Custom project progress/final report

COS30017 Software Development for Mobile Devices 2024

Link to GitHub repository: https://github.com/SoftDevMobDevJan2024/customapp-104177995

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Overview of project

The Fitness Tracker App provides users with a comprehensive set of tools to monitor and manage their exercise routines, including the ability to log fitness activities, receive suggested workout plans based on their fitness level, and view their profile information and fitness metrics, all within a single integrated platform that empowers users to take a more active role in achieving their wellness goals.

Weekly reports

Week 7

- **What did you achieve this week?**

This week, I made significant progress on the custom app design project in Figma. I focused on refining the user interface elements, ensuring that every component aligns with the overall design language. Specifically, I completed the layout for the main dashboard, which now features a clean and intuitive design. Additionally, I finalized the color scheme and typography, ensuring consistency across all screens.

- **What are you planning for next week?**

Next week, I plan to transition from the design phase to the initial coding phase. This will involve starting to implement the primary features of the app, collaborating closely with the development aspects. My goal is to begin coding the main dashboard and core functionalities, ensuring that the design elements I've created can be effectively translated into a functional application. I also aim to continue gathering feedback on my design as I move forward, making any necessary adjustments to ensure the best possible user experience.

- **What roadblocks are you facing that we can help with?**

One of the primary challenges I am currently facing is uncertainty about whether my design is fully optimized for the custom application. While I have put considerable effort into refining the UI and incorporating feedback, I still have concerns about its overall effectiveness and user satisfaction.

Week 8

- **What did you achieve this week?**

This week, I primarily focused on translating the design created in Figma into XML layouts. This involved meticulously crafting the user interface elements to match the design specifications. Additionally, I began coding the "Add Exercise" function, which allows users to input details such as exercise type, duration, and time.

- **What are you planning for next week?**

Next week, I plan to continue developing the core functionalities of the app. This includes completing the "Add Exercise" function and starting to implement the features for editing and deleting exercise entries.

- **What roadblocks are you facing that we can help with?**

Currently, I am facing some challenges in ensuring that the XML design exactly matches the Figma design, particularly with maintaining consistency across different screen sizes. Additionally, I am uncertain about whether my implementation of the "Add Exercise" function is the most efficient and user-friendly approach.

Week 9

- **What did you achieve this week?**

This week, I finalized the "Add Exercise" function, ensuring that users can seamlessly input exercise details such as type, duration, and time. Additionally, I developed and implemented the functions for deleting and editing exercise entries, allowing users to manage their exercise logs effectively.

- **What are you planning for next week?**

Next week, I plan to focus on integrating the database to ensure all exercise data is persistently stored and retrieved correctly when the app is opened. I also aim to conduct thorough testing of the add, edit, and delete functions to identify and fix any bugs or usability issues. Furthermore, I will start working on the user interface enhancements to improve the overall user experience.

- **What roadblocks are you facing that we can help with?**

Currently, I am facing some challenges with ensuring the robustness of the edit and delete functions, particularly in handling edge cases and maintaining data integrity.

Week 10

- **What did you achieve this week?**

This week, I implemented Firebase Firestore as the database for my project. I made necessary changes to the add, update, and delete functions to ensure that any modifications are reflected in the database. Additionally, I updated the MainActivity to display the exercise entries, ensuring that any changes made are dynamically updated and retrieved from Firestore.

- **What are you planning for next week?**

Next week, I plan to focus on optimizing the data retrieval and display processes to ensure smooth and efficient interactions with the database. I will also work on enhancing the user interface to make it more intuitive and user-friendly. Furthermore, I aim to make some necessary improvements for my projects based on the teacher's feedback.

- **What roadblocks are you facing that we can help with?**

Currently, I am facing challenges with ensuring real-time synchronization between the local app data and Firestore, particularly handling offline scenarios and data consistency.

Week 11

- **What did you achieve this week?**

This week, based on feedback from the teacher, I added two new modules to my project. The first module allows users to view and modify their profiles. Users can now set and update their name, occupation, age, height, weight, and picture, with all this data being uploaded to the database. The second module introduces recommended workout plans for users, categorized into three levels: Beginner, Intermediate, and Advanced. Each level contains a set of exercises tailored to that level, along with the estimated time required to complete those exercises.

