PROJECT OBJECTIVES

StockFlow: Enterprise Inventory Management System

1 1. Project Overview and Goal Definition

The overarching goal of the "StockFlow" project is to engineer a robust, scalable, and user-centric web application capable of streamlining the complex logistics of inventory management for Small-to-Medium Enterprises (SMEs). This project seeks to bridge the gap between legacy manual record-keeping and modern, automated supply chain solutions.

The development process adheres to the principles of software engineering, specifically focusing on the reliability of data, the efficiency of user interaction, and the maintainability of the codebase.

2 2. Strategic Objectives

Strategic objectives define the long-term impact of the system on the organization's operational capability.

2.1 Digital Transformation of Logistics: To eliminate dependence on physical paper trails and static spreadsheets, thereby fostering a digitized environment where data is accessible, secure, and easily auditable.

2.2 Decision Support Enhancement: To empower management with real-time data visualization, enabling informed decisions regarding procurement, sales forecasting, and asset liquidation.

2.3 Cost Reduction: To significantly reduce operational overheads associated with manual stock counting, error reconciliation, and stockouts caused by poor visibility.

3 3. Operational Objectives (Functional)

These objectives detail the specific functionalities the system must deliver to the end-users.

3.1 Real-Time Inventory Tracking: To implement a state-management system that reflects stock changes (additions, deductions, edits) instantly across the user interface without requiring full page reloads.

3.2 Automated Stock Monitoring: To incorporate algorithmic logic that continuously monitors stock levels against defined "Safety Stock" thresholds. The system must trigger visual alerts immediately when an item requires reordering.

3.3 Data Integrity and Validation: To enforce strict validation rules at the input layer (e.g., preventing negative quantities, enforcing currency formats) to ensure the database remains a reliable "single source of truth."

3.4 Search and Retrieval Optimization: To provide a high-performance filtering and search mechanism, allowing operators to locate specific Stock Keeping Units (SKUs) within milliseconds, regardless of database size.

4 4. Technical Objectives (Non-Functional)

Technical objectives focus on the quality attributes of the system architecture.

4.1 User Experience (UX) Optimization: To design an interface based on Material Design principles that minimizes the "cognitive load" on operators, reducing the training time required for new employees.

4.2 System Responsiveness: To ensure the application is fully responsive, rendering correctly on various viewports including desktop monitors, tablets, and handheld warehouse devices.

4.3 Latency Minimization: To achieve a Time to Interactive (TTI) of under 2 seconds to maintain high operator productivity.

5 5. Visual Representation of Objectives

The following diagram illustrates the hierarchical relationship between the core project goal and its supporting objectives.