Milestone Four Narrative - Databases.

Artifact Description

The artifact selected for this enhancement is the Weight Tracker Android application, which was originally created during CS 360: Mobile Architecture and Programming. The application is designed to help users track their weight over time, set a personal goal weight, and manage their progress using a local SQLite database. The app includes multiple activities, such as user login, goal weight input, and weight monitoring, and was developed using Android Studio, Java, XML layouts, and SQLite.

Justification for Inclusion and Database Skills Demonstrated

I selected the Weight Tracker application for my ePortfolio because it represents a realistic, user-facing software system that integrates practical database skills within a real-world mobile application context. The application showcases my ability to design and interact with a relational database using SQLite, including creating tables, managing primary keys, and performing full CRUD (Create, Read, Update, Delete) operations.

For this milestone, I enhanced the application by focusing on improving database logic by ensuring that weight entries and goal weights are associated with specific users, strengthening data organization and usability. Additional improvements included refining SQL queries, validating database results, and integrating database operations cleanly with the application's user interface. These changes improved both data reliability and overall application functionality.

Course Outcomes and Outcome Coverage

This enhancement met the course outcomes planned in Module One related to designing and implementing computing solutions using appropriate tools and database practices. The artifact demonstrates progress toward Outcome 4 by applying well-founded database techniques to deliver a functional, user-centered solution. It also supports Outcome 3 by managing data efficiently and making design decisions that balance simplicity, performance, and usability. Considerations such as user-specific data access and controlled database interactions further support progress toward Outcome 5 by reinforcing a security-aware mindset. No updates are needed to the original outcome-coverage plan, as the enhancement aligns well with the intended goals for this category.

Reflection on the Enhancement Process

Through the process of enhancing this artifact, I learned how data persistence directly impacts application reliability and user experience. I learned the importance of structuring database queries carefully, validating returned data, and maintaining consistency between the database layer and the user interface. One of the primary challenges was ensuring that database updates were reflected accurately in the application without introducing errors or data inconsistencies. Working through these challenges reinforced best practices in database management and highlighted the value of thoughtful schema design when building scalable and maintainable applications.