Guideline of Group Project
CSE 3310 – Fundamentals of Software Engineering

Project: Personal Health and Fitness Tracker (PHFT)

Develop an Android application to help users track their health and fitness activities. The system should minimally include:

- **Registration**: three roles of users: General User, Guest User, and Personal Trainer. Users set up their personal information such as name, age, profile photo, weight, height, and fitness goals (if applicable).
- **Login & Authentication**: Required for users to access their personalized health and fitness data. Guest can be allowed for limited features, but all data is cleared upon exit. Personal Trainer can manage basic information of instructed training sessions and check the roster of session.
- **Activity Categories**: The app must support at least the following activities: running, walking, cycling, yoga, high-intensity interval training (HIIT), and weightlifting. Users should be able to add new activity types without needing to modify the source code of App. Trainer able to create personal workout plan for paid users under three specific categories: yoga, high-intensity interval training (HIIT), and weightlifting.
- **Goal Setting**: Users can set personal fitness goals (e.g., running 5 miles a week, burning 2000 calories a week, lose/gain weight 10 lbs a month).
- **Tracking**: Track various metrics such as steps, distance, calories burned, and heart rate, depending on the activity. Import data is available for wearable devices.
- **Progress Monitoring**: Provide graphical representations (charts/graphs) of the user's progress over time for each activity.
- **Exercise Plans**: Users can follow pre-set workout routines or create their own based on fitness goals.
- **Review of Trainer**: Ability to provide feedback to personal trainers.
- **Subscription**: Ad-Free, special training video, and personal trainer instructions. Subscription term could be Monthly or Annual w/ discount.
- **Payment Integration**: Allow users to purchase personalized workout plans or hire virtual trainers via in-app payments. Payment method should support at least: debit/credit card, and PayPal.
- **Social Features**: Users can share their fitness achievements, compete in challenges with friends, and post updates on social media platforms via the one-button-share function.
- **Communication**: Provide email and text notifications for activity reminders, progress updates, and social interactions.
- **Advertisement**
    - **Internal**: Advertise workout plans, personal trainer program, and fitness equipment within the app.
    - **External**: Allow health-related businesses to advertise (e.g., local gyms, health food brands).

- **(Optional) Required for The Honors College student. Bonus points will be awarded if general teams complete the task.**

PHFT Reward Center

Implement a points system where users can earn points by completing fitness goals or winning challenges. The reward center can track, summarize, and allocate points to users based on their activities within the app.

  - **Users Motivating**. Beyond general fitness goals reward. System need to award points to users for the following specific activities: Daily Check-in Reward, 30-day Check-in Reward, Daily Challenge Reward (e.g. burning 500 calories), and Submitting Review of the App on Google Store. Points could be redeemed in Reward Center for a wide range of workout equipment, and one-month free subscription. Rolling display those successfully redeemed products with user's first name on the homepage of Reward Center.
  - **Users Levels with Premium Benefits:** Grant various level badges based the range of points: Silver (1,000 pts to 10,000 pts), Gold (10,000 pts to 30,000 pts), and Diamond (greater than 30,000 pts). Each level has own benefits, e.g. Silver – make-up card for missed daily check; Gold - 1.5x pts earned after completed fitness goal; Diamond – 2x pts earned after completed fitness goal.
  - **Leaderboard:** motivating users to stay active and reward points to top3 users of each month.
  - **Reward Product Browsing.** The Reward Center should integrate with products browsing feature, includes but not limited to Product Image, Product Introduction, Product Specification, and Required Points to Redeem.
  - **Reward Product Shipping**. Reward Center should integrate with shipping feature, includes pre-shipping (collect users shipping address, send redeem confirmation email etc.), and post-shipping (updates shipping info in app and send user notifications, etc.).

Project Assumptions

- Assume all users over the age of 18 (for under 18 clients, an adult guardian is needed).
- Ignore any international shipping for users.
- Ignore any cross-platform wearable devices compatible issues.
- Ignore any legal issues, assume all personal trainers pass background check.
- No need to do real debit/credit card validation, just make sure Credit card number is 16 digits, Card Expiration date has the format "mmyy" and the Security code is 3 digits.

I. Project Objective

Practice general Software Engineering life cycles of Specification, Design, Implementation, and Testing via programming an Android application. This class will be utilizing a Plan-driven Software Engineering approach (i.e. Waterfall Model) and not an agile methodology.

II. Resources

The class TA's primary responsibility is to help you with your project. You can visit TA during TA's office hours.

- Pujan Budhathoki, pxb9189@mavs.uta.edu
- Office Hours & Location: M/W 2:45pm - 4:15pm ERB513

All Android-related questions should be sent to the class TA first. It is not required to know Android upfront however if you want to have a head start, the links below, in the order listed, can be of great help.

