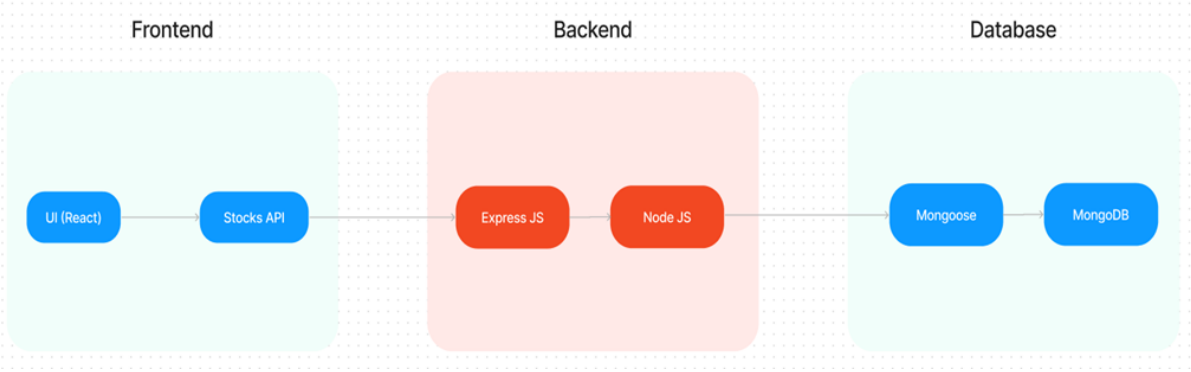
Project Design Phase
Solution Architecture

Date	15 February 2025
Team ID	LTVIP2026TMIDS86089
Project Name	Order On The Go: Your On-Demand Food Ordering Solution
Maximum Marks	4 Marks

Solution Architecture – SB Foods

Goals of the Architecture

- Provide the best technical solution to address late-night food ordering and restaurant management challenges.
- Clearly describe the structure, behavior, and flow of the system to stakeholders.
- Define features, development phases, and solution requirements.
- Deliver specifications for deployment, scalability, and performance.



Architecture Description

The SB Foods solution follows a **3-tier MERN architecture** with integrations for payments, notifications, and restaurant dashboards.

1. **Frontend (Client Layer)**
   - Built with **React.js, HTML, CSS, JavaScript**.
   - Provides user interface components: registration, login, product catalog, cart, order placement, profile, and admin dashboard.
   - Responsive design for both web and mobile.
2. **Backend (Application Layer)**
   - Developed using **Node.js + Express.js**.
   - Exposes RESTful APIs for user authentication, product browsing, cart operations, order placement, and admin management.
   - Integrates with external APIs (Google Maps for delivery, Firebase for notifications, Stripe/Razor pay for payments).

3. **Database Layer**
    - **MongoDB Atlas (NoSQL)** stores collections for Users, Restaurants, Products, Carts, and Orders.
    - Ensures scalability and high availability.
    - Supports indexing and optimized queries for performance.
4. **External Services**
    - **Payment Gateway:** Stripe/Razor pay for secure transactions.
    - **Notification Service:** Firebase Cloud Messaging for order updates.
    - **Location Service:** Google Maps API for delivery tracking.
    - **File Storage:** AWS S3 for product images and user profile pictures.
5. **Infrastructure**
    - Deployment on **AWS EC2 / Kubernetes** for scalability and resilience.
    - Load balancers ensure high availability.
    - CDN (Cloudflare) improves performance and response times.