

9/21/2025

3-2 Milestone: Enhancement One

My artifact for this week's enhancement (and all my planned enhancements) was CS-360's mobile app in Android Studio, which I started creating and finalized in April of this year. For my application, I chose the Weight Tracker app, which allows users to login/register with their credentials, establish a goal weight, and enter their weights into a 'daily' log (there are no actual constraints on only using the app once per day). Upon achieving their goal, the user will then be notified via SMS.

I believe this artifact is one of the most important inclusions in my ePortfolio, because it is something I put together myself in its entirety. Many of the artifacts at SNHU have involved modifying an existing codebase, but this is one of the few that I built myself from scratch. Using this project for all of the planned augmentations sounded like a fun opportunity to create a better version of one of my favorite creations. It also makes it feel more authentic, working on one project rather than three separate, unrelated projects (which I don't think would typically be the case as a member of a software development team). Each augment is basically a sprint, where I am meeting my user needs, awaiting instructor feedback, then polishing the augment before moving on to the next.

I believe I'm doing well with the course outcomes thus far, although admittedly I didn't make as much progress as I wanted to yet. I started a new job this week and had some pre-existing wedding plans, so I have had to throw my data visualization and daily reminders on the back burner as stretch goals. I'll probably get to them next week, since I am anticipating the

linear regression algorithm not being too difficult and I wanted that augment to be associated with the data visualization anyway.

This week, I implemented the Dark Mode augmentation, which wasn't without its challenges, but slightly more straightforward than I had anticipated. I expected to have to modify each of my layout .xml files individually, but Android Studio actually had built-in support for Light/Dark themes! Since my layouts didn't really have a color scheme (colors were only used for my floating action buttons), I just had to edit my themes.xml and themes.xml (night). The night theme was initially a little hidden, I had to dig around in build.gradle to find it. I also had to add color resources in colors.xml and colors.xml (night) – I had to revisit this later, because I used different name schemes (appending _night to everything) which was giving me a compiler error. It seemed counterintuitive to use the same names at first. Next, I added the SwitchMaterial to my activity_settings.xml, providing the user the ability to toggle Dark Mode on and off. I also had to set up SettingsActivity.java with the logic for the switch – I needed to remodel this class a bit, moving SharedPreferences outside of the onCreate function so it could apply to both darkModeSwitch and savedPhone.

After I was satisfied with the results of Dark Mode, I decided to get a headstart on an augmentation for one of my databases, since it was a critically important update I discovered during my code review. I implemented hashing for my passwords stored in the database! This was accomplished by creating a new class PasswordUtils with the logic for SHA-256 encryption, including error handling. Next, I updated UserDatabaseHelper to make sure the passwords are stored and validated as hashes. I updated my DB version to reset my databases, implemented some DB_TEST logs to visualize the hashing in Logcat, and was ultimately very satisfied with the results.

Summary of changes:

- Modifications to colors.xml and colors.xml (night)
- Modifications to themes.xml and themes.xml (night)
- Added SwitchMaterial in layout/activity_settings.xml
- Restructured SettingsActivity.java and added darkModeSwitch logic
- Created PasswordUtils.java class to support password hashing security feature
- Updated UserDatabaseHelper.java with logic to store passwords as hashes and logging for testing/verification