

MingleMap

Design Presentation
Team Iron
CS410 — Spring 2025

“Explore, Chat, Connect - A New Way To Socialize”

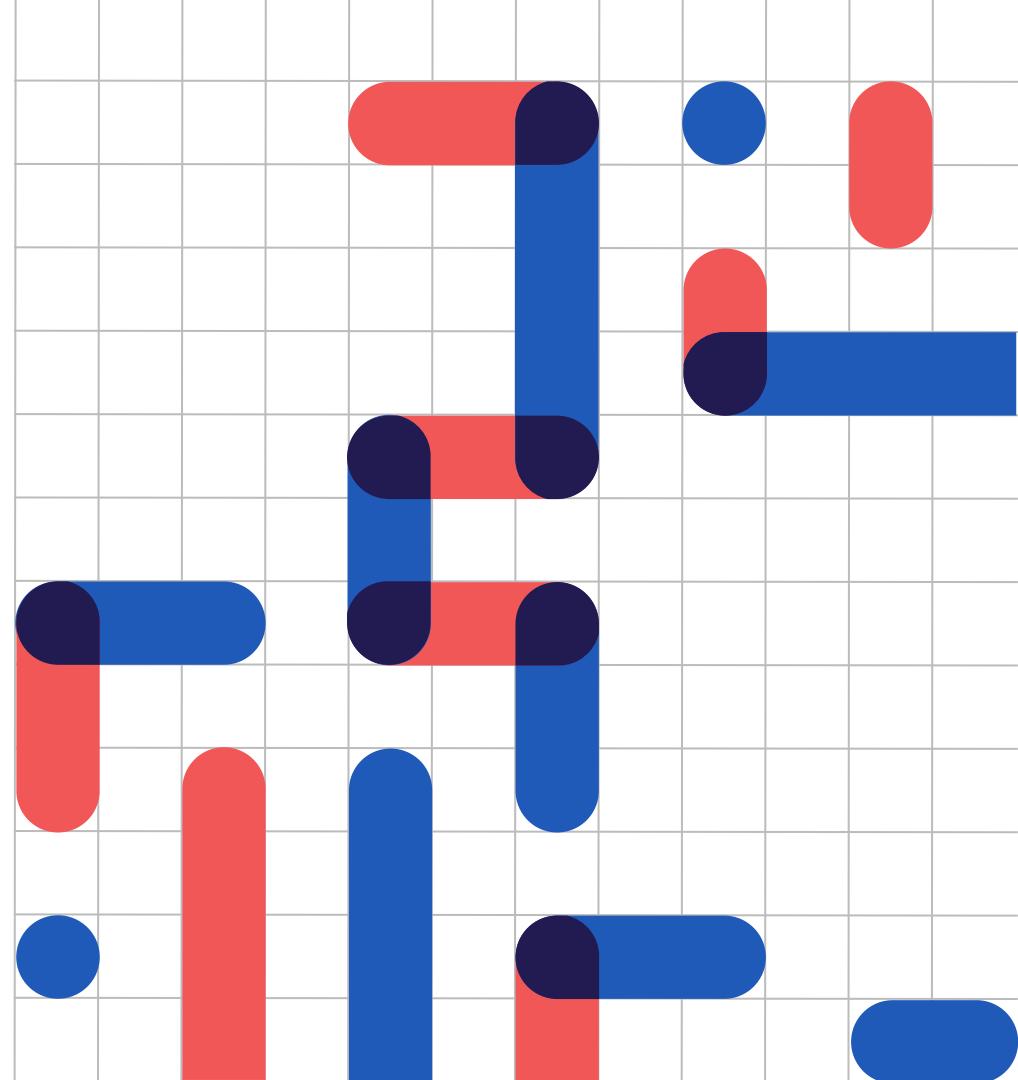


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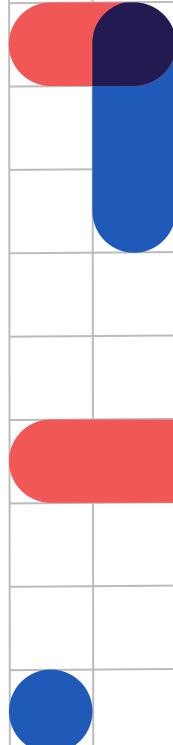
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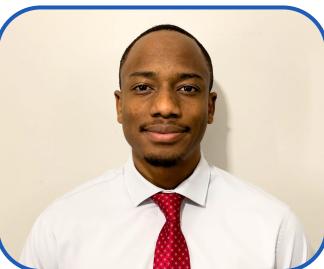
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Meet The Team



Taran Moses

Backend Developer



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Backend Developer



Ben Dutton

Frontend
Developer



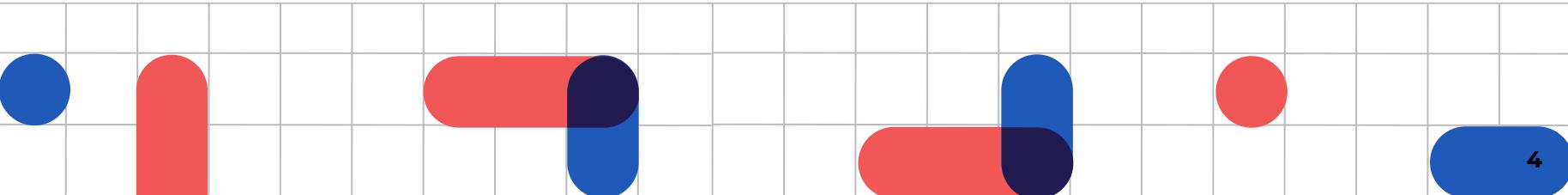
Jacob Neff

Database Specialist



Ahmer Shafiq

Documentation
Specialist



Background

- Everyone naturally desires meaningful connection.
- In 2023, the U.S Surgeon General issued an article on America's loneliness epidemic stating that people's social networks are getting smaller. (U.S Surgeon 13)
- In the U.S., time spent alone is far greater than time spent with others.

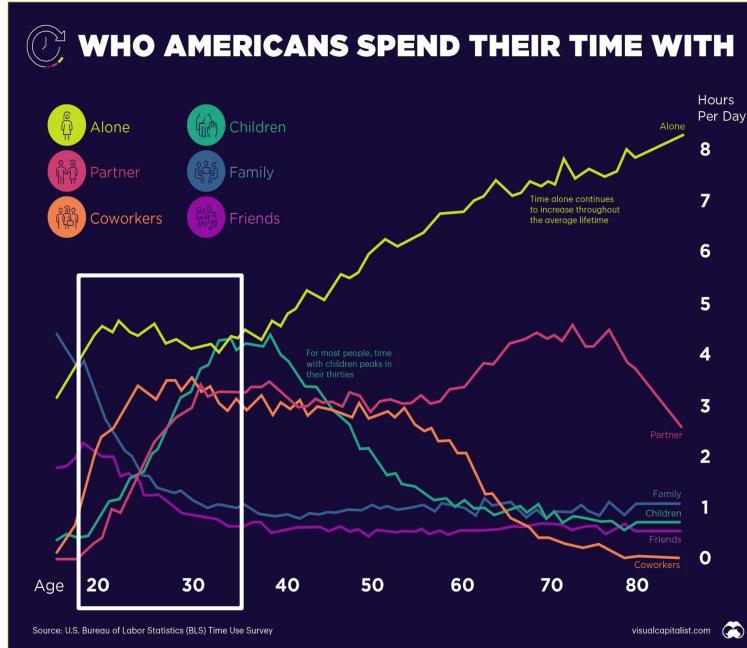


Figure 1. Time alone vs Not alone ages 20 - 80
(KOOP 1)

Resulting Problems

- **Decline in mental health :** Lonely individuals are more likely to experience social anxiety and depression. They are also more prone to suicidal ideation.
- **Decline in physical health:** Loneliness has been linked to premature death. It can cause cardiovascular issues and on the extreme side of loneliness, it can be the equivalent of smoking as much as 15 cigarettes per day. (U.S Surgeon 25)
- **Lower productivity and weak social connections:** People who reportedly feel lonely, struggle to be productive at work and at home and have a difficult time forming social connections.

The Major Contributing Factor



- Around 96-99% of all teens and adults under the age of 65 use the internet. Of that amount one-in-three adults reported that they are online almost constantly. (U.S Surgeon 19-20)
- Social media is used excessively and displaces most of our in person engagement with others.

Other Contributing Factors

- **Remote work:** People who work remotely have less opportunity interact with others in-person and are often isolated at home.
- **Changing social norms:** 74% of Gen Z workers prefer online communication over in-person small talk.
(SWNS)
- **Fewer community gathering places:** Places like coffeeshops and libraries where people would typically run into strangers and friends are becoming more infrequent.(Chandler 2025)

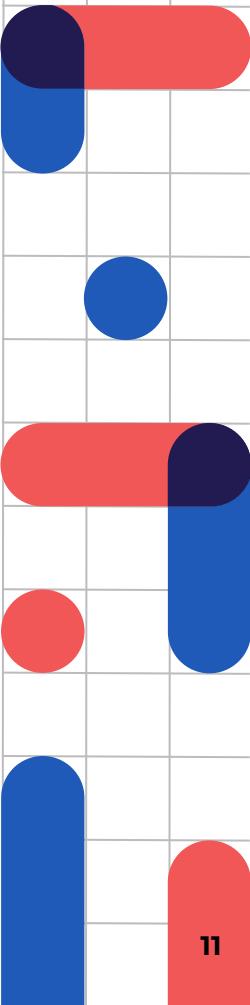
The Ideal Solution

Technology is an inevitable part of our lives, and our reliance on mobile devices isn't going anywhere. There's a real need for an app that connects the digital world of social media with genuine, in-person interactions. The ideal solution would embrace the current trend of heavy social media use while also encouraging real-world connections.

Problem Statement: Declining Socialization

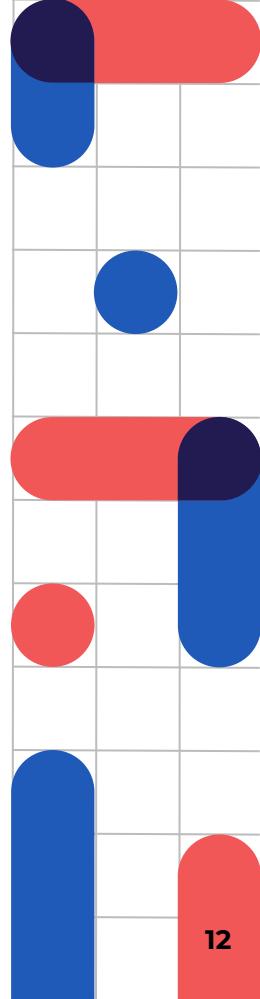
- Making new friends has become increasingly difficult for young adults in the digital age.
- Many individuals, especially introverts, struggle to start conversations with strangers in social settings.
- While social media enables remote communications, it lacks the authenticity of in-person connections.

As a result, people in public places like parks, gyms, or coffee shops often miss chances to meet new people due to uncertainty about others' willingness to socialize.



Anxiety and Isolation

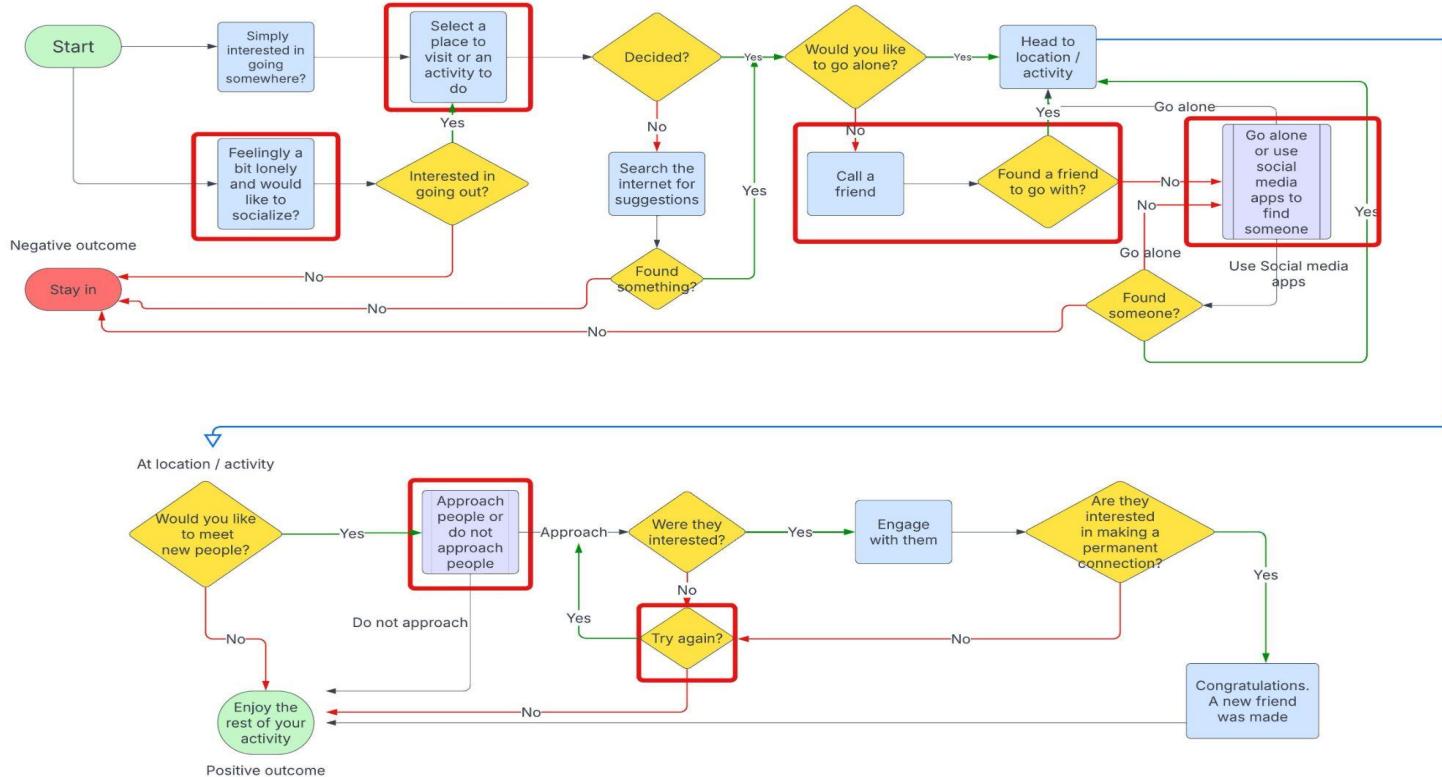
- **Fear of rejection or social anxiety:** Fear discourages people from approaching strangers, even when they are open to conversation.
- **Avoidance of one-on-one interactions:** Many people are intimidated by one-on-one interactions, preferring to meet people in groups.
- **Isolation in public spaces:** People remain isolated even in spaces where there is a common interest among strangers (concerts, museums, etc.).



