Java Final Project Proposal: Store Management System

Siyuan Wang sw5593

Project Overview:

The Store Management System is a graphical system that can let the user order what is in store online and the store side can receive the order. Also, the store can use this system to manage the stock of the store. The project will utilize Java's Swing library for the frontend GUI, Java Sockets for networking between server and client, database, and multi-thread. The data will be stored on the server and sent through sockets to the clients.

Features:

Order Management (Client Side):

- User-friendly GUI for browsing store inventory and placing orders.
- Real-time communication with the server to check item availability and place orders.
- Order history and tracking functionality for users.

Stock Management (Server Side):

- GUI for store administrators to update and manage inventory, including adding new items, updating existing ones, and setting stock levels.
- Automated stock level alerts when items are running low.

Account login/registration:

- GUI for login/registration. If the account belongs to store, it will open the Stock Management GUI. Or it will open Order Management GUI. If user does not have an account, a new account can be created and stored in the database.

Networking:

- Secure and efficient communication between client and server applications using Java Sockets.
- Implementation of client-server architecture to support multiple clients simultaneously.

Database Integration:

- Robust database schema for storing user data, inventory information, and order history, and users' information.
- Efficient data retrieval and update mechanisms to ensure system performance.

Multithreading:

- Use of multithreading to handle multiple client requests without blocking user interface

interactions.

- Separate threads for network communication and UI updates to ensure a responsive application.

Architecture:

The system architecture is divided into two main components:

- Client Application: A frontend application for customers to browse inventory, place orders, and track their order history.

- Server Application: A backend application for store administrators to manage inventory, process orders, and interact with clients.

Project Implementation:

- Phase 1: Set up the basic server and client architecture with simple communication and a preliminary database schema.

- Phase 2: Develop the GUI for both the client and server using the Swing library.

- Phase 3: Implement inventory management and order processing functionalities, including database integration for persistent data storage.

- Phase 4: Conduct thorough testing, bug fixing, and performance optimization.

Conclusion:

The "Store Management System" project aims to create a seamless and efficient bridge between customers and stores, enhancing the shopping experience through technology. By leveraging Java's powerful libraries and features, the system will offer a robust, scalable, and user-friendly platform for online ordering and inventory management.