The artifact I created is a fully functional cart management system that integrates with a MongoDB database. It allows users to add, update, and remove items from their cart, with all changes being saved to the database. This ensures the cart data stays consistent and accessible across sessions. I developed this system to demonstrate my skills in database management and software development.

I chose this artifact for my ePortfolio because it highlights my ability to connect a front-end application with a back-end database, which is a key skill for any software developer. The project involved designing a robust database schema for the cart and cart items. I made sure the schema supports complex queries and maintains data integrity. Fields like code, name, price, quantity, and image were carefully validated and indexed for efficiency. The back-end API handles all cart operations, such as adding, updating, and removing items. I designed endpoints to ensure these actions are consistent and atomic. On the front end, I used Angular services to communicate with the API, creating a seamless and responsive user experience.

To improve the artifact, I focused on making the system more reliable and user-friendly. Validation checks and error handling were added to make sure only valid data gets stored. For example, required fields were verified, and numerical values like price and quantity were restricted to acceptable ranges. I also enhanced the user experience by adding features like updating item quantities and integrating user authentication, so only authorized users can make changes to the cart. Debugging was another area of improvement. I implemented detailed logging to track data flow, log requests and responses, and quickly resolve issues.

The artifact also includes integration with Stripe for managing payments. This required building a service to create checkout sessions based on the items in the cart. The system handles payment success and failure, updating the cart and order status accordingly. I plan to expand this by adding an order management section that tracks completed orders, stores order details in the database, and provides endpoints for managing them.

Enhancing this artifact aligned with course outcomes from Module One. I successfully designed and implemented a database schema, developed a RESTful API, and integrated it with a front-end application. This project demonstrates my skills in database management and software development, showing how all the pieces come together in a real-world system.

The process of improving this artifact was both challenging and rewarding. One major lesson was understanding how to design a schema that supports all operations while maintaining data integrity. I also learned a lot about securing cart operations through user authentication, which involved working with authentication tokens and ensuring they were validated on the server. Debugging was another significant part of the experience, as I had to ensure smooth communication between the front end and back end.   
  
 I know there are bugs and things that I still need to work out, but for pure functionality it is working as intended. Please leave me feedback if you think this will be enough to show my database expertise. If not, I can add an order system to when after checkout the customer can check on past orders, but if this should be enough, I can focus more on polishing what I have to be as perfect as possible.



