FUTURE ENHANCEMENTS & ROADMAP

StockFlow: Enterprise Inventory Management System

1 1. Strategic Vision (v2.0 and Beyond)

The current iteration of "StockFlow" serves as a robust Proof of Concept (PoC) demonstrating core CRUD functionality and UI efficiency. To evolve this prototype into a commercially viable SaaS (Software as a Service) product, a phased roadmap has been designed. The future scope focuses on scalability, hardware integration, and predictive intelligence.

2 2. Phase 1: Architectural Hardening (v2.0)

The immediate next steps involve migrating from client-side persistence to a robust cloud infrastructure.

2.1 Backend Migration: Transition from 'LocalStorage' to a **Node.js/Express** REST API coupled with **PostgreSQL**. This enables data persistence across sessions and devices.

2.2 Concurrency Control: Implementation of optimistic locking mechanisms to handle simultaneous edits by multiple warehouse operators without data corruption.

2.3 Authentication Layer: Integration of **Auth0** or **JWT (JSON Web Tokens)** to secure API endpoints and manage user sessions securely.

3 3. Phase 2: Feature Expansion (v3.0)

This phase introduces hardware integration and role management.

3.1 Barcode & QR Scanning: Integration with the **Web Camera API** and external handheld scanners. This allows operators to increment/decrement stock simply by scanning a physical SKU tag, increasing data entry speed by 300%.

3.2 Role-Based Access Control (RBAC):

- *Admin:* Full access to configuration, user management, and sensitive reports.
- *Manager:* Ability to edit stock and view reports.
- *Picker:* Restricted access limited to viewing picking lists and updating stock status.

3.3 Mobile Application: Development of a companion **React Native** app for warehouse floor staff, enabling inventory management on the go.

4 4. Phase 3: Intelligence & Automation (v4.0)

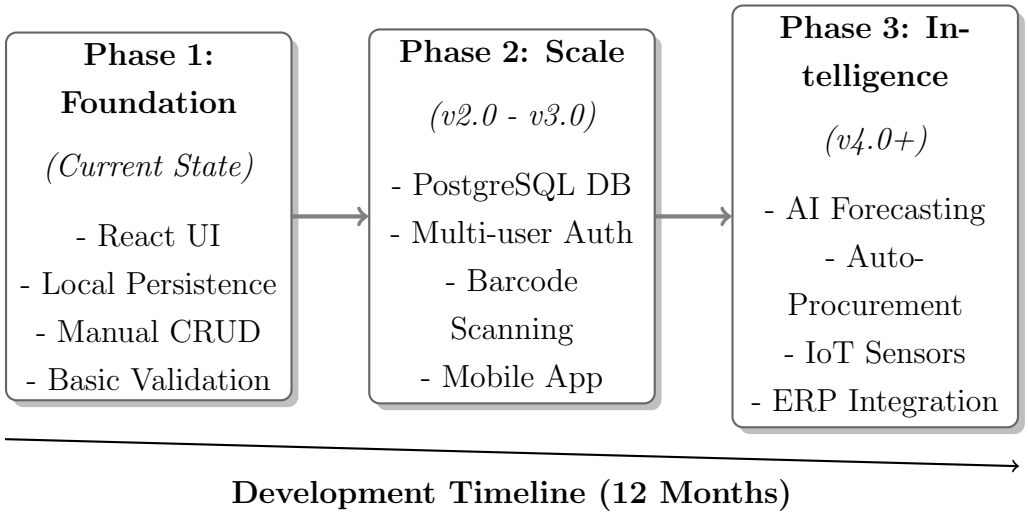
The final phase leverages historical data to automate decision-making.

4.1 AI-Driven Demand Forecasting: Utilization of machine learning models (e.g., ARIMA or Prophet) to analyze historical sales trends and seasonality. The system will predict future stock requirements and suggest optimized Reorder Points (ROP).

4.2 Supplier API Integration: Automated generation of Purchase Orders (POs) sent directly to supplier systems (via EDI or API) when stock reaches critical levels.

5 5. Product Roadmap Visualization

The following diagram illustrates the evolutionary path of the StockFlow platform.



6 6. Conclusion

The roadmap outlines a clear path from a functional prototype to an enterprise-grade solution. By systematically addressing architectural robustness, user workflow efficiency, and predictive automation, StockFlow is positioned to become a market-leading tool in the SME inventory management space.