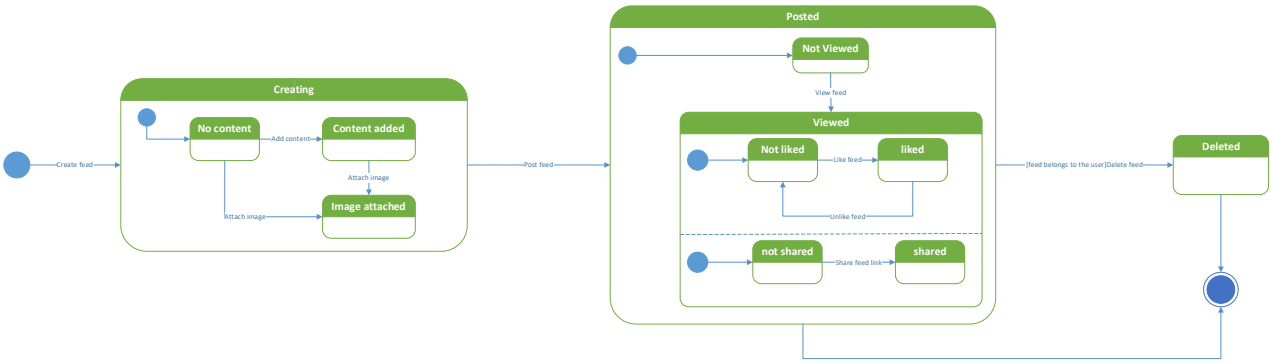

Figure 50 Feed Class State-Chart Diagram

This state chart diagram illustrates the series of events needed to post, like, unlike, share, and view a feed. The process begins with the creation of the feed by adding content and attaching an image or uploading an image without content. After that, it indicates that users can view the feed and interact with it by liking or unliking it, sharing its link or deleting it if the user is the creator of the feed.

3.5. Conclusion

In this chapter, we described the system design process for the QuickFeed application. We leveraged modelling techniques to articulate the structure, behaviour, and interaction of our system components. It included showing the design class diagram to provide a static representation of the structure of the system. We used sequence diagram to show the dynamic interactions between components or objects. Thus, we gained well understanding of the overall system structure and the best way to implement our components to prioritize scalability, modularity, and maintainability.

4. Conclusion

Social media platforms are used by thousands of people every day to interact with others and express their thoughts and feelings. The purpose of developing such applications is to enable seamless communication, community engagement, and an easy way to share and express your thoughts. This project provides users with a dynamic space to connect and collaborate, thereby enhancing their online experience. Overall, the development of this application highlights its potential to enrich the lives of its users by providing a user-friendly, interactive platform for social interaction and content sharing.

5. References

[1] OpenAI. "Object Oriented Analysis and Design Diagrams".ChatGPT.24 Jan 2024, https://chat.openai.com.

[2] Dennis, A., Wixom, B. H., & Roth, R. M., *System Analysis and Design*, 5th ed., John Wiley & Sons, Inc.

[3] J. Satzinger, R. Jackson, and S. Burd, "Systems Analysis and Design in a Changing World, Sixth Edition," Course Technology, Cengage Learning, 2012.

[4] Visual-paradigm, "What is Class Diagram?", https://www.visual-paradigm.com/guide/uml-unified-modeling-language/what-is-class-diagram/

[5] Visual-paradigm, "Use Case Description", https://www.visual-paradigm.com/features/use-case-description/

[6] EdrawMax,"System Sequence Diagram: A Complete Tutorial".edrasoft, https://www.edrawsoft.com/article/uml-system-sequence-diagram.html

[7] Visual-paradigm, "All You Need to Know about State Diagrams", https://www.visual-paradigm.com/guide/uml-unified-modeling-language/about-state-diagrams/