Problems with Social Media

- **Detraction from Human Interactions:**
The convenience of social media distracts users from their real-life relationships.
- **Lack of authenticity on traditional social media:**
Engagement metrics such as views, likes and followers have made social media a performative act for many young people.
- **Lack of translation to real relationships:** Social media applications are designed to maximize online activity and user retention, and offer little to no incentive for real socialization.

Current Process Flow



Solution Statement

MingleMap is a smartphone application designed to bridge the gap between individuals who wish to form real-life social connections in public spaces.

Unlike traditional social media apps, MingleMap makes spontaneous, in-person connections happen within your routine by providing a tailored list of nearby people with similar interests—no planning, scheduling, or group sign-ups required.

Understanding The Gap

- Apps like Meetup and Bumble BFF focus on scheduled events. This works well for extroverts and planners, but leaves out our target audience: introverts. MingleMap integrates into your everyday routine, helping to spark spontaneous, low pressure interactions with others nearby.
- Traditional social media apps either keep users trapped behind screens or demand too much planning for in-person interaction. MingleMap capitalizes on its users already being out, and facilitates opportunities to interact with others.
- Most young adults are online constantly, but still feel disconnected in real life. Some may struggle with initiating interactions with others. MingleMap targets these types of users, who crave real connection and simplifies the process to interact organically with others.

Solution Characteristics

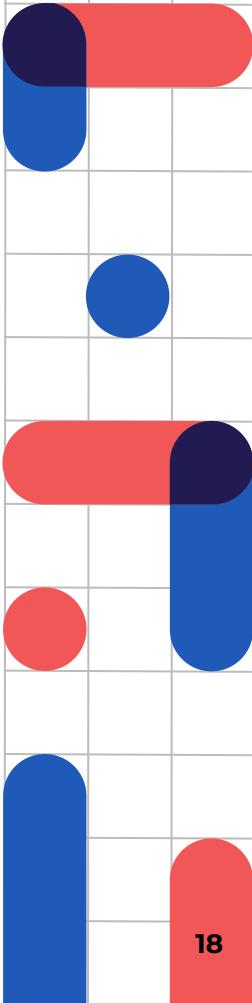
- **New Connections Nearby:** Users will only be shown others who are present at the same relative location. This limits in-app browsing and encourages real connections.
- **Profile Status:** This will display information like current engagement with another user or a do not disturb message. This reduces fear of rejection and social anxiety, allowing users to only approach willing individuals.
- **Visibility Setting:** Visibility to other users is controlled by an account setting.
- **Tags:** Users can select up to 10 interests (e.g., basketball, cats, novels) from a pre-approved list to be displayed on their profile. This gives other users something to talk about when initiating a conversation.

Solution Characteristics

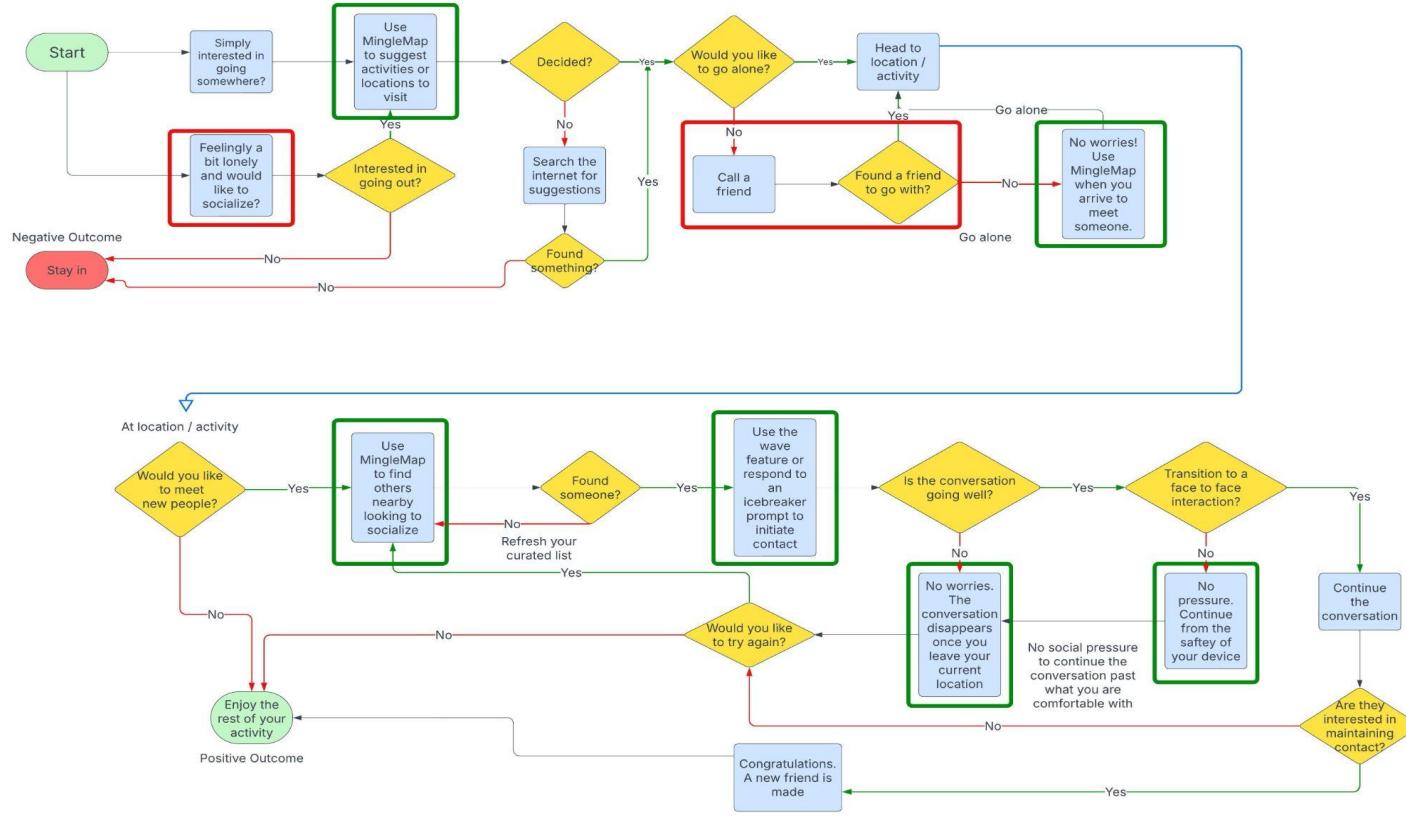
- **Smart Matchmaking:** Users tags will enable recommendation of similar users. This eliminates the fear of missing opportunities to find mutual interests.
- **Vanishing Chats:** Conversations with other users disappear when one party leaves the current location. This alleviates the pressure to maintain online conversations.
- **Reporting:** Users can report each other in the event of inappropriate behavior, giving an admin access to the record of their interactions. Admin can also ban users when needed.
- **Trust Score:** After each interaction, users can give quick, optional feedback. Consistently positive ratings earn a badge, signaling a history of good interactions and helping build trust with others on the app.

Solution Characteristics

- **Wave Gesture:** Users can “wave” to one another to show interest in a conversation. This reduces fear of rejection and social anxiety.
- **Tailored Icebreakers:** MingleMap provides users with context-aware conversation starters, based on common locations and tags. This will further reduce social anxiety.
- **Nearby Locations:** Users can view locations in their general area. Locations will display the number of currently active (and visible) MingeMap users present, but not the users themselves. This allows users to pursue or avoid certain levels of activity.
- **Discounts:** Locations can offer exclusive discounts to users.
- **Experiences:** Each location will also display the available experiences (designated seating, live music, events).



Solution Process Flow



Major Functional Components

Frontend Layer

React Native

- Smartphone cross-platform framework

Figma

- UI/UX design

Mapbox SDK

- Location services

Backend Layer

Node.js

- API and real time connections

Socket.io

- instant messaging

GitHub Actions

Appium

- automated testing

Database Layer

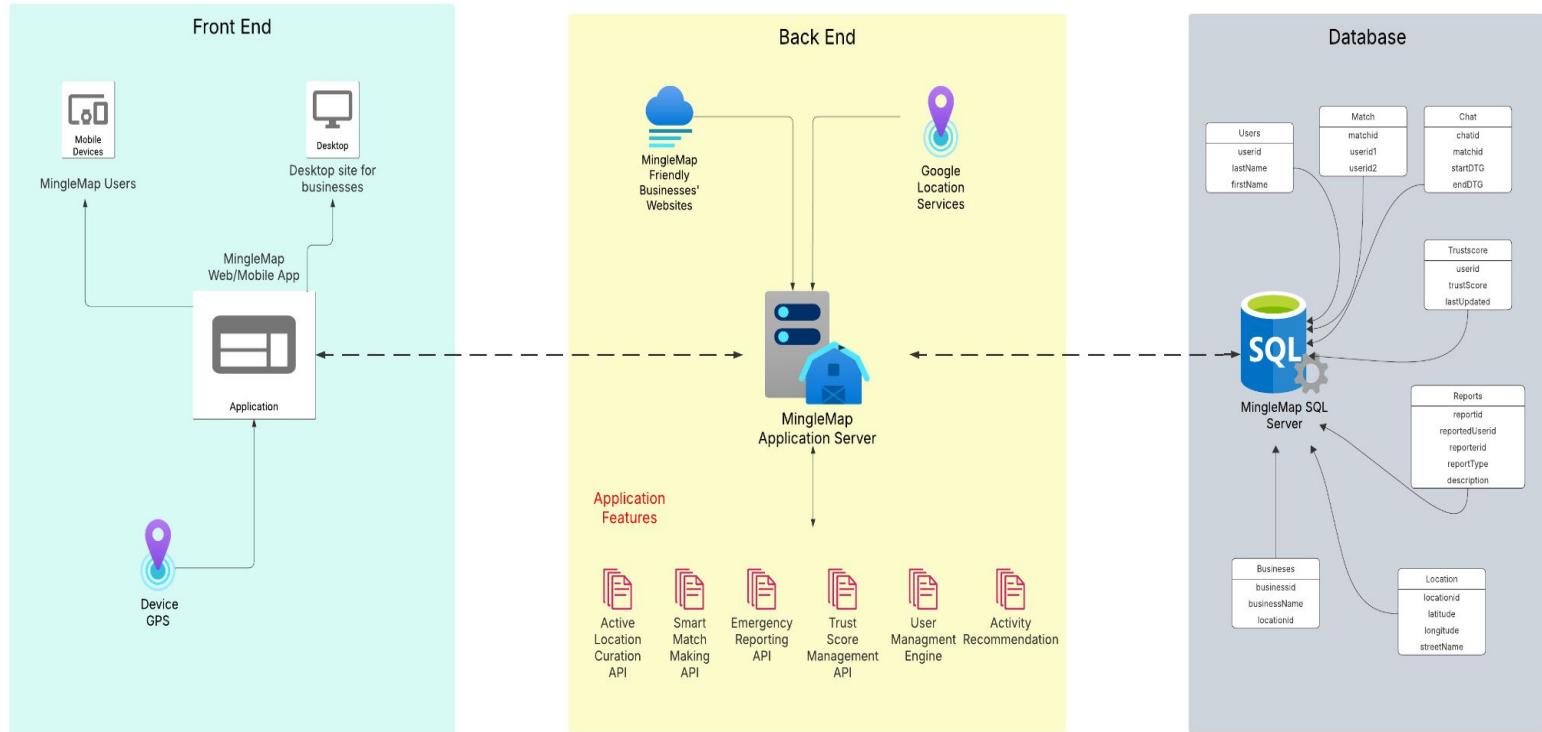
Google Cloud SQL (PostgreSQL)

- Relational storage for users, location history, preferences

Firebase Authentication

- Account management, login/logout

Major Functional Components Diagram (MFCD)



Who Will Benefit from MingleMap?

Users:

Young adults looking for human interaction, especially 1-on-1 connections.

Customers:

Businesses can partner to become a partnered location and receive an in-app badge. Users can receive discounts and use designated seating areas at partner locations, encouraging repeat visitors.

Stakeholders:

Physical-location businesses such as restaurants stand to profit, as the app encourages people to visit these locations to meet and connect.

