CMPT 276 Proposal 1

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Project name: SweatSink

Group members:

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Repository: https://github.com/SamShowkati/CMPT276-SweatSink

Abstract:
We're aiming to create a fitness-tracking app focused on weightlifting and cardio training using the Android Studio IDE and coding in Java and Kotlin. The app will utilize the OpenAI's API and the Google Search API to allow users to access an AI personal trainer and feedback on their training, search for specific workouts and training methods, or to simply do more research on certain exercises. Our app will also make use of the Google Calendar's API, as well as Google map's API which will allow users to schedule workouts throughout the week and plan optimal running routes around their neighborhood. With the help of SQLite we will also store an offline database of exercises for specific body parts to allow users to target certain areas they may want to work out.

Customer:
The target audience for this Android app is anybody who is looking to create and achieve fitness goals. The app will benefit customers who are looking for fitness guidance but can't or don't wish to seek help from a human. It will be useful for both beginners looking to start weightlifting and cardio as well as intermediates who are already experienced. This app will be free meaning it can be easily accessed by people of all ages and financial status.

Competitive Analysis:
Competitors:

- MyFitnessPal
- Nike Training Pal
- Google Fit
- Peloton

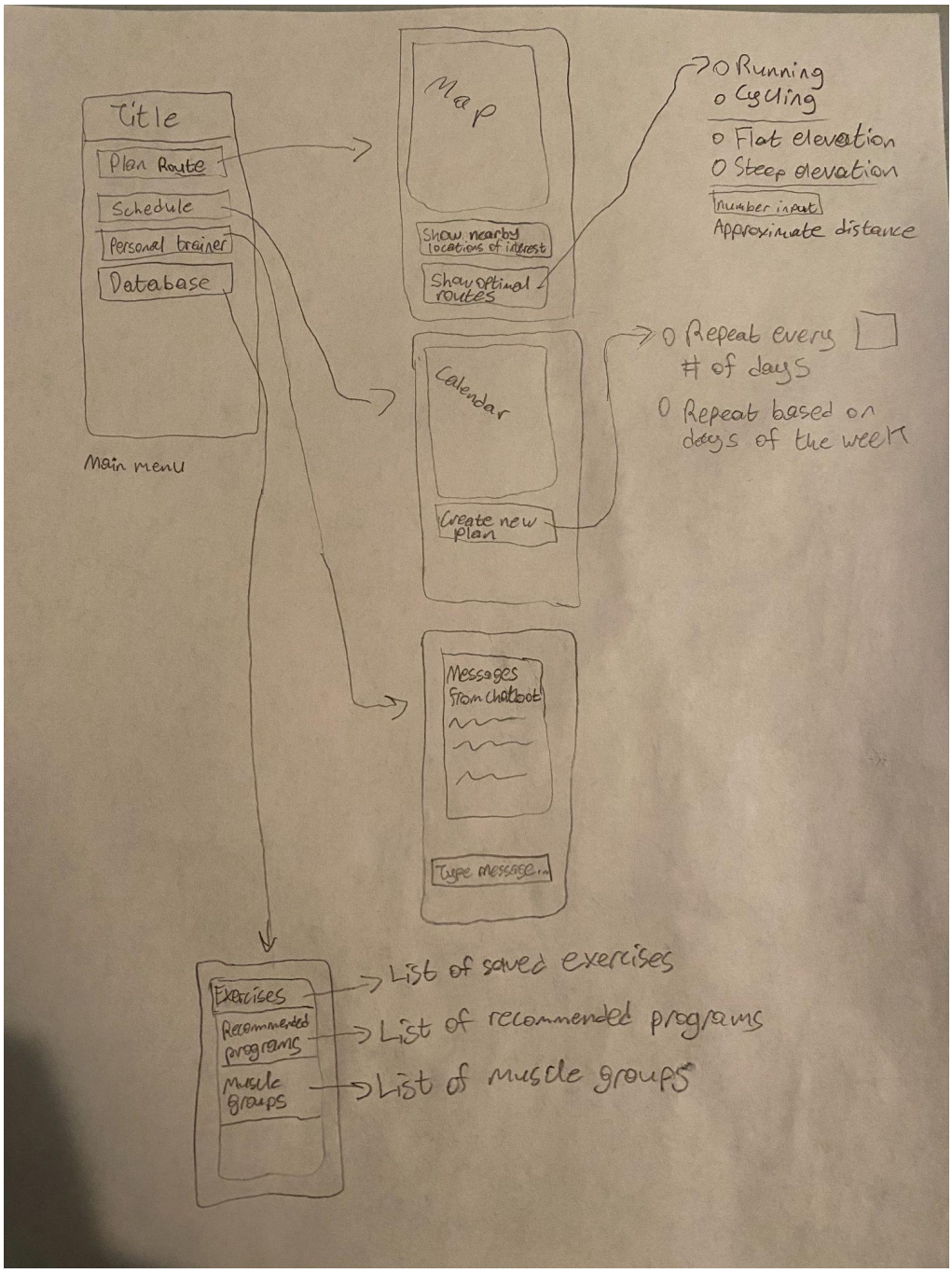
The applications listed above will be our biggest competitors. However, our application strives to provide our users with the use of an AI personal trainer that will provide feedback based on user input. Additionally most of the applications listed above are aimed towards iOS users, while our application will be more geared towards android users. In short, we are aiming to provide our users with all their favorite features together into one app.

