

This is a social media application that allows users to send and receive message to one another. This application is not limited to this only, users can do a whole lot of other things like posting pictures, videos and just text. What is the point of a social application if you cannot have other people's opinions? This app allows its users to comment and like each other's post.

Wits Social

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Software Architecture

Six of the best developers were assembled to create a ground-breaking social media application. This application is to be called **Wits Social**. Just like most social media applications, the app should allow users to interact through sending each messages to allow communication. Almost every modern social app allows users to follow each other so that users can stay up to date with what happens in other user's lifestyles. In summary, when users creates an account, they should be able to communicate with others, post picture and videos. A good social app allows users to get opinions on different subject and this app allows for this as well.

Application Overview

The first thing the users does is create an account and register the account. After they do this, they have to log in order to access the application. On opening the application, the users sees five buttons on the navigation bar. The first button is the **Home button**, on this view the users see pictures and posts from other users. Users can like and comments all these posts. The second button is the **Add Post**, the user clicks here if they want to add picture or text post. The next button is the **Search Button**, the user clicks this button if they want to search for a specific user. The next button is the **Chats Button**, here you find the list of all the users you have texted, and you wish to message in the past. Last but not list, is the Profile Button, here the user can see the overview of their profile, this is but not limited to the number of followers, list of all posts in the past.

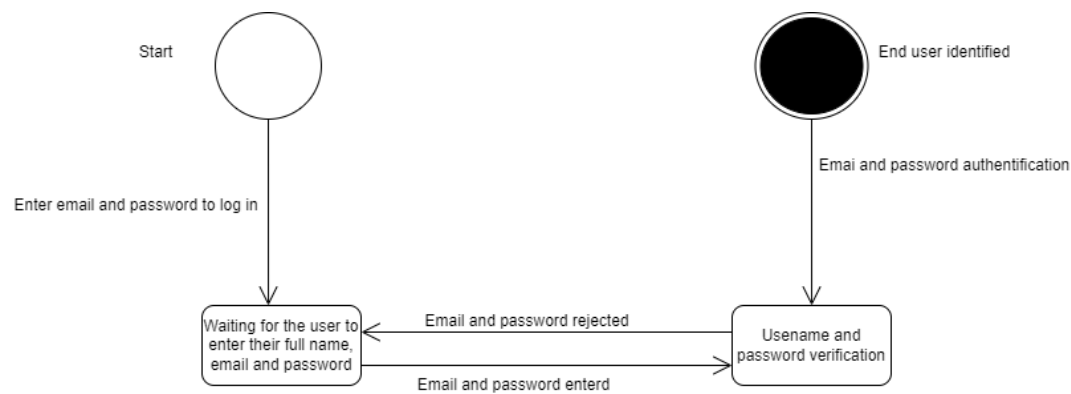
Summary of all features:

- User registration / login
- All information stored in secure Google's **Firebase** Database
- A home page that allows users to see posts from other users
- Ability for users to post pictures for other users to see
- Ability for users to like pictures and keep count of the number of likes
- Ability for users to comment pictures and keep count of the number of comments
- Users can post their opinions on different topics and allow other users to comment
- Users can search other users by their usernames and emails.
- Users have access to people they previously searched for
- Users can see list of the people they messaged
- Users can archive some chats for privacy and security reasons
- Users can follow other users
- Users can have several followers
- Ability for a user to add a custom profile picture
- Ability for users to change their password within the application
- Feature that allows users to add a descriptive bio
- Feature that allows to send videos, pdf documents audio files and picture in the chats
- Feature that allows users to log out withing the application
- Feature that allows users to view each other's profiles

The Logical View

i. State Diagram

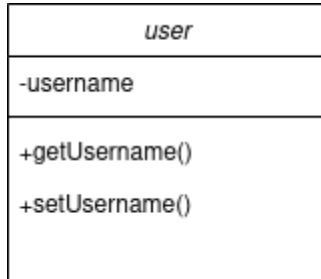
This diagram is applicable users. This diagram shows the login process a registered user will go through before being given access the app. The user will be required to enter their email and password. These login credentials will then be verified by our system, if either of the details are incorrect the user will be denied access to the system. However, if the user has entered the correct username and password, he /she will be given access to the system and will be redirected to the respective home.