- Getting started with Android Programming: https://developer.android.com/guide
- Android Development Tutorial: http://www.vogella.com/articles/Android/article.html
- Android Studio Download: https://developer.android.com/studio
- Get started with Android Studio: https://developer.android.com/studio/intro
- Create your first Android app: https://developer.android.com/codelabs/basic-android-kotlin-compose-first-app#1

III. Project Requirements

1. Your software should be an Android application that runs on the Google Android platform. This means, with your instructions, we (i.e. class TA and I) should be able to run your code on the standard Android emulator that we have installed on our machines. We will provide some basic training in Android down the road.
2. You may select any development tool or environment however you must develop the project yourself. It is not enough to just copy and paste a project from somewhere else. This does not mean you cannot reuse any existing code. Many software engineering products build on some existing code or platform such as Unity. But it is important that you clearly document which parts are yours and which parts you reuse from another source. If in doubt, please run it by me and TA first.
3. You must provide the necessary software required to run/test your application.
4. Provide appropriate references when using other people's work. No copyright violations for any part of "reused" code, if any. Please avoid any inappropriate words, pictures, or actions while developing your product.
5. All team members must participate equally in all stages of the project. A peer review will be conducted to validate equal participation. All members must participate in presenting a segment of their project.
6. Establish a weekly meeting with your team members, a one-hour session (in-person or virtual) is sufficient at the start. Make sure all members can attend and are committed to this.
7. Select a facilitator for each of the five parts. Typical duties of a facilitator are organizing meetings, coordinating efforts among team members, communicating with the course instructor and TA, etc. You must rotate the facilitator role per each part of delivery, there are five of you and five parts.

III. Project Progress & Delivery

Part 1. Unified Language Modeling (UML) Diagrams

- Due 10/01/2024. Required one hardcopy submitted in class from each team.

Part 2.System Requirements Analysis (SRA) Document

- Due 10/15/2024. Required one hardcopy submitted in class from each team.

Part 3. Test Plan Document + Peer Review

- Due 10/29/2024. Required one hardcopy submitted in class from each team. Includes the Peer Review hardcopy from each member of the team. Make sure everyone in your team receives a review.

Part 4. Final Report

- Due 11/26/2024. Each team must submit a hardcopy of final report that includes ALL artifacts for the entire project as listed below (in that order) on the due date in class:

    1) One-page **Cover** of the final report. Please include Team Name, Team members, Course Number, and the semester information.
    2) One-page **Index** of all material included in the report.
    3) One-page **Read-me** that includes each member's name and Mavs email, and at least one contact phone number in case we have difficulty grading your final application and could not reach you via e-mail in a timely manner. Please include any exceptions in this file as well such as functionality that were not completed or partially working or anything else you wish to share with us while grading. If your application requires log in, please provide a valid user/password.
    4) System Requirements Analysis (SRA) document.
    5) Test Plan document.
    6) User Manual document. Including each screen of your application with index and a brief instruction.
    7) Printout of all database tables (if applicable) and **SELECTED** source code (i.e. main code written by your team, not the IDE generated code, no more than 15 pages).
    8) For documents that you have already handed-in during the semester (e.g. SRA, Test Plan, etc.), please make sure to include a clean copy, i.e. a new print out copies with no grades or remarks on it.

- The final step, uploading all the documents with all source code and executable files as listed above. OneDrive link will be provided for uploading.

Part 5. Team Presentations

Presentations Schedule

- 11/14/2024 Week13 Thursday - Session 1 (Four Teams)
- 11/19/2024 Week 14 Tuesday - Session 2 (Four Teams)
- 11/21/2024 Week 14 Thursday - Session 3 (Four Teams)
- 11/26/2024 Week 15 Tuesday - Session 4 (Optional) or SE Specific Topic Discussion (e.g. Honors College student presentation)

Presentation Rules

- Total 12 teams and each team has 5 members. The presentation order of 12 teams will be random decided by a Picker Wheel in class after all teams constructed.
- You can continue working on your project even after your presentation and until the **Final Project submission due date of 11/26/2024.**
- All students must present a portion of the project in order to pass the course.
- Presentation time is 20 minutes total per team, which includes two sections:
    - Section 1 - Slides. Using PowerPoint/Keynote to cover following contents: Team members, System objectives, UML & Requirements, SRA, Test Plan, User Manual, Assumptions, and Constraints.
    - Section 2 - Demo. Demo of your final android application. You can use the DocCam in the classroom. A pre-recorded demo video is acceptable, but it must include team information during the demo. Additionally, please ensure the video is clear and of high resolution.
- Your presentation grade is based on the evaluating from Instructor & TA.
- 3pts penalty if you are not prepared when your turn comes.
- As an audience, please be courteous and don’t disturb the presenters.