Kole S. Bauer

7/05/2024

CSE-210

W11: Project Plan

For my final project, I am choosing the open-ended option and I plan to develop a supermarket simulation. This system will model the operations of a supermarket, focusing on product price variations, customer purchases, and profitability tracking. The core of the system will include a superclass Product and its subclasses PerishableProduct and NonPerishableProduct, each representing different types of goods sold in the supermarket. The simulation will generate random price variations for products daily and simulate customer purchases in varying quantities, with a limit of up to 10 products per customer. If I have time, I may try to implement warranty/returns and expiry of perishable goods with an inventory management system but that is my “stretch challenge.”

The primary goal of the simulation is to maintain profitability by logging transactions, including purchase and sale prices, in a text or csv file, which will serve as a historical record. The system will read from this file at the start of each simulation run to build on previous data. The project will demonstrate object-oriented programming principles, including abstraction, inheritance, encapsulation, and polymorphism, and will showcase the ability to create dynamic simulations with practical applications in retail management. This simulation will provide insights into inventory management, pricing strategies, and customer behavior, aiming to optimize the supermarket's profitability over time.