Milestone Two Narrative — Software Design and Engineering Enhancement

Artifact Description:  
The artifact I selected for this enhancement is a Node.js/Express web application project initially created for my CS-465 Module 7 coursework. The project’s core files include server-side controllers, models, and route definitions for user authentication and data handling. Several critical files such as authenticate.js, users.js, and server entry points main.js and index.js were missing or incomplete in the original submission, impacting the functionality.

Justification for Inclusion:  
I chose this artifact because it demonstrates my skills in backend web development, particularly in implementing secure user authentication with JWT, structuring modular Express controllers, and managing RESTful routes. Enhancing this artifact directly showcases my software design abilities, such as improving code organization, implementing security best practices, and handling asynchronous operations. The improvements made address missing code, filling critical gaps in authentication and routing to provide a working, maintainable backend application.

Course Outcomes Addressed:  
Through this enhancement, I advanced my competency in software engineering practices by designing and implementing robust server-side components, demonstrating understanding of middleware, modular architecture, and security considerations (such as token-based authentication). These improvements align with course outcomes related to software design, security mindset, and delivering functional computing solutions.

Reflection on the Enhancement Process:  
The process of reconstructing missing files and filling in gaps was challenging but valuable. It required careful review of course materials, research on JWT authentication, and thoughtful design to integrate middleware and route handling cleanly. I learned the importance of modular design and how to plan for scalability and security in backend applications. This milestone helped me identify weaknesses in initial project setup and encouraged me to adopt best practices for future software development projects.