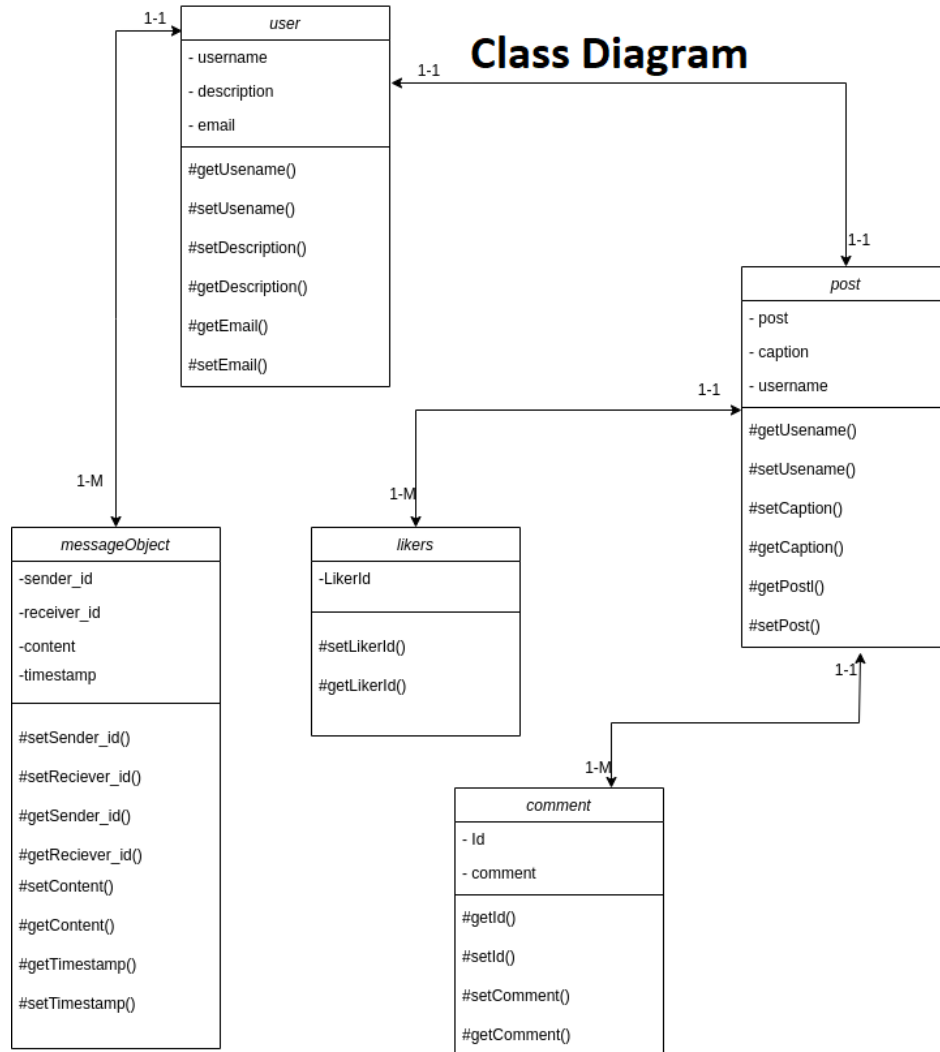
ii. Class Diagram

The diagrams below show the evolution of the class diagram from the start until the end. In this diagram we can see the backend structure (i.e., the database) and we can see how the different tables and pieces of information are linked together. An example is how one user can have multiple posts and and comments which is shown by the one to many relationship in edition 2.

