



chatmaps

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25 April 2024



Overview

- Web-based social networking service
 - www.chatma.ps
- Connect with others in your local geographical area
- Features an interactive map showing general location relative to users + rooms
 - Open chat rooms to start public conversations based on specific topics
- Registered users can create their own chat room
 - Create topics of interest for others to view or join
- Features direct messages between users

Our aim is community engagement, meaningful interactions, and a new way to meet others

User Stories



- As a registered user, I want to be able to view chat rooms near me so that I can talk to people in my community.
- As a registered user, I want to be able to create my own chat room so that I can talk with friends in private.
- As a registered user, I want to be able to include my personal interests in my profile so that I can find like minded people.
- As a registered user, I want to be able to appear offline so that I won't be disturbed.
- As a registered user, I want to be able to filter my search for chat rooms by using keywords so that I can find where I belong.

User Stories



- As a registered user, I want to be able to add other users so that I can reach out to them in the future.
- As a registered user, I want the ability to delete previous messages that I sent in the case that I mistakenly wrote to the wrong chat.
- As a registered user, I want to receive chat notifications so that I can respond back promptly to friends.
- As a registered user, I want to be able to send direct messages to other users so that I can chat with them in private.
- As a registered user, I want to be able to view who's online so that I know who I can chat with.



Kanban Board

ChatMaps ⭐ Workspace visible Board ⌂

Power-Ups Automation Filters CL AB JG

User Stories To Do ...

+ Add a card

User Stories - Doing ...

+ Add a card

User Stories - Done ...

As a registered user, I want to be able to filter my search for chat rooms by using keywords so that I can find where I belong.

As a registered user, I want to be able to paste GIFs in chat so that I can reference funny memes.

As a registered user, I want the ability to delete previous messages that I sent in the case that I mistakenly write to the wrong chat.

As a registered user, I want to be able to set language filters for my chat rooms so that I can limit explicit language.

As a registered user, I want to be able to view who's online so that I know who I can chat with.

To Do - Deliverable 5 ...

+ Add a card

Done - Deliverable 5 ...

Updated Github

Software

Updated Kanban Board

Updated Product Backlog

Use Case Models

Architectural Design

Domain Model

Design Pattern/DCD

Configuration

Updated Sprint Backlog 5

SG

Plan for Future Document

SRS (Update Pics)

Clark



Sprint Backlog

ID	User Story	Story tasks	Sprint number	Sprint goal	Story type	Story Points	Story Points Completed	Names and Contribution Percentage
7	As a registered user, I want to be able to appear offline so that I won't be disturbed.	Implement offline functionality to chatrooms/friends list	5	User will be offline in the chat when they leave the chatroom	F, T	2	2	Nick, 33%, Clark, 33%, Aidan, 33%
		Appear offline if app is closed	5	When user closes app, appear offline to friends	NF, T, KA	1	1	Nick, 100%.
		Code profile page for user	5	All user profiles. Show online/offline statuses on profile page	F, T, KA	2	2	Nick, 25%, Stephen 25%, Clark, 25%. Aidan, 25%
12	As a registered user, I want to be able to view who's online so that I know who I can chat with.	Design UI for friends list	5	Mockup UI for friends tab	F, KA	1	1	Aidan, 20%. Clark, 20%. Stephen, 20%. Joe, 20%. Nick, 20%
		Implement adding friends	5	Allow user to add friends and show their online status	NF, T	1	1	Nick, 33%. Clark, 33%. Aidan, 33%.
		Implement online status of friends	5	Show user who's online on their friends list	F, T	1	1	Nick, 100%.
9	As a registered user, I want to receive chat notifications so that I can respond back promptly to friends.	Design UI for notifications	5	Show user a notification when a chats been updated	F, KA	1	1	Aidan, 20%. Clark, 20%. Stephen, 20%. Joe, 20%. Nick, 20%
		Implement notification UI	5	Add UI to notify user of chat updates	F, T	1	1	Nick, 50%. Clark, 50%.
		Implement in app notifications	5	Show user notifications for incoming chats or chatroom updates	NF, T	2	2	Nick, 50%. Clark, 50%.

Stephen

Product Backlog



Completed User Stories:

1. **As an unregistered user, I want to be able to view chat rooms near me so that I can talk to people in my community.**
2. As a registered user, I want to be able to include my interests in my profile so that like minded people can find me.
3. **As a registered user, I want to be able to create my own chat room so that I can talk with friends in private.**
4. **As a registered user, I want to be able to add other users so that I can reach out to them in the future.**
5. As a registered user, I want the ability to delete previous messages that I sent in the case that I mistakenly write to the wrong chat.
6. As a registered user, I want to be able to filter my search for chat rooms by using keywords so that I can find where I belong.
7. As a registered user, I want to be able to appear offline so that I won't be disturbed.
8. As a registered user, I want to be able to see a short list of users when I hover over a chat so that I can see if I know anyone.
9. As a registered user, I want to receive chat notifications so that I can respond back promptly to friends.
10. As a registered user, I want to be able to paste GIFs in chat so that I can reference funny memes.
11. **As a registered user, I want to be able to send direct messages to other users so that I can chat with them in private.**
12. As a registered user, I want to be able to view who's online so that I know who I can chat with.
13. As a registered user, I want to be able to set language filters for my chat rooms so that I can limit explicit language.
14. As a registered user, I want to be notified when a new user joins the chat so that I can greet them.
15. As a registered user, I want to be able to logout of my account at any time so that I can keep my messages secure.
16. As a registered user, I want to be able to visually see how big a chat room is so that I can avoid busy chat rooms.

(Bolded stories indicate stories with particular importance to the usability of the application)

Clark

Functional Requirements



- The system shall let users create chat rooms with a specific topic, for other users in the area to join.
- The system shall show users a local map of their area.
- The system shall have the option to create private chat rooms which can only be accessed by invitation.
- The system shall keep users personal information on their account private.
- The system shall allow users to customize their profile.

