**3-2 Milestone Two: Enhancement One - Narrative**

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The artifact I selected for enhancement is the CS-360 Mobile Programming: Inventory Manager Application originally created as part of the Mobile Programming course. This Java-based application was developed incrementally between April and June 2024. The purpose of the project was to create a tool for warehouse associates to track their inventory, providing a simple and effective means of managing stock levels and implementing alerts for low-stock items and role-based authorization. The application was designed with a mobile-first approach, focusing on usability and functionality for on-the-go access.

I chose to include this artifact in my ePortfolio because it showcases my passion for building software solutions and my ability to evolve existing applications to meet new requirements. The original project was a rewarding experience and I wanted to take it further by converting it into a full-stack web application. The enhanced version transforms the Inventory Manager into a scalable and accessible tool for companies expanding their operations and allowing employees to manage inventory seamlessly from any device with web access. This enhancement highlights my skills in software development, including full-stack design, database integration, and user interface creation. Specifically, it showcases my ability to migrate a project from a mobile Java-based environment to a modern .NET 8 Blazor Server framework, integrate enterprise-ready authentication and authorization using Entity Framework and Identity Framework, replace SQLite with MS SQL Server for improved scalability and remote database connectivity, and implement an AVL tree algorithm for low-stock notifications.

Through this enhancement, I successfully demonstrated Course Outcomes 2 through 5. I applied professional communication skills by documenting the development process and narrative for a diverse audience which, in a professional environment, could range from technical stakeholders to non-technical decision makers. I achieved Outcome 3 by designing and implementing an AVL tree algorithm for low-stock notifications optimizing the system's efficiency and reliability. My ability to utilize innovative tools and techniques was evident in my adoption of Blazor Server, Entity Framework, and JavaScript, while implementing secure database communication and validation techniques. Additionally, Outcome 5 was addressed through a security-focused design, including robust authentication, input validation, bounds checking, and error handling mechanisms. Moving forward, I will apply Outcome 1 as I continue to compose narratives, incorporate feedback from the instructor to further refine this artifact, and publish my work in a public ePortfolio platform.

The process of enhancing and modifying this artifact was a significant learning experience. Transitioning from .NET Core 3 to .NET 8 presented challenges due to the removal of namespaces and top-level statements requiring adaptation and thorough understanding of the updated framework. As a first-time user of Blazor, I faced a learning curve in creating and structuring Blazor components. Other challenges included refining HTML and CSS to achieve the desired appearance, overriding default Bootstrap styles, and implementing functional features such as search, pagination, and low-stock notifications using an AVL tree. Each of these tasks required in-depth research, utilizing resources like Microsoft documentation and NuGet packages, and extensive troubleshooting. While these hurdles were time consuming, they provided invaluable experience in problem-solving, perseverance, and mastering new technologies. These experiences strengthened my technical expertise and further developed my ability to integrate complex components into cohesive and functional solutions.