Edition 1

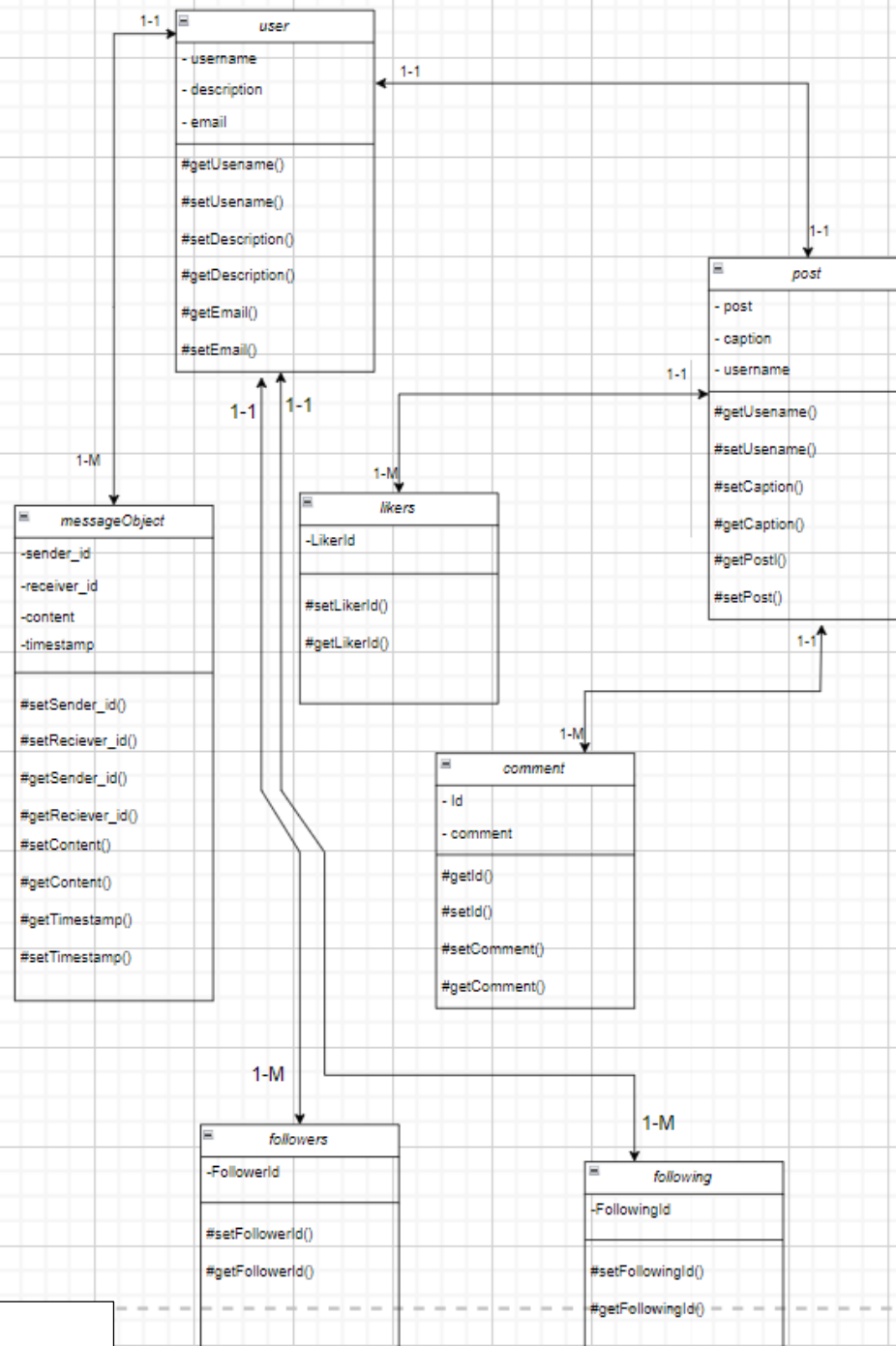


Class Diagram



Edition 2

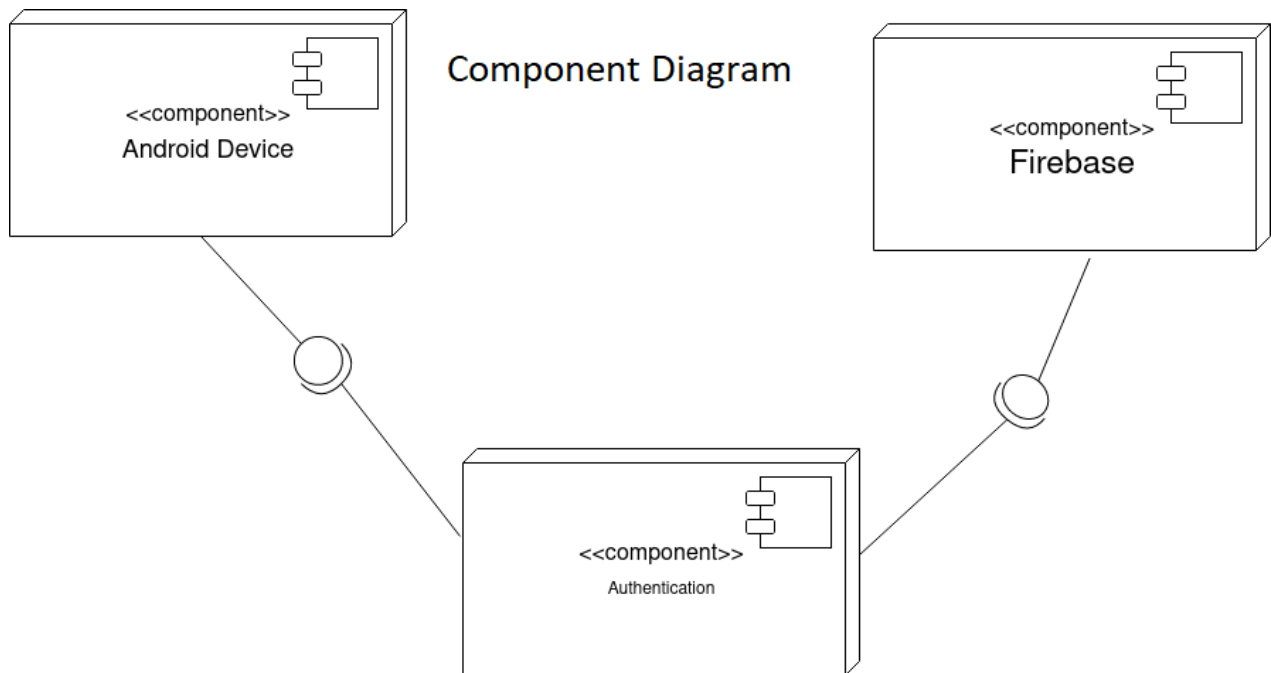
Class Diagram Sprint 4



Development View

Component Diagram

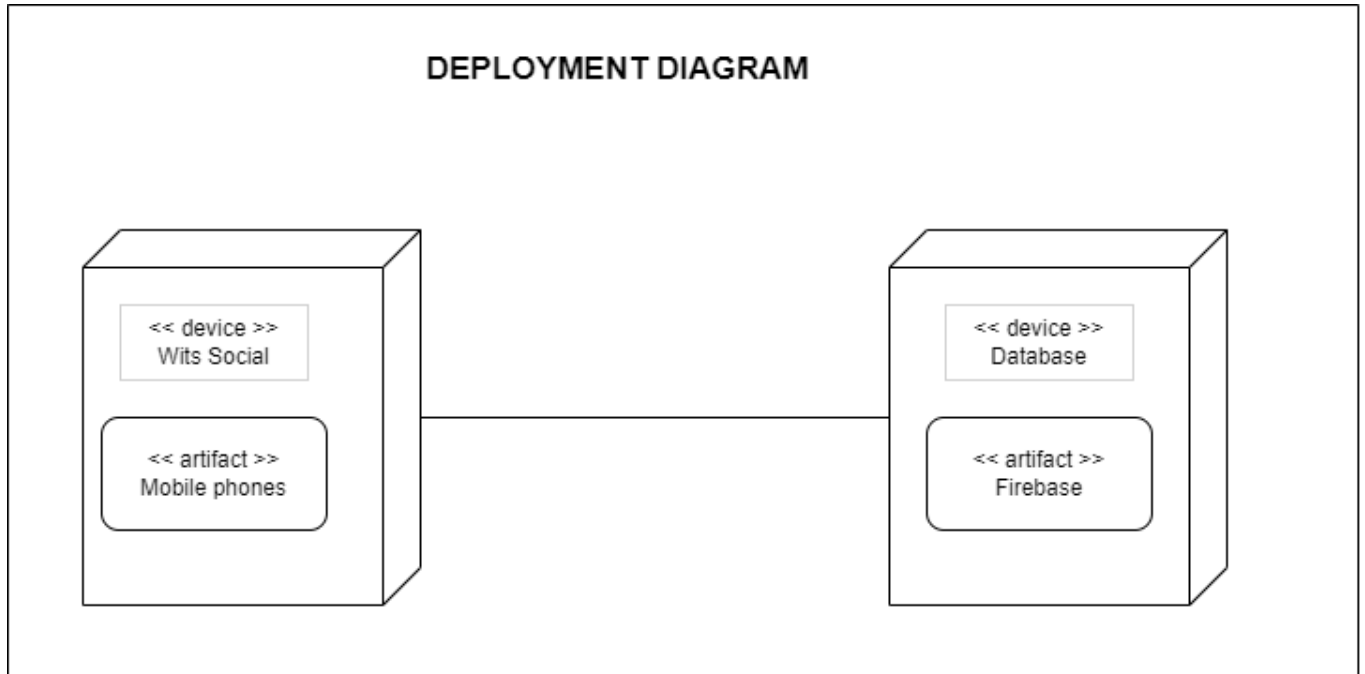
The figure below shows the component diagram for Wits Social. The diagram shows how the different parts of the system interact