Competition Matrix

	MingleMap	Facebook	Meetup	Nextdoor	Bumble BFF	Hey! VINA
Profiles	✓	✓	✓	✓	✓	✓
Tags	✓	✓	✓	✓	✓	✓
Algorithm Matching	✓	✓	✗	✗	✓	✓
Discounts	✓	✓	✓	✓	✗	✗
New Connections Nearby	✓	✗	✗	✗	✗	✗
Optional Visibility	✓	✗	✗	✗	✗	✗
Vanishing Chats	✓	✗	✗	✗	✗	✗
Trust Score	✓	✗	✗	✗	✗	✗
Location Activity	✓	✗	✗	✗	✗	✗

User Roles

End Users will be able to:

- Create and delete an account
- Update account information
- Update profile status
- View nearby users, their trust scores and tags
- View nearby locations, their accommodations and discounts
- Receive and rate user recommendations
- Interact with other users via chat system
- Block and report other users

Business Owners will be able to:

- Create and delete an account
- Update account information
- Apply for partnership (receive badge and prioritization in location feed)
- Offer and manage discounts for users
- Display available experiences/events
- View and track analytics on visiting users

Admin will be able to:

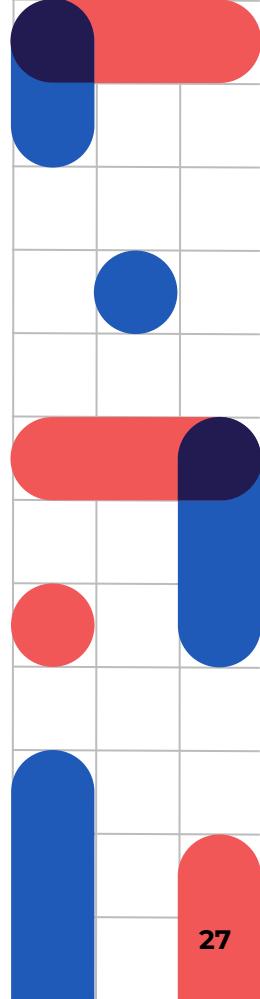
- Create and delete an account
- Respond to user reports
- Access record of user interactions
- Ban users

Feature Table

Category	Feature	End User	Business Owners	Admin	RWP	Prototype
Account Management	Login/Logout	✓	✓	✓	✓	✓
	Account Creation/Deletion	✓	✓	✓	✓	✓
	Update Account Information	✓	✓		✓	✓
	Visibility Setting	✓	✓		✓	✓
	Profile Status	✓			✓	✓
Business Management	Partnership Application		✓		✓	
	Show Partner Badge		✓		✓	
	Offer/Display Discounts		✓		✓	✓
	Display Accommodations		✓		✓	✓
	View Analytics		✓		✓	
Safety	Reporting Other Users	✓			✓	✓
	Blocking Users	✓			✓	
	Respond to Reports (Access Record of User Interactions)			✓	✓	✓
	Banning Users			✓	✓	✓

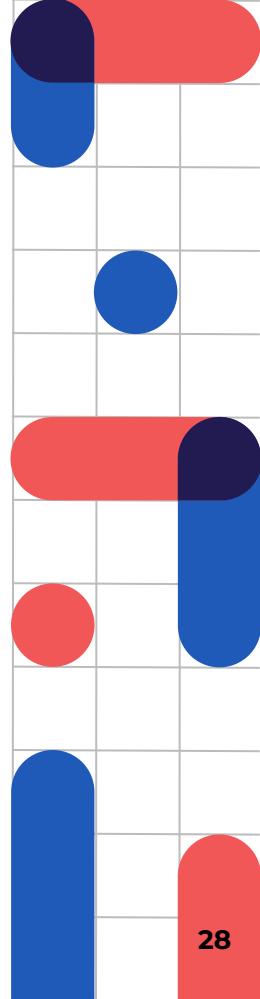
Feature Table

Category	Feature	End User	Business Owners	Admin	RWP	Prototype
Safety	View Trust Scores of <u>Other</u> Users	✓			✓	✓
User Interactivity	New Connections Nearby	✓			✓	✓
	View Tags of Other Users	✓			✓	✓
	Smart Matchmaking	✓			✓	
	Matchmaking Feedback	✓			✓	
	“Wave” at Other Users	✓			✓	✓
	Tailored Icebreakers	✓			✓	
	Vanishing Chats	✓			✓	✓
	Discover Locations (partner locations prioritized)	✓			✓	✓
	View Location Activity (number of visible users)	✓			✓	✓
	View Location Experiences	✓			✓	✓
	View Discounts	✓			✓	✓



What it Will Do

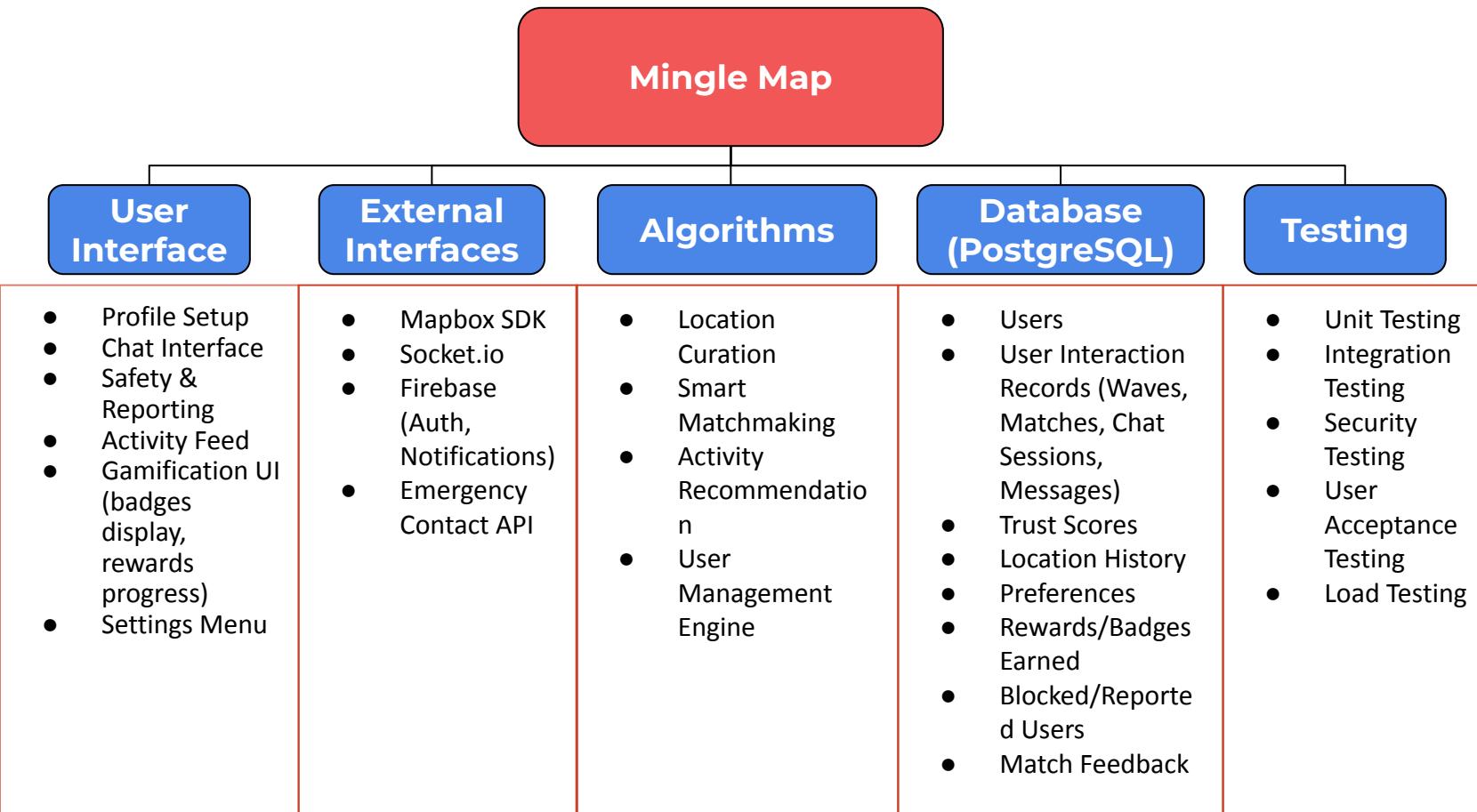
- Encourage users to interact with people around them in real life, or visit a place to connect.
- Provide a profile status feature that indicates whether someone is actively engaged in conversation, available, or prefers solitude.
- Offer optional, proximity-based visibility, ensuring user privacy.
- Utilize a recommendation system based on user interests and activity patterns.
- Display a trust score badge on user profiles based on previous user interactions to build trust amongst users.



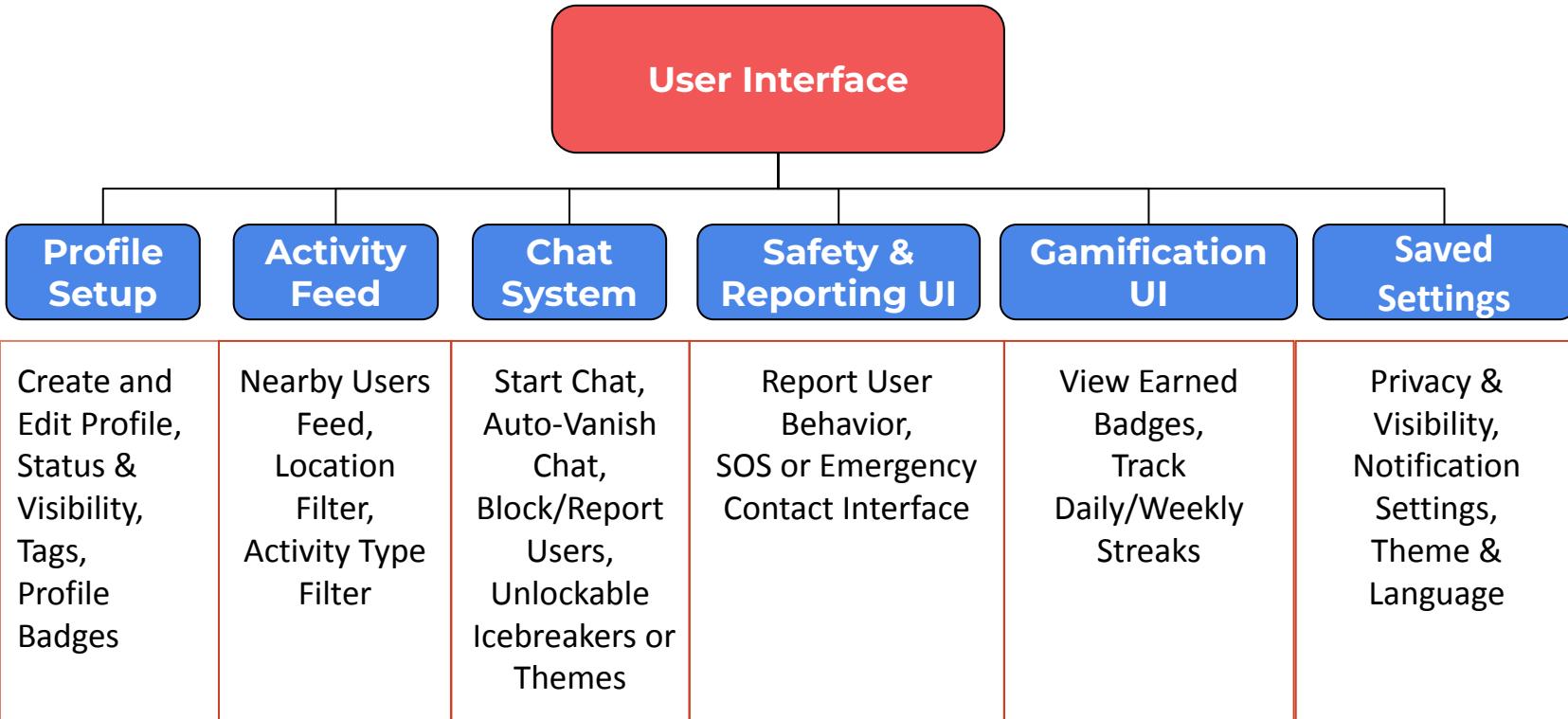
What it Will Not Do

- The app will not function as a traditional social media platform with permanent profiles or friend lists.
- It will not facilitate remote connections—users must be physically present at the same location in order to interact.
- MingleMap will not store long-term chat history to encourage real-world engagement.
- The app will not replace personal discretion in forming connections but will serve as a tool to make interactions easier.
- The app will not require users to plan events, join groups, or coordinate ahead of time.