Non-Functional Requirements



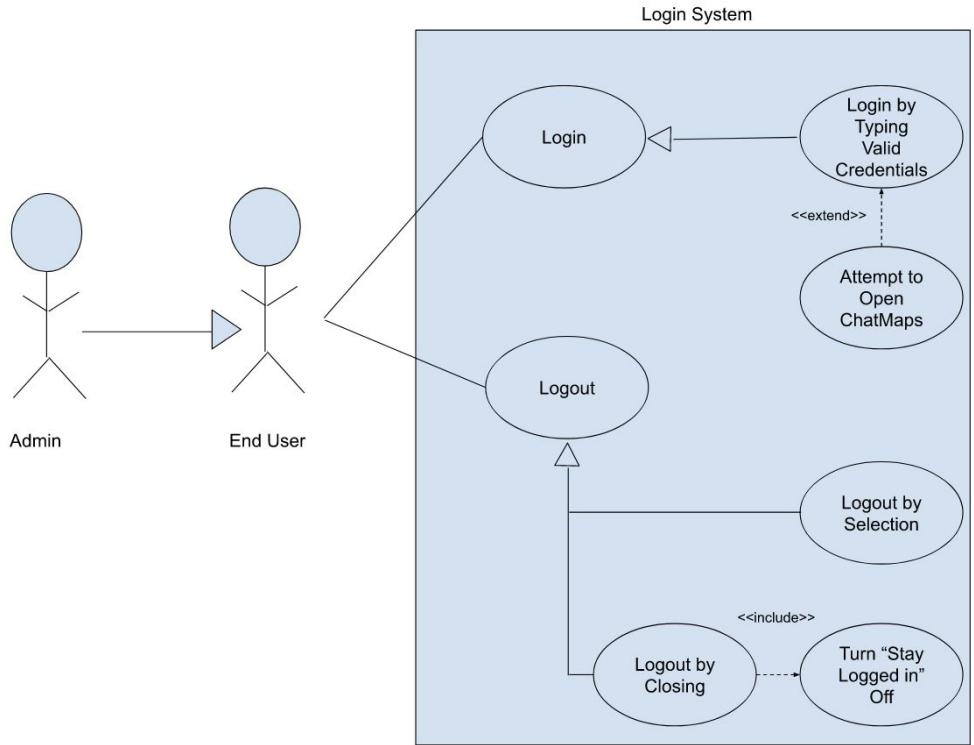
- The system shall be available at all hours of the day 99% of the time.
- The system shall provide users real-time location updates every 5 minutes 95% of the time.
- The system shall be capable of keeping users' information private 99% of the time.
- The system shall comply with relevant laws and regulations, such as data protection regulations 99% of the time.
- The system shall handle sending messages within 5 seconds 95% of the time.



Use Case 1

Login System

- Logging in is a requirement to access main features of ChatMaps System.
- It's important to handle logins and logouts appropriately without security risks.
- When logging out, terminating the current session is ideal to prohibit others from accessing your account on the same computer.
- Logging in can be done by providing the correct credentials that matches the information on our server.
- Logging out can be done by clicking the logout button or simply by closing the browser.

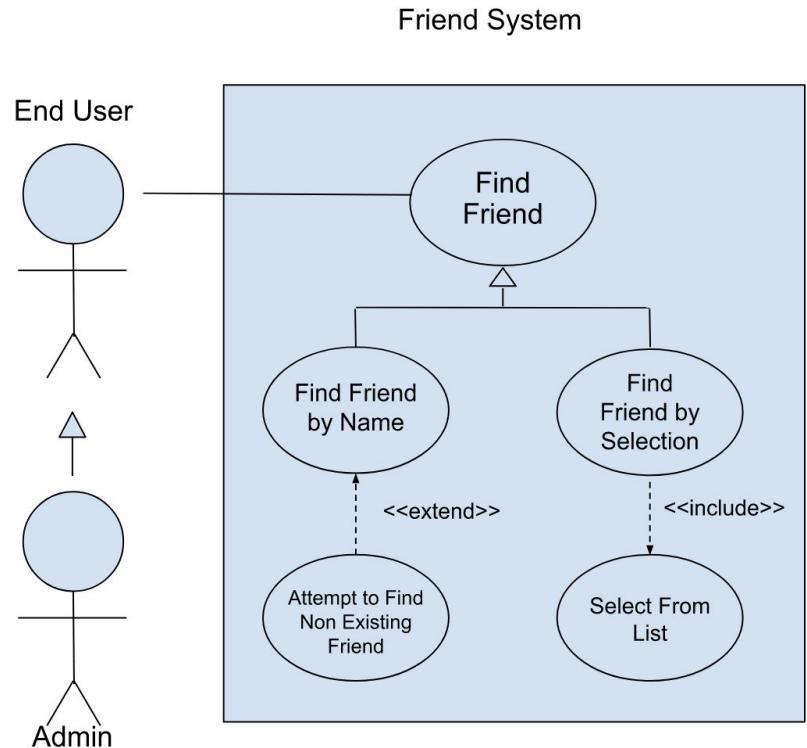




Use Case 2

Friend System

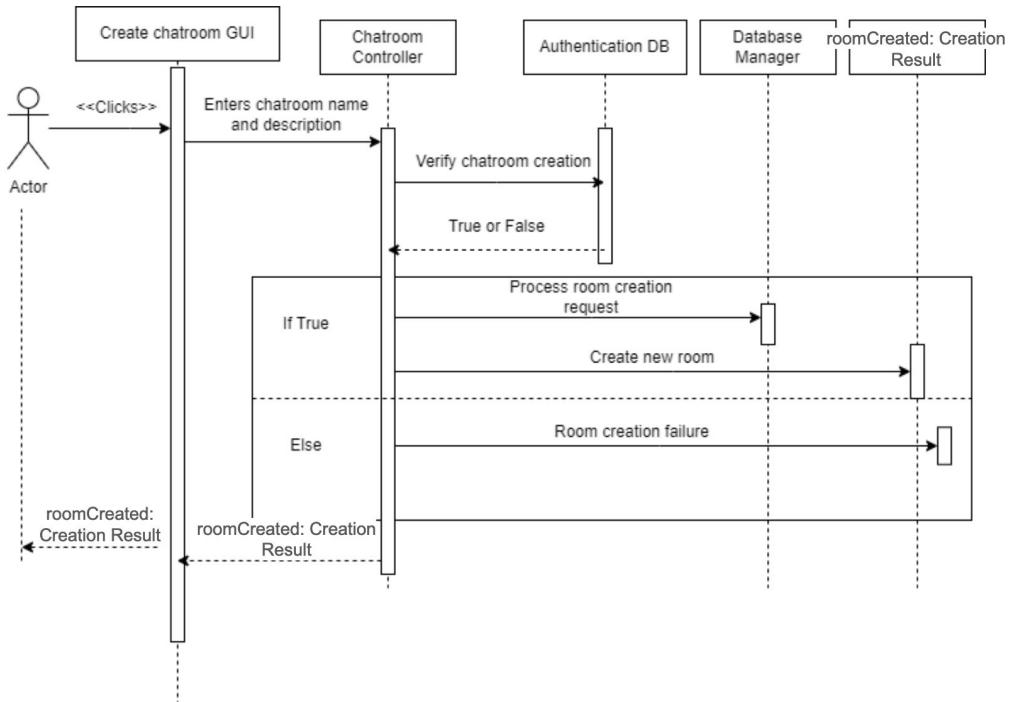
- Friends are an important part of any social network and can increase user engagement and retention.
- This exact friend system was not implemented completely as of 25 APR 2024. Friend lookup by username is a planned feature for forward releases.
- Adding a friend can be done by accessing the users profile and pressing the Add Friend button.
- In this use case, you may lookup a username to see if it exists, or select one from a list of all users





