**CS 499 Milestone Two: Narrative**

**Enhancement One: Software Design/Engineering**

**Artifact Description**

The artifact I selected is an **Inventory Management Mobile App** I created in a previous course. The original app allowed users to add items with a name and quantity, display them in a RecyclerView, and save them to an SQLite database.

For this milestone, I enhanced the app by adding categories, sorting, and item assignment features. Now users can create categories, assign items to categories, filter items by category, and sort them by name (A–Z, Z–A) or quantity (low–high, high–low).

**Why I Chose This Artifact**

I included this app in my ePortfolio because it shows my skills in software design, databases, and mobile development. The original app worked, but it was basic. I improved it by adding:

* Categories for grouping items
* Sorting options by name and quantity,
* Multi-select items and batch updates
* Cleaner, more modular code

**Course Outcomes Alignment**

**Skills shown:**

Through this enhancement, I demonstrated several skills, including:

* UI/UX design by adding categories and sorting.
* Modular coding by simplifying and organizing logic.
* Problem solving by turning user needs into working features.

**Aligned outcomes:**

This enhancement aligns with the following course outcomes:

* **Outcome 3:** Designing computing solutions that solve problems using algorithms and best practices. (Sorting, filtering, and organizing data.)
* **Outcome 4:** Using techniques, skills, and tools in software engineering to create solutions that deliver value. (Database changes, UI updates, reusable code.)

**Reflection on the Process**

Enhancing the app taught me how to improve usability and maintainability at the same time. Adding categories meant changing both the database and the UI, which required careful planning. I also learned the importance of refactoring so the code was easier to update later.

The main challenge was making sure new features worked without breaking old ones. One challenge was making filtering and sorting work together. At first they were separate, but combining them into a single method made the code cleaner and easier to maintain. Another challenge was keeping track of selected items in the RecyclerView, which I solved by managing selection states and refreshing the view after updates.

Through this work, I practiced clean coding, UI design, database integration, and problem-solving. It was a good reminder that enhancing existing software often requires careful design and testing, not just writing new code. Overall, this project helped me practice software design principles like modularity, abstraction, and scalability.