Requirements Document

CSS 360
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Preface:

The main goal of our application is to provide users with suggested exercises and workouts, as well as providing a tracker for users to track their personal data such as weight loss and amount of days of completed exercises within their selected date range. Users will be able to choose from a set of predetermined exercises or create their own custom workout. They will also be able to navigate between different pages such as the home page, workout page, and tracking page. The home page will display the user's name, email, user ID, and other pertinent information. The workout page will be where the user spends the majority of their time in the application. It is where the user creates or chooses workouts, where the workout will be displayed, and where they will be able to save workouts for future use. The tracking page allows users to decide what values to track so they can have a basis to measure their improvement.

Introduction:

We will be producing a free all-in-one Android workout application. There are many applications that provide users with a single or a few tools to assist them with their fitness goals and needs. There are applications specifically for diet, suggested exercises, and calculators. Our goal is to provide a single application so users can have the functionality of multiple applications in one. This will minimize time switching between and locating different apps for a specific user need.

Glossary:
Calorie - energy needed to raise 1 gram of water 1 degree celsius. Used to measure energy gained through food, or lost through exercise, metabolism, etc.
BMR - Basal Metabolic Rate. How many calories your body burns to carry out basic functions (beating heart, thinking, breathing, etc.). In other words, how many calories you burn doing nothing in a day.
TDEE - Total Daily Energy Expenditure. This is the total calories you burned in a day, adding BMR as well as calories burned from exercise.

User requirements definition:
Our application is very intuitive so that users can use our application much easier than others. Once a user logs into our application, the program brings user data from the database and provides optimized exercises and current user body condition.

Use cases:

1. The user launches the application and the login interface will prompt the user for their login id and password. The interface then sends the information to the database to be verified. If the information is correct, the user is logged in and taken to the fitness section of the application. If the information entered is invalid, the user will be prompted to enter their login id and password again until a correct one is submitted. Refer to Appendices Fig 1-A for a sequence diagram.
2. The user presses the “log workout” button.The user then inputs the workout into the search bar, then presses enter. The application then sends a GET request of what the user inputted. Then, the API returns a JSON of all exercises that has what the user inputted in its name. Next, the application displays the information to the user, then the user chooses from the list. Finally, the application logs the exercise and notifies the user that the log was successful. Refer to Appendices Fig 1-B for a sequence diagram.

Functional Requirements:

- Login system: users will be able to log into their account to access their own data.
    - Uses Email / password
    - Changing password / email
    - Sign out
    - Users can use biometric security for later login.
- Create account system: if a user does not have an account, the user will be required to create an account.
- Navigation: the user will be able to navigate between different windows in the application via buttons and tabs.
    - Previous page buttons
    - Home, Workout, Tracking, and Graph tabs
- Workout creation system: if a user does not want to use a workout provided by the application, they have the option to create their own workouts by searching for exercises and adding it to their workout.
    - Exercise creation
    - Workout Editor
    - Save workout
- Graphing System: a visual representation of the user’s tracked data.
- BMR Calculator system: Calculates the users BMR based on information given by the user.
- In progress workout system: an alert to notify the user that the workout is still in progress when the user leaves the workout window before pausing the current workout.
- In progress workout buttons: various buttons that the user can use during a workout to pause the workout, go to the next/previous exercise, and get help on the current exercise.
    - Pause button
    - Next button
    - Previous button

    - Help button
- Help on exercises: Gives the user information on how to perform an exercise.
- Workout data collection system: Collects users data such as workout amount/duration/date and current weight.
- Displaying workout stats: Retrieves the users data and displays the data.
- Workout suggestion system: provides the user with a default workout. This will typically apply to users who are new to working out and fitness.
- Tutorial System: a guide for the user to teach them how to use/navigate the application.

Non-functional Requirements:

- Speed / Performance
    - Quick login time
    - Fast changing tabs/navigating the app
- Security / Privacy
    - Private user data
    - Not selling user data
    - Bio recognition login system
- Easy to learn / navigate
    - Provide application tutorial
- Dependability
    - No downtime for logging in
    - Least android 9 version system is required

System architecture:

Refer to Appendices Fig 2-A for a mockup diagram.

System requirements specification:

Operating System: Android
Development language: Java
Version control: GitHub, GitBash
APIs: myFitnessPal

System models:

Refer to Appendices Fig 3-A for an object diagram.

Appendices:

The following pages contain images that are too large to fit earlier in the document.