together. In this extracted sample, the user enters their details on their android details. The details are authenticated using the Firebase Database. Authentication acts as an intermediary between the android device and the Firebase Database



Physical View

Deployment diagram

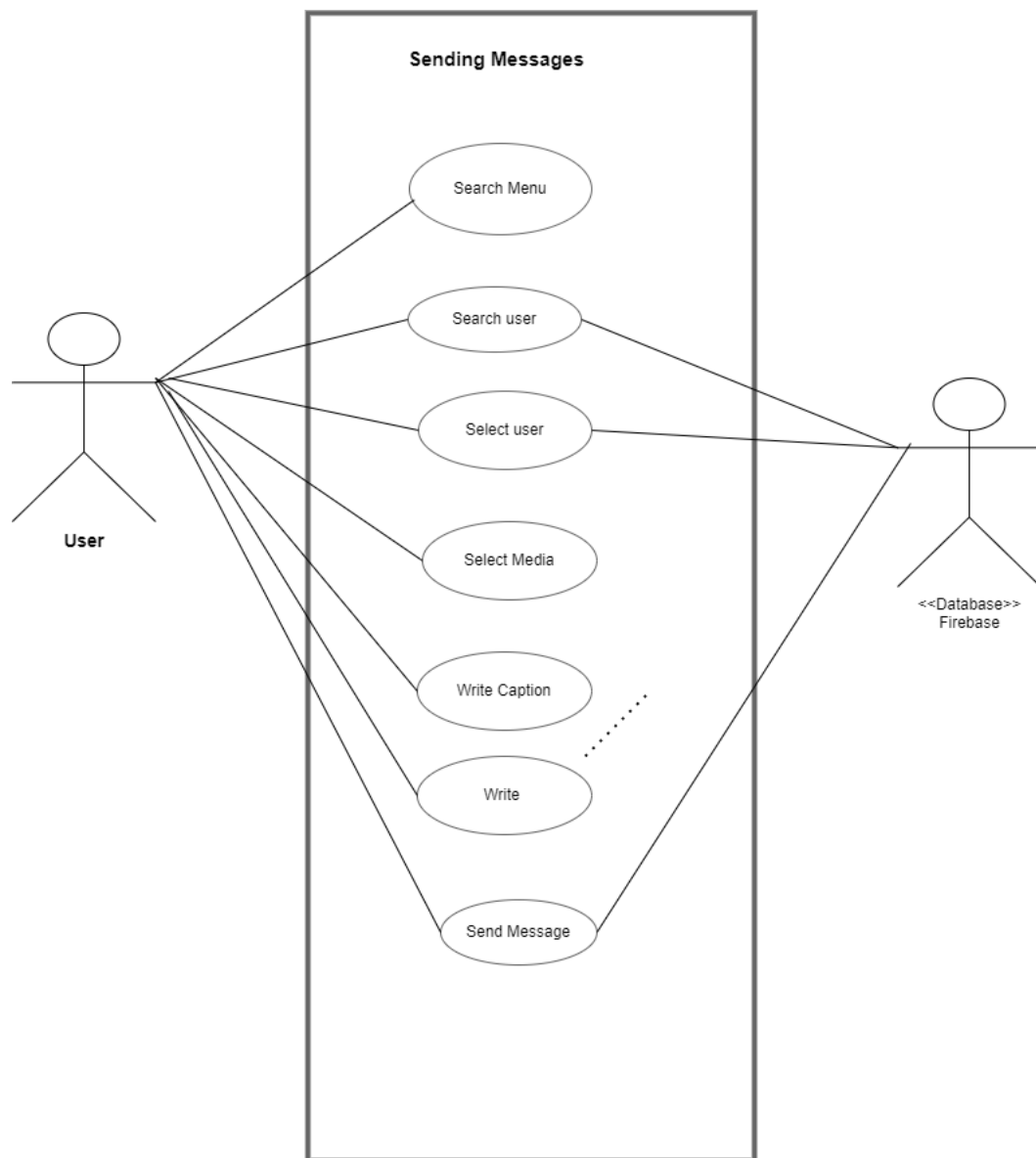
This diagram below shows a deployment diagram for Wits Social. This diagram shows the structural view used to model the physical aspects of the software system. Here we see the device, the android phone interacts amicably with the Firebase Database storage. Whatever is entered on the phone is kept in the Firebase Database. Database can also be retrieved from this database at any given time.

