

# PROJECT DESIGN PHASE

Team ID	NM2025TMID01548
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:**

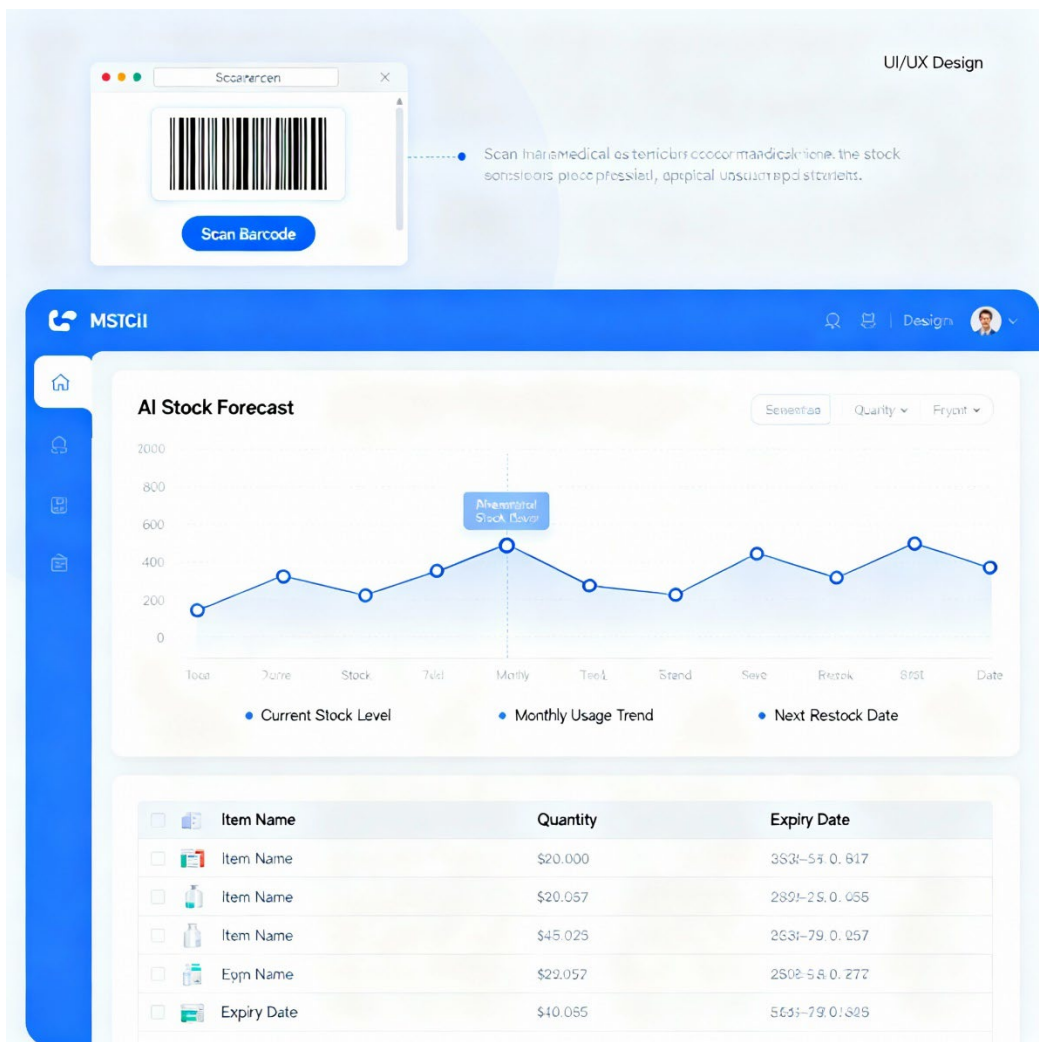
- Reduces manual labor.
  - Enhances supply accuracy.
  - Prevents stockouts and wastage.
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## 2. Proposed Solution

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.



