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CS-499

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Module 3 Narrative

The original artifact was a set of four simple Java files created as part of an earlier course project (IT-145). These files implemented basic functionality for managing rescue animal data, including adding, viewing, and updating records. While functional, the program lacked a structured architecture, a user-friendly interface, and persistent data storage.

I selected this artifact for my ePortfolio because it demonstrates a substantial enhancement from a simple Java program into a professional-quality full-stack application, highlighting advanced software design and engineering skills. The project now consists of a Java backend, responsible for the core program functionality, and an Angular frontend, organized into components and services for modularity and maintainability. Key improvements include refactoring the backend to improve separation of concerns, creating forms for accepting information in numeric fields, dates, and other required information, and implementing structured data organization that can prevent improper data entry. These enhancements showcase my ability to design scalable, maintainable software, ensure data integrity, and create a clear, organized structure that supports future expansion.

The enhancements align with the course outcomes in my original plan, particularly designing a comprehensive modular program and applying innovative techniques and tools. By restructuring the backend, organizing the frontend into modular components and services, and implementing input validation, I demonstrated professional software engineering practices and the ability to produce maintainable, high-quality code. My outcome-coverage plan has been updated to put modular architecture, separation of concerns as some of my greatest concerns, and input handling as part of this project's enhancements.

Enhancing the artifact reinforced the importance of modular software design and the clear separation of responsibilities between backend functionality and frontend presentation. I organized an Angular project into components and services that communicate efficiently with a Java backend and MongoDB database, which helped highlight the importance of excellent organization in file structure. The most significant challenges involved designing smooth communication between the frontend, backend, and database. I had not used a Java application with a database in the past, so it was difficult to implement at first and rewarding to accomplish. Overcoming these challenges strengthened my problem-solving skills and demonstrated my ability to implement professional-quality, maintainable software solutions.

