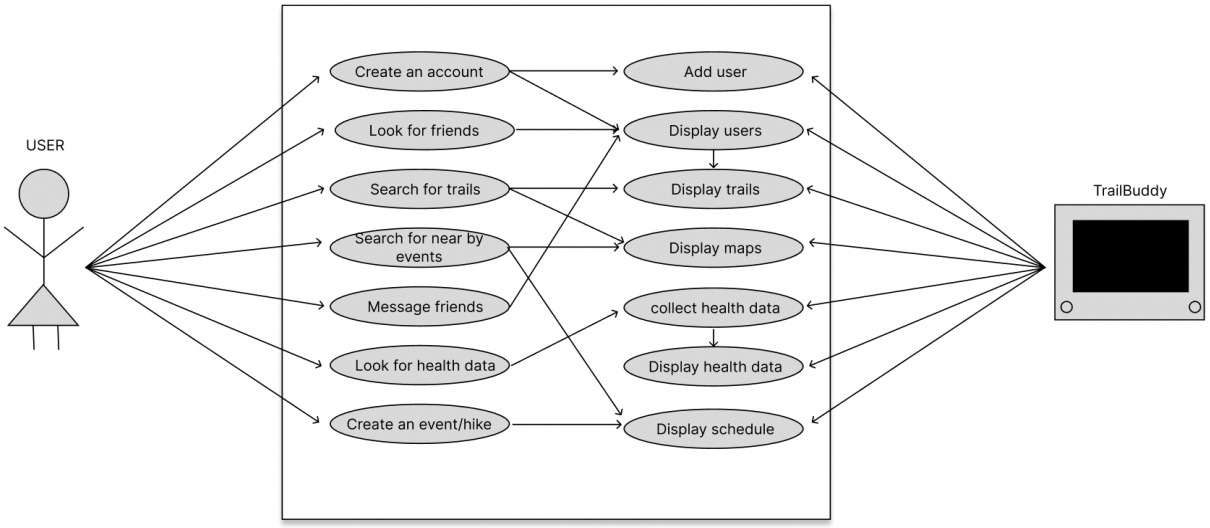
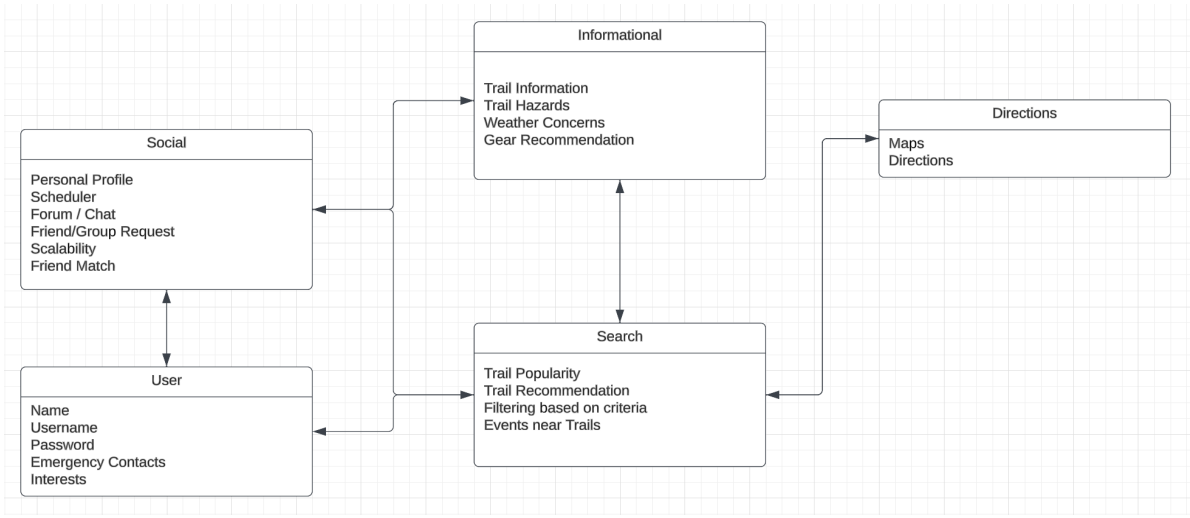
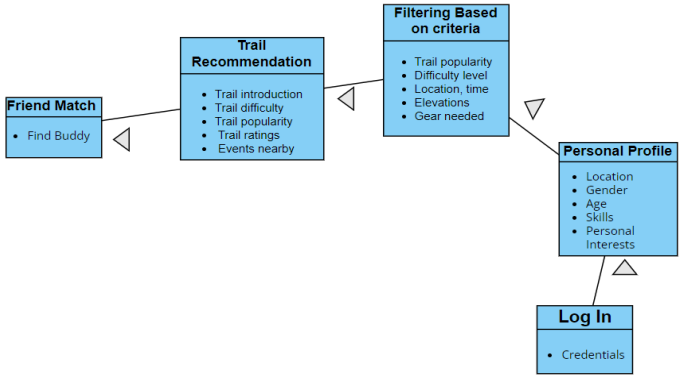
Github repository: https://github.com/KaiDevinNguyen/TrailBuddy