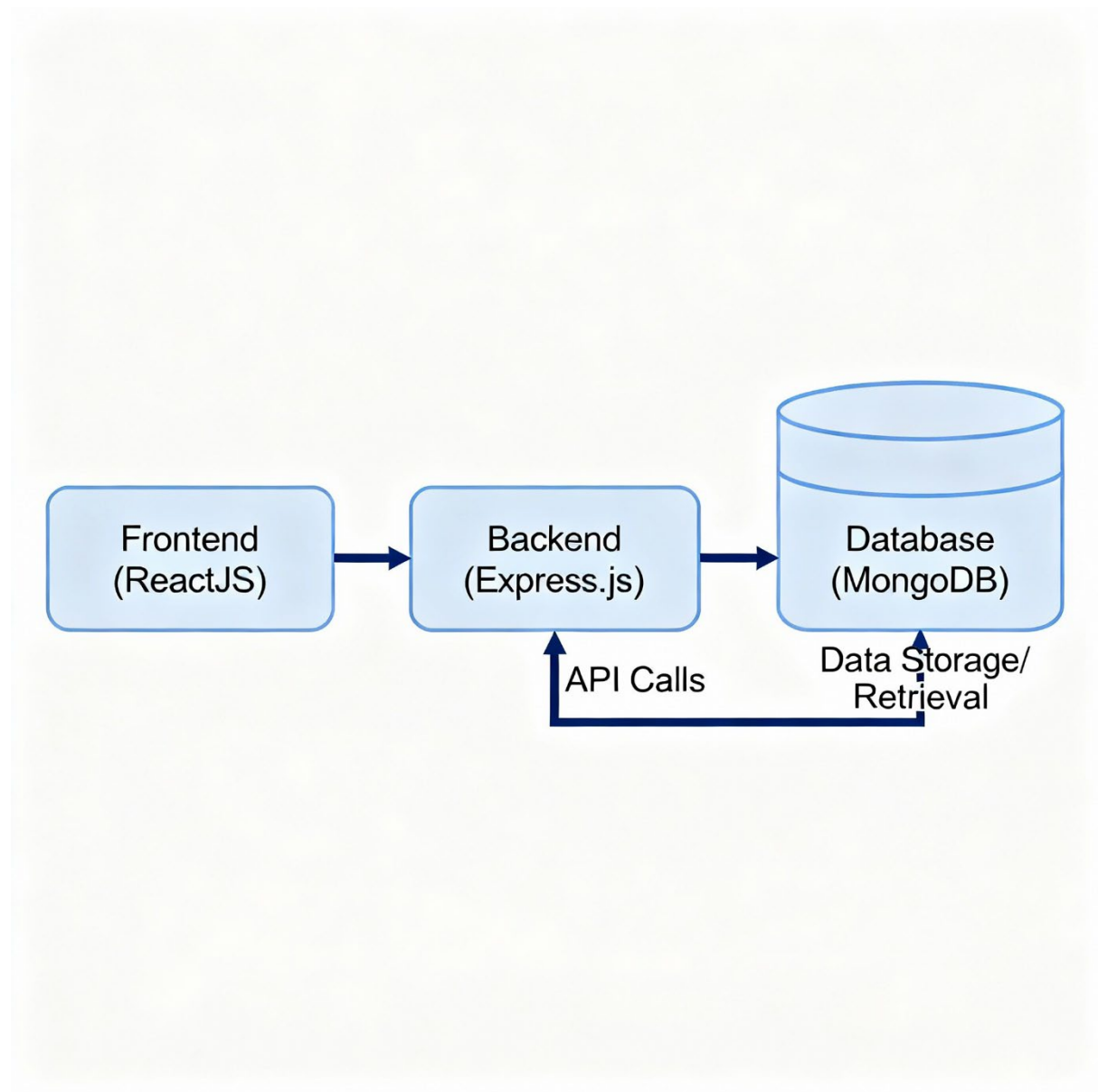
### 3. Solution Architecture (Conceptual)

#### 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:

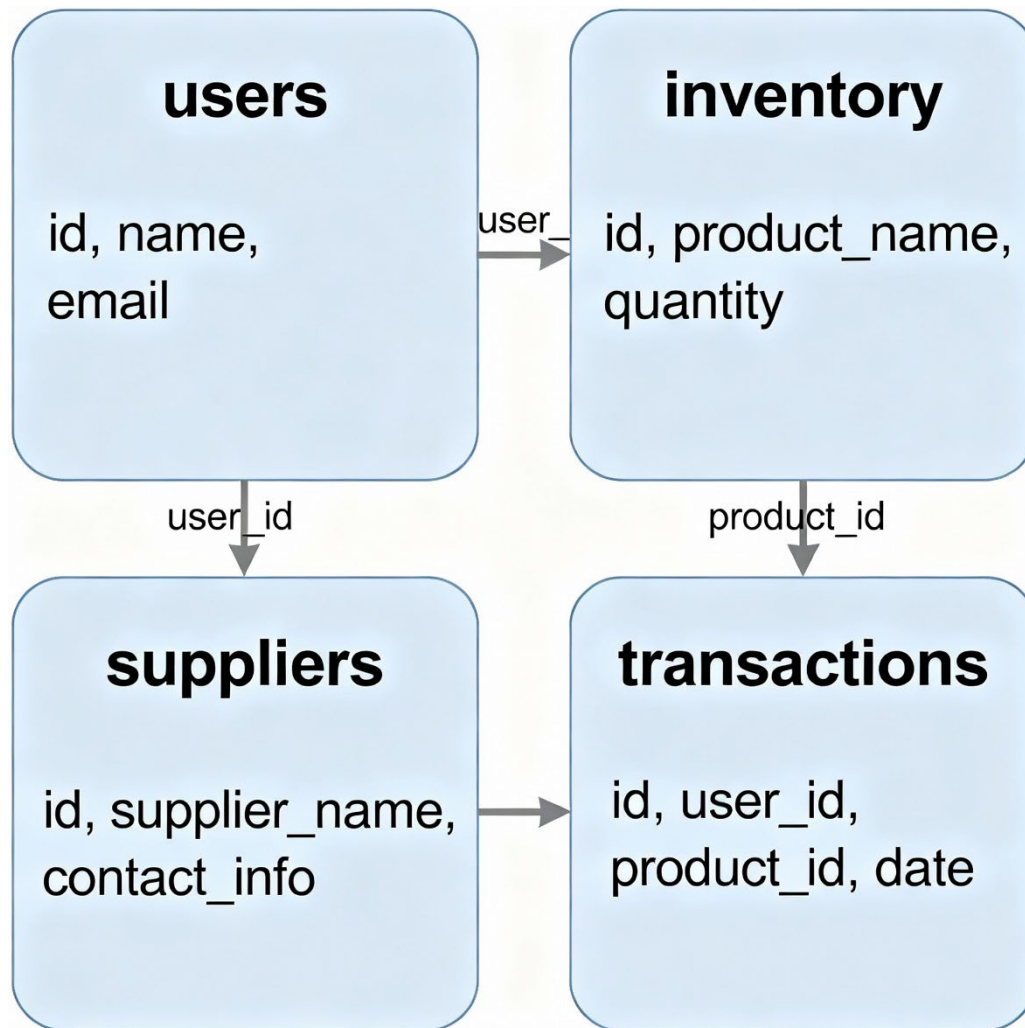
User → UI → API → Database → Response → Dashboard.



## 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.