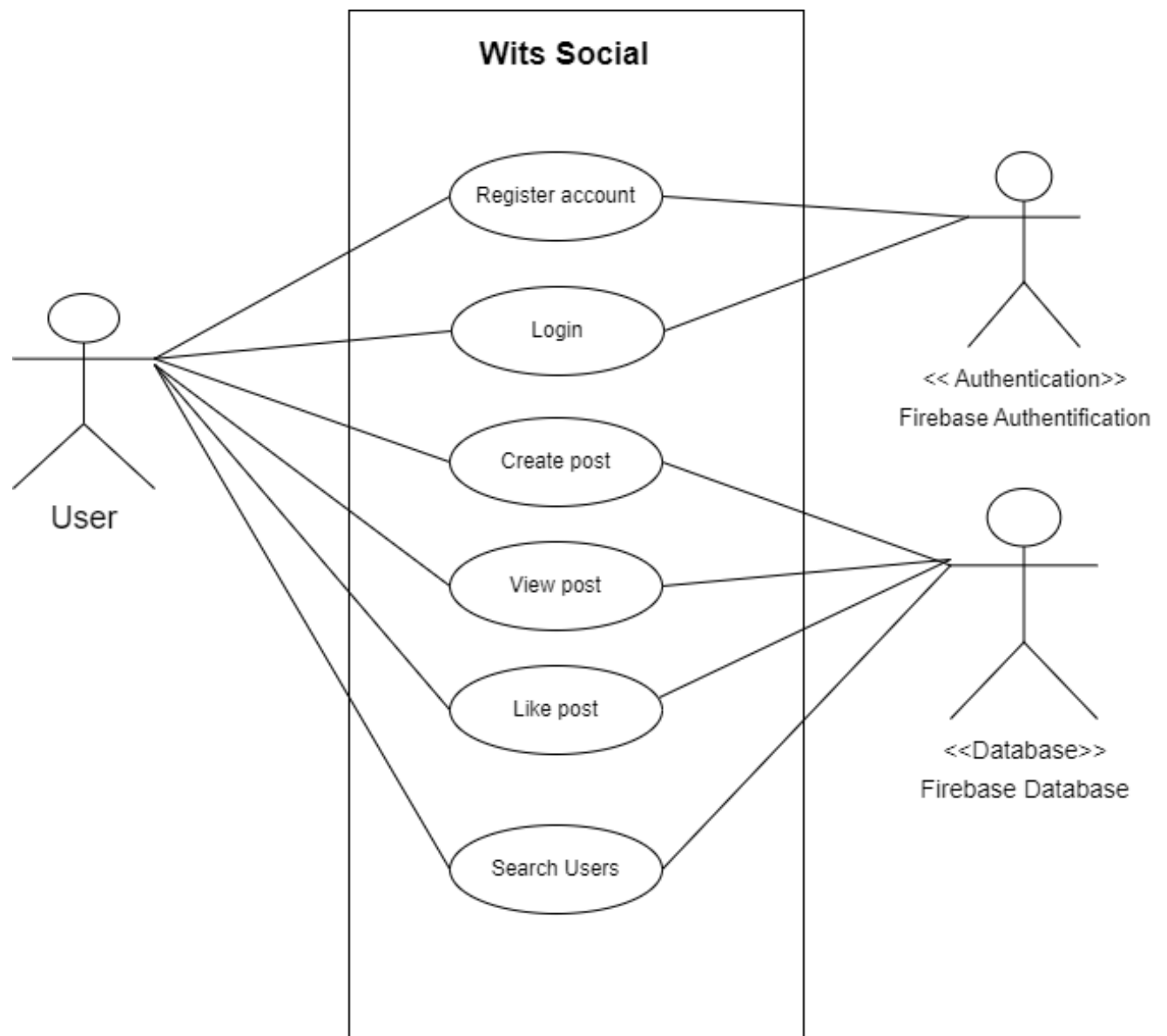


Scenarios

Use Case Diagram

The figure above shows a user case diagram. In this diagram we can see the activities that a user goes through when they want to send a message to another user. The users has to go through a series of activities in order to be able to send a message. It also shows how the Firebase is there to store and retrieve information.