USE CASE DIAGRAM:



CONCEPTUAL CLASS DIAGRAMS:





USE CASE 1: Trail Info
Primary Actor - User
Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience
Preconditions - The user installed the TrailBuddy Application and is logged in.
Success Guarantee - The user has their profile ready.
Main success scenario:

1. User logs onto app
2. User selects trail using our various search features
3. The app displays information about the trail, such as length, hazards, weather details, events near it, directions, and map.

Special requirements:

1. The system displays all the data without any delays

Technology and data variations list:

1. Variety of different data seen in each of the trails
2. App can be used on IOS or Android

USE CASE 2: Trail hazards
Primary Actor - User
Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience
Preconditions - The user installed the TrailBuddy Application and is logged in.
Success Guarantee - The user has their profile ready.
Main success scenario:

1. The user logs onto the app
2. The user selects a trail using our various search features
3. The user scrolls through the different sections
4. The user finds section about trail hazards

Special requirements:

1. The system displays the data without any delays

Technology and data variations list:

1. Different hazards depending on different types of trails
2. App can be used on IOS and Android

USE CASE 3: Gear recommendations
Primary Actor - User
Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience, people who sell gear
Preconditions - The user installed the TrailBuddy Application and is logged in.
Success Guarantee - The user has their profile ready.
Main success scenario:

1. The user logs onto the app
2. The user selects a trail using our various search features
3. The user scrolls through the different sections

4. The user finds the section about gear recommendations
5. The app displays gear based off of trail hazards, trail length, trail terrain, and weather
6. The app links gear for the user to click on

Special requirements:

1. The system displays all the data without any delays
2. The link takes the user to the gear info without any delays

Technology and data variations list:

1. Different types of gear come up depending the trail
2. The actual purchase and selection of gear is up to a different site, independent from our app

USE CASE 4: Weather concerns

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience

Preconditions - The user installed the TrailBuddy Application and is logged in.

Success Guarantee - The user has their profile ready.

Main success scenario:

1. The user logs onto the app
2. The user selects trail using our various search features
3. The user scrolls through the different sections
4. The user finds the section about weather concerns
5. The app displays the current weather of the trail's location
6. The app gives warning and tips about how to handle certain weather

Special requirements:

1. The app displays the data without delays

Technology and data variations list:

1. Different weather data depending on the location of the trail

USE CASE 5: Trail Popularity

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience

Preconditions - The user installed the TrailBuddy Application and is logged in.

Success Guarantee - The user has their profile ready.