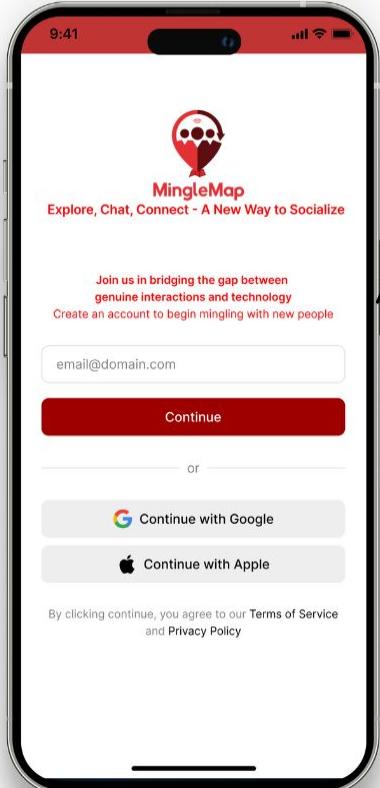
Work Breakdown Structure



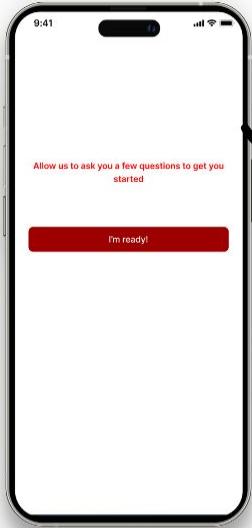
WBS - User Interface



USER MOCKUPS



Set up
Account →

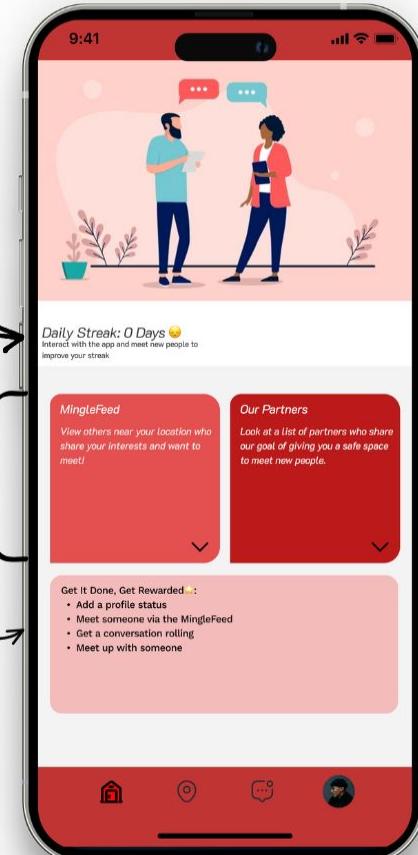


Home Page

Daily Streak

Interactable
button to show
you potential
matches near you

Tasks given to
new accounts



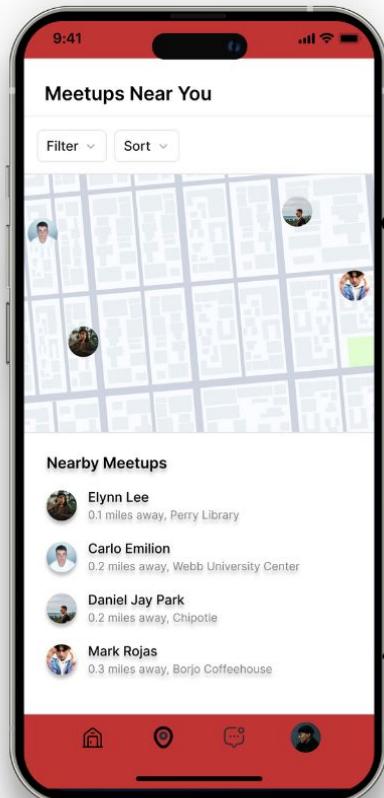
Look through a
list of
partnered
establishments

USER MOCKUPS



Ways to
Mingle

← →

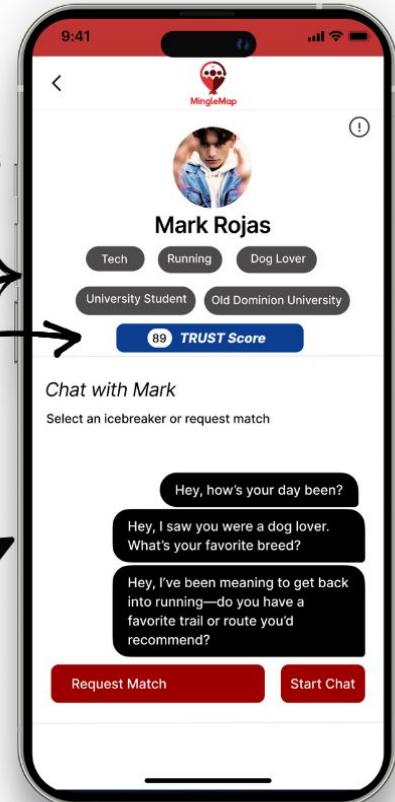


Map of Nearby
Meetups

Profile Tags

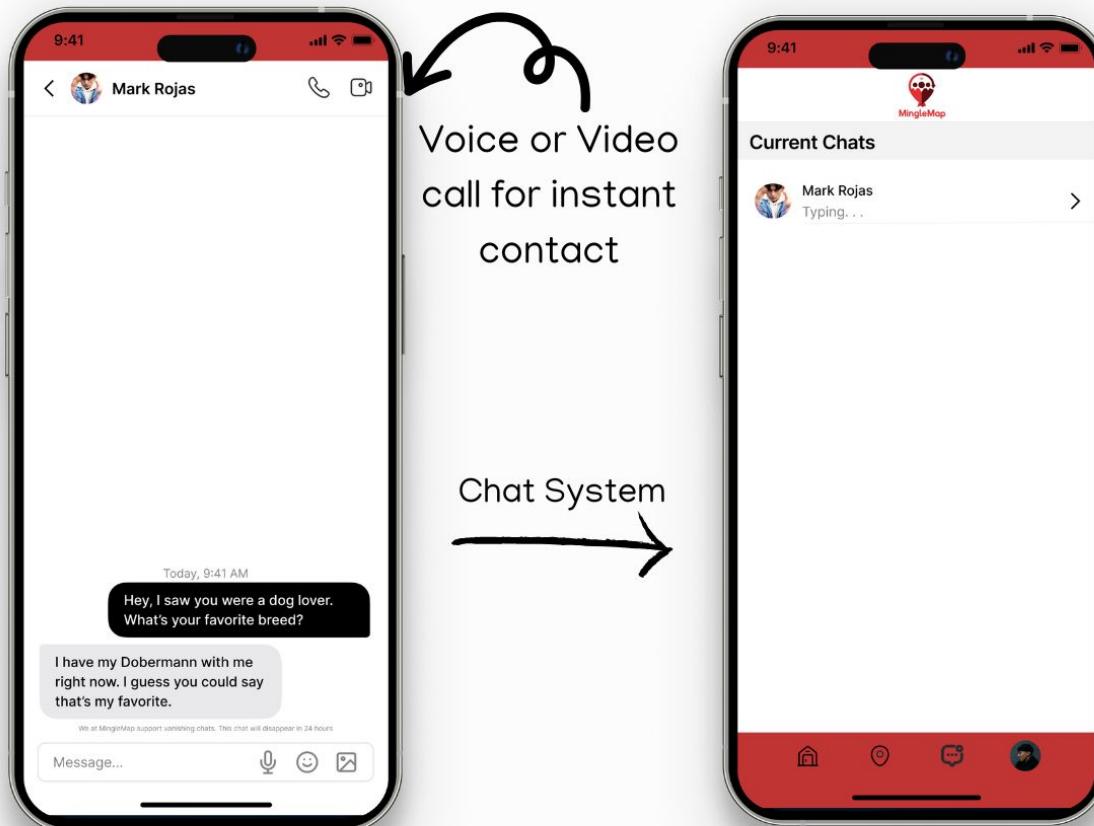
Trust Score

Profile Viewer



Report Button

USER MOCKUPS



USER MOCKUPS

The image displays two mobile phone screens side-by-side, illustrating a user interface for a social application named "MingleMap".

Left Screen: Your Profile

- Time: 9:41
- Profile picture: Placeholder for "Jordan Holmes".
- Name: Jordan Holmes
- Tags: Business Major, Soccer, Dog Lover, University Student, Old Dominion University.
- Account Status:
 - Edit Profile Status
 - Edit Ready to Meet Settings
 - Show as visible on map
 - Hide account (switch)

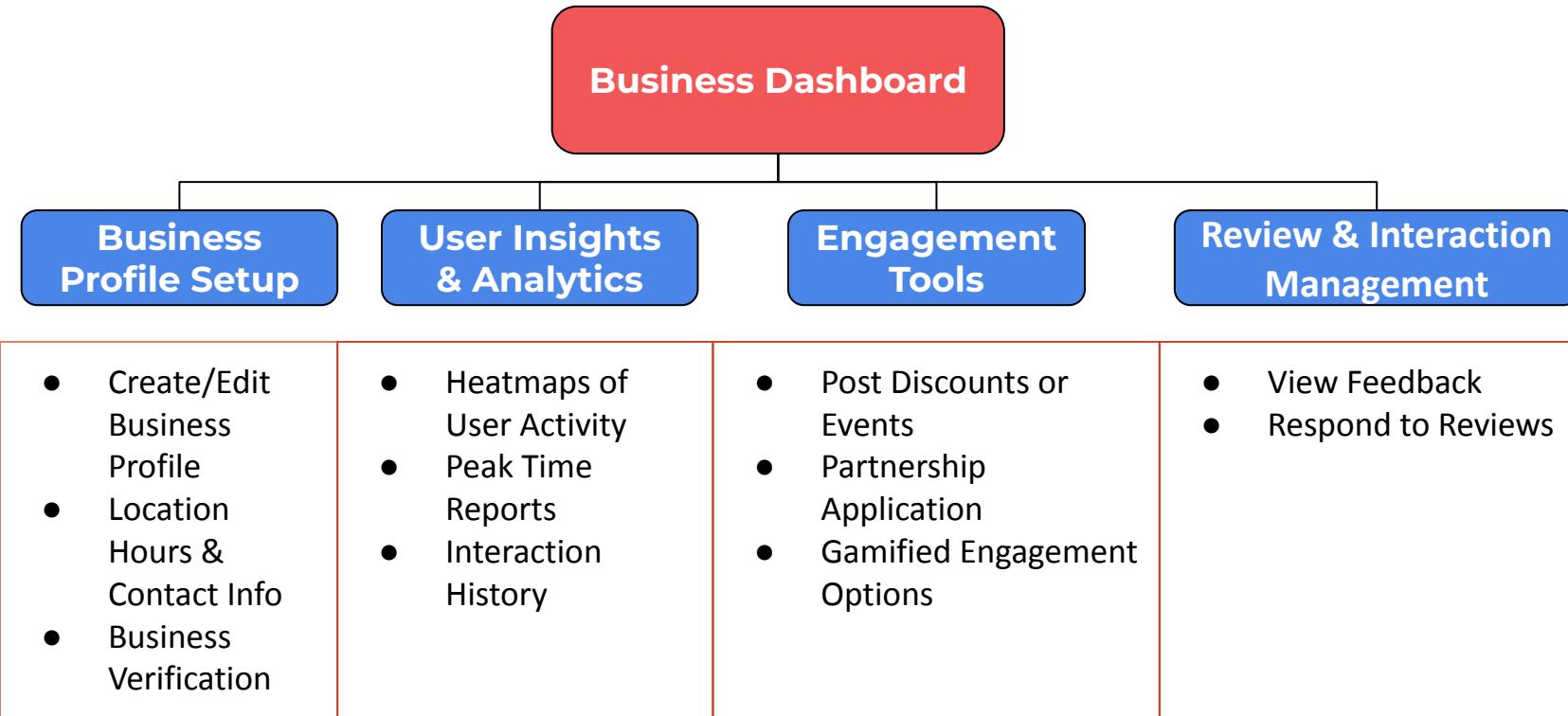
Right Screen: Settings

- Time: 9:41
- Section: Account Settings
 - Account
 - Data & Privacy
 - Block List
 - Profile Tag List
- Section: Notification Settings
 - Notifications
- Section: Theme and Language
 - Theme
 - Language Setting
- Section: Emergency Contact and SOS
 - Emergency Contacts
 - SOS Button
- Section: Support
 - Support
 - Become a Partner!
 - Terms of Services

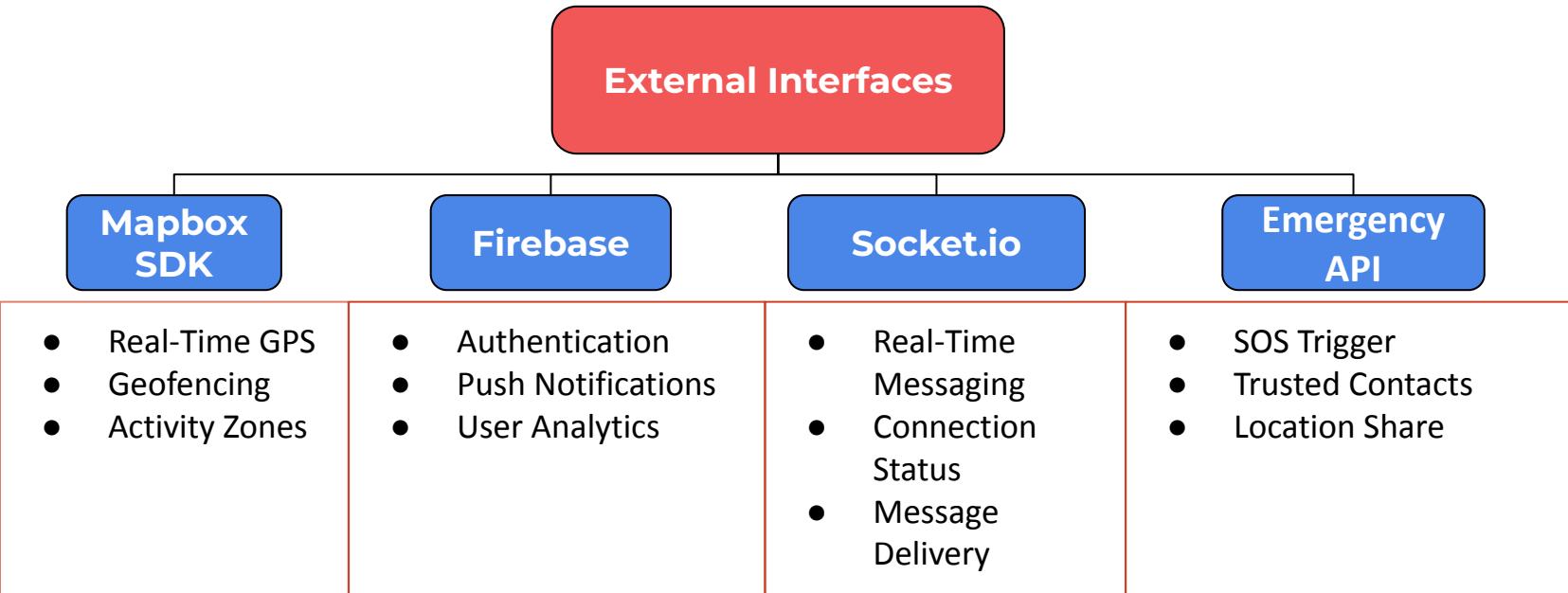
Annotations:

- A curved arrow points from the "Edit Profile Status" button on the left screen to the "Edit Ready to Meet Settings" button on the right screen, labeled "Quick access to account settings".
- A horizontal arrow points from the "Profile Tag List" item in the Account Settings section of the right screen back to the "Profile Tags" section in the left screen, labeled "Profile Tags".
- A horizontal arrow points from the "Profile Tag List" item in the Account Settings section of the right screen to the "Settings" section in the left screen, labeled "Settings".

