PROJECT DESIGN PHASE

Team ID	NM2025TMID02892
Project Name	Medical Inventory Management System
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Folder Reference: Document/Project

Design Phase/ Includes:

- Problem-Solution Fit Template
- Proposed Solution
- Solution Architecture
- Readme.md

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1. Problem-Solution Fit

Problem: Inefficient manual tracking and delayed stock updates.
Solution: Automated, centralized system with real-time inventory visibility and AI-assisted forecasting.

Key Fit Indicators:

- Reduces manual labor.
- Enhances supply accuracy.
- Prevents stockouts and wastage.

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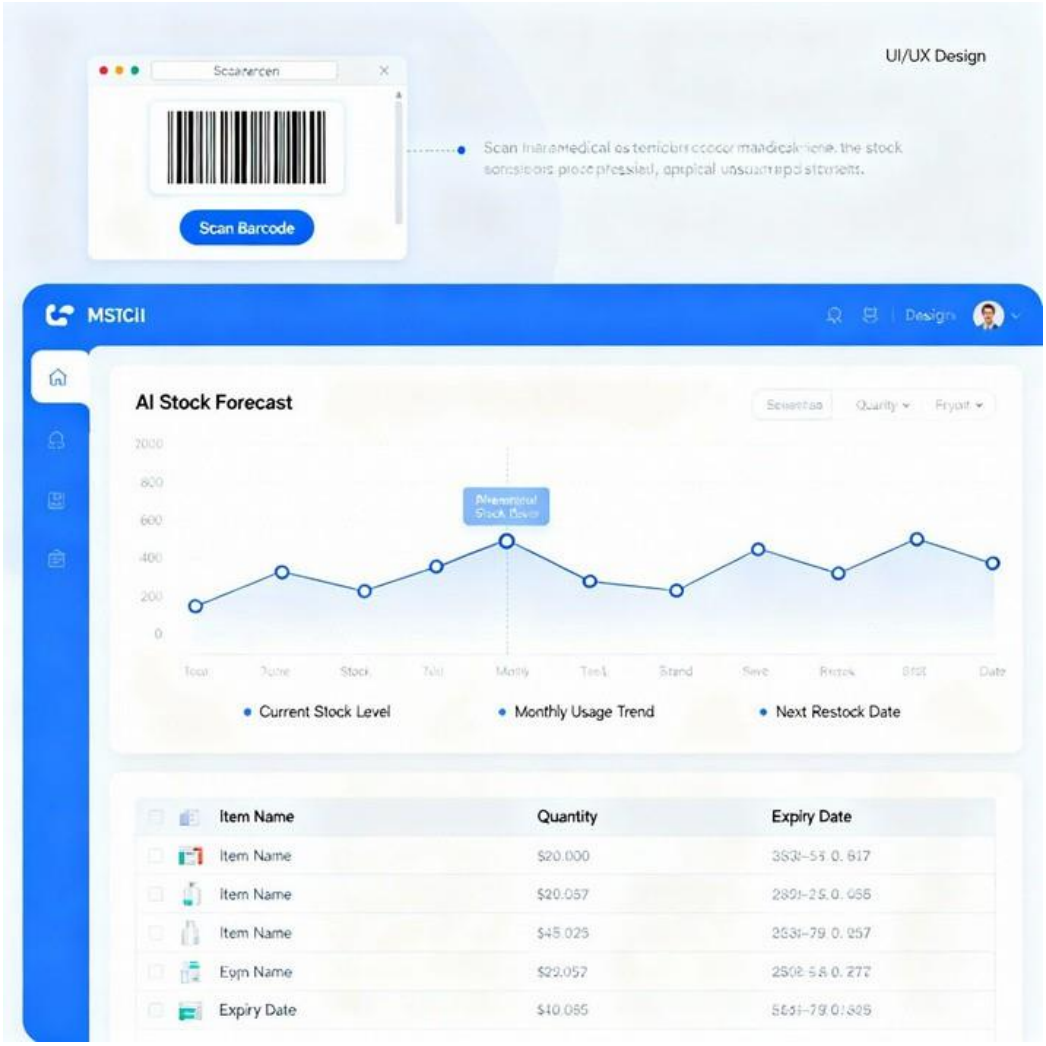
2. Proposed Solution

The **Medical Inventory Management System** will automate stock monitoring, provide analytics, and facilitate communication between pharmacy, procurement, and administration departments.