Differences that our app brings:

- Most of these apps allow for the creation of a custom workout plan but this can often require a lot of research and experience that is hard to find. Our app will allow for custom workout plans that are created with the help of an AI personal trainer integrated with Chat GPT. This will give the user access to information that they otherwise wouldn't be able to easily receive for free.

- Any workout plans that, for example, an intermediate lifter has been using can be optimized with the AI personal trainer's advice. This also isn't a service that is available on the other apps.
- Provides live guidance and encouragement for people who tend to work out alone.
- Can provide live safety tips to ensure the user is not only working out efficiently but also without the risk of injury
- Using AI, not only helps users to achieve their goals, but also to set realistic and appropriate goals

User Interface:



Documentation

When opening the app, users will be presented with the main menu. From here, they have 4 main options: Plan Route, Schedule, Personal Trainer, and Saved Data. Plan route takes users to the map, where in future iterations they will be able to see nearby fitness-related points of interest and plan routes for running. In the schedule, users can see their calendar. In future iterations, they will be able to use this to plan recurring workouts that will appear on their own Google Calendar. The personal trainer will be an AI assistant that will assist the user in any fitness-related aspect. Saved data will have a locally stored database of workouts, muscle groups, and workout plans that the user can access online.

User Stories

User Suggestion:

As someone with a busy schedule, I would like a scheduling system integrated within the app. This will provide my clients with keeping on track with their workout progress.

Name:	Scheduling system
Actor:	Regular User
Precondition:	Integrated Scheduling system
Iteration:	1
Actions:	Implement a scheduling function using Google Calendar API. Users should be able to make changes that will be reflected in their own, personal Google Calendar. The goal of this feature is to help users stay on top of their training through scheduling.
Functional test:	If the user is on the main menu, when they press the schedule button, they are taken to their calendar as desired. Given the user attempts to schedule a workout, when there is a failure in the Google Calendar API integration (e.g. API downtime or authentication issues), then an error message should be displayed, informing the user that the scheduling action could not be completed, and they should try again later. Given the user attempts to schedule a workout, when they provide invalid data (e.g. missing workout details or conflicting schedules), then an error message should be displayed, indicating the specific issue and guiding the user on how to correct it.
Unit test:	MainActivity.kt: all code functions as expected and is error free.

	main_activity.xml: all code functions as expected and is error free. calendar_activity.xml: all code functions as expected and is error free. CalendarActivity.kt: all code functions as expected and is error free. AndroidManifest.xml: all code functions as expected and is error free. The calendar page is working bug free, as tested on Google Pixel 3a and 6 emulators.

