

Backend Shopping Cart System - Home Assignment

This assignment evaluates your skills in building a backend system for a basic shopping cart application.

Technologies:

- Backend: Node.js with TypeScript
- Database: MySQL
- Documentation: Postman

Objective:

Develop a functional backend service for a shopping cart system that allows users to manage their carts.

Product Features:

- Products:
 - Each product should have attributes like SKU (unique identifier), selling price, stock quantity, and expiration date (optional).
 - Ability to add new products.
- Shopping Cart:
 - Users can add products to their cart.
 - Users can view their current cart contents.
 - Users can modify quantities of existing items in their cart.
 - Users can remove items from their cart.

Concurrency Challenge:

A crucial element of this assignment is handling concurrent requests effectively. Specifically, focus on scenarios where multiple users attempt to add a product with limited stock to their carts simultaneously. The system should:

- Prevent adding out-of-stock items to carts.
- Handle situations where stock becomes depleted while processing a request.

Deliverables:

- Functional backend code written in Node.js and TypeScript.
- MySQL database schema and populated sample data (if applicable).
- Postman documentation for API endpoints.