||

MODULE 3-2 MILESTONE TWO

ENHANCEMENT ONE: SOFTWARE DESIGN AND ENGINEERING

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CS-499 Computer Science

September 20, 2025

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# Milestone Two: Enhancement One – Software Design & Engineering

For my first enhancement under software design and engineering, I chose the **Inventory App** I built during CS-360 (Mobile Architecture and Programming). This app was originally created in **Java** using **Android Studio**, with **SQLite** as the database, and tested through the Nexus emulator. Its main purpose is to let users track inventory items directly from an Android device.

The reason I picked this artifact is because it shows the full **software design and engineering process** — from planning and UI/UX considerations to coding standards, security practices, and database integration.

## Why This Artifact Fits Software Design & Engineering

This project highlights the **entire workflow of creating software**:

* Designing layouts and screens that focus on user-friendly, intuitive interactions.
* Following industry standards for icons and interface elements.
* Building with security in mind, including input validation and a “default deny” approach.
* Using data structures and relational databases to handle CRUD (Create, Read, Update, Delete) operations.

In short, it wasn’t just about writing code. It was about thinking through the **end-to-end experience**: what users need, how they interact with the app, and how the back end supports it.

## Enhancements I Made

The major enhancements I added focused on making the app **fully functional** and more aligned with best practices:

1. **Implemented complete CRUD functionality** for items.
2. **Improved SQLHelper class** to make database operations cleaner and more efficient.
3. Applied **user-centered design principles**, ensuring the app feels natural and smooth to use.
4. Strengthened **security features**, including user authentication (name, phone, email), password recovery, and a zero-trust mindset throughout.

A screenshot of a phone

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A screenshot of a cell phone

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Fig: [screenshots of Add Item Activity, Login/Register Activity, Items Activity List, Edit Item features]

These changes show my ability to design and evaluate computing solutions that not only solve a problem but also balance trade-offs in performance, usability, and security.

## Coding Practices

While coding, I followed **Java best practices** to keep things readable and maintainable:

* Consistent naming conventions (camelCase, CapWords, etc.).
* Proper formatting and indentation.
* In-line comments to explain the purpose of methods and classes.
* Clear separation of concerns across files (e.g., layout files lowercase, Java class files in CapWords).

A screenshot of a computer

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Fig: [screenshot of Java file structure + sample code]

This not only improved the readability of my own code but also made it easier for others to review, debug, or extend the app.

Reference:

Southern New Hampshire University. Milestone Two Guidelines and Rubric Enhancement One: Software Design/Engineering. Retrieved from Module 3-2 Milestone Two: Enhancement One: Software Design and Engineering: https://learn.snhu.edu/d2l/common/dialogs/quickLink/quickLink.d2l?ou=1014915&type= coursefile&fileId=Course+Documents%2fCS+499+Milestone+Two+Guidelines+and+Ru bric.pdf