- **What are you planning for next week?**

Next week, I plan to focus on thoroughly testing the new profile and workout plan modules to ensure they function correctly and provide a smooth user experience. I will also work on integrating these modules seamlessly with the existing features of the app. Additionally, I aim to enhance the user interface for these new features to make them more intuitive and visually appealing. Finally, I will begin gathering user feedback to identify any areas for improvement and further refine the app.

- **What roadblocks are you facing that we can help with?**

Currently, I am facing some challenges with optimizing the database interactions for the new profile and workout plan modules, particularly ensuring efficient data retrieval and updating without compromising app performance.

Level 1: Design evidence

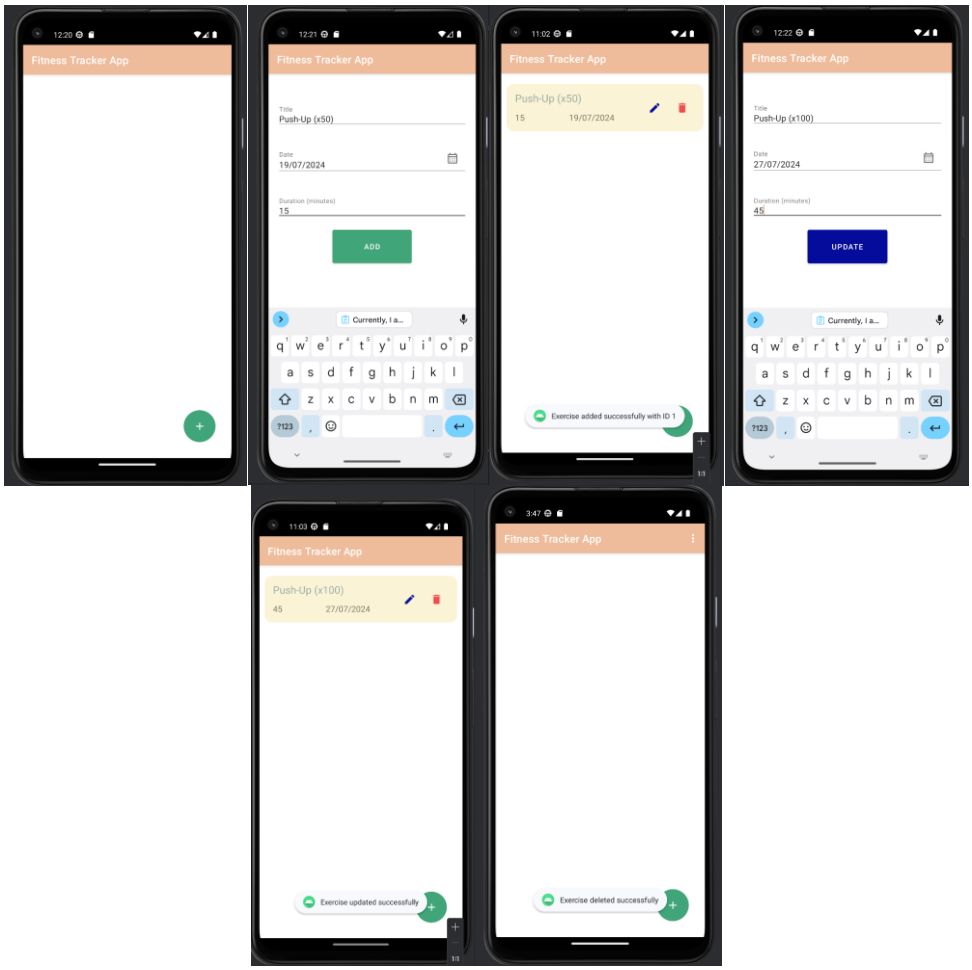
Huy Vu Tran – 104177995

User Story 1: Log fitness activities

As a fitness enthusiast, I want to log my fitness activities, so that I can keep track of my exercises and progress.

