Erin Kiesel
CS 499 3-2 Milestone Two: Enhancement One: Software Design and Engineering

Artifact Description

The artifact I selected for the Software Design and Engineering category was the Weight Tracking mobile application that I originally developed in CS 360: Mobile Architecture and Programming that I took in Fall 2024. The app allows a user to create an account to log their daily weight and view past entries in a list, while also allowing them to set a weight goal and receive a notification when they reach their goal. The original version was functional but simple and the UI was plain, and a lot of the logic was packed into one activity. There wasn't much structure or user feedback, and it didn't follow any specific design guidelines.

Justification for Inclusion

I chose this project because it had a solid foundation but a lot of room for improvement. It gave me a chance to showcase improvements in both software design and user experience. For this enhancement, I focused on restructuring the app using better design patterns and improving the overall user experience. Some of the major changes I made include:

- Breaking the logic into helper classes such as GoalManager and NotificationHelper to make the code more modular and easier to maintain.
- Redesigning the UI using Material Design 3 components, updating the layouts to look cleaner and more modern, and applying consistent theming throughout the app.
- Adding a line chart using MPAndroidChart to help users visualize their weight trends over time.
- Making the list of weight entries scrollable and better formatted, while also updating colors, spacing, and typography for a more polished look.

There are a few updates I had planned in my original proposal that I have not yet been able to fully implement, including setting up Jetpack Navigation for better screen transitions and adding profile management using SharedPreferences. Both updates will help improve the app's structure and user experience, but I was not able to complete them in time for this milestone, as work and family obligations unfortunately took priority.

The completed updates help make the app closer to what you'd expect from a real-world mobile application in terms of usability and appearance. Below you can see screenshots of the original home page after logging in and the new one:

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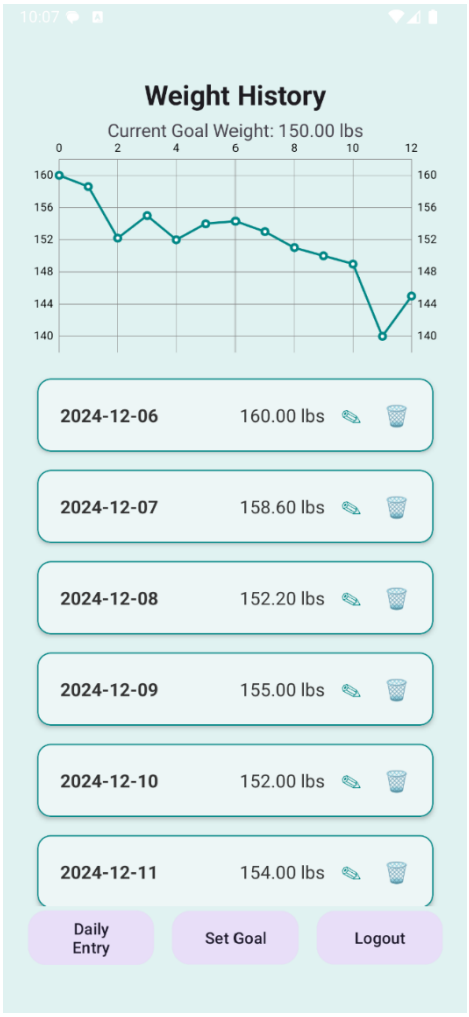

The new design looks more modern and cleaner, the graph at the top helps the user track their weight progress in a more meaningful way than a simple list. The entries look cleaner and the “edit” and “delete” buttons for each entry have been replaced with icons and the list is scrollable to view more entries. There’s still room for improvement; the x-axis of the chart needs to be changed to dates and not just the number of the entry on the list, and as stated above, there were a few items that I had planned for this category that I have not yet been able to complete.

Course Outcomes

This enhancement supports multiple course outcomes, especially Outcomes 2, 3, and 4.

For Outcome 2, I’ve been working on improving the layout and design of the app to make it more user-friendly and easier to understand. Switching to Material Design components, using consistent styling, and adding visual feedback elements like the chart all make the app clearer and more polished from a user perspective.

For Outcome 3, I'm addressing real usability issues by reorganizing how users interact with different parts of the app. The updated layout, better screen structure, and planned improvements like navigation and profile management are all aimed at solving user problems and making the experience more intuitive.

For Outcome 4, I've used tools and patterns that are common in Android development, such as Material Design, helper classes to separate logic, and soon Jetpack Navigation. These are the kinds of things I'd expect to use in real-world development, so this work is helping me build and apply relevant, industry-level skills.

Reflection

Working on these enhancements helped me realize how much of a difference design really makes. It's not just about getting the app to run without errors but about making it easier to use and more visually polished. Once I started using Material Design components and adjusting the layout, the app started to look and feel a lot more professional.

Breaking things into manager classes also made the code more organized, but I had to make sure everything was still working together properly. One of the hard parts was getting the chart to look right and not overlap with the list of entries. I also had to tweak the layout several times to get it to display correctly across devices without making the screen feel too cramped.

Time has definitely been a challenge; I have a full-time job as well as personal/family obligations in addition to my schoolwork. But I still feel like I've made solid progress on the UI and structure, however, there are still features left that I planned to add like Jetpack Navigation and profile switching.

Another challenge has been that I last worked on this project in a class I took about six months ago, so the project wasn't exactly fresh in my mind. There were some parts of my code that were well documented that helped refresh me on what was going on, but some parts weren't so well documented, so I had to figure it out, which took extra time.