4-2 Milestone Two: Enhancement One: Algorithms and Data Structure

Narrative

CS-499-Computer Science Capstone

Randy Ramos

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

The NuMe app is a straightforward weight-tracking mobile application designed for users seeking an easy way to monitor their weight goals. The concept was developed during the September/October term of 2024. The app features a simple UI that allows users to interact with the following:

- Log daily weights
- Set and monitor a goal weight
- Be notified when they reach their target via SMS

2. 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 algorithms and data structure? How was the artifact improved?

I chose the project from CS-360 Mobile Architecture and Programming as my artifact because it was a project I was very excited about. I was intrigued by what was involved in creating a usable application, even though it was Android-based. From the UI setup, using XML for layout design, to the various Java files that separate the UI logic, it was a fun and valuable learning experience. I also enjoyed using Android Studio, as it resembles other IDEs, such as Eclipse and NetBeans, which added a nice level of familiarity to the process. The NuMe mobile application was developed as part of a project during the September and October 2024 term. Although it met all the assignment criteria, I felt it needed improvement and had a list of user issues that needed to be addressed. I was excited to have the opportunity to select this as an enhancement option. For milestone three, I had the opportunity to add to the user experience. This was done by adding more insight for the user. With this enhancement, the app will now filter the entries from the past 7 days, calculate the average, and display a message comparing the current weight to the weekly

average. This introduces basic data processing and demonstrates algorithmic handling of the data using lists and conditional logic.

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

   With this addition, I believe I have achieved the outcomes initially planned in my enhancement plan. I did a good job in Module One, recognizing enhancements in algorithms and data structures. Therefore, no update has been made to the outcome coverage plan. For example:

Course outcome:

3. Design and evaluate computing solutions that solve a given problem using algorithmic principles and computer science practices and standards appropriate to its solution while managing the trade-offs involved in design choices.

   Outcome met by:

   I implemented a weekly average weight change algorithm and used a filtered list of entries from the last 7 days

4. Demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals.

   Outcome met by:

   Using algorithmic techniques and tools that deliver a better user experience, such as displaying the result as: "You lost/gained X lbs this week," and introducing basic data processing using algorithmic principles and data filtering.

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

Reflecting on the enhancement, I learned that it is easy to forget what you have learned, and picking up where you left off is not so easy when a significant amount of time (months) passes without actively working on the project, or on any code for that matter. It was a minor challenge to jump right back in, having to review a larger section of the code. Reviewing each section and relaunching the application, as well as conducting basic User Acceptance testing, would help refresh my memory and put me back on track. Again, this process reminded me of all the enhancements that needed to be made for the application to have value to a user.
to be considered a valuable tool for someone who wants to easily track their weight without numerous in-app distractions. Upon evaluation, it became evident that there was a significant lack of user engagement. For example, the app merely adds entries and refreshes the display but does not offer any insight or analytics, resulting in no opportunity for user engagement. Consequently, no analytical insights were presented to the user. This is akin to missing opportunities, such as failing to see trends, including their weekly weight change, or the absence of an algorithmic function to compute or display trends or averages.

There were a few challenges with this enhancement. One painful one, mainly because I was placing the new method inside the addWeightEntry method, which was causing errors. I just couldn't see that I was one bracket inside, which was then not closing the previous method. Additionally, I had forgotten to add the calculateWeeklyChange to the *Toast* to allow for that visual interaction with the user. Outside of some basic math and operand issues, the enhancement went fairly well.