Sequence Diagram 1

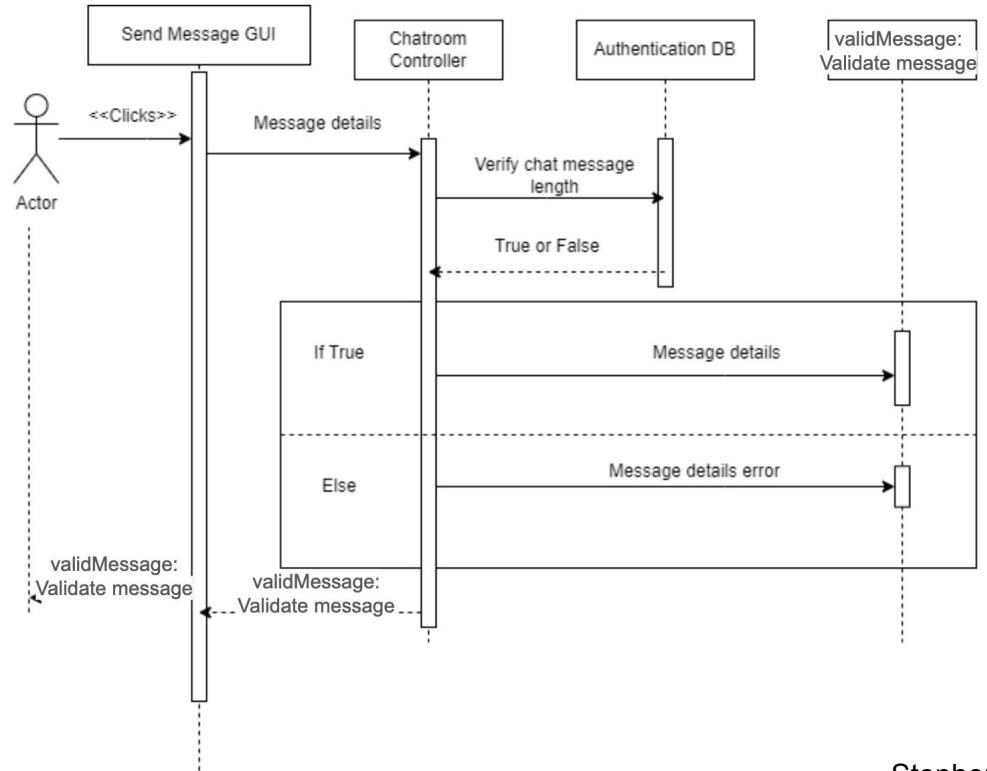
- Creating a chat room, while a benign feature, requires a fair amount of computation and verification as to prevent unauthorized tampering with the application, spam room generation, or overload of DB or Authentication services.
- Every time a chat room is created, the user is authenticated to ensure currency on its current authorization
- If authorization succeeds, the room is created and stored in the proper place in the database
- If authentication fails, the user is redirected to the authentication flow to process a new authentication.





Sequence Diagram 2

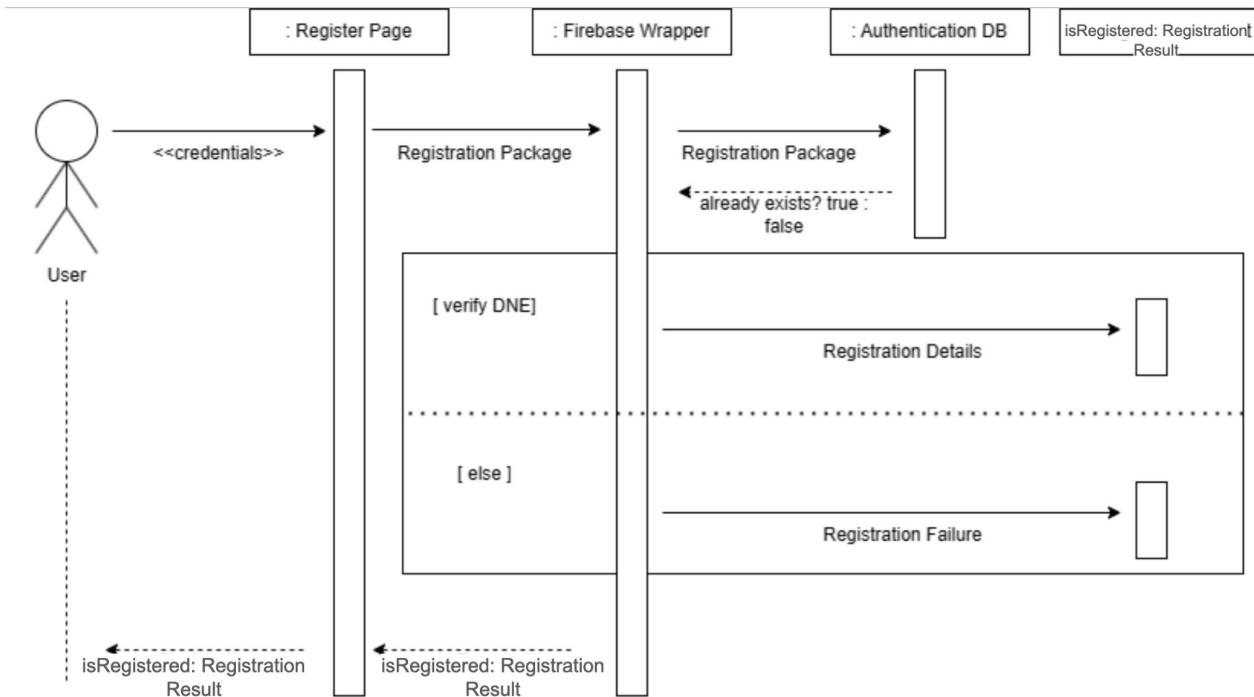
- Sending a message is crucial to the fundamental operation of this software.
- Sending a message primarily involves verifying that the length of the message is in accordance with the max storage size of the database
- Once that verification succeeds, the message is uploaded to the database and distributed to all clients currently connected to its corresponding chatroom
- The user can confirm this by ensuring that the message is evident on their screen.



