Project Proposal

Product stock and revenue tracking system for a Small Store using Java and the Concept of OOP

Problem Statement

In many small stores, the inventory is still being managed manually using pen and paper or simple spreadsheets. This method is time-consuming, inefficient, and often leads to problems such as stockouts, overstocking, and difficulty tracking sales and purchases. I have witnessed this problem occur frequently, as my mother herself owns a cosmetics store without any proper system to keep record except for a very unreliable sheet of paper. This project focuses on building a desktop-based Inventory Management System (IMS) using Java and JavaFX. The system will allow store owners to manage products, track stocks, log sales and purchases, and generate basic reports. This project also aims to strengthen practical skills in object-oriented programming (OOP), file handling, and graphical user interface (GUI) development using JavaFX.

Project Objectives

The main objectives of the project are:

- Create a desktop GUI application using JavaFX.
- Allow users to add, update, and manage products in the inventory.
- Enable users to record sales and purchase transactions, automatically updating stock levels.
- Display inventory statistics, including low-stock items, most sold products, and total stock value.
- Provide alerts for low-stock products to assist in restocking.
- Implement persistent storage to save and load inventory and transaction data.

Model Scope

Included Features

- A user-friendly GUI using JavaFX.

- Product management by enabling functions like add, update, and delete product information.
- Maintain current stock quantities and update automatically after sales or purchases.
- Track each transaction with product details, quantity, and date.
- Display low-stock items, most sold products, total inventory value, and sales summaries.
- Store and load inventory and transaction data using text or CSV files.
- Use of object-oriented principles such as classes, objects, encapsulation, and inheritance.

Excluded Features

- No online integration with e-commerce systems.
- No real-time barcode scanning.
- No cloud-based storage or multi-user online access.
- No advanced analytics or predictive stock management using AI.
- No mobile or web-based application versions.

Model Resources

1. Java Development Kit (JDK)
2. JavaFX SDK
3. IntelliJ IDEA for Java development
4. Windows Operating System
5. MySQL for product and transaction storage
6. w3schools.com or Oracle Java Documentation for Java basics and OOP concepts

Expected Outcome

The outcome of this project will be a functional Java desktop application that allows small store owners to manage inventory efficiently. Users will be able to:

- Track stock levels accurately.
- Log sales and purchases easily.
- Generate reports for inventory insights.
- Receive alerts for low-stock items.

This project will demonstrate practical knowledge in Java programming, OOP, file handling, and GUI development, making it suitable as a viable academic project.