**5-2 Milestone Four: Enhancement Three: Databases**

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CS 499 Computer Science Capstone Module 5 Milestone Four

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My artifact is the Inventory Mobile App I developed for the CS 360: Mobile Architect and Programming course during Fall 2024. This application helps users manage inventory by displaying item details such as name, ID, quantity, description, and now SKU numbers. It was built using Android Studio with Java and incorporates both front-end interface design and back-end data storage using a local SQLite database.

I selected this artifact because it is a robust example of a full-stack mobile application and showcases a wide array of software development concepts. From database management to user interface enhancements and object-oriented design, this project effectively demonstrates my growing abilities in mobile development and full-stack design principles. Additionally, this app represents a real-world solution with practical functionality, which makes it especially relevant to my portfolio.

To improve this artifact, I made several enhancements after the initial version was submitted. Three new columns were added to the SQLite database; category, price, and SKU. Adding the SKU column allows users to assign SKU numbers to inventory items independently of the immutable item ID. I also improved the app’s usability by integrating a spinner component—a dropdown filter that lets users sort and view inventory by different categories such as item name, category, and more. This not only increases the application's functionality but also improves the user experience significantly.

With these enhancements, I successfully met the course outcomes I planned for in Module One. I intended to demonstrate deeper knowledge of mobile database integration and enhance user interface functionality. By extending the SQLite schema, updating data access logic, and improving the filtering options through dynamic UI elements, I met—and exceeded—my original goals. At this time, I do not have updates to my outcome-coverage plan, as the enhancements already align well with my objectives.

The process of modifying and enhancing this artifact taught me valuable lessons, both technically and in terms of problem-solving. While implementing the spinner, I learned how to use Android’s event-driven components more effectively. Even though Android’s object-oriented nature made the process intuitive, I encountered unexpected behavior that initially seemed like an issue with the UI layout or spinner logic. After considerable debugging, I discovered the problem stemmed from a logical error in my “InventoryItem” class, where I had mistakenly assigned the quantity value to the price field in a setter method. This experience reinforced the importance of carefully validating class methods and maintaining clean, readable code.

This artifact represents a well-rounded demonstration of my software development skills, particularly in mobile development, database management, and UI/UX design. It showcases not only my technical growth but also my ability to adapt, troubleshoot, and enhance software to meet evolving user needs.