Use Case for User Story 1:

1. Open the Fitness App → Display a list of fitness activities.
2. Click Add Icon → Open the Add Activity screen.
3. Enter new fitness activity → Fill in the exercise information.
4. Click Add → Save the new fitness activity and return to the list of fitness activities.
5. Click Edit Icon → Open the Edit Activity screen.
6. Modify the fitness activity → Fill in the exercise information.
7. Click Update → Update the modified fitness activity and return to the list of fitness activities.
8. Click Delete → Remove the selected fitness activity from the list.

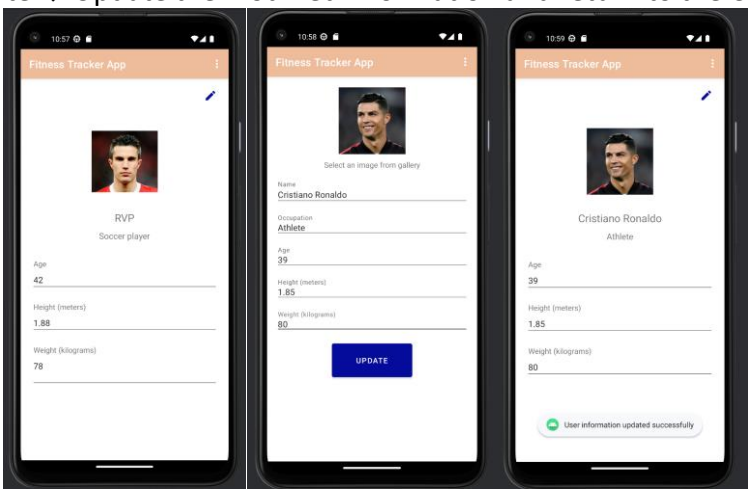


User Story 2: View and edit profile information

As a fitness enthusiast, I want to view my profile information, so that I can update my personal information to keep track of my exercise process.

Use Case for User Story 2:

1. Open the Fitness App → Display a list of fitness activities.
2. Click on the menu icon → Select the User Profile section.
3. Enter User Profile section → Display some profile information.
4. Click Edit Icon → Open the EditUserProfile screen.
5. Modify the personal information → Fill in the personal information.
6. Click Update → Update the modified information and return to the User Profile screen.

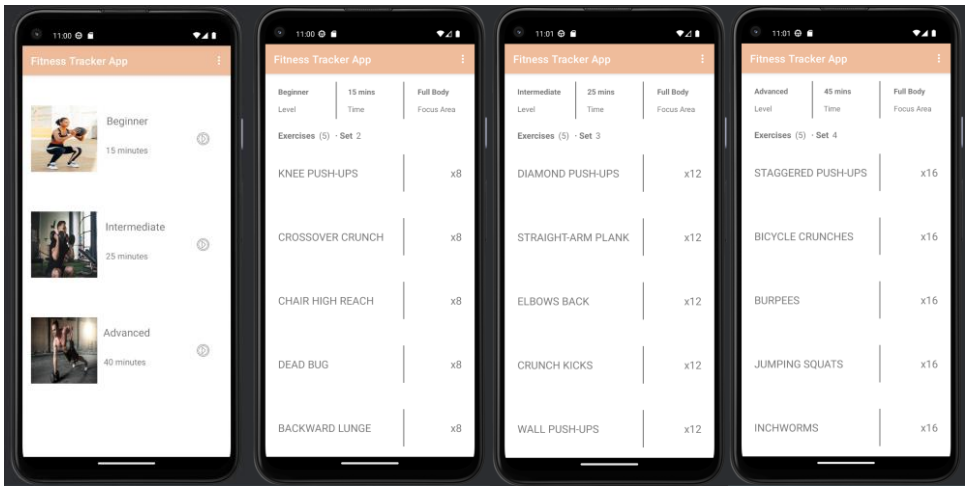


User Story 3: Receive suggested workout plans

As a fitness enthusiast, I want to receive suggested workout plans, so that I can take the workout

Use Case for User Story 3:

1. Open the Fitness App → Display a list of fitness activities.
2. Click on the menu icon → Select the Workout Plans section.
3. Enter Workout Plans screen → Display some level of workout plans .
4. Click on the Play Icon → Open the Workout Plans Detail screen.
5. Enter Workout Plans Detail screen → Display the detailed workout plans.