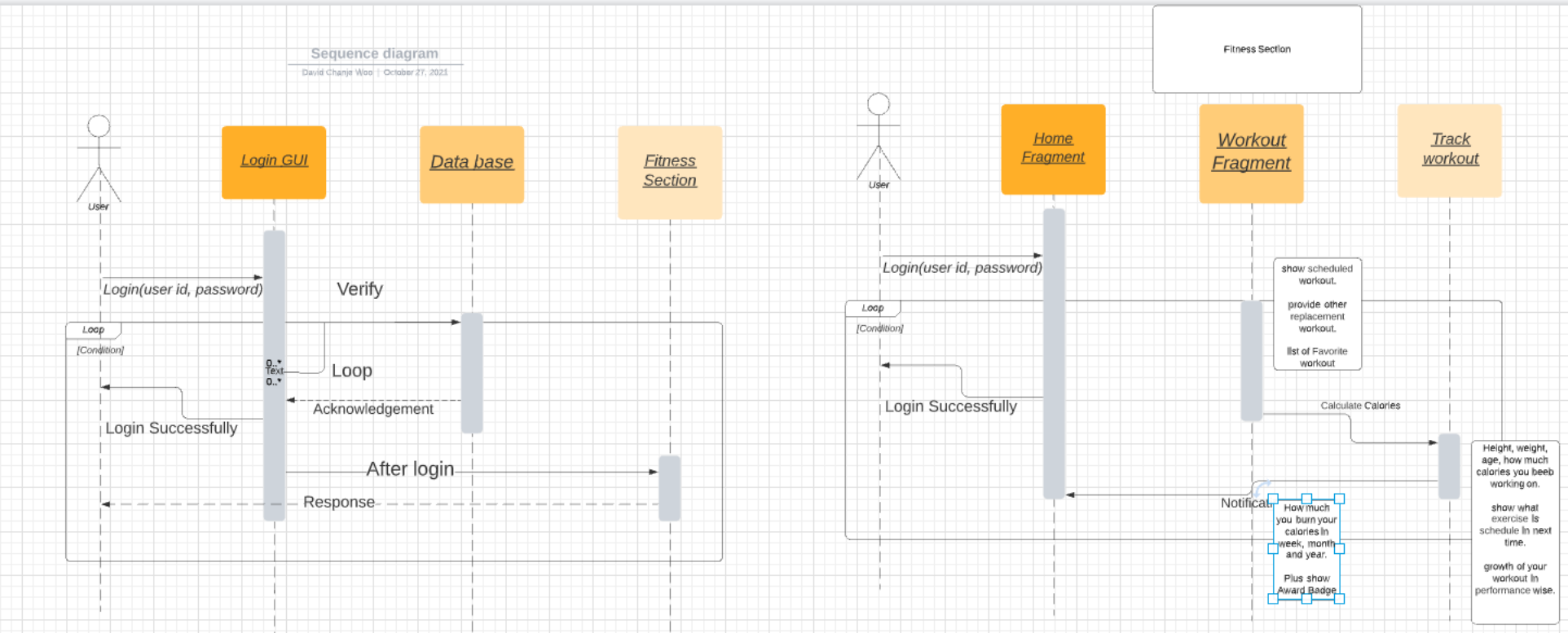

Sequence diagram
David Chanje Woo | October 27, 2021
User
Login GUI
Data base
Fitness Section
Login(user id, password)
Verify
Loop
[Condition]
0..*
Text
0..*
Loop
Acknowledgement
Login Successfully
After login
Response
Fitness Section
User
Home Fragment
Workout Fragment
Track workout
Login(user id, password)
Loop
[Condition]
show scheduled workout.
provide other replacement workout.
list of Favorite workout
Login Successfully
Calculate Calories
Height, weight, age, how much calories you beeb working on.
show what exercise is schedule in next time.
growth of your workout in performance wise.
Notificat
How much you burn your calories in week, month and year.
Plus show Award Badge