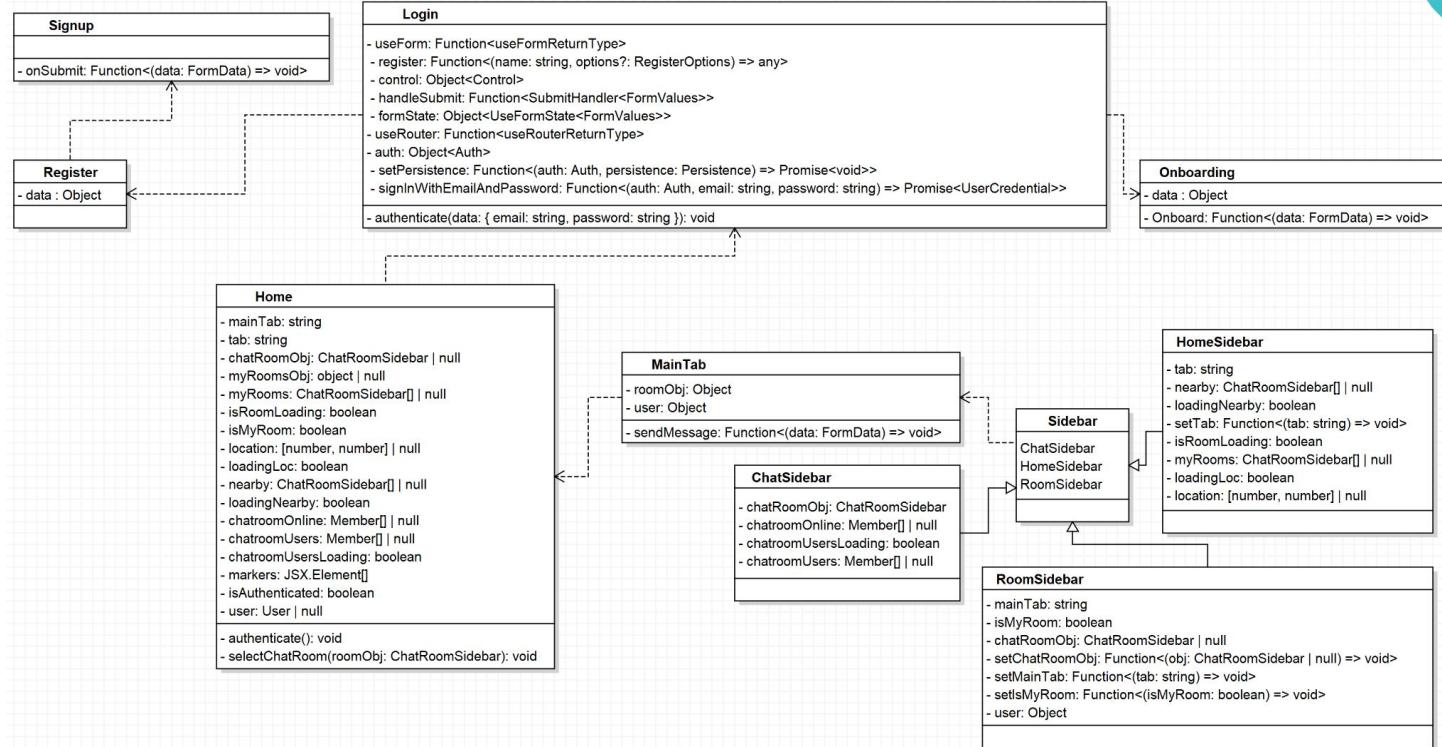


Sequence Diagram 3

- Registration



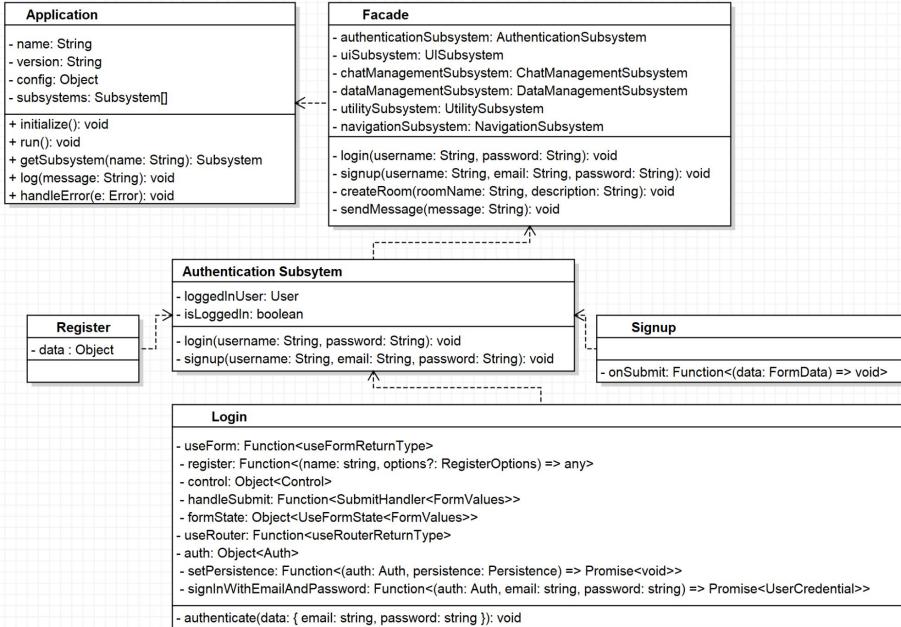
Domain Model



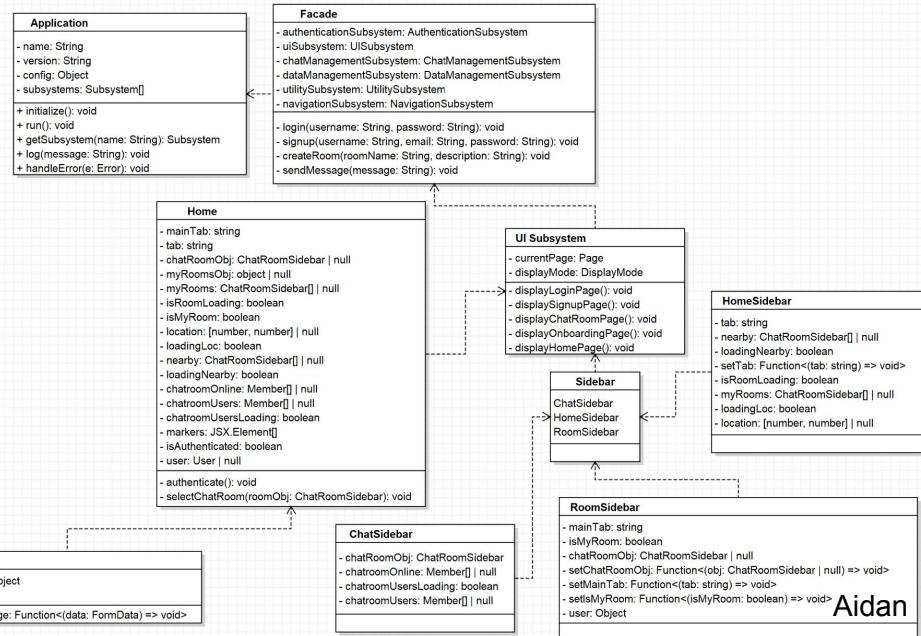