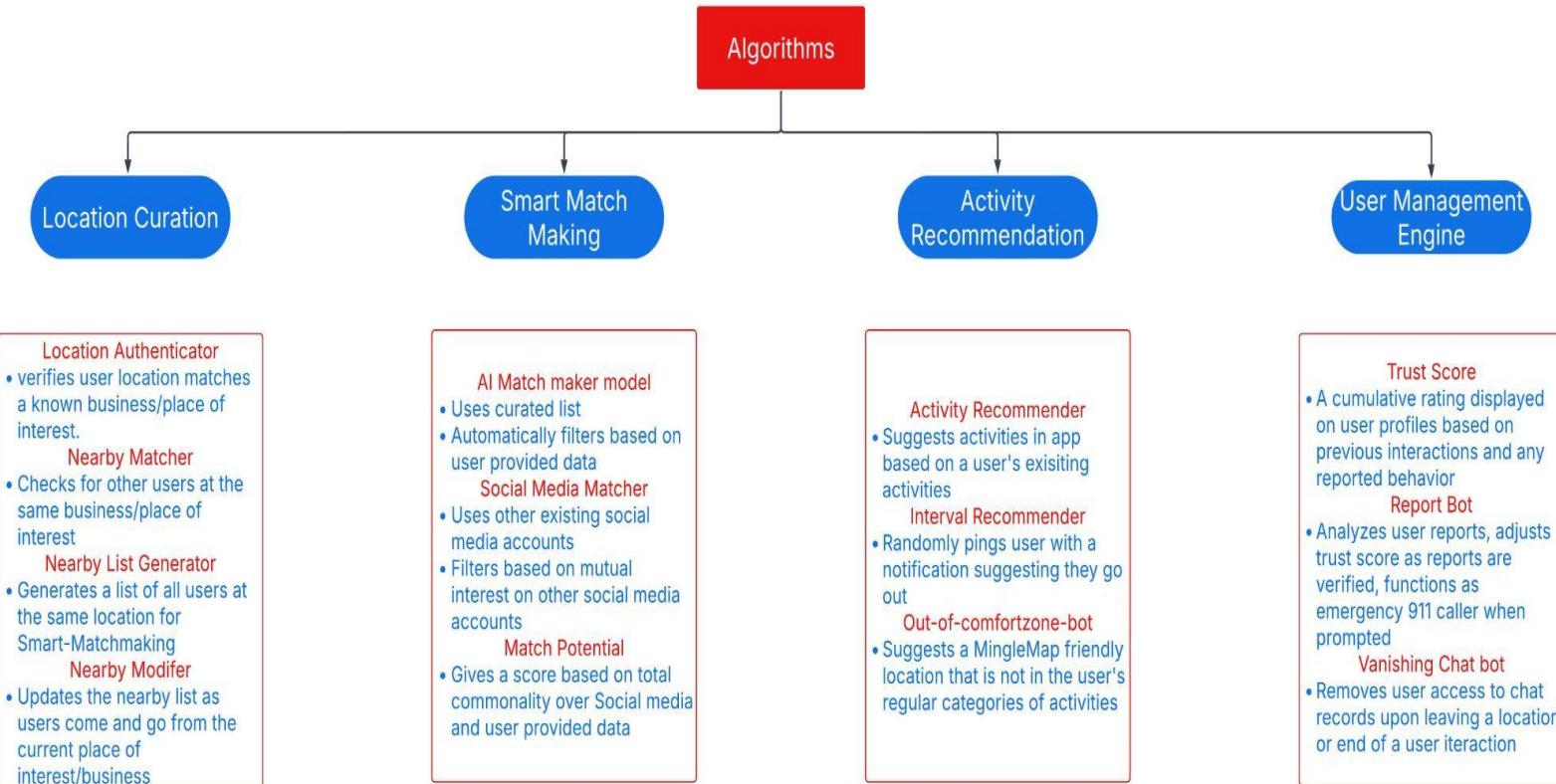
WBS - Business Dashboard



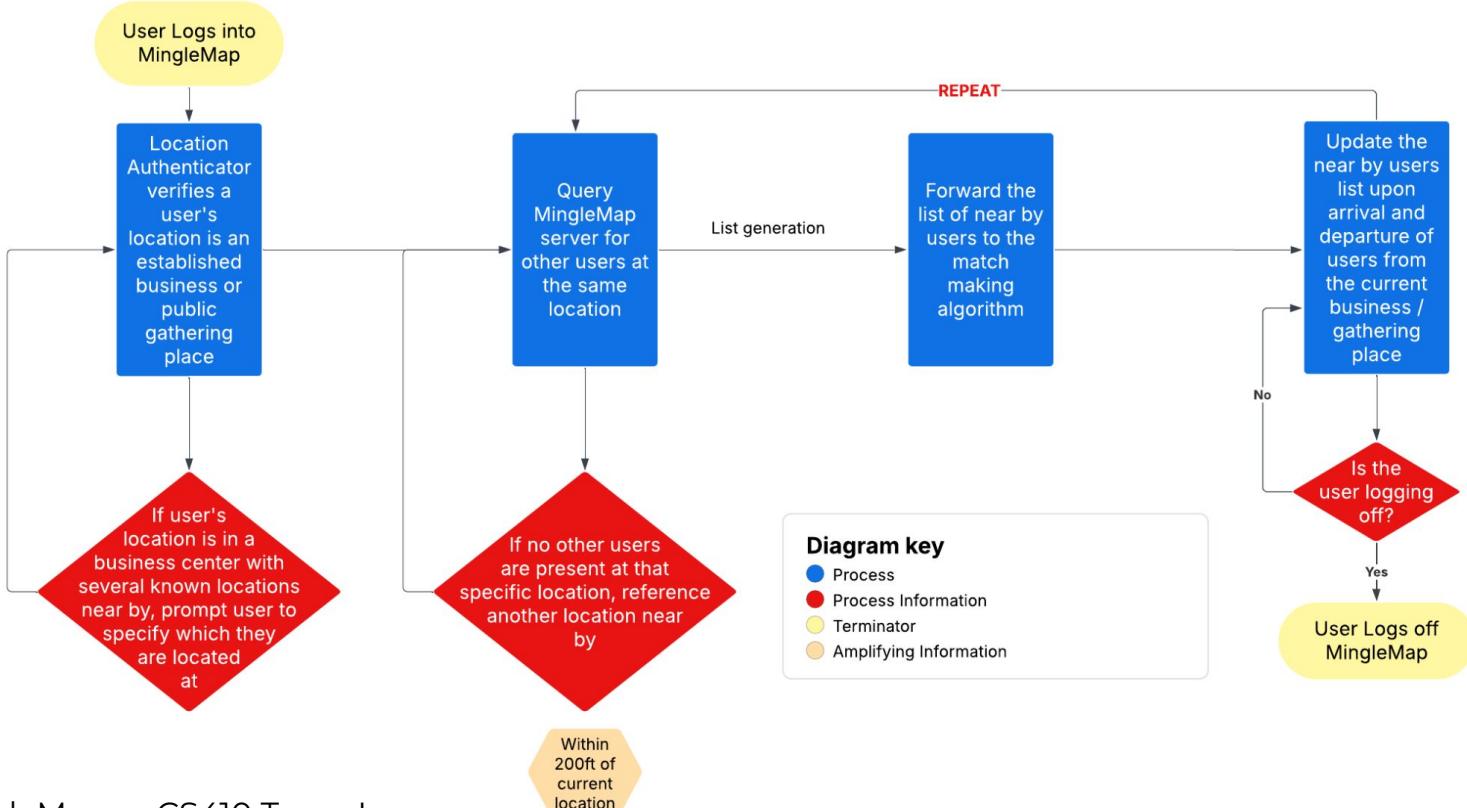
WBS - External Interfaces



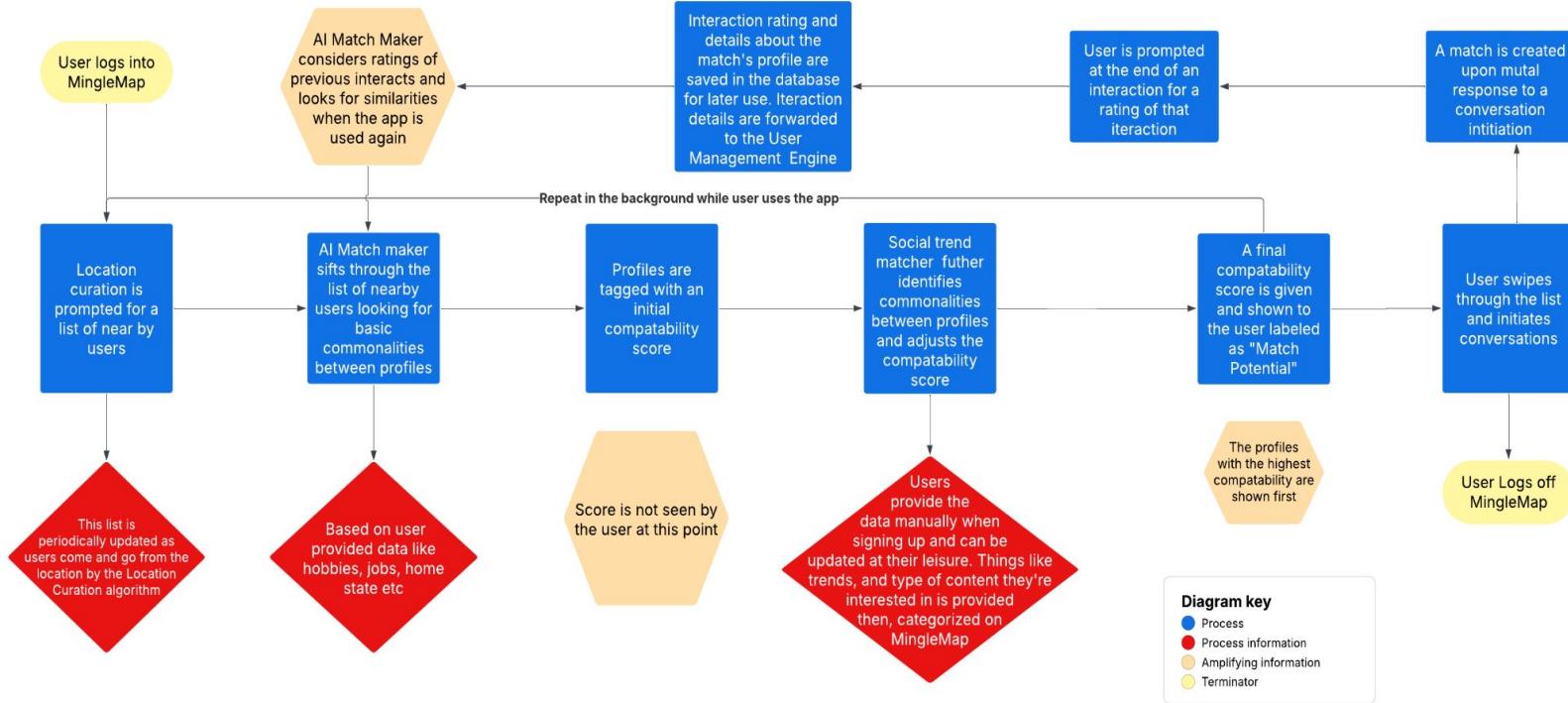
WBS - Algorithms



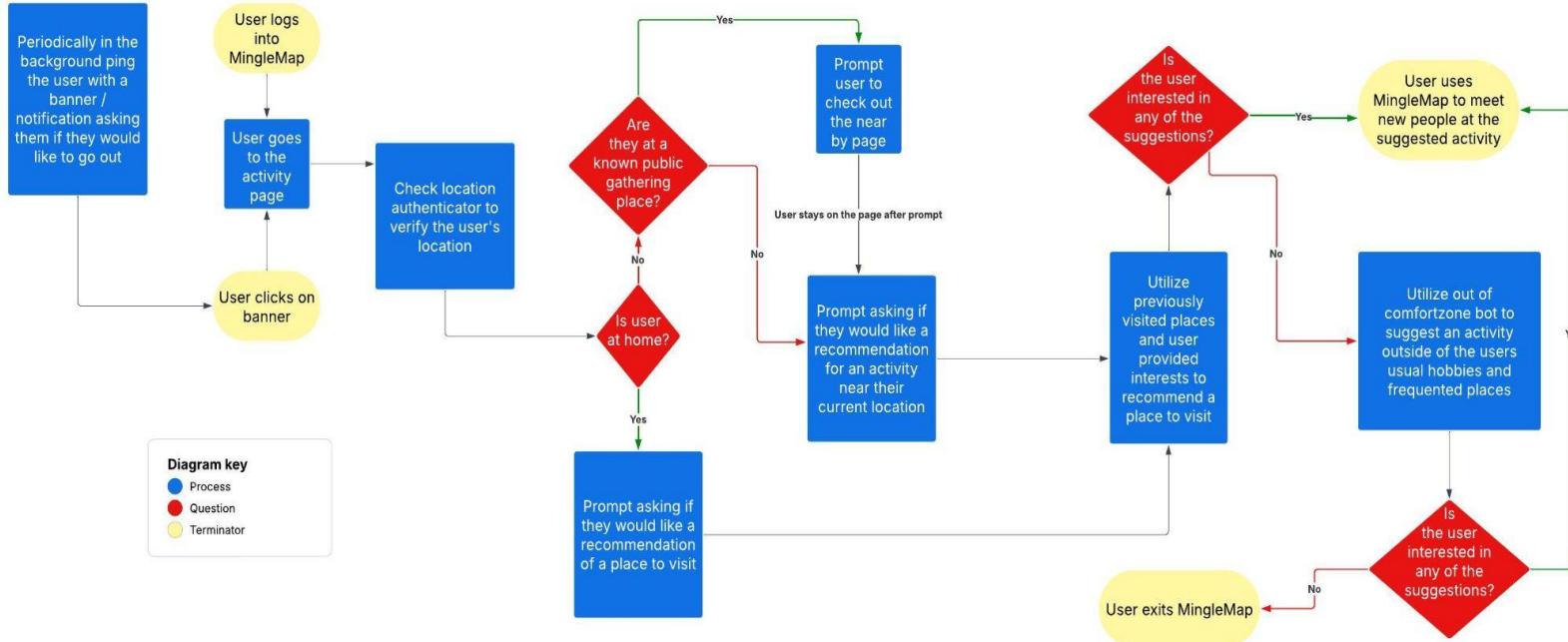
Algorithms - Location Curation



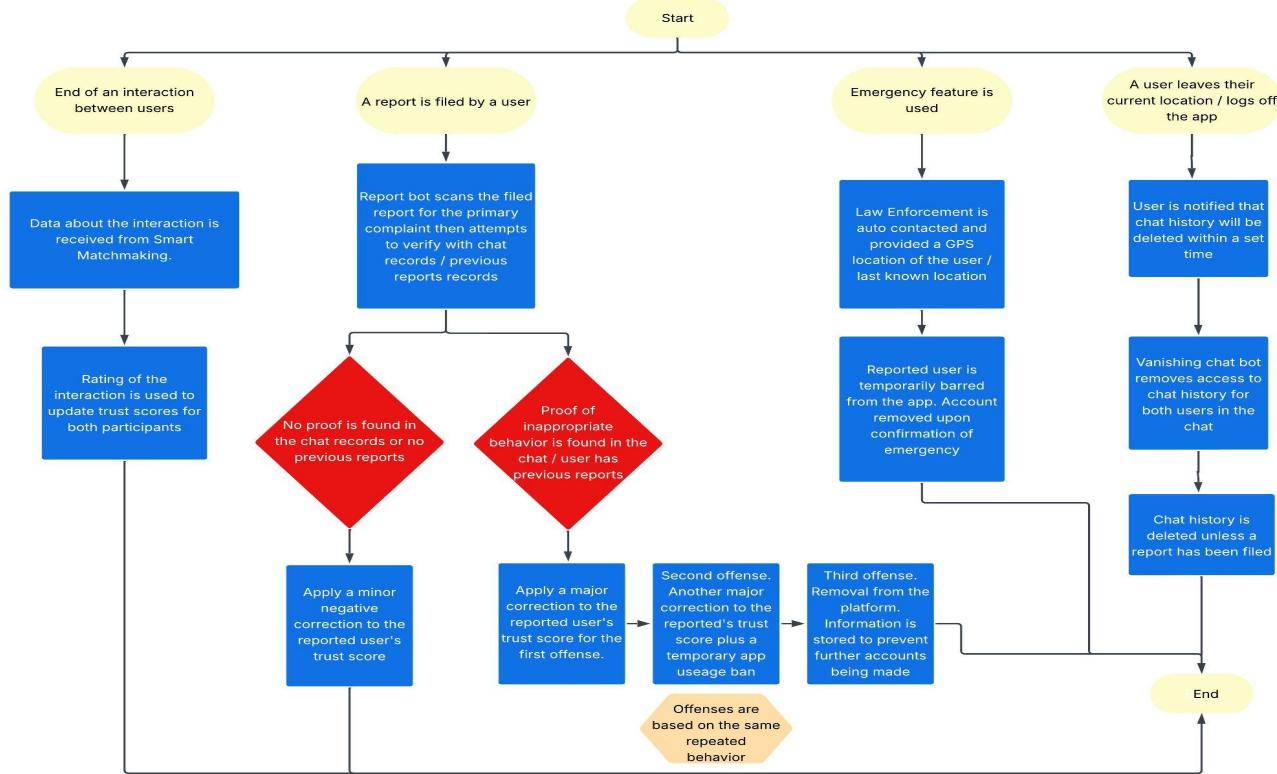
Algorithms - Smart Matchmaking



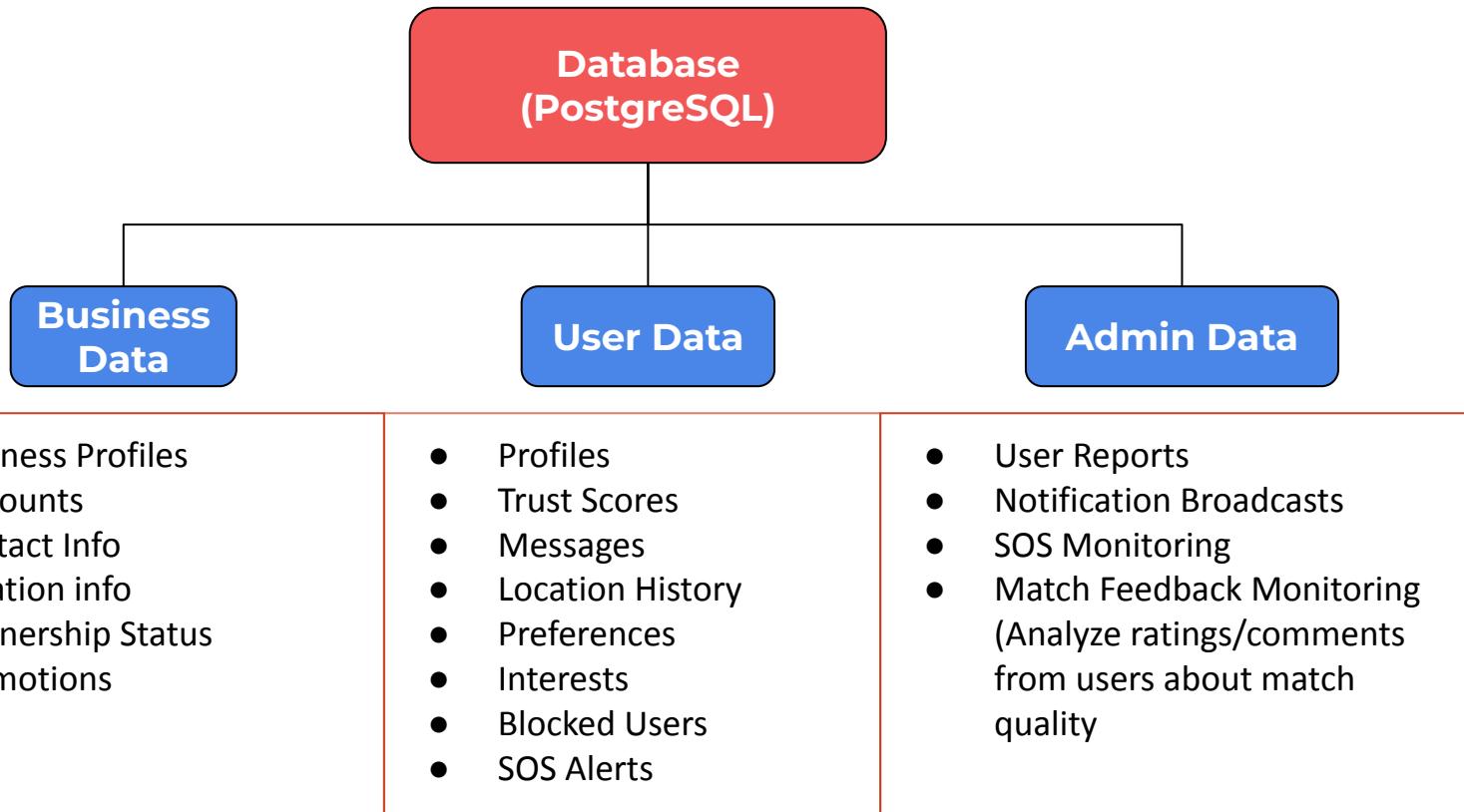
Algorithms - Activity Recommendation



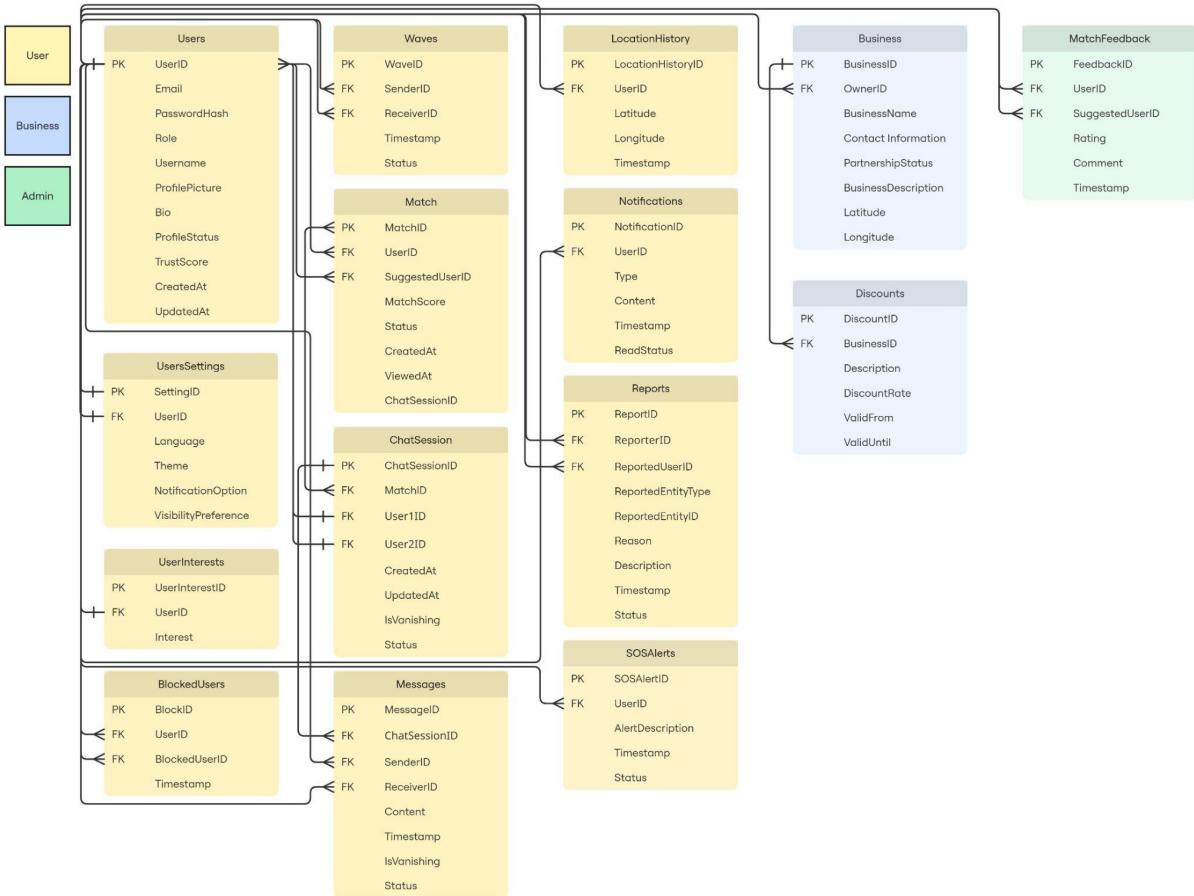
Algorithms - User Management Engine



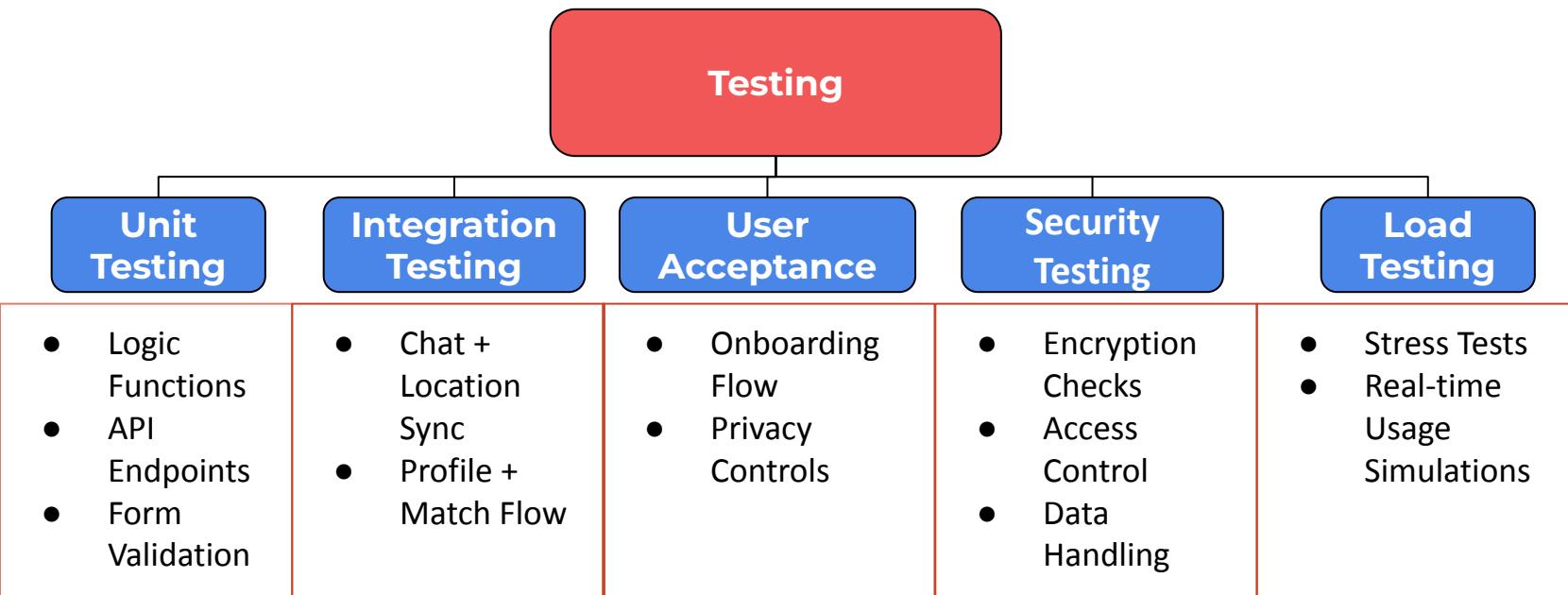
WBS - Database



Database Schema

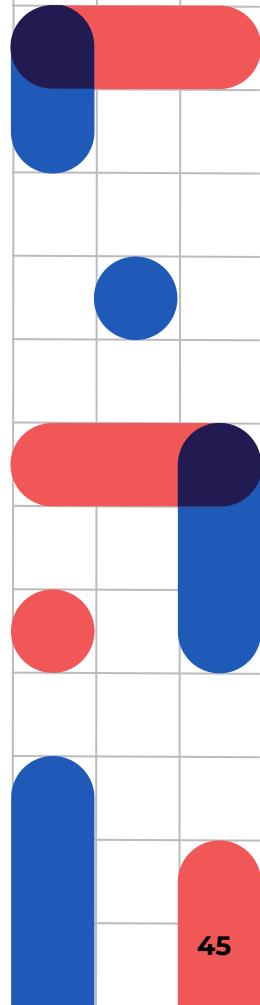


WBS - Testing



Development Tools

- **React Native** - Cross-platform app development framework
- **Figma** - UI/UX design application
- **Mapbox SDK** - Customizable, real-time geolocation
- **Node.js** - Lightweight backend for handling real-time connections
- **Jest** - Allows for testing of development code
- **Socket.io** - Allows for instant updates and messaging
- **Firebase (Authentication, Hosting, Notifications)** – Handles user login, push notifications, and hosting static files
- **Google Cloud SQL (PostgreSQL)** – Relational database for storing user profiles, messages, trust scores, and activity logs
- **Git with GitHub** - Central repository for managing code, pull requests, and branching, along with facilitating collaboration and rollbacks
- **GitHub Actions & Workflows** - Automates building and testing of app when new code is pushed
- **Appium** - Mobile application tester
- **Google Cloud AI** - Provides AI/ML tools for future expansion (ex: smarter matchmaking)



Dependencies

Libraries:	Mapbox Searches JS, Mapbox GL Geocoder, TensorFlow.js
Languages:	JavaScript
Frameworks:	Appium, React Native, Socket.io, Jest
Project management:	Trello
Other Important Technologies:	Node.js, Github, Figma, Google Cloud SQL, Firebase Authentication, Google Cloud AI

