Second midterm – Advanced Programming

A Pharmaceutical Point of Sale, as we have discussed, is a software that aims to streamline the management of pharmacies by automating the sales process, inventory management, and customer interactions; moreover, the software should be user-friendly to facilitate user interactions.

For this midterm, taking as basis the concepts and codes learned in class, you must implement an object-oriented programming approach, which must consider dynamic memory allocation (references and pointers).

For the classes, at least, you must consider store, products, product batches, sales, and products in a sale.

Functional requirements:

Sales Management: (64 points)

- Manual sale search by sale ID. (1 point)
- Automatic price calculation, including discounts and taxes. (2.5 points)
- Support for multiple product purchase (3 points)
- Support for multiple payment methods (cash, card) (2.5 points)
- Sale visualization presented in a user-friendly design for enhanced readability. (5 points)
- Sales reports: (50 points)
  - Daily Sales Report: Provides a summary of total sales, number of transactions, and average transaction value for each day.
  - Weekly/Monthly/Yearly Sales Report: Offers a more extensive view of sales performance over a given period, allowing you to identify trends and patterns.
  - Product Sales Report: Shows the sales volume, revenue, and profit for each product, helping you understand which items are performing well and which may need reevaluation. In this report you must enter the name or SKU/UPC of the product.

- o Laboratory Sales Report: Breaks down sales by product category, giving you insights into the performance of different product types. In this report you must enter the laboratory name or choose the laboratory from a list.
- o Sales by Payment Method: Analyzes sales based on the payment methods used by customers, such as cash or card. In this report you must select the type of payment from a list.

Inventory Management: (36 points)
- Product categorization and search functionality (search by name, SKU/UPC, brand, or laboratory. (1 point)
- Real-time stock tracking (2.5 points)
- Support for batch tracking and expiration date (32.5 points)