Design Class Diagrams



Authentication

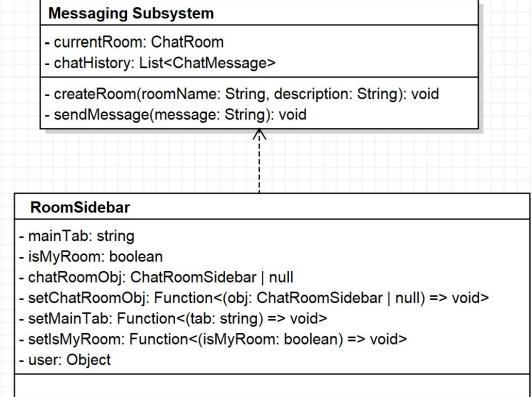
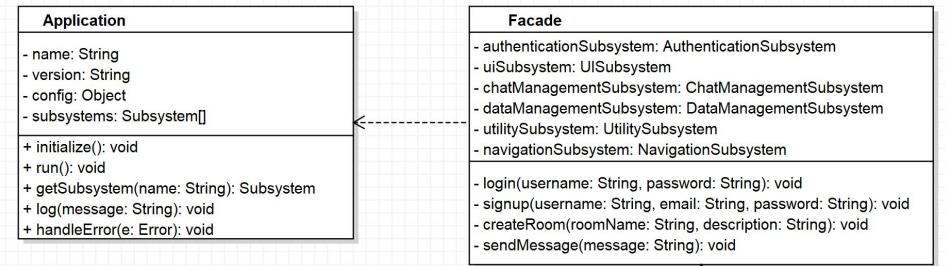
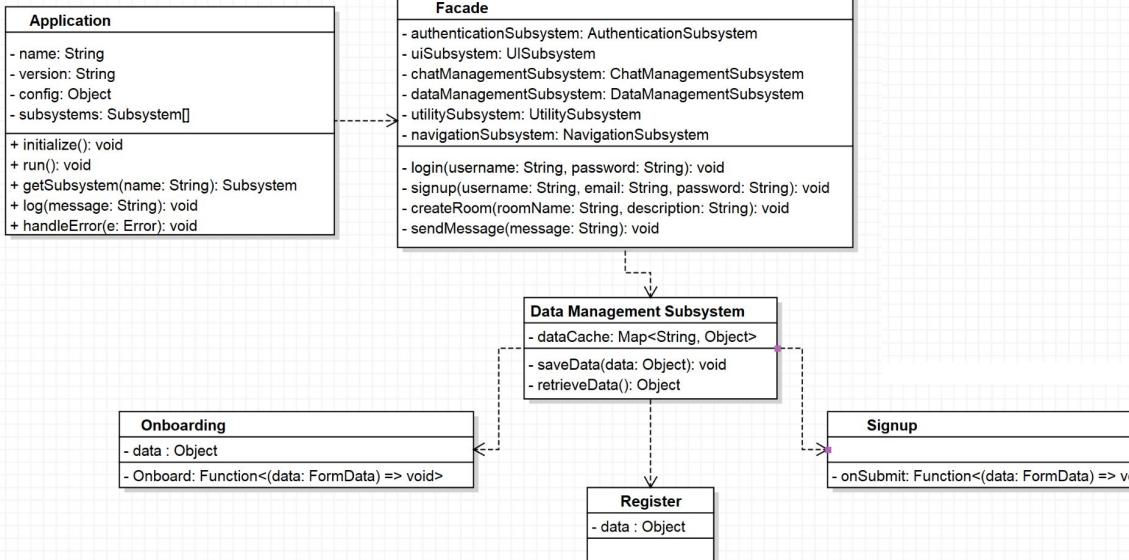