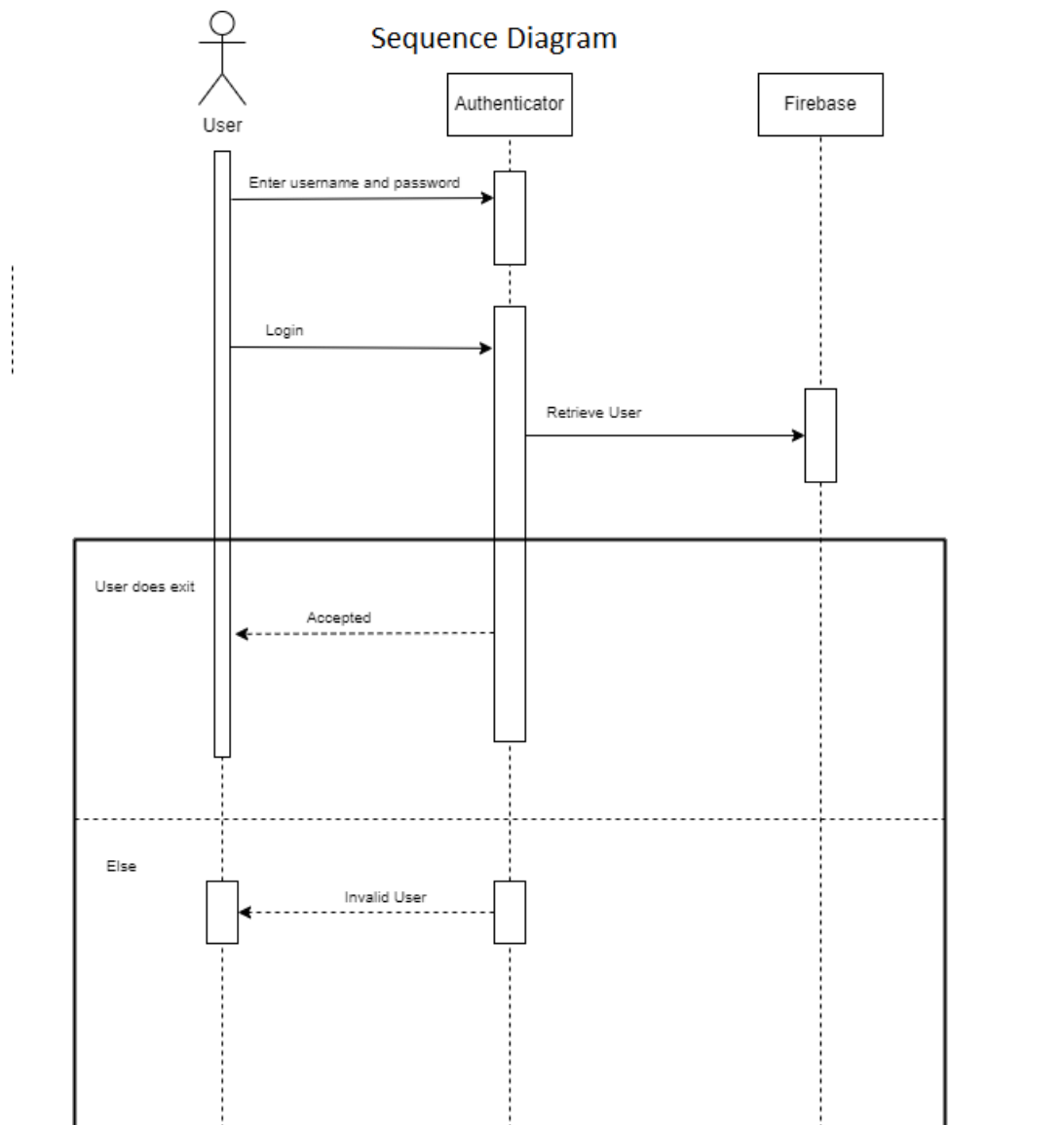


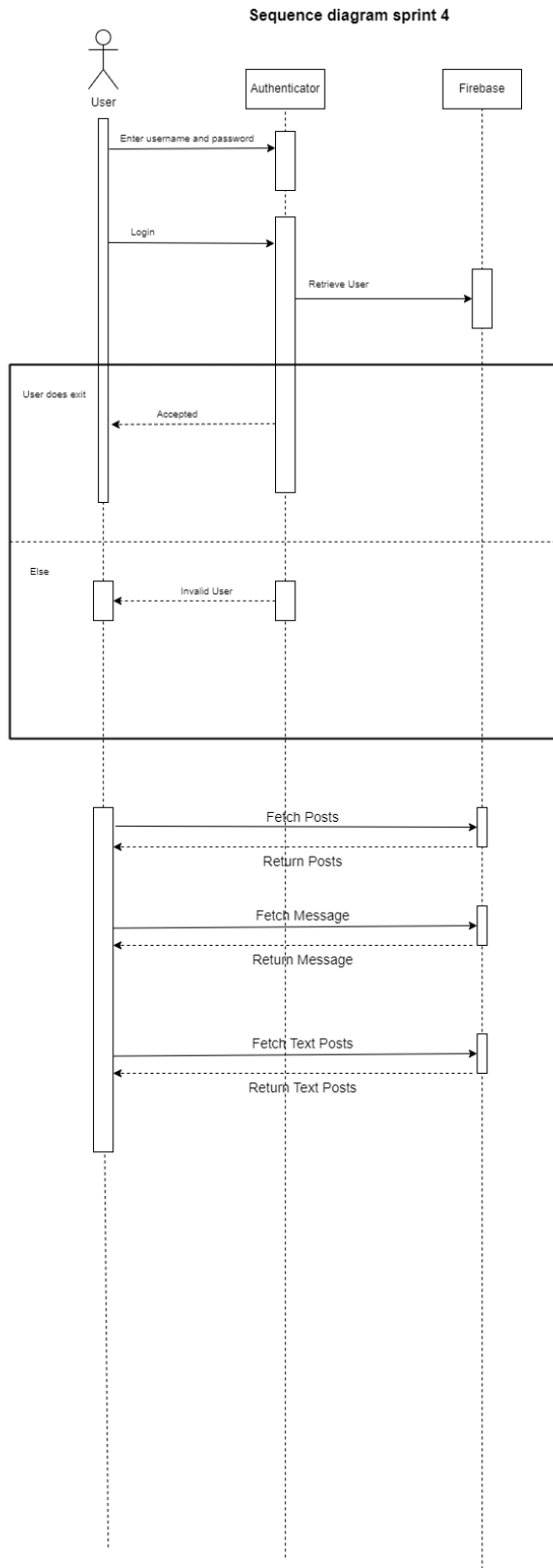


Process View

Sequence

This figure shows a sequence diagram for Wits Social. This diagram shows how the different components / objects in a system interact in a sequential order (i.e., it describes how and in what order the objects in the system function). Here we can clearly see three objects interaction (a user), the authenticator and the Firebase. This sequence diagram describes what happens when a user wants to log into the application. The first thing is that the user enters their details, and the authenticator will verify them. The verifier then communicates with the firebase to check if the details are valid. If the details are correct, the user is taken into the system else they are prompted to input the correct details