Fig 1-A

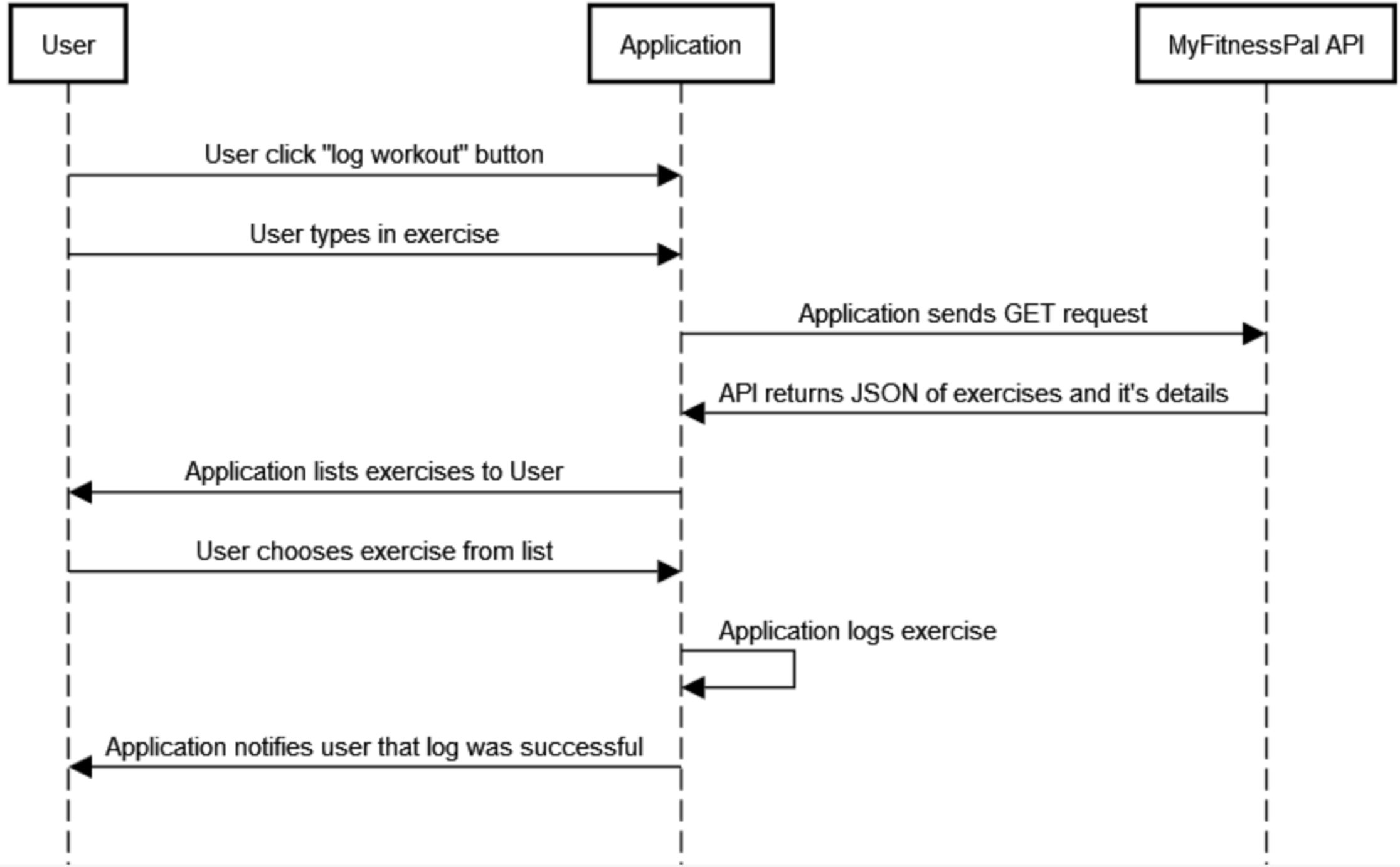

User
Application
MyFitnessPal API
User click "log workout" button
User types in exercise
Application sends GET request
API returns JSON of exercises and it's details
Application lists exercises to User
User chooses exercise from list
Application logs exercise
Application notifies user that log was successful