User Suggestion:

As a user, I would like to see Google Maps iterated into the application to help me plan optimal running routes around the neighborhood or find places to work out near me.

Name:	Integrated Map
Actor:	Regular User
Precondition:	Integrate functioning map into application
Iteration:	1
Actions:	Integrate Google Maps onto our application using Google Maps API to allow users to plan runs in their neighborhood and locate places to work out.
Functional test:	If the user is on the main menu and presses the “Plan Your Route” button, they are taken to Google Maps as desired. Given the user attempts to access the map functionality, when there is a failure in the Google Maps API integration (e.g. API downtime or authentication issues), then an error message should be displayed, informing the user that the map service is temporarily unavailable, and they should try again later. Given the user attempts to access location-based features, when they do not have the necessary location permissions enabled on their device, then an error message should be displayed, guiding the user to grant the required location permissions.
Unit test:	MainActivity.kt: all code functions as expected and is error free. main_activity.xml: all code functions as expected and is error free.

	activity_maps.xml: all code functions as expected. MapsActivity.kt: all code functions as expected. AndroidManifest.xml: all code functions as expected. The maps page is working bug free, as tested on Google Pixel 3a and 6 emulators.

User Suggestion:

As someone who is frequently unable to access internet or cellular data, I would like to be able to access a database of exercises and fitness info while offline.

Actor:	Regular User
Precondition:	Implement and integrate an offline database
Iteration:	1
Actions:	Implement and display to the user an offline database that tracks saved exercises, recommended programs, and a list of muscle groups.
Functional test:	When the user is on the main menu, if they press the “Saved Data” button, then they are taken to the database page as desired. Given the user presses the "Saved Data" button, when there is an error initializing the offline database (e.g. due to storage constraints or permissions), then an error message should be displayed, indicating that the database is currently unavailable and providing guidance on resolving the issue. Given the user has accessed the database page, when the offline database is empty (contains no saved exercises, recommended programs, or muscle groups), then a message should be displayed, notifying the user that no data is available and suggesting actions like adding exercises or programs.
Unit test:	MainActivity.kt: all code functions as expected and is error free. main_activity.xml: all code functions as expected and is error free. database_activity.xml: all code functions as expected and is error free.

	DatabaseActivity.kt: all code functions as expected and is error free. AndroidManifest.xml: all code functions as expected and is error free. The database page is working bug free, as tested on Google Pixel 3a and 6 emulators.

Future (will be implemented in future iterations of application):

As a regular runner who just moved into a new neighbourhood, I would like to use the application to help me plan optimal running routes with adjustable variance in elevation to best fit my running needs.

As a traveling athlete, I would like to use the app to locate specific fitness facilities (e.g. traditional gym, rock climbing gym, sports equipment store) on the go. This will allow me to continue my training even while traveling

As a busy individual, I would like to use the app to set specific and customizable schedules with a large degree of freedom over how I schedule my workouts (e.g. every other day, weekdays only, specific days of the week, etc).

User Suggestion

As someone with very little experience in weight training, I would like to see AI integrated within the app to help with my workouts and training exercises. This would be an excellent way to help me start my weight training journey.

Name:	AI personal trainer
Actor:	Regular User
Precondition:	Integrated AI system to provide personal training for user
Iteration:	2
Actions:	implement a function within the application that utilizes AI (such as ChatGPT). This allows users to gather information on training methods and workouts. Introducing AI also allows users to ask questions they may not be comfortable asking other people.

User Suggestion:

As someone who wants to work out a specific part of my body, I would like pre-planned workouts available at my disposal for simplicity.

Name:	Workout Database
Actor:	Regular User
Precondition:	A database with pre-planned workout for specific muscles
Iteration:	2
Actions:	With the help of SQlite, it is possible to store an offline database with pre-planned workouts for a specific muscle group or body part.

User Suggestion:

As someone who walks regularly, a step counter would be beneficial to me in tracking my exercise and adjusting my workouts accordingly.

Name:	Step counter
Actor:	Regular User
Precondition:	Counts steps taken by the user daily
Iteration:	2
Actions:	not yet decided