Glint : An Inventory Management System

1. Introduction

This proposal outlines the development of "Glint," an innovative and modern Inventory Management System (IMS) designed to streamline inventory processes for businesses of all sizes. The system will be developed in multiple versions, with each version introducing new features and improvements. Glint will be a robust, user-friendly application built using Java, designed to meet the evolving needs of today’s dynamic business environments.

2. Project Overview

Glint is envisioned as a cutting-edge IMS that will:

- Provide real-time tracking of inventory levels.
- Offer comprehensive management of products, orders, suppliers, and customers.
- Generate insightful reports for data-driven decision-making.
- Ensure secure, reliable, and accessible data storage.

The system will be developed incrementally, starting with a foundational version and gradually adding more advanced features to create a sophisticated, high-performance product.

3. Development Plan

Version 1: Basic Inventory Management

Objective: To create the foundational version of Glint, enabling basic inventory management functions like adding, viewing, and deleting products.

Key Features:

- **Product Management**: Users can perform CRUD (Create, Read, Update, Delete) operations on products.
- **In-Memory Storage**: Data will be stored in-memory for quick access, suitable for initial development and testing.

Technology Stack:

- **Java**: Primary programming language.
- **Console-Based UI**: Simple, text-based interface for user interaction.

Deliverables:

- Basic version of Glint with essential inventory management features.
- Organized and maintainable codebase.

Version 2: Database Integration and Persistent Storage

Objective: To enhance Glint by integrating persistent data storage through a relational database, ensuring that inventory data is saved and accessible across sessions.

Key Features:

- **Database Integration**: Implement MySQL to store inventory data permanently.
- **Database Operations**: Extend product management to include SQL-based CRUD operations.
- **Improved Data Security**: Ensure data integrity and security through robust database management.

Technology Stack:

- **Java**: Continued use for core functionality.
- **MySQL**: Database management system for persistent storage.
- **JDBC**: Interface for database connectivity.

Deliverables:

- Fully functional version of Glint with database integration.
- Well-defined database schema for product data.

Version 3: User Interface and Advanced Features

Objective: To improve user experience by transitioning Glint from a console-based UI to a graphical user interface (GUI) and adding advanced features.

Key Features:

- **Graphical User Interface**: Develop a modern GUI using JavaFX for intuitive interaction.
- **Reporting Tools**: Implement features to generate inventory reports and analytics.
- **User Management**: Introduce user authentication and role-based access control.

Technology Stack:

- **JavaFX**: Framework for building the GUI.
- **Java**: Backend services and business logic.
- **MySQL**: Continue as the database management system.

Deliverables:

- User-friendly GUI for Glint.
- Comprehensive reporting and user management features.

Version 4: Integration and Final Enhancements

Objective: To finalize Glint by integrating with other business systems and refining the application for deployment.

Key Features:

- **System Integration**: Connect Glint with external systems (e.g., e-commerce platforms, supplier databases).
- **Optimization**: Enhance performance, scalability, and user experience.
- **Final Testing and Deployment**: Thorough testing and preparation for launch.

Technology Stack:

- **Java**: Final enhancements and optimizations.
- **MySQL**: Database tuning for optimal performance.
- **APIs**: For integration with other systems as needed.

Deliverables:

- Fully integrated and optimized Glint ready for real-world deployment.
- Complete documentation for users and administrators.
- Deployment and training plan for clients.