

## 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.