User Interface



Design Class Diagrams

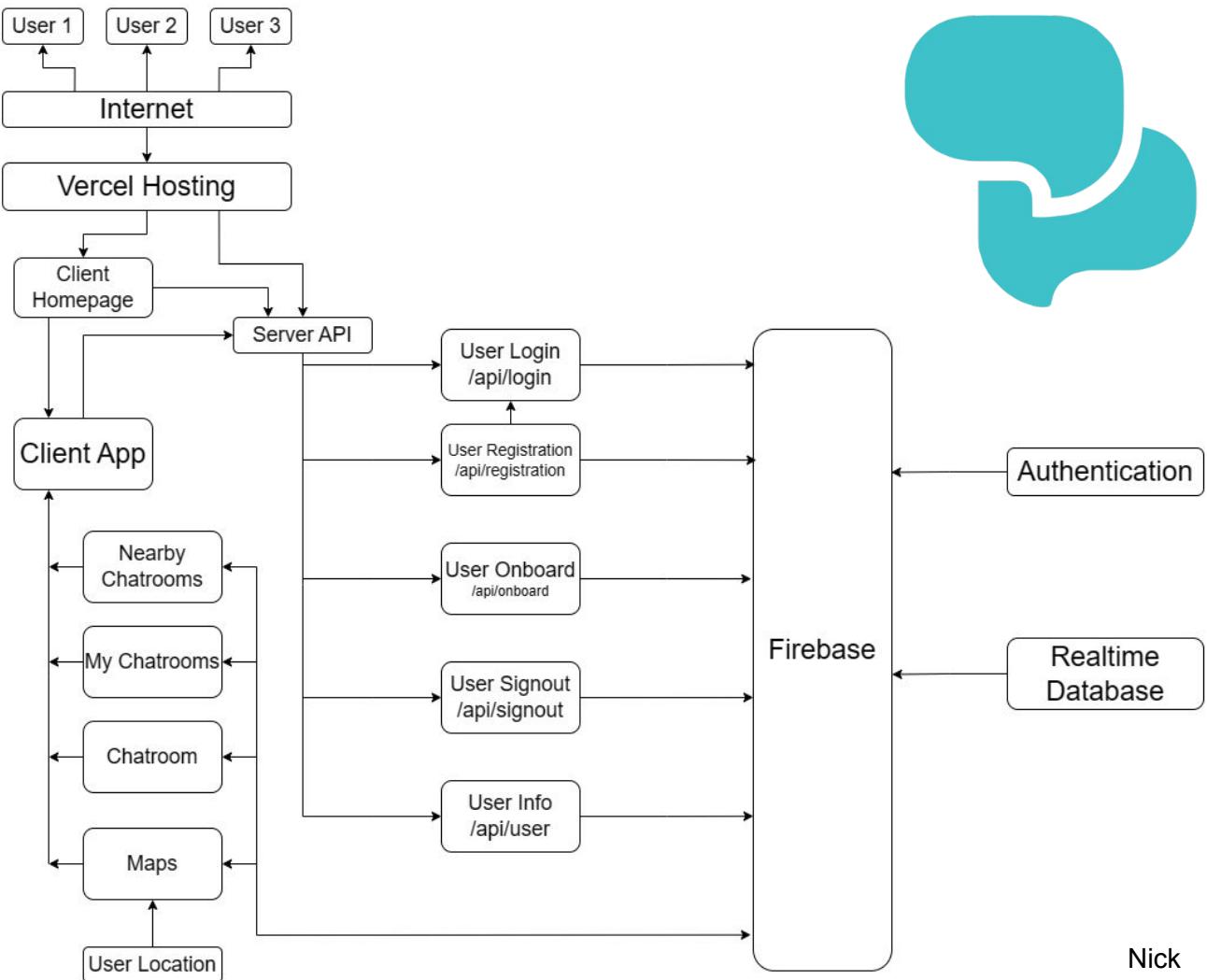
Data Management



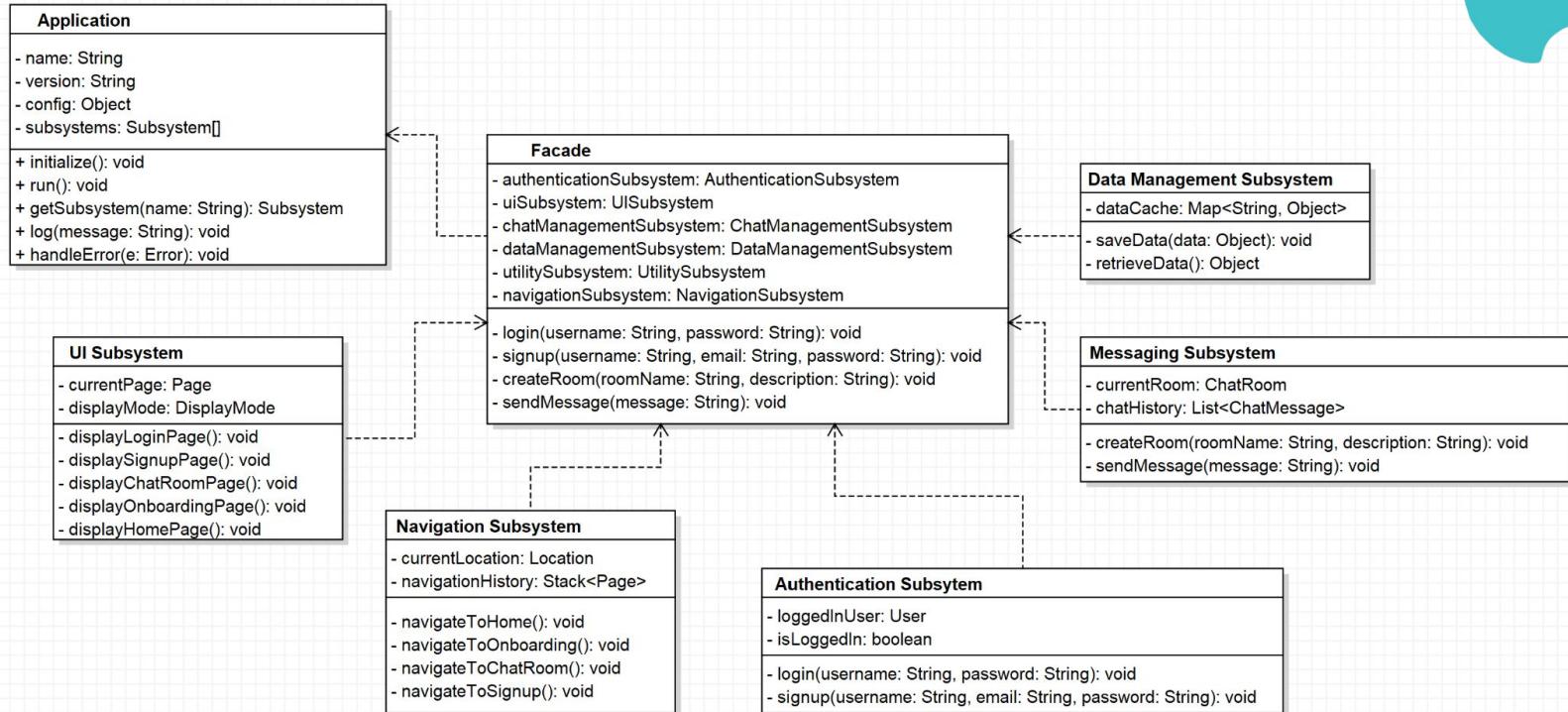
Messaging

Aidan

Architecture



Architecture (Design Pattern)





Configuration Management

Github Repository: <https://github.com/ChatMaps/ChatMaps>

Current Version: V1.0.1 (Usability Patch 1)

Release Scheme (Incremental Model)

[major release] . [minor release] . [bug/security patch]

Key Tools Used

- Github (Distributed Control Management System)
 - Vercel (Preview, CI/CD, Web Application Distribution)
- Firebase (Database, Authentication, File Storage)
 - React (Frontend, Backend)



Test Plan

— Use Case Tests

1. Login by Typing Valid Credentials
2. Add Friend by Selection
3. Create a Room
4. Accept a Friend Request
5. Join a Room

Test Plan

Unit Tests

Test Case 1 (Code) Object: Chat	Test Case 2 (Code) Object: ChatRoomSidebar
Test Case 3 (Code) Object: DM	Test Case 4 (Code) Object: Member
Test Case 6 Object: Friend	Test Case 7 Object: FriendRequest
Test Case 8 Object: Geo	Test Case 9 Object: Notification
Test Case 10 Object: HomePage	

Test Case 5 (Code)

Object: RMF (Rich Message Formatting)

Input:

Message {String} - String containing text, urls, and images

Output:

**[] React Components and Strings*

Example Implemented Unit Test Case

```
import { RMF } from "../src/components/app/datatypes";
import renderer from 'react-test-renderer';

var message = "Hello, World! This is a test message.
https://www.google.com"

it('RMF Renders Correctly', () => {
  const tree = renderer
    .create((RMF(message)))
    . toJSON();
  expect(tree).toMatchSnapshot();
});
```

