Project Title: RandezVous
Names: Bryan Yoo, Elaine Huang, Nathanael Aou, Olivia Liu, Vincent Zhao
Group Number: 6

Problem Statement:

Many social media apps today want you to engage with others online and struggle to promote in-person, meaningful interactions. Furthermore, it is often hard for young people to find friends in new environments like college/post-college life. Existing social networking services such as Instagram and TikTok want you to stay engaged on their apps and websites in order to earn money through ads while we hope to encourage people to get offline and meet up in person. Our team wants to solve this issue by providing users with an app that encourages and incentivizes friend groups to meet up spontaneously and consistently by notifying users at random times to group up at random locations. Essentially, a random rendezvous, or RandezVous.

Background Information:

Audience:

Our target audience consists primarily of college students who want to strengthen their friendships through spontaneous activities, as well as new graduates who have moved to a new environment and are looking to connect with similar people nearby. By providing a fun and engaging way to facilitate in-person interactions, we aim to bridge the gap between online social networking and real-world connection.

Similar Platforms:

Some platforms that are related to our app include BeReal, MeetUp, and Life360. These apps contain certain features that to some degree overlap with our app. BeReal sends spontaneous notifications to all users, encouraging them to capture and share a moment with friends, making it a social media app centered around authenticity. MeetUp provides information about various events happening nearby and integrates Google Maps API to help users find event locations. Life360 is a location-sharing app designed for friends and family, offering real-time tracking for practical purposes rather than social engagement.

Limitations: These apps achieve different goals compared to RandezVous, and only overlap with our app in limited ways. BeReal encourages friends to take and upload a photo when a daily notification goes off, so it is more of a social media app, while Meetup promotes pre-planned events for strangers looking for friends, so it is not spontaneous. Life360 lets you track the location of friends, but has no “fun” feature and is simply for practical use. None of these alternative platforms encourage spontaneous meetups, which is the goal of our app.

Requirements:

Functional Requirements:

1. As a user, I would like to register for a RandezVous account
2. As a user, I would like to log in to my account
3. As a user I would like to log out of my account
4. As a user, I would like to change my username to any unclaimed username
5. As a user, I would like to be able to link my account to an email (sign in with Google)
6. As a user, I would like to upload my own profile picture
7. As a user, I would like to reset my password for my account
8. As a user, I would like to be able to delete my account
9. As a user, I would like to create a new group
10. As a user, I would like to name and rename my group
11. As a user, I would like to upload an icon for my group
12. As a user, I would like to search for other users
13. As a user, I would like to invite other users to my group
14. As a user, I would like to receive a notification when I am invited to a group
15. As a user, I would like to be able to report users
16. As a user, I would like to be able to make my group private or public
17. As a user, I would like to be able to be able to remove people from my group if I own the group
18. As a user, I would like to view a list of nearby public groups
19. As a user, I would like to select a public group to see its members
20. As a user, I would like to select a member to see their profile
21. As a user, I would like to join existing public groups
22. As a user, I would like to leave the group I am currently in
23. As a user, I would like to view a local map based on my current location
24. As a user, I would like to view my own live location on the map
25. As a user, I would like to view the live locations of other groupmates on the map
26. As a user, I would like to receive a notification at a random time daily telling me to go to the location of the “beacon”
27. As a user, I would like the location of the beacon to be somewhat nearby all users in my group
28. As a user, I would like to view the location of the beacon on the map (replacing its previous location)
29. As a user, I would like to view a confirmation when I have reached the beacon
30. As a user, I would like to be notified when other groupmates have reached the beacon
31. As a user, I would like to get reminded to reach the beacon if I have not yet
32. As a user, I would like to be notified when all groupmates reach the beacon
33. As a user, I would like to gain points when I arrive at the beacon depending on how quick I am and if other groupmates have reached the beacon yet
34. As a user, I would like the option to turn off/pause the spawning of beacons if I own the group
35. As a user, I would like to be able to set the frequency of the spawning of beacons (eg. once every 3 days)
36. As a user, I would like to report beacon locations that are not safe or dangerous

37. As a user, I would like to view my own points as well as my group mates' points on a leaderboard
38. As a user, I would like to gain group points for every full group meet up RandezVous we achieve
39. As a user, I would like to see how my group compares to other groups of similar size
40. As a user, I would like to see available achievements I have yet to unlock
41. As a user, I would like to be able to unlock new achievements
42. As a user, I would like to view all my unlocked achievements in my profile
43. As a user, I would like to turn off notifications.
44. As a user, I would like to send friend requests to other users
45. As a user, I would like to see all pending friend requests from other users
46. As a user, I would like to accept or decline friend requests from other users
47. As a user, I would like to be able to block other users (from friend requests and group invites)
48. As a user, I would like a faq/instructions page that explain how the app works
49. As a user, I would like a contact us page to report any bugs
50. As a user, I would like a privacy policy page to learn how the app tracks my location

(if time allows)

51. As a user, I would like to view the total points of other groups around me on a leaderboard
52. As a user, I would like to view a “shop” where I can spend my points on cosmetic features for the beacon such as replacing it with a variety of icons or renaming the beacon
53. As a user, I would like to be able to chat within a group
54. As a user, I would like to be able to collect streaks of RandezVous where I earn more points for consecutive days.
55. As a user, I would like to be able to be in multiple groups at the same time
56. As a user, I would like the option to set beacon spawn locations to only “interesting locations” like parks and coffee shops instead of completely random locations

Non-Functional Requirements:

Architecture and Performance

We plan to build a separate frontend and backend for this application. The frontend will be a Flutter application which can be used on both iOS and Android mobile devices. The frontend will allow us to interact with the user as well as pull location information from the user’s device. The frontend will interact with the backend to do more computationally heavy operations as well as interact with the database. Interaction between backend and frontend will be done through HTTP requests.

The backend will be an Express.js application that will interact with and will be a RESTful API that the frontend will be able to make requests to. Express.js is a framework for creating RESTful APIs in JavaScript which allows us to take advantage of our existing knowledge of JavaScript combined with the performant nature of Expressjs. API requests should have a maximum response time of 500 milliseconds under normal usage conditions.

We will use Firebase/Supabase for our database, which has web sockets specifically designed for real-time synching, allowing us to push updates automatically without polling or manual refreshes. This can help us lower the time it takes for data to update in the app down to under 5 seconds.

We also plan to use mobile devices' built in location tracking features and look up users' last updated location instead of constantly tracking their location. This way, the app should not consume more than 5% of battery power per hour under normal usage.

Security

Security is very important for RandezVous as we are collecting user location information which is sensitive and should be kept secure. This is why we will implement security rules to prevent users from accessing the location data of anyone else unless they are part of the same group. Furthermore, since we are using services like the Google Maps API, it is important that our application is not spammed with repeated requests that could greatly increase our billing, so we will add protections against unauthenticated requests on the backend. We also want to use Firebase or Supabase for authentication to make sure that signing into accounts is completely secure.

Usability

RandezVous is a social networking platform, so the UI should be intuitive to the average user navigate through. Furthermore, since the concept of the app isn't the most straightforward, we will create an instruction UI to explain certain screens when opened by a user for the first time. Furthermore, we want the game to be accessible to as many users as possible, so we aim to make it accessible for various different phone screen sizes.

Hosting/Deployment

The frontend and backend will be deployed separately. As it is a mobile application, we want to first be able to install the application through development tools (TestFlight and Android SDK) and then if time permits major app stores like the Google Play Store and Apple App Store. We plan to initially test the backend on local machines and then later on deploy the backend to Google Cloud Provider (GCP) since Firebase is built on GCP.