Sprint Breakdown

Sprint 0: Project Setup

- Initialize GitHub and Trello board
- Set up Firebase services (Auth, Notifications) and PostgreSQL database schema
- Establish folder structure and dev tools
- Define tech stack: React Native, Node.js, etc.

Sprint 1: Frameworks & Authentication

- Set up frontend and backend frameworks
- Implement Firebase Auth (login/logout)
- Create user registration and onboarding flow
- Connect PostgreSQL DB to store user profiles

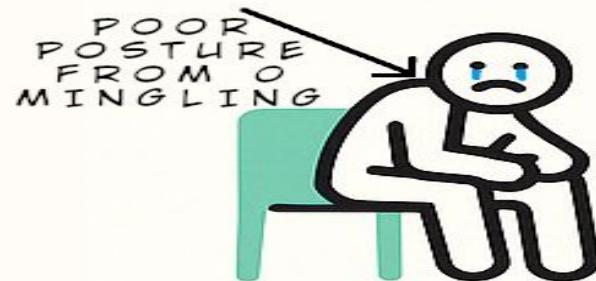
Sprint 2: User Chat & Interface

- Build real-time chat interface with Socket.io
- Add wave gesture logic
- Implement vanishing message logic
- Design basic onboarding & status UI

Sprint 3: Location & Map Features

- Integrate Mapbox SDK for geolocation
- Show nearby users in activity feed
- Enable visibility settings (radius, DND)
- Add activity/location filters

I'M ADVANCING IN
MY LIFE, BUT I
STILL FEEL SO
ISOLATED



MINGLE PROBABLY MAP!?
SCAM, BUT I WANT TO
MINGLE ANOTHER



Sprint Breakdown

PRETTY CONVENIENT
THAT I CAN MEET
SOMEONE AT A PLACE
I ALREADY
FREQUENT.

Sprint 4: Smart Matching & Trust Score

- Implement tag + location matching algorithm
- Add trust score logic based on behavior
- Track and store interaction metadata
- Display compatibility indicators

Sprint 5: Safety, Reporting & SOS

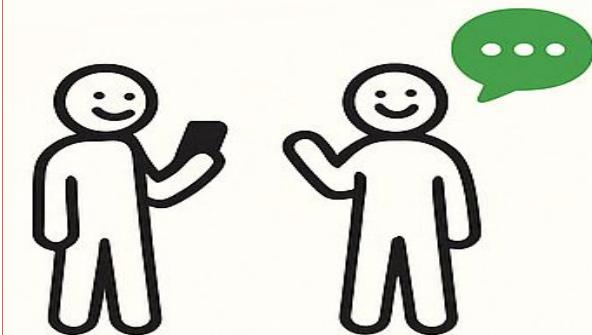
- Add user reporting tools
- Implement SOS button & emergency contact feature
- Begin content moderation logic
- Expand privacy & visibility settings

Sprint 6: Testing & UI Polish

- Run unit & integration tests
- Refine profile/chat/map/onboarding screens
- Improve responsiveness & transitions
- Add animations and visual polish

Sprint 7: Final Demo & Deployment Prep

- Conduct simulated user testing
- Finalize presentation/demo walkthrough
- Fix final bugs and cleanup code
- Deploy MVP or test version



THAT WAS SO EASY!
I CAN FEEL THE
DOPAMINE FROM THE
