

Fawry Quantum Internship Challenge - E-Commerce System

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This project is a Java-based console application designed to fulfill the requirements of the Fawry Quantum Internship Challenge.

Functional Features:

- Users define products dynamically with name, price, and quantity.
- Products can be expirable or non-expirable.
- Products may or may not require shipping; if so, weight is provided.
- Customers can add a product to the cart with quantity constraints.
- Customers can checkout, where the system:
 - Prints subtotal
 - Calculates shipping fees
 - Calculates final paid amount
 - Updates customer balance
- Program checks and throws errors when:
 - Cart is empty
 - Customer balance is insufficient
 - A product is out of stock or expired
- ShippingService collects shippable items via an interface with getName() and getWeight().

Testing Covered:

- Products with/without expiry
- Products with/without shipping

- Adding valid/invalid quantities to cart
- Handling expired products and out-of-stock conditions
- Successful checkout with correct subtotal, shipping, and balance

Technologies Used:

- Java 17
- Object-Oriented Programming (OOP)
- Scanner for user input
- Interfaces and Inheritance

Example Use Case:

User inputs:

- Product: Cheese (expirable, shippable)
- Product: TV (non-expirable, shippable)
- Product: Scratch Card (non-expirable, non-shippable)
- Adds valid quantities to cart
- Program calculates total, validates rules, and prints a complete invoice

The system is tested, complete, and ready for submission.