Main success scenario:

1. User is logged in to the app
2. User searches trails in a determined location
3. The app displays a list of trails in order of most popular and least popular

Special requirements:

1. The system should take no more than 5 seconds to load and display all the information
2. Allows filter to be applied to the data

Technology and data variations list:

1. Trail information, Number of searches in the last month (to show the popularity), Highlights of people that have been on this trail

USE CASE 6: Events near Trails

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience

Event organizator: The app could bring in more people and increase the turn-out of such events

Preconditions - The user installed the TrailBuddy Application and is logged in.

Success Guarantee - The user has their profile ready. The user has approved to get their current location information

Main success scenario:

1. User logs in to the app
2. User searches trails
3. User clicks for the event option
4. App displays close by events in chronological order
5. User can decide to filter the results by a range of specific dates

Special requirements:

1. The system should not take more than 5 seconds to load and display.
2. The system should use user's data for recommendations

Technology and data variations list:

1. Implement user's schedule
2. Take location into account

USE CASE 7: Map

Primary Actor - User

Stakeholders and Interests -

Preconditions - The user installed the TrailBuddy Application and is logged in.

Success Guarantee - The user has their profile ready. User authorized the use of location information

Main success scenario:

1. User is logged in
2. User searches possible trails
3. User chooses a trail
4. User clicks to view more information on the trail
5. App displays a map view of the trail

Special requirements:

1. The system should not take more than 5 seconds to load and display.
2. Map should not be confusing for the user

Technology and data variations list:

1. Compatible with Android and IOS

USE CASE 8: Directions

Primary Actor - User

Stakeholders and Interests -

Preconditions - The user installed the TrailBuddy Application and is logged in.

Success Guarantee - The user has their profile ready.

Main success scenario:

1. User selects a trail to visit
2. User allows the app to use their location
3. App displays directions

Special requirements:

1. The system should not take more than 5 seconds to load and display.
2. System should recommend different ways to get to place
3. System should guarantee user's safety

Technology and data variations list:

1. Directions compatible with Android and IOS
2. App uses location information

USE CASE 9: Group Recommendations

Primary Actor: User

Stakeholders and Interests: Trailbuddy app; wants users to enjoy hiking and the app

Preconditions: The user installed Trailbuddy and is logged into their account.

Success Guarantee: User has profile ready

Main Success Scenario:

1. User is logged into app
2. User searches for groups
3. User sorts by recommended
4. App displays groups for the user based on various criteria and user profile

Special Requirements:

1. App displays list of recommended trails quickly
2. App recommends groups based on user profile, previous trails, and other similar user experiences

Technology and Data Variations:

1. Feature factors in user experience, other user experience, user similarities for various locations, and distance
2. Feature updates database as users use app and rate trails
3. Feature is available for iOS and Android

USE CASE 10: Create login

Primary Actor: User

Stakeholders and Interests: Trailbuddy app; wants users to feel connected to app

Preconditions: The user installed Trailbuddy

Success Guarantee: User has the app successfully installed

Main Success Scenario:

1. User opens app
2. App prompts user to create an account
3. User enters email address or phone number
4. App sends verification to user's entered credentials
5. User verifies email/phone number
6. App displays success message and prompts user to create a username and strong password
7. User creates username and password
8. App displays success message and logs user into account

Special Requirements:

1. App should send verification code quickly, within 2 minutes
2. Creating a login should be intuitive and quick
3. Login information should be encrypted for user security and privacy

Technology and Data Variations:

1. App should support creating a login through email and through phone

USE CASE 11: Personal health stats

Primary Actor: User

Stakeholders and Interests: Trailbuddy app; wants users to see & feel progress

Preconditions: The user installed Trailbuddy and is logged into their account.

