**Project Design Phase**

**Solution Architecture**

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| Date | 26 -052025 |
| Team ID | PNT2025TMID09488 |
| Project Name | Groceries Site MERN Stack |
| Maximum Marks | 4 Marks |

**Solution Architecture:**

The solution architecture for the **Grocery Web App** is designed to provide a reliable, scalable, and user-friendly experience for both customers and vendors. It ensures smooth navigation, fast performance, secure transactions, and modular development for future expansion.

●  **Seamless product browsing and cart functionality**  
Customers can easily explore items by category, search keywords, and manage carts in real time using Angular and Bootstrap.

●  **End-to-end order lifecycle management**  
The app supports a complete flow — from product selection to cart, order placement, tracking, and delivery confirmation.

●  **Scalable user authentication and role-based authorization**  
Built with Node.js and JWT, it supports secure access for different users: Customers, Sellers, and Admins.

●  **Secure and trackable checkout & payment process**  
Orders are securely processed and stored in MongoDB; future-ready for integration with Razorpay/Stripe.

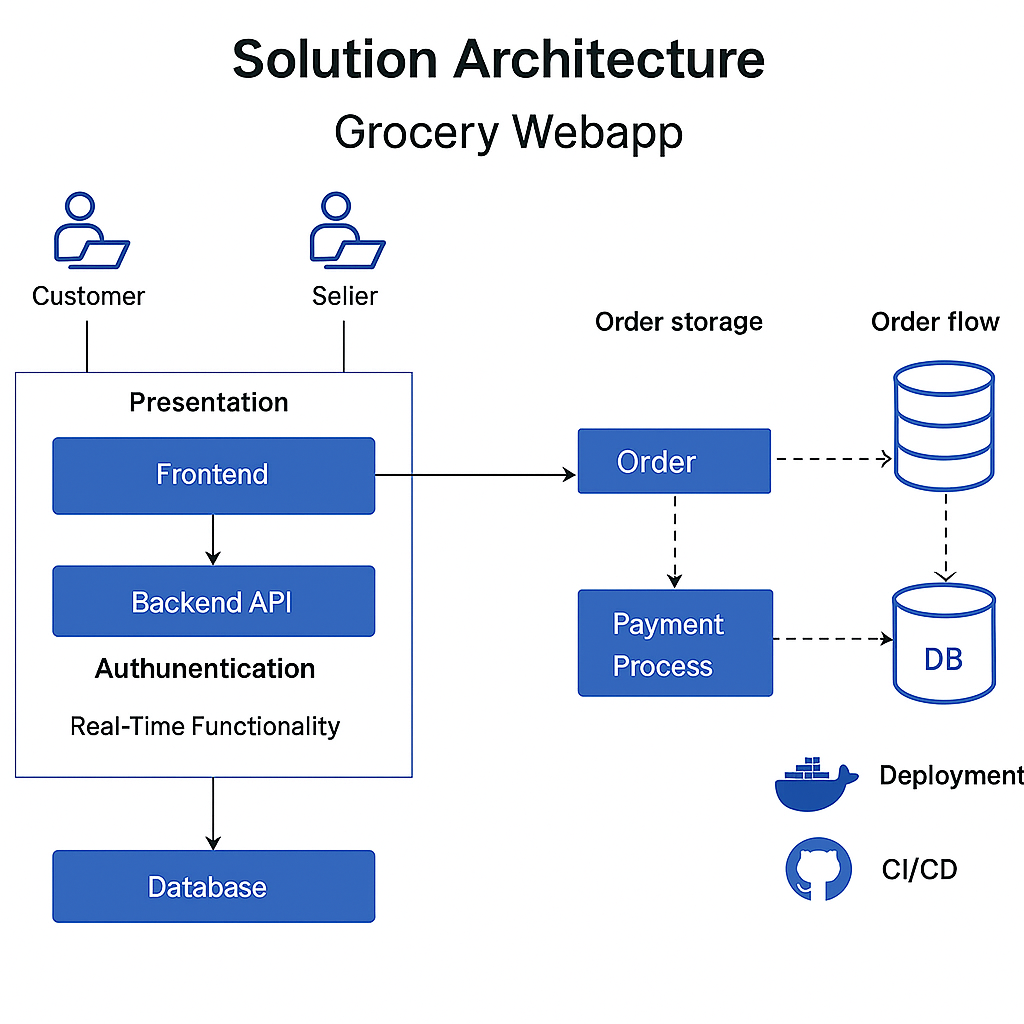
●  **Responsive design and multi-device accessibility**  
Developed using Angular and Bootstrap to ensure compatibility across mobile, tablet, and desktop devices.

●  **Inventory and order management for sellers**  
Sellers can add/edit products, manage stock, view orders, and update delivery status via a dedicated dashboard.

●  **Admin dashboard for monitoring platform health**  
Admins can manage users, monitor transactions, and oversee disputes or order issues.

●  **Real-time order updates and notifications (optional)**  
Can be enhanced with WebSockets or polling to inform users about order status or promotions.