Databases

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This artifact is a mobile application designed to be an inventory management app I originally developed in CS360: Mobile Architecture and Programming. The initial mobile application was designed to help users track inventory in environments like warehouses, with features focused on improving real-time visibility and automating logistics through mobile devices. The Android app included user authentication, a grid-style inventory display, functionality to add, remove, or adjust quantities of items, and a notification system that alerted users when an item’s count reached zero. It also used a local database with two tables to store login credentials and inventory data.

I chose to include this artifact in my ePortfolio because it demonstrates how I evolved the original mobile application into a connected, full-stack solution that communicates with a centralized backend. This version highlights my ability to bridge mobile and web platforms using shared services, creating a more scalable and cohesive inventory management system. Enhancements included replacing the local database with a shared MongoDB instance, integrating the mobile app with the API I previously built for the web platform, and securing authentication through hashed passwords and Role-Based Access Control (RBAC). I also added pagination and search features across both platforms, improving usability and preparing the system for larger datasets.

One of the most valuable aspects of this enhancement was learning how to successfully integrate the mobile client with a remote API. This required rethinking the app’s original architecture to accommodate online data access instead of local storage. While adapting to this new approach presented challenges, it ultimately resulted in a more streamlined and efficient application. Connecting the app to a shared backend not only improved performance but also opened the door to future enhancements, such as real-time syncing and centralized data analytics.

This project helped me meet several key course outcomes, particularly those related to designing secure systems and building scalable, maintainable software. I applied secure development practices throughout the enhancement process, including proper credential handling, input validation, and access control. I also demonstrated the ability to design interconnected systems that can grow alongside user needs, reflecting my continued development as a full-stack software engineer.