Success Guarantee: User has profile ready and approved app to sync with health

Main Success Scenario:

1. User logs into app
2. User syncs app with health trackers
3. App tracks hikes completes, difficulty level, etc and adds it to health database for user
4. User navigates to health statistics tab under profile
5. App displays health data stored from fitness tracker and hike completion log
6. User can track additional information such as time to complete hike
7. User exits health statistics

Special Requirements:

1. Feature will store information efficiently
2. App can sync with fitness trackers that monitor steps, calories burned, heart rate, etc
3. Easy to navigate to health statistics
4. App will be quick and responsive

Technology and Data Variations:

1. App will track hike frequency, average difficulty, average elevation, etc based on user completion
2. User can choose to log hike completion time
3. App should be compatible with most fitness trackers (fitbit, apple watch, etc)

USE CASE 12: Activity reminders

Primary Actor: App
Stakeholders and Interests: Trailbuddy app; wants to keep users engaged
Preconditions: The user installed Trailbuddy and allowed notifications.
Success Guarantee: User has enabled notifications
Main Success Scenario:

1. App monitors period of inactivity, upcoming hikes scheduled, and social activity (chat messages, friend requests, relevant forum posts, etc)
2. App notifies user of relevant updates (inactivity, upcoming hikes, social updates)
3. User can dismiss notification or open app to see more information

Special Requirements:

1. User should be able to disable and customize notifications in app
2. Notifications should be sent instantly, so as to keep user updated with chat
3. Notifications for inactivity should not be too frequent

Technology and Data Variations:

1. Should be able to display notifications on both iOS and Android systems
2. Should accommodate user preferences for notifications
3. Data for notifications should be tracked efficiently

USE CASE 13: Chat
Primary Actor - User
Stakeholders and Interests - TrailBuddy App system - aims to foster real-time interactions and connections amongst users, improving user engagement.
Preconditions - The user installed the TrailBuddy Application and is logged in.
Success Guarantee - The user can engage in real-time one-on-one or group chats with other users.
Main success scenario:

1. On the main page, the user selects the "Chat" tab.
2. The system displays a list of online users or chat groups that the user has allowed to interact with them.
3. The user selects a user or chat group to initiate a conversation.
4. The system opens a chat interface, allowing the user to send and receive text messages, images, and other media.
5. The user can send messages, view received messages, and see when the other user(s) is typing.
6. The system sends real-time notifications for new chat messages.

Special requirements:

1. The system should support both one-on-one and group chats.
2. Chat messages should be delivered in real-time.
3. Users can share location information, images, and other media in the chat.

Technology and data variations list:

1. The app is compatible with both iOS and Android.
2. Messages and media sent in chats should be securely stored and encrypted.

USE CASE 14: Forum

Primary Actor - User
Stakeholders and Interests - TrailBuddy App system - aims to provide a platform for users to discuss and share information related to hiking trails and outdoor activities, promoting community engagement.
Preconditions - The user has installed the TrailBuddy Application, is logged in, and has their profile ready.
Success Guarantee - The user can access and participate in forums related to hiking trails and outdoor activities.
Main success scenario:

1. On the main page, the user selects the "Forum" tab.
2. The system presents a list of forum topics related to hiking and outdoor activities.
3. The user selects a forum topic to view discussions.
4. The system displays the forum threads, allowing the user to read and contribute by posting new threads or replies.
5. The user can post messages, reply to others, and engage in discussions within the forum.
6. The system sends notifications for new forum activity if allowed, such as new threads or replies.

Special requirements:

1. Users should be able to create new forum topics and threads.
2. The forum should have moderation to ensure appropriate content.

Technology and data variations list:

1. The app is available on both iOS and Android.
2. User-generated content within the forum should be subject to moderation and guidelines.

USE CASE 15: Friend/Group Request Feature
Primary Actor - User
Stakeholders and Interests - TrailBuddy App system - seeks to promote social interactions among users but still protect individuals' privacy, thereby enhancing user engagement.
Preconditions - The user has installed the TrailBuddy Application, is logged in, and has a ready profile.
Success Guarantee - The user can send and receive friend/group requests to connect with others on the app.
Main success scenario:

1. The user selects the "Find Friends/Groups" tab.
2. The system displays a list of users or groups that the user can send requests to connect with.
3. The user selects a user or group and sends a request.
4. The system notifies the recipient about the friend/group request.
5. The recipient can accept or decline the request.
6. If accepted, the users/groups are connected and can communicate or plan activities together.

