Enhancement One: Software Design/Engineering

The artifact I selected for enhancement is Weight Tracker Pro, a mobile application initially developed in CS 360. This app enables users to log, view, and manage weight entries with an emphasis on user-friendly design and simplicity. I chose this artifact because it highlights my ability to design and implement practical, user-centered software solutions. The original application laid a strong foundation with core features like adding weight entries and viewing them in a structured format, making it a suitable candidate for further development. The enhancements aim to improve its functionality and modularity, showcasing advanced software engineering skills.

To enhance the application, I implemented a new feature to calculate and display the user's weight trend over time using a graph. This required integrating the MPAndroidChart library to create dynamic, interactive visualizations of weight data. Additionally, I refactored the application using the Model-View-Controller (MVC) design pattern, ensuring clear separation of concerns. The Model handles data operations like retrieving and storing weight entries, the View manages the user interface components, and the Controller bridges these layers by processing user inputs and updating the UI accordingly. These enhancements improve the app's maintainability, scalability, and user engagement by providing meaningful insights into the user’s progress.

This enhancement demonstrates my proficiency in software design, modularity, and data visualization, aligning with course outcomes 3 and 4. By adopting the MVC design pattern, I showcased my ability to design and evaluate computing solutions while adhering to best practices for clean, maintainable code. The integration of MPAndroidChart reflects my capability to leverage innovative tools in computing to enhance functionality and user experience. Throughout the process, I deepened my understanding of advanced design patterns and data visualization techniques, overcoming challenges like debugging library integration issues and restructuring the codebase for modularity. These experiences highlight my growth as a software developer and readiness to tackle complex software engineering tasks.