5-2 Milestone Four: Enhancement Three: Databases

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5-2 Milestone Four Narrative

Briefly describe the artifact. What is it? When was it created**?**

The artifact is the SQLite database implementation within my CS-360 Mobile Architecture and Programming class as a WeightTracker app. It was originally created during the development of the app to store and manage user weight entries over time, along with optional weight goals. The artifact consists primarily of the database schema and related code used to create, read, update, and delete weight records on the device.

Justify the inclusion of the artifact in your ePortfolio. Why did you select this item?What specific components of the artifact showcase your skills and abilities in softwaredevelopment? How was the artifact improved?

I selected this artifact because it shows my ability to work with embedded mobile databases and extend their functionality professionally. The WeightTracker app already used SQLite for basic data persistence, but it lacked advanced features to track changes historically. By enhancing this artifact with SQL triggers and an additional log table, I demonstrated practical skills in database schema design, event-driven programming at the database level, and maintaining data integrity without changing the application’s core logic.

This enhancement illustrates my ability to implement automated audit logging using triggers, a common requirement in professional software development for traceability and data consistency. The artifact was improved by adding a new weight\_log table and two triggers on the weight\_entries table. These triggers automatically record inserts and updates, thereby creating a historical record of all changes made to the weight data. This makes the app’s data layer more robust, reliable, and aligned with real-world software practices.

Did you meet the course outcomes you planned to meet with this enhancement inModule One? Do you have any updates to your outcome-coverage plans?

Yes, I met the course outcomes planned in Module One. Not the original outcomes and plan I had for Module One, but after a few revisions I figured out my plan. Specifically, the enhancement addresses Course Outcome 4 by applying professional database features, such as triggers and audit logging, to improve data traceability and integrity in the app. It also supports Course Outcome 3 by demonstrating thoughtful design and evaluation of computing solutions that fulfill new functional requirements in a maintainable way.

I do not have any updates to my outcome coverage plans. The enhancement continues to align well with the intended learning objectives and adequately demonstrates my growth in database design and mobile app development.

Reflect on the process of enhancing and modifying the artifact. What did you learn asyou were creating it and improving it? What challenges did you face?

During the enhancement process, I learned how powerful and efficient SQL triggers can be for implementing audit trails within a database. Rather than modifying application code to handle logging, embedding the logic inside the database ensures consistency and reduces the risk of missing log entries. This experience deepened my understanding of event-driven database programming and reinforced the importance of designing schemas that support long-term data reliability.

One challenge I faced was ensuring that the triggers captured all relevant data fields without negatively impacting the app’s performance or behavior. Careful testing was needed to validate that inserts and updates triggered the log correctly and that no unintended side effects occurred. Additionally, I had to update the database helper’s schema creation logic correctly to support the new log table and triggers, including handling database versioning.

Overall, this enhancement was a valuable exercise in integrating advanced database features into an existing application, improving both my technical skills and appreciation for professional software design patterns.