Level 2: App evidence

- Overall Architectural Design (see Appendix – Class Diagrams for detailed classes of my app):

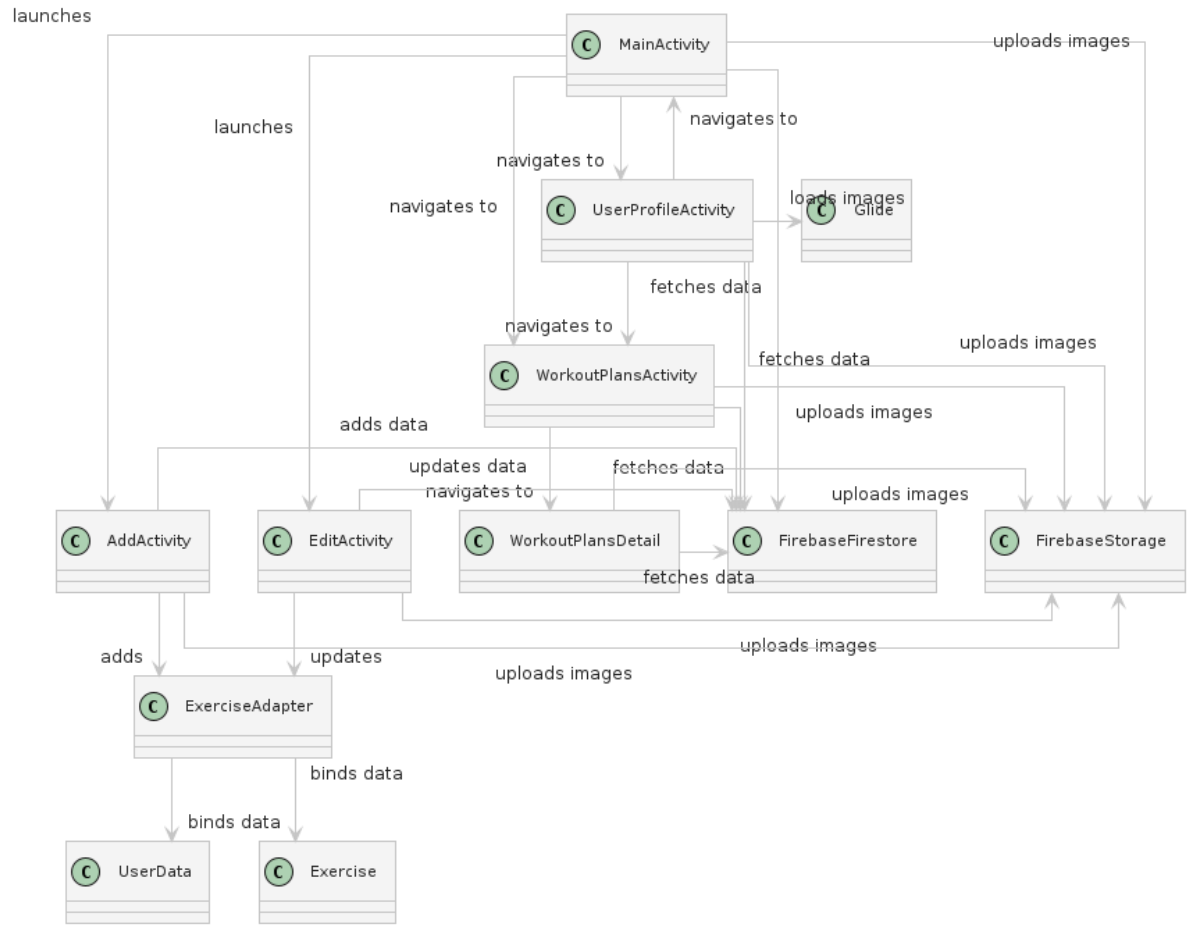


Figure 1: Fitness Tracker App Design Diagram

- API and Library Usage:

1. **Firebase Firestore:**

- Purpose: Used for storing and retrieving exercise and user data.
- Usage:
    - `FirebaseFirestore.getInstance()` to get the Firestore instance.
    - CRUD operations such as collection("exercises").get(), document(id).set(data), etc.
- Example: Fetching exercises in MainActivity using `db.collection("exercises").get()`.