Nick

Test Plan

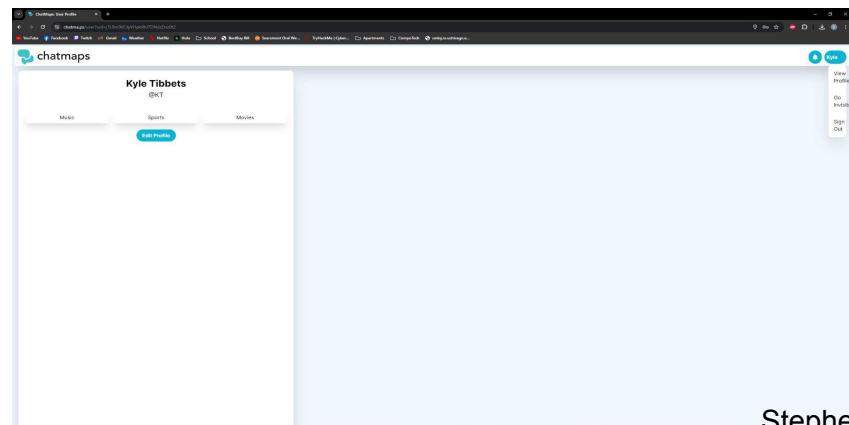
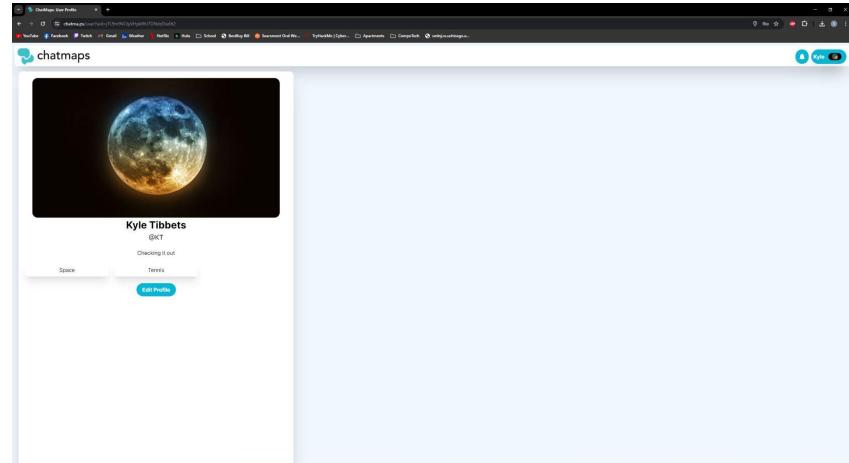
Acceptance Testing

User: Kyle Tibbets

Feedback:

- Easy to navigate UI
- Very customizable profile page
- Liked the GIF feature in chat rooms
- Small bugs around dropdown menu size

when no profile picture is added.



Stephen

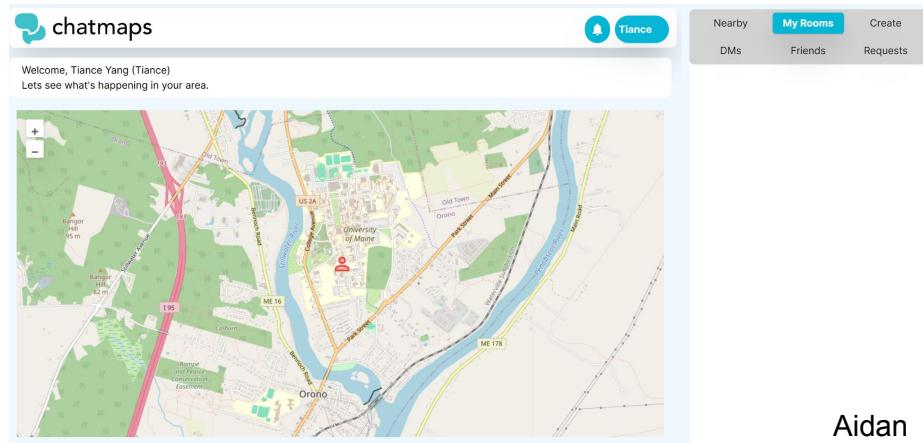
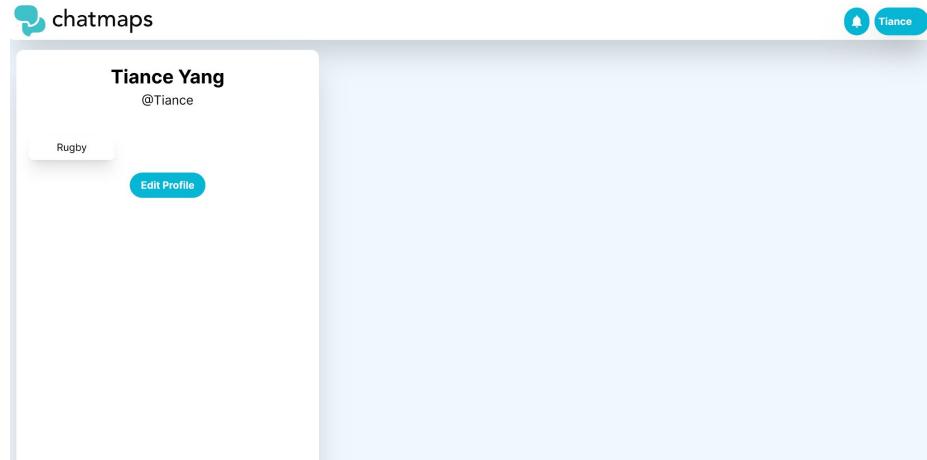
Test Plan

— Acceptance Testing —

User: Tiance Yang

Feedback:

- Easy to create an account
- Nice features, intuitive interface
- Map feels empty. Could do more on it
- The chats are really smooth and work well



Security & Privacy

- Security and privacy are major concerns while implementing a social platform such as ChatMaps
- As such, the entire application (save for the first page) utilizes Firebase authentication services to handle keeping track of the users authentication across tabs and the site.
- Each page individually verifies authentication status is current before completing connection
- On very important pages such as profile editing and DM's, additional checks are implemented to verify the correct users are accessing those pages / elements.
- Database access is governed at a server level by access restrictions, restricting users from editing information they are not authorized to, in addition to preventing unauthorized deletions.
- Profanity filters are implemented on the chat side, preventing most lewd or profane messages from being shown to the user.



```
service firebase.storage {
  match /b/{bucket}/o {
    match /{document=**} {
      allow read: if request.auth.uid != null
      allow write: if false
    }
    match /users/{userID}/pfp {
      allow read: if request.auth.uid != null
      allow write: if request.auth.uid == userID
    }
  }
}
```