Fig 1-B

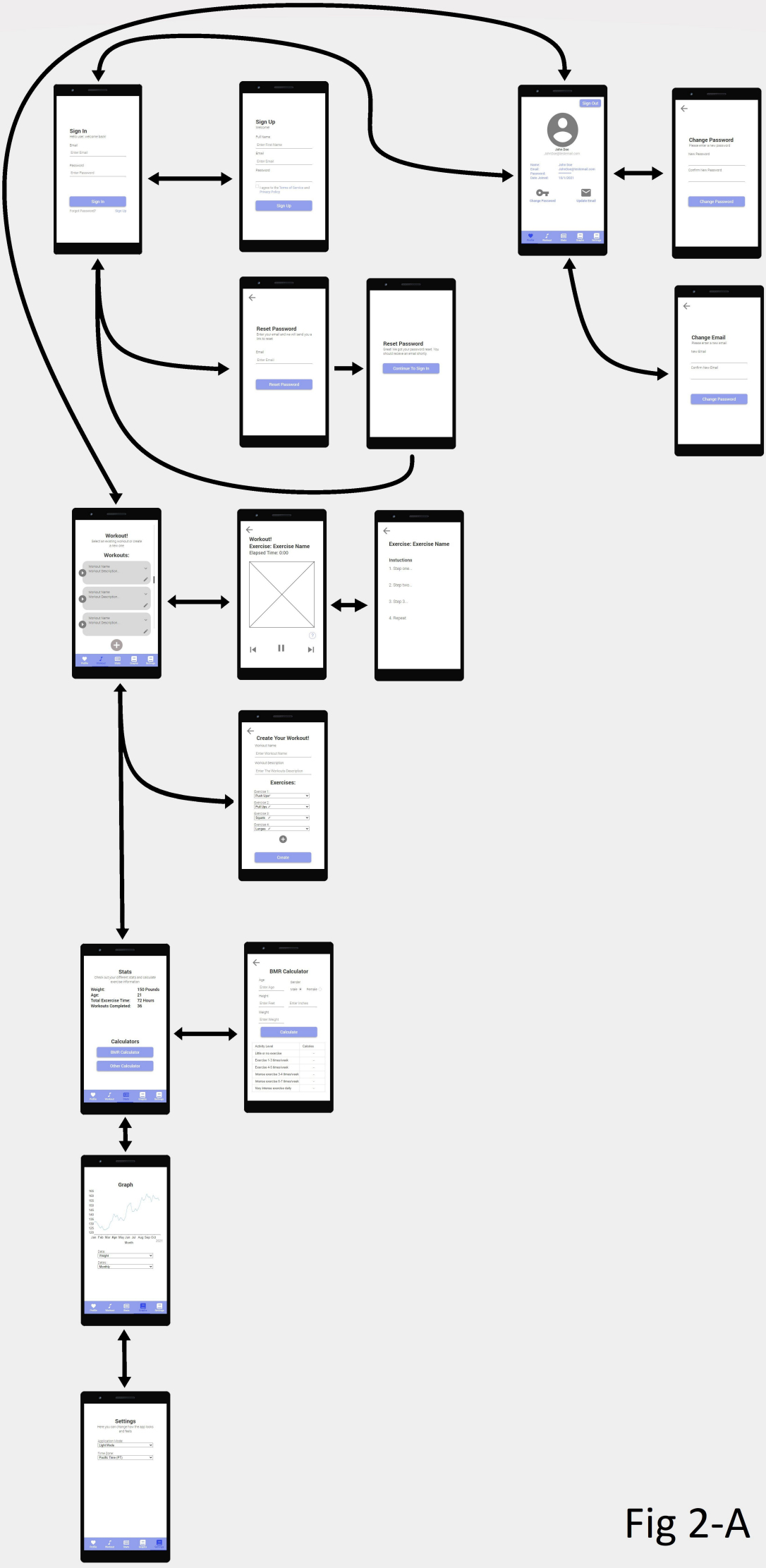
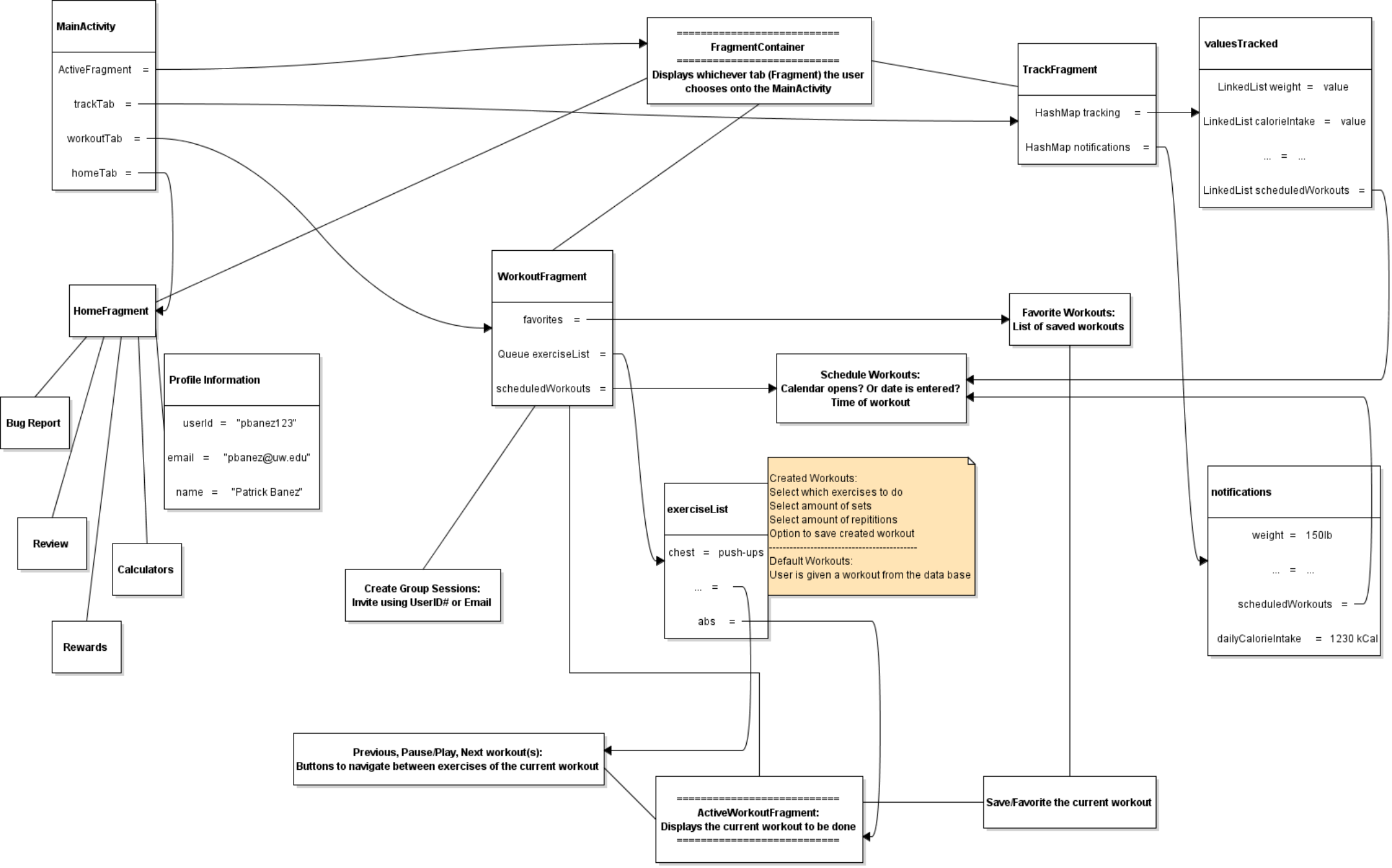