2. **Glide:**

- Purpose: Used for loading images efficiently.
- Usage:
    - `Glide.with(context).load(url).into(imageView)` to load images from URLs into ImageView.

- Example: Loading user profile images in UserProfileActivity.

3. **ActivityResultContracts:**

- Purpose: Used for handling activity results.
- Usage:
  - `registerForActivityResult(ActivityResultContracts.StartActivityForResult())` to handle results from activities like AddActivity and EditActivity.
- Example: Handling the result of adding a new exercise in MainActivity.

- App Limitations

1. **UI/UX:**

- The user interface is functional but could be improved for a better user experience.

2. **Performance:**

- The app may experience performance issues when handling large datasets or complex operations.

3. **Feature Set:**

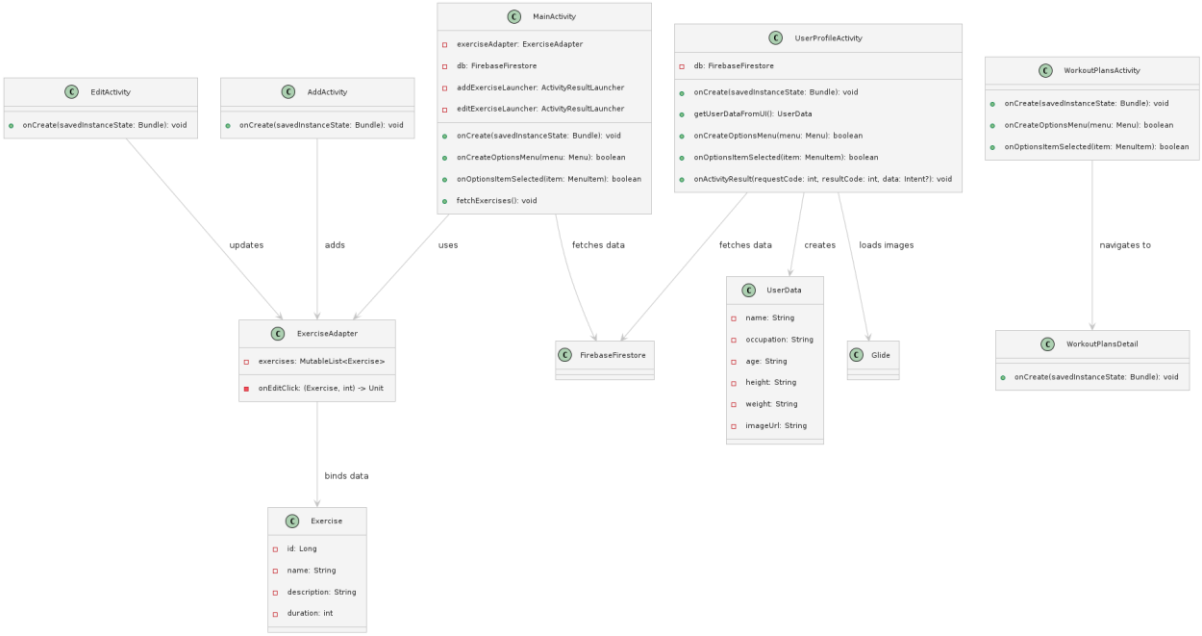
- The app currently has a limited set of features.

- Areas for Improvement

1. **UI/UX Enhancements:**
   - Adding animations and transitions for a smoother user experience.
   - Redesigning layouts to be more visually appealing and user-friendly.
   - Implementing a more intuitive navigation system.
2. **Performance Optimization:**
   - Using pagination for loading large datasets.
   - Caching frequently accessed data.
3. **Feature Expansion:**
   - Integration with fitness tracking devices.
   - Social sharing options for workout plans.
   - Personalized workout recommendations based on user data.

Level 3: Extended research evidence

Appendix: Class Diagrams



References

1. *Add Firebase to your Android project | Firebase for Android*. (n.d.). Firebase. https://firebase.google.com/docs/android/setup#available-libraries