Special requirements:

1. The system should have a feature to manage and display pending requests.
2. Users can specify the purpose of the group (e.g., hiking buddies, outdoor enthusiasts).

Technology and data variations list

1. The app is available on both iOS and Android.

USE CASE 16: Scheduler feature

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system - desires to facilitate user engagement by helping users plan and schedule outdoor activities.

Preconditions - The user has the TrailBuddy Application installed, is logged in, has a profile, and has friends/groups in their network.

Success Guarantee - The user can create and manage outdoor activity schedules with their friends/groups.

Main success scenario:

1. The user selects the "Scheduler" or "Plan Activity" tab.
2. The system provides options to create a new activity schedule.
3. The user fills in details such as the activity type, date, time, location, and participants.
4. The user can invite friends or groups to join the activity.
5. The system sends notifications to the invited friends/groups.
6. Invited participants can confirm their attendance or decline.
7. The user can view and manage the list of confirmed participants.
8. The user can share updates or reminders about the scheduled activity.

Special requirements:

1. The system should provide a calendar view for managing multiple scheduled activities.
2. Notifications and reminders should be sent to ensure participants stay informed.

Technology and data variations list:

1. The app should be available on iOS and Android.
2. The system should integrate with the user's calendar for easy scheduling.

USE CASE 17: Personal Profile

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience

Preconditions - The user installed the TrailBuddy Application and is logged in.

Success Guarantee - The user has their profile ready.

Main success scenario:

1. The user opens the app.
2. The user enters the login credentials in the system .
3. The user is prompted to enter personal details like location, age, gender, skills, and personal interests.
4. The user is given an option to add their profile picture.
5. The user is given an option to make their profile public or private.
6. The system sends a notification that the profile is ready to the user.
7. The user can navigate to the main page.

Special requirements:

1. The system takes less than 3 seconds to send the notification for the profile being ready.

Technology and data variations list:

1. The app is downloaded on iOS or Android.

USE CASE 18: Trail recommendations

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience

Preconditions - The user installed the TrailBuddy Application, is logged in, and has the profile ready.

Success Guarantee - The user gets trail recommendation based on their profile and starts

Main success scenario:

1. The user is on the main page.
2. The user selects the trail recommendations tab.
3. The TrailBuddy system displays trail recommendations based on the interests and location of the user.
4. The user selects one of the trails from the recommended list.

Special requirements:

1. The system displays all the information related to the selected trail like trail introduction, trail difficulty, trail popularity, trail ratings, and events nearby.

Technology and data variations list:

1. Data variation in trail data like trail introduction, trail difficulty, trail popularity, trail ratings, events nearby.

USE CASE 19: Filtering based on criteria

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience

Preconditions - The user installed the TrailBuddy Application, is logged in, has the profile ready, and is on the trail recommendations tab.

Success Guarantee - The user is able to get the list of trails based on their criterias.

Main success scenario:

1. The user selects the filter option on the trail recommendations tab.
2. The user can select from a variety of filters like trail popularity, difficulty level, location, time, elevations, gear needed.
3. The TrailBuddy system displays all trails based on the filters chosen by the user.
4. The user can scroll through the list and access information on the filtered trails.

Special requirements:

1. The system displays the list of trail recommendations based on the filters.

Technology and data variations list

1. The app is downloaded on iOS or Android.

USE CASE 20: Friend Match

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants more users to use the application and improve the experience

Preconditions - The user installed the TrailBuddy Application, is logged in, has the profile ready, wants to find friends/buddies to go on a hike.

Success Guarantee - The user sends a friend request to one of the friends that are matched.

Main success scenario:

1. The user is on the main page.
2. The user selects the 'Find Buddy' tab.
3. The user clicks on the box that says 'Find Buddy' and then the system uses the algorithm to find all friend matches for the user.
4. The user then scrolls through the list of friends matched.
5. The user sends a friend request to one of those matches.