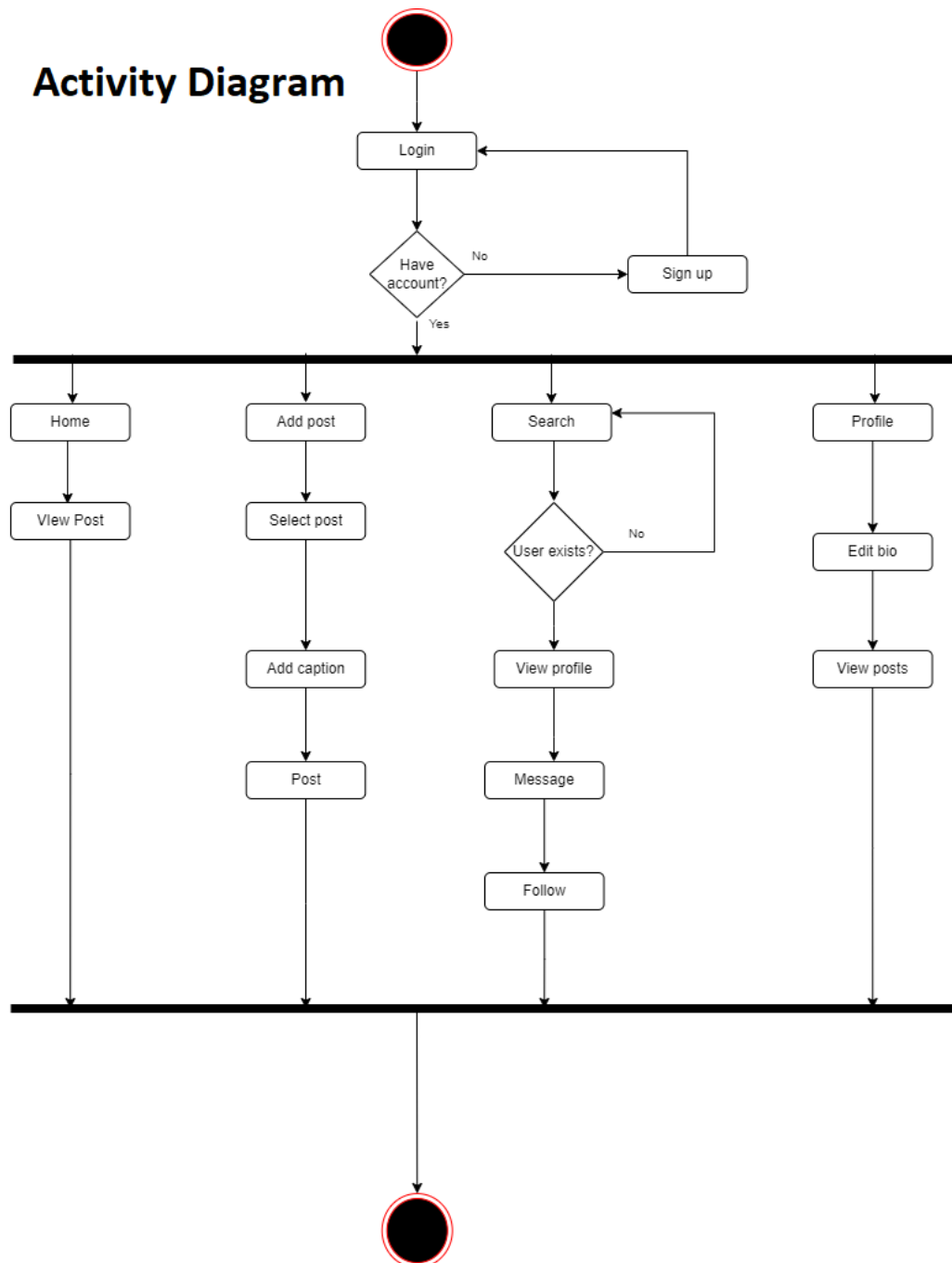




This is an extension of the previously mentioned Sequential diagram. It extends on how the user can post and retrieve texts.

Activity Diagram

This is an activity diagram for Wits Social. The diagram shows the different the user can do when the login into the application. The user sees all these options and it is to their discretion to decide what to do in the application.



Sprint 1

User Story	User acceptance criteria
As a user i want to be able to register an account using my email and password so that the system can remember me when i login.	- Given I am a user, when I enter my credentials then a user's account is created for me?
As a user i want to be able to Log in to my account so that i can access the system and view all the available content	- Given I am a user with an account, when I enter my login details correctly and click the login button, then I get logged in and se
As a user I want to be able to create and post my content (pictures and captions),so that I can share them with other people.	- Given that I'm a user, when I create a post and click submit, then it should be uploaded on the database and shared with other people.
User story: Ass a user I want to be able to search for other users so that I can view their profiles.	- Given that I'm a user when I search for a particular user then it should display only the user that I searched for.
As a user I want other people's posts to appear on my timeline so that I can see and stay updated with their contents	- Given that I'm a user when I go to my timeline then I should be able to see other people's posts.
Ass a user I want to be able to search for other users so that I can view their profiles.	- Given that I'm a user when I search for a particular user then it should display only the user that I searched for.

Sprint 2

User Story	User acceptance criteria
As a user I should be able to follow other users so that I can see their posts.	- Given that I am a user, when I click on the follow button then I will start following that user.
As a user you should be able to search other users so that you can easily find friends users to chat with and follow.	- Given that I am user, when I click on the search button then that user should see a list of previously searched users and be able to search a new user.
As a user, I should be able to view another user's profile so that I can see their saved information.	- Given that I am a user, when I click on the user's profile, then I should be able to see their profile information and details.
As a user you should be able to go to your own profile so that you modify it.	- Given that I am user, when I click on my account then my profile should be loaded, and I can edit it.
As a user you should be able to edit your profile so that you can change the information other users see about you.	- Given that I am user, when I click on the edit button, I should be able to edit my profile description so then I can change the information other users see about me.

Sprint 3

User Story	User acceptance criteria
- As a user I want to be able to see the number of users following me so that I can know the list of the users following me.	- Given that I am a user, when another user follows me, they should be included in my list of followers and the number of users should increase
- As a user I should be able to like a post so that the number of likes for that post increases	- Given that I am a registered user, when I click on like button on a post it should be liked, and the number of likes should increase.
- As a user I should be able to add a comment on a post so that others can see my comment of the post.	- Given that I am a registered user, when I click on comment button, I should be able to type and post a comment.
- As a user you should be able to upload your profile picture so that other users can see my profile picture.	- Given that I am a registered user, when I click on my profile picture on my edit profile, then I should have an option of uploading a picture from camera or gallery which I should be able to do.
- As a user I want to be able to sign out of my account so that I can leave the system.	- Given that I am a registered user, when I click on sign out button then I should be logged out of my account.

Sprint 4

User Story	User acceptance criteria
As a user I should be able to receive a combination of image and text from other users so that I can view them, and we can communicate effectively.	Given that I am a registered user, I should be able to receive a combination of text and images then I can view them.
As a user I should be able to see all the people I am chatting with so that I can easily find them when I want to chat again	Given that I am a registered user, when I click on chats, I should see all chats I am chatting with so then I can communicate with them effectively.
As a user I should be able view text posts and image posts on the same activity.	Given that I am a registered user, when I login into the app I should see text and image posts on home activity then I can view, like and comment on them.
As a user I should be able to archive any person I am chatting with so that they don't appear in the list of people I am chatting with.	Given that I am a registered user, when I click on archive, the user I am archiving must be moved to archived activity then they do not appear in chats list.
As a user you should be able to post texts in addition to images.	Given that I am a registered user, when I click on post, I should be able to post either picture or text or both then it will be possible to view both in home.
As a user I should be able to send other users images, text and files so that I communicate easily and effectively.	Given that I am a registered user, when I click on send, I should have the option to send images, text or files to other users then they can receive and view t

Conclusion

The six best developed summoned tried their level best to create a world class social media application with available resources at hand. The application everything exactly as it should. If the developers had more time, we were going to implement a Machine Learning feature that allows users to linked based on their different likes and hobbies. Loadshedding is big impediment that hindered the progress of our world class app developers.