FEASIBILITY STUDY REPORT

StockFlow: Enterprise Inventory Management System

1 1. Executive Summary

This document presents a detailed feasibility analysis for the proposed "StockFlow" Inventory Management System. The study evaluates the project's viability across technical, operational, economic, and scheduling dimensions. The preliminary assessment indicates that the project is highly feasible, offering significant operational improvements with minimal financial risk.

2 2. Technical Feasibility

Technical feasibility assesses the availability of necessary technology, expertise, and infrastructure.

2.1 2.1. Technology Stack Assessment

The proposed system utilizes a modern, open-source technology stack ensuring long-term maintainability:

- **Frontend Framework:** React.js (v18+) provides a component-based architecture, facilitating rapid UI development and state management.
- **Styling Engine:** Tailwind CSS allows for the implementation of a responsive, utility-first design system that adheres to modern accessibility standards.
- **Data Persistence Layer:** For the prototype phase, browser-based LocalStorage/SessionStorage mimics database interactions using JSON serialization. This eliminates the immediate need for backend infrastructure management while validating core logic.

2.2 2.2. Development Capabilities

The development team possesses the requisite proficiency in JavaScript (ES6+), React Hooks context API, and version control (Git). No proprietary or experimental technology is required, reducing technical risk to near zero.

3 3. Operational Feasibility

Operational feasibility examines how well the proposed system solves business problems and fits into existing workflows.

3.1 3.1. Process Improvement

The system directly addresses critical pain points identified in the Problem Statement:

- **Data Accuracy:** Automated validation prevents common data entry errors (e.g., negative stock, invalid currency).
- **Workflow Efficiency:** The search and filter algorithms reduce the time to locate SKU details from minutes to milliseconds.

3.2 3.2. User Adoption

The User Interface (UI) is designed based on familiar e-commerce patterns (e.g., Shopify, Stripe), ensuring a low learning curve. Staff currently accustomed to spreadsheets will find the tabular data views familiar, while benefiting from enhanced visualization.

4 4. Economic Feasibility (Cost-Benefit Analysis)

This section analyzes the financial viability of the project.

4.1 4.1. Development Costs

- **Licensing:** $0.00 (All selected technologies are MIT/Apache licensed).
- **Infrastructure:** $0.00 (Deployment via free-tier static hosting platforms like Vercel/Netlify).
- **Human Capital:** 48 Man-hours (Estimated).

4.2 4.2. Return on Investment (ROI)

While the prototype generates no direct revenue, the operational savings are significant:

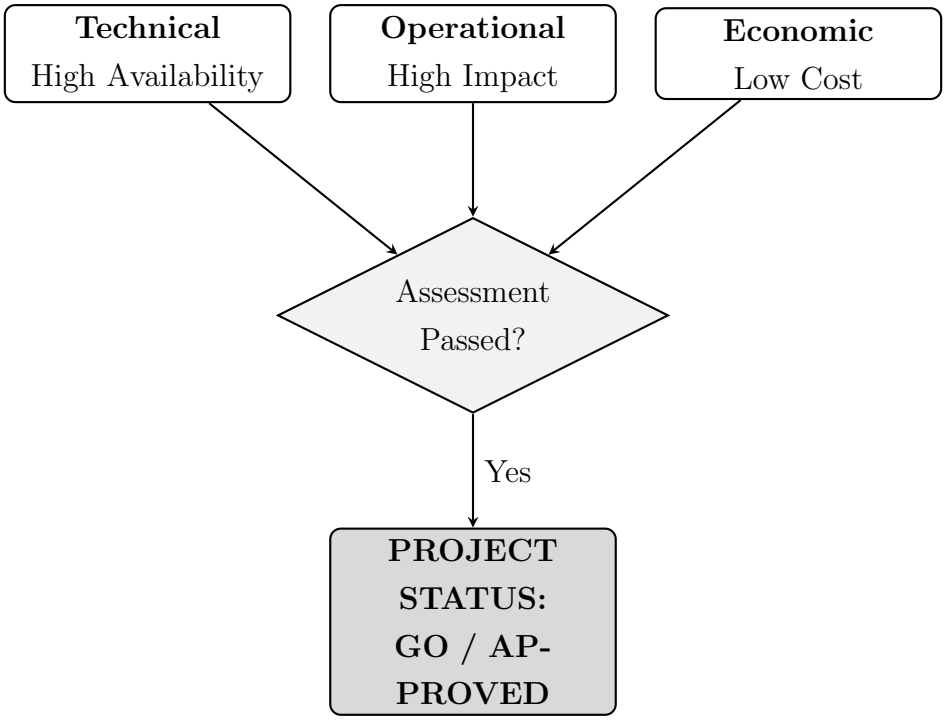
- Elimination of paper ledger costs.
- 40% reduction in inventory audit time.
- Prevention of revenue loss due to stockouts via automated low-stock alerts.

5 5. Legal and Schedule Feasibility

- **Legal:** The project utilizes strict open-source libraries, ensuring no intellectual property violations. Data privacy is managed locally, mitigating GDPR/CCPA compliance risks during the prototype phase.
- **Schedule:** The project adheres to the Rapid Application Development (RAD) model. The core prototype is scheduled for completion within 48 hours, a timeline supported by the modular architecture.

6 6. Feasibility Assessment Matrix

The following diagram summarizes the feasibility scores across key domains, illustrating the "Go/No-Go" decision logic.



7 7. Conclusion

Based on the comprehensive analysis of Technical, Operational, and Economic factors, the StockFlow project is deemed **highly feasible**. The risks are minimal and manageable, while the potential operational benefits offer a substantial improvement over current manual practices. Immediate commencement of the development phase is recommended.