Core Functionalities:

- Barcode scanning for each medicine batch.
- Intelligent reorder point detection.
- Automatic purchase order creation.
- Expiry management dashboard.
- Role-based permissions.

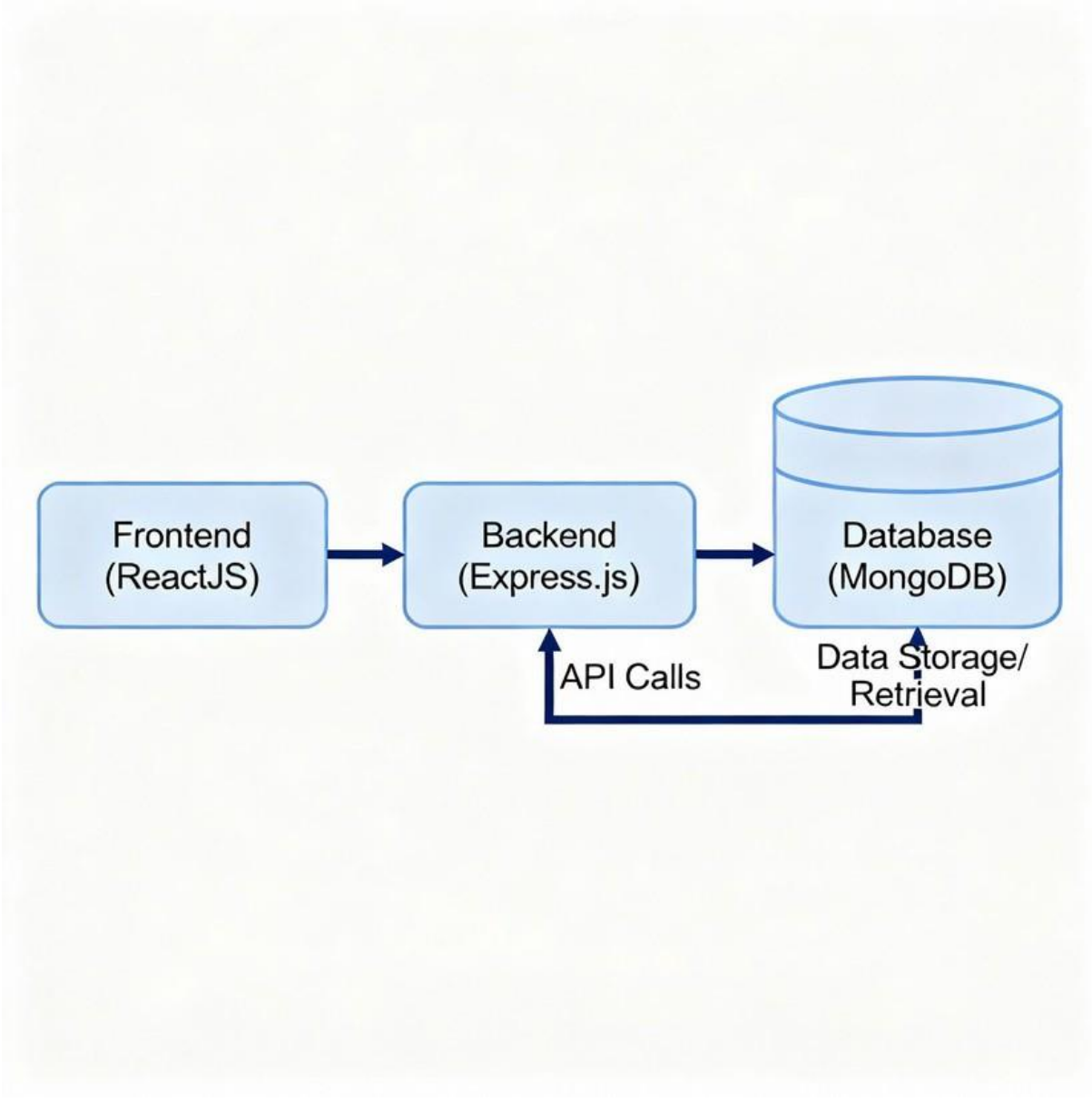


3. Solution Architecture (Conceptual)

Layers:

1. **Frontend (Client Layer):** ReactJS UI for user interaction.
2. **Backend (Application Layer):** Express.js handles routes, logic, and security.
3. **Database Layer:** MongoDB stores stock, supplier, and transaction data.
4. **Integration Layer:** APIs connect barcode scanners and alert systems.