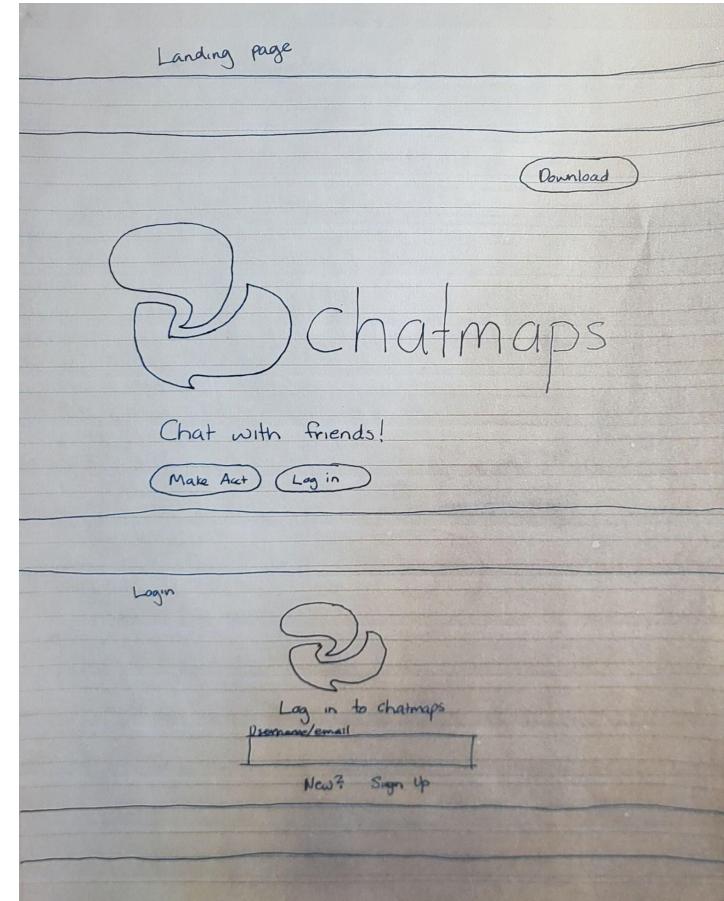
Example of Firebase access restriction rules for the profile picture storage backend

Mockups (1/3)



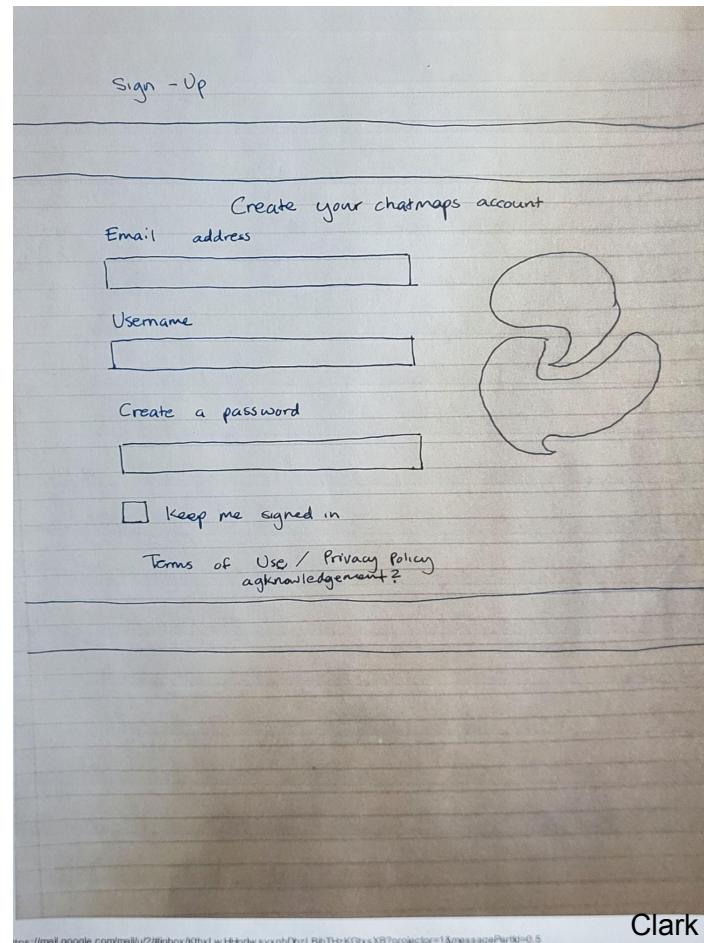
Chat with friends!

Login Sign Up



Clark

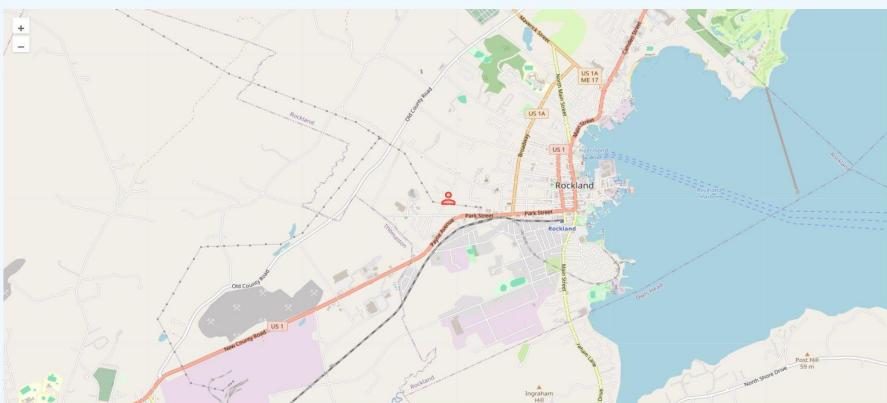
Mockups (2/3)



Mockups (3/3)



Welcome, Stephen Goodridge (Stephen G)
Let's see what's happening in your area.



Nearby My Rooms Create

DMs Friends Requests

Search

No Nearby Rooms
Create One?

Interests page

What are you interested in?

Snowboarding	Music	Animals	Creative	Cats	Sports
Hairy Styles	Taylor Swift	Punk	Guitar	Cooking	Plants

Maps page

Friends <

- Ann
- Zeke
- Chris
- Hannah
- Isaac
- Matt
- Ryan

See alike users!



Workload Distribution



Nick - 30%

Clark - 20%

Stephen - 20%

Aidan - 15%

Joe - 15%



Future Plan



- Chatmaps team finished all the user stories we set out to do
- While we've reached our goals, there's still some room for improvement and refinement.
- The team has plans to enhance the user experience and focus on quality of life improvements that won't disrupt the functionality of our system.

Examples:

- Ability to lookup users by username for easy friend requesting
- Add features to the map to help it not feel so 'empty'.



Try now: chatma.ps

Source code available at: <https://github.com/ChatMaps/ChatMaps>

Thank you!

Demo