FEATURES I UNLOCKED
FROM THE APP TOO!



Customer and End User Risks

Risks

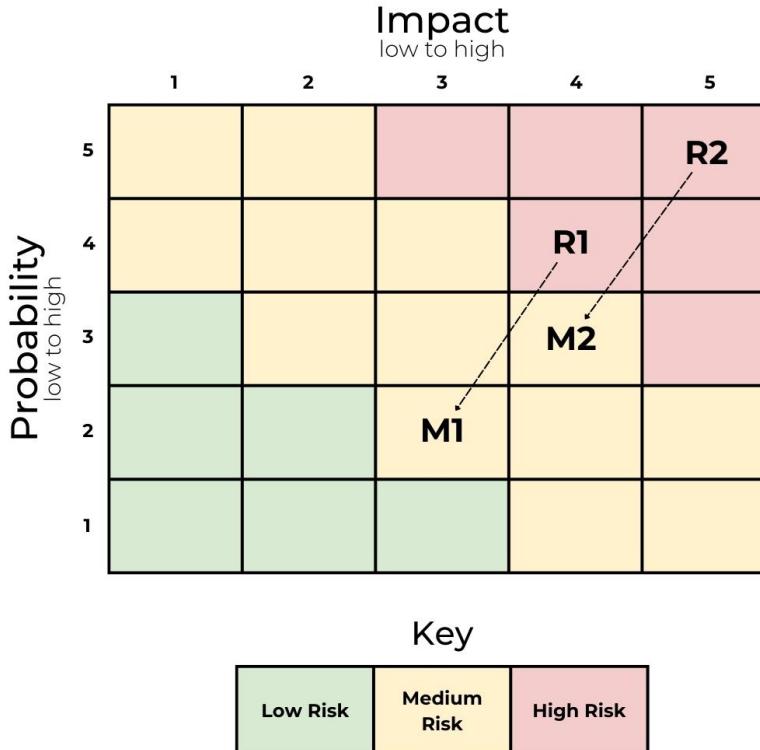
R1: Users hesitant to join due to new concept and reluctance to socialize

R2: Users hesitant about sharing real-time location or being visible to strangers

Mitigations

M1: Implement an engaging onboarding tutorial explaining app's purpose, incentivize with badges, streaks, or premium features, along with partnering with local businesses

M2: Provide a togglable mode for availability, such as "Invisible Mode", control visibility radius with preferred locations for engagement, and clear privacy policies and user education for how their data is handled



Technical Risks

Risks

R1: Disruptions in connectivity, limiting real-time location-based features

R2: Server downtime, slow performance, or product failure may impact user adoption

R3: High traffic and unexpected spikes in users may cause server crashes and slow response times

R4: GPS location may be slow and inaccurate causing difficulty to connect with nearby users

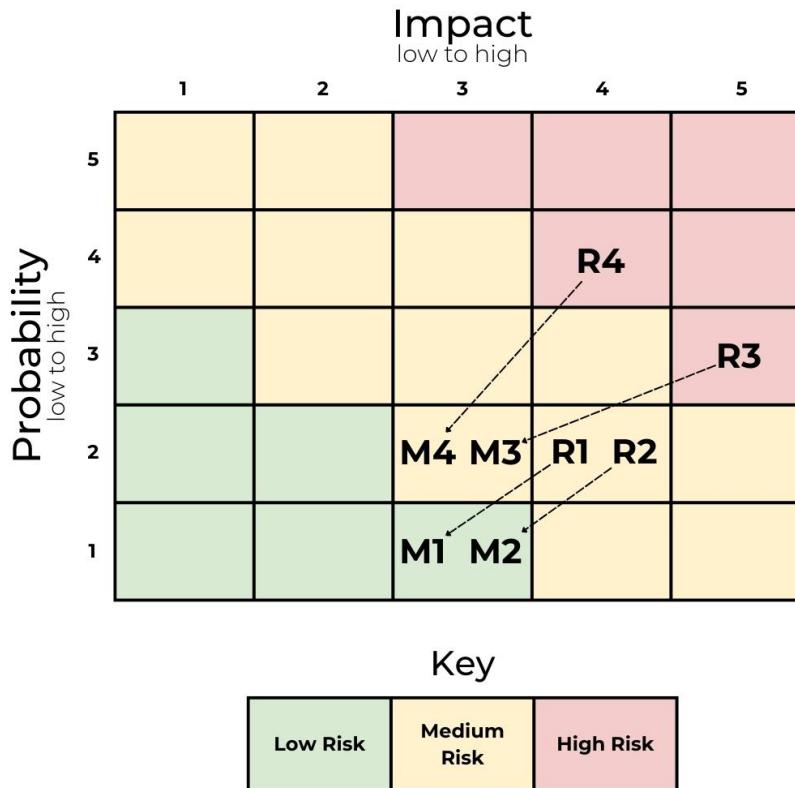
Mitigations

M1: Cache previously viewed events and user data so recent information can still be accessed when offline

M2: Conduct scheduled maintenance, utilize real-time monitoring tools, and optimize server infrastructure

M3: Use cloud-based auto-scaling solutions (e.g., AWS, Firebase, or DigitalOcean), while implementing load balancing, caching mechanisms, and stress testing

M4: Use high-accuracy geolocation services such as Mapbox SDK with fallback options, along with optimizing battery usage with balanced polling rates, and providing user feedback tools to report location discrepancies



Security and Legal Risks

Risks

R1: Creation of fake profiles

R2: Stores user location data and interactions, becoming targetable by hackers

R3: Breaking GDPR laws (Europe) and CCPA laws (California) on collection of location data