Sign In
Sign Up
Sign Out
Change Password
Reset Password
Reset Password
Change Email
Workout!
Workouts:
Workout!
Exercise: Exercise Name
Elapsed Time: 0:00
Exercise: Exercise Name
Instuctions
Create Your Workout!
Exercises:
Create
Stats
Weight: 150 Pounds
Age: 21
Total Excercise Time: 72 Hours
Workouts Completed: 36
Calculators
BMR Calculator
Other Calculator
BMR Calculator
Graph
Settings

Fig 2-A


MainActivity
ActiveFragment =
trackTab =
workoutTab =
homeTab =
==========
FragmentContainer
==========
Displays whichever tab (Fragment) the user chooses onto the MainActivity
TrackFragment
HashMap tracking =
HashMap notifications =
valuesTracked
LinkedList weight = value
LinkedList calorieIntake = value
... = ...
LinkedList scheduledWorkouts =
HomeFragment
WorkoutFragment
favorites =
Queue exerciseList =
scheduledWorkouts =
Favorite Workouts:
List of saved workouts
Schedule Workouts:
Calendar opens? Or date is entered?
Time of workout
Profile Information
userId = "pbanez123"
email = "pbanez@uw.edu"
name = "Patrick Banez"
Bug Report
Review
Calculators
Rewards
Create Group Sessions:
Invite using UserID# or Email
exerciseList
chest = push-ups
... =
abs =
Created Workouts:
Select which exercises to do
Select amount of sets
Select amount of repititions
Option to save created workout

Default Workouts:
User is given a workout from the data base
notifications
weight = 150lb
... = ...
scheduledWorkouts =
dailyCalorieIntake = 1230 kCal
Previous, Pause/Play, Next workout(s):
Buttons to navigate between exercises of the current workout
==========
ActiveWorkoutFragment:
Displays the current workout to be done
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Save/Favorite the current workout

Fig 3-A