Sergio Irianda

CS 499

Enhancement One

**Artifact Overview**

The artifact I selected for enhancement is an Android-based **Weight Tracking App** originally developed in **CS 360 – Mobile Architecture and Programming**. This app allows users to log in, create an account, and track daily weight entries. The version I submitted for review included user authentication using Shared Preferences and basic Activity-based navigation without any structured architectural pattern.

**Why This Artifact Was Selected**

I chose this artifact for my ePortfolio because it shows both **mobile application development** and my growth in **software engineering principles**. It showcases my ability to build an interactive, user-facing app using Android SDK and Java. The the recent enhancements allowed me to demonstrate modern software architecture practices using **MVVM .**

This enhancement specifically demonstrates the **"software engineering/design/database"** outcome by replacing tightly coupled logic with modular components:

* Created a UserRepository to handle data access.
* Developed a LoginViewModel to manage UI logic and application state.
* Refactored MainActivity to only handle UI elements and delegate logic to the ViewModel.

**Outcome Alignment and Improvements**

The enhancement aligned with my goal from Module One to improve the software’s maintainability, modularity, and the separation of concerns. By using MVVM, I met the course outcome:

“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.”

**Reflection on the Enhancement Process**

Refactoring this project taught me important skills:

* How to keep the code clean by separating it into different layers.
* How to use **AndroidViewModel** to manage data.
* How to use **ViewModelProvider** to create and access ViewModel instances.

One of the biggest challenges I faced was dealing with **build and Gradle configuration errors**. I had to make sure all the necessary AndroidX and lifecycle dependencies were correctly added and synced. I also ran into issues using Application in the ViewModel, which required switching from ViewModel to AndroidViewModel to solve.