R4: Harassment, misconduct, or unsafe encounters possible

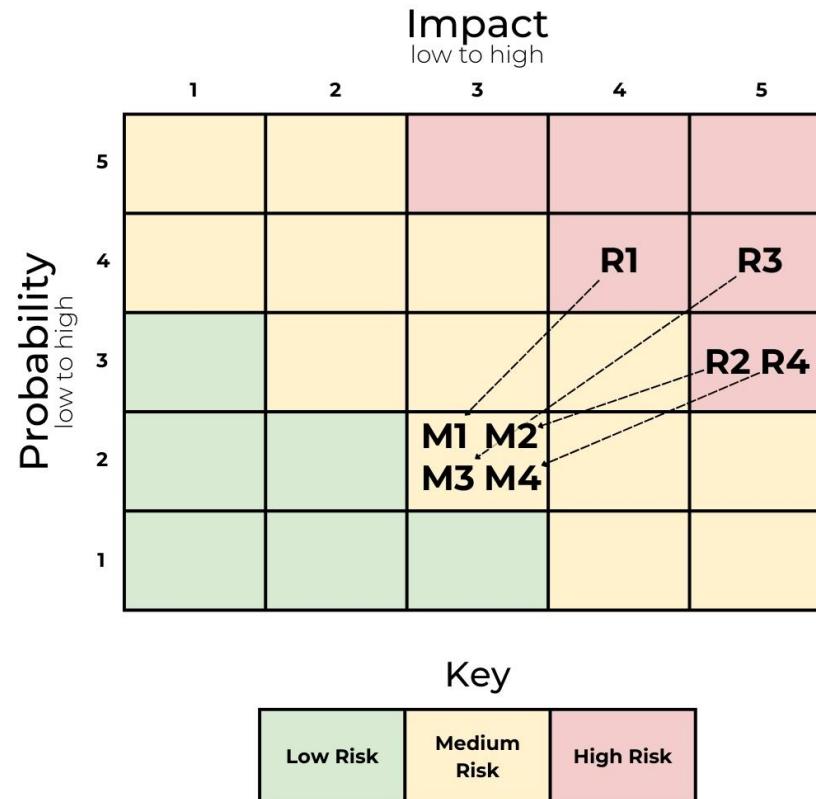
Mitigations

M1: Require phone number verification and optional social media linking, with community driven reporting system, and AI moderation tools with a trust score based on user interactions

M2: Encrypt sensitive data using AES-256 and enforce secure API authentication, require pen-testing and security audits, along with role-based access control and deletion of conversations

M3: Obtain explicit consent before collecting location data, offer ability to delete data upon request, and maintain compliance legally by consulting privacy law experts

M4: Display safety disclaimers that meetups are at their own risk, provide an SOS feature, and work with local authorities and trusted partners for user safety features



Conclusion: Transforming Social Connections

- Mingle Map is designed to **bridge the gap** between **digital and in-person social interactions**.
- By leveraging **real-time location technology**, our app helps users **connect with like-minded individuals in shared spaces**, promoting **organic and meaningful conversations**.

GOING OUTSIDE
ALWAYS FEELS SO
FRESH. BEFORE, I
ONLY HUNG OUT WITH
MY MOM!



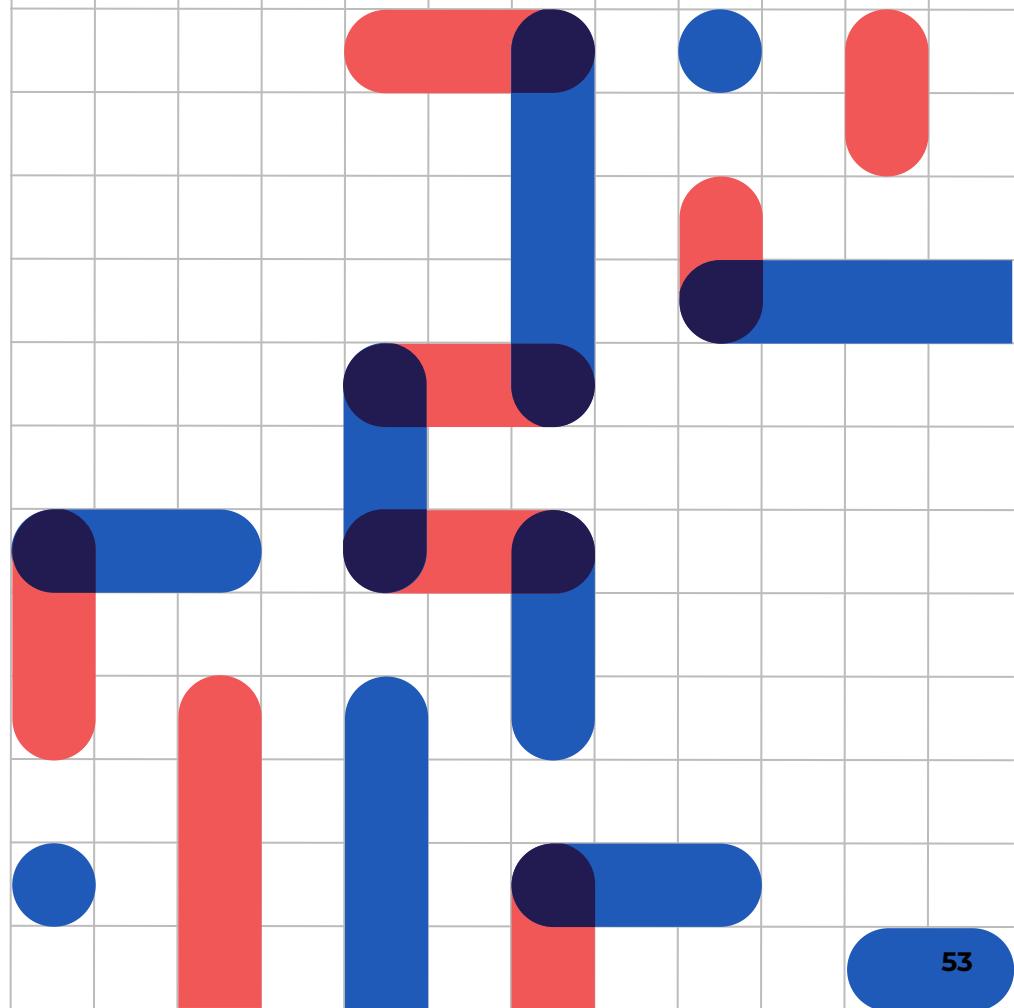
Who Benefits from Mingle Map?

- **Users** – Meet new people effortlessly, reducing social anxiety and fostering real-world connections.
- **Local Businesses** – Gain increased foot traffic and engagement from users exploring new social opportunities.
- **Researchers & Developers** – Utilize anonymized interaction data to improve location-based social technologies.

MingleMap

A Better Way to Connect

Questions?

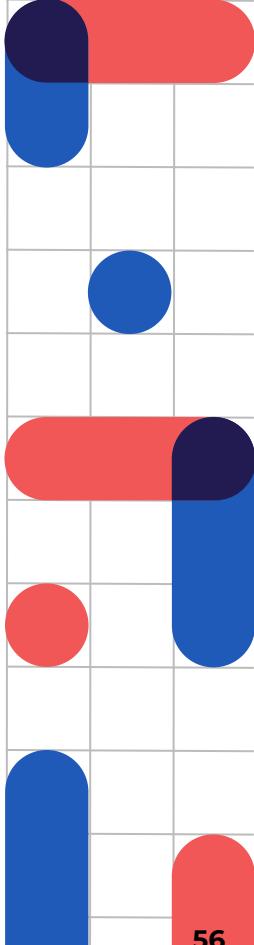


References

- **Chandler, Adam.** "Why a Third Life Is the Answer to America's Loneliness Epidemic." *Time*, 2 Jan. 2025, <https://time.com/7202834/third-life-america-loneliness-essay/>. Accessed 22 Feb. 2025.
- **DigitalOcean.** *Droplets & Cloud Infrastructure*. DigitalOcean, 2025, <https://www.digitalocean.com/>. Accessed 22 Feb. 2025.
- **European Union.** *General Data Protection Regulation (GDPR)*. 2016, <https://gdpr.eu/>. Accessed 22 Feb. 2025.
- **Google.** *Cloud Monitoring*. Google, 2025, <https://cloud.google.com/monitoring>. Accessed 22 Feb. 2025.
- **Google.** *Firebase Hosting & Performance Monitoring*. Google, 2025, <https://firebase.google.com/>. Accessed 22 Feb. 2025.
- **Google.** *Offline Support with Firebase Firestore*. Google, 2025, <https://firebase.google.com/docs/firestore/offline>. Accessed 22 Feb. 2025.

References

- **Koop, Avery.** "Who Americans Spend Their Time With, by Age." *Visual Capitalist*, 28 Oct. 2022, www.visualcapitalist.com/who-americans-spend-their-time-with/. Accessed 9 Feb. 2025.
- **Mapbox.** *Mapbox SDK for Location Services*. Mapbox, 2025, <https://www.mapbox.com>. Accessed 22 Feb. 2025.
- **New Relic.** *Real-Time Performance Monitoring for Applications*. New Relic, 2025, <https://newrelic.com>. Accessed 22 Feb. 2025.
- **Rainie, Lee.** "Trust and Distrust in America." *Pew Research Center*, 22 Jul. 2019, <https://www.pewresearch.org/politics/2019/07/22/trust-and-distrust-in-america/>. Accessed 22 Feb. 2025.
- **State of California Department of Justice.** *California Consumer Privacy Act (CCPA)*. 2018, <https://oag.ca.gov/privacy/ccpa>. Accessed 22 Feb. 2025.
- **SWNS.** "Gen Z is Killing Office Small Talk." *New York Post*, 15 Jan. 2025, <https://nypost.com/2025/01/14/lifestyle/gen-z-is-killing-office-small-talk-with-74-of-employees-struggling-to-speak-to-coworkers/>. Accessed 22 Feb. 2025.
- **U.S. Department of Health and Human Services.** *Our Epidemic of Loneliness and Isolation: The U.S. Surgeon General's Advisory on the Healing Effects of Social Connection and Community*. n.d., <https://www.hhs.gov/sites/default/files/surgeon-general-social-connection-advisory.pdf>. Accessed 9 Feb. 2025.



Appendix A: User Stories, End User

- As a user, I want to update my profile status so that others know I am/am not looking to socialize.
- As a user, I want to update my visibility to other users so that they can/cannot see me.
- As a user, I want to view nearby users and their location so that I can seek connections.
- As a user, I want to see locations in my general area so that I can find a place to socialize.
- As a user, I want to see how many other MingleMap users are active at a location so that I can find people to socialize with..
- As a user, I want to view trust scores for each nearby user so that I know they are good-natured.
- As a user, I want to view relevant interests (tags) of other users so that I can find something in common with them.
- As a user, I want to receive suggestions of people nearby so that I can more easily decide who to connect with.
- As a user, I want to give feedback on suggestions so that I can improve future suggestions.
- As a user, I want to send a wave to someone so that I can easily gauge their interest.
- As a user, I want to message someone so that we can get to know each other.
- As a user, I want to block someone I chatted with so that I am no longer visible to them and they cannot message me.
- As a user, I want to report someone so that MingleMap can take appropriate action.
- As a user, I want to delete my account so that my data is erased.*

Appendix A: User Stories, Business Owner

- As a business owner, I want to change my visibility to MingleMap users so that I can opt-out at any time.
- As a business owner, I want to apply for partnership with MingleMap so that my business will obtain an exclusive badge and be recommended first to users.
- As a business owner, I want to display the current level of activity (number of MingleMap users) at my business so that I can attract more customers.
- As a business owner, I want to offer discounts to MingleMap users so that they are more likely to visit my business.
- As a business owner, I want to display accommodations and/or points of interest for MingleMap users (designated seating areas, live music, coffee, etc.) so that I might interest them in visiting my business.
- As a business owner, I want to view and track analytics on users visiting my business and using discounts so that I can see the returns on my investment/partnership with MingleMap.

Appendix A: User Stories, Administrator

- As an administrator, I want to respond to reports from users so that I can take appropriate action and ensure user accountability.
- As an administrator, I want to view the record of user interactions (chat logs, meeting places and times) so that I can take appropriate action and preserve user safety.
- As an administrator, I want to be able to ban a user if they demonstrate inappropriate behavior.

Glossary

Catfishing – The act of creating a fake online identity to deceive others, often for fraudulent or malicious purposes.

Geolocation Services – Technology that determines a user's real-world location using GPS, Wi-Fi, or cellular networks (e.g., **Mapbox SDK**).

Auto-Scaling – A cloud computing feature that automatically adjusts the number of active servers based on user demand (e.g., **AWS Auto Scaling**).

Load Balancing – A method of distributing traffic across multiple servers to **prevent overload and downtime**.

Caching – A process where **frequently accessed data is stored** temporarily for **faster access** and improved app performance.

End-to-End Encryption (E2EE) – A security protocol that ensures only the sender and recipient can access the content of messages, protecting against hackers and data breaches.

GDPR (General Data Protection Regulation) – A European law that governs **how personal data is collected and stored**, requiring **explicit user consent**.

CCPA (California Consumer Privacy Act) – A California law that grants users the right to **know, delete, and opt out** of data collection.

Offline Mode – A feature that allows users to access **cached data** and certain app functionalities **without an internet connection**.

Trust Score – A system that evaluates users' credibility based on **profile verification, past interactions, and reports from other users**.

SOS Feature – An in-app emergency button that allows users to quickly **report incidents or request help in real-time**.

Role-Based Access Control (RBAC) – A security feature that restricts **which users or employees can access certain data or app functions**.

Scalability – The ability of an app to handle **increased traffic and data load** without performance issues.

Cloud Hosting – A method of storing and running applications on remote servers (e.g., **Firebase, DigitalOcean**) instead of local devices.