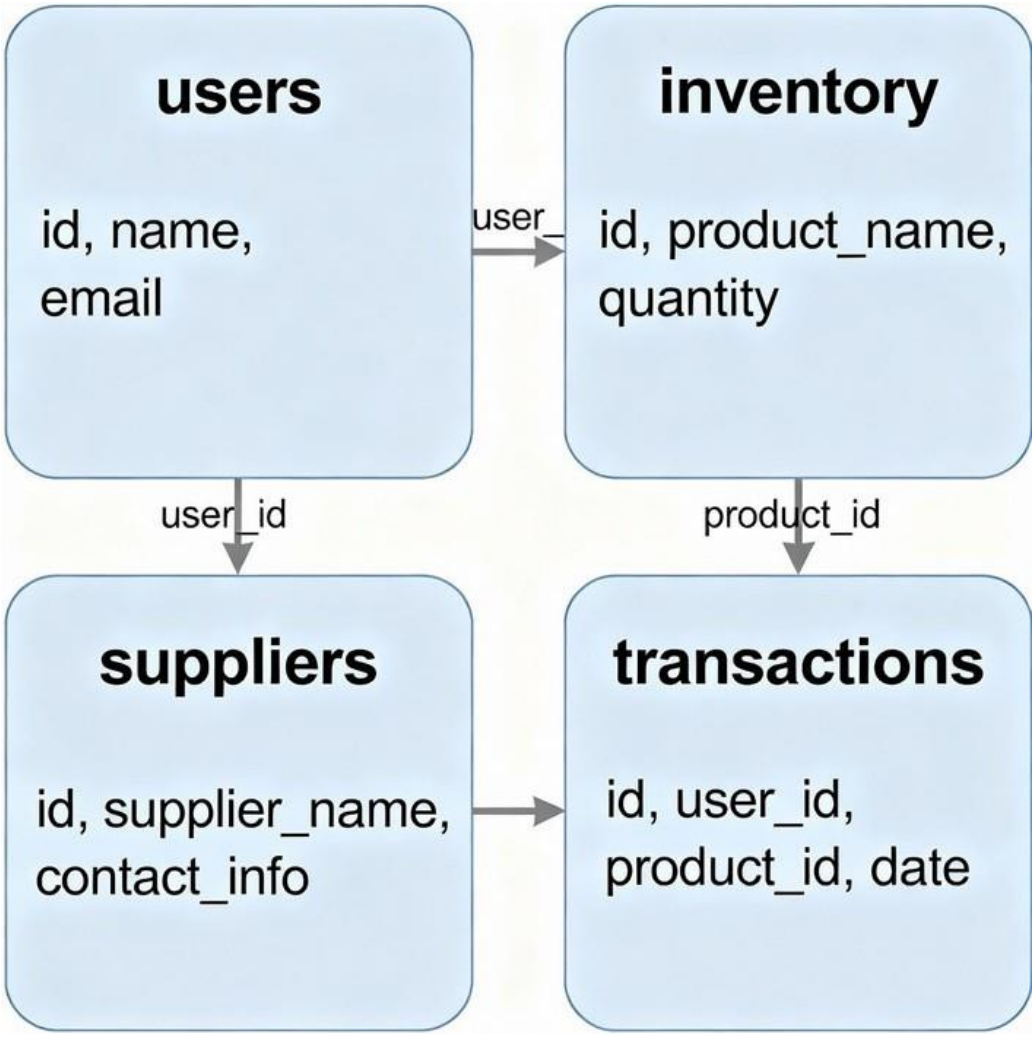
Architecture Flow:
User→UI→API→Database → Response → Dashboard.



4. Database Design (Overview)

Collections:

- users–user details, roles, authentication.
- inventory – item name, batch no., expiry date, stock count.
- suppliers – supplier info, purchase records.
- transactions – issue and return logs.



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5. Advantages

- Real-time synchronization across departments.
- Modular, scalable, and secure.

Easy-to-use UI for all staff roles.