Special requirements:

1. The system gives the list of profiles to the user that are matched to them.

Technology and data variations list:

1. Complex algorithm for matching friends/buddies.

USE CASE 21: User Authentication

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants users information to be protected.

Preconditions - The user installed the TrailBuddy Application and has already made an account but has not logged in or has to make a new account.

Success Guarantee - The user has successfully logged into their account safely.

Main success scenario:

1. The user is navigates to sign into their account.
2. The user puts in the required password and username information.
3. The user has 3 options to verify their account: call, text and email.
4. The user navigates to either the call, text and email to verify the account.
5. The user now has access to their account.

Special requirements:

1. Three forms of authorization: call, text, and email.

Technology and data variations list:

1. Multi-factor authentication (MFA) which has three ways to identify a user.
2. MFA only requires one way to identify a user.
3. Can change phone number and email address that MFA uses.

USE CASE 22: Group Recommendation

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: wants users have a network of friends to go on trails with to enhance their experience.

Preconditions - The user installed the TrailBuddy Application and is logged in.
Success Guarantee - The user has their profile ready. The user gets friend recommendations.
Main success scenario:

1. User is logged into app.
2. User navigates to add friend.
3. Mutual users and users with similar profiles and locations comes up in the friends suggestions categorized by how connected the user is to them.
4. The user has the option to connect with them.

Special requirements:

1. Lists mutuals profile summaries.
2. Shows how similar mutual is to user.

Technology and data variations list:

1. Feature has an algorithm that factores how many mutuals a user has with an account to determine how strongly they recommend a friend request.
2. Algorithm also determines similar profille information and location proximity to recommend a friend.
3. Feature updates friends list once user selects that profile to be a friend.
4. Feature that factors that request in friends requested.

USE CASE 23: Emergency Contacts

Primary Actor - User
Stakeholders and Interests - TrailBuddy App system: prioritizes the safety of its users above all else.
Preconditions - The user installed the TrailBuddy Application and is logged in.
Success Guarantee - The user has their profile ready. The user has quick and easy access to their emergency contacts.
Main success scenario:

1. User is on a trail and is in need of help.
    a. The user navigates to the emergency contact information page.
    b. The user then selects a emergency contact.
    c. The user can these contact the user by number, text and email.
    d. The user can send a pretyped message for convenience.
2. User is on a trail and is in an emergency situation.
    a. The user navigates to the emergency contact information page.
    b. The user clicks on the big red help button to call 911.

Special requirements:

1. Emergency contact information is highly accessible.
2. Emergency button is easy for user to get to.
3. Emergency information is easy to read and contact.

Technology and data variations list:

1. Lists of emergency contact information.
2. Easily accessible button to alert authorities.

USE CASE 24: User Log In

Primary Actor - User

Stakeholders and Interests - TrailBuddy App system: ensures that user data will be saved to ease downloading and accessing past information if the device it is used on changes.

Preconditions - The user installed the TrailBuddy Application and has already made an account but has not logged in or has to make a new account.

Success Guarantee - The user has their profile ready. The user can log into any device.

Main success scenario:

1. The user downloads the app.
    a. The user opens the app and navigates to the log in page.
    b. The user puts in the required information, username, password and password authorization.
    c. User is now logged in and can access their information.
2. The user downloads the app for the first time.
    a. The user opens the app and navigates to create an account.
    b. The user creates a username, password and password authorization system.
    c. User is now logged in and can create their profile.

Special requirements:

1. Requires username, password and user authentication
2. First thing that user will see when opening the app for the first time.
3. Password and username recovery if user forgets this information.
4. Allows multiple attempts to log in.

Technology and data variations list:

1. Place to insert username, password and user authentication.
2. Messages that either display wrong information entered or successful log in.
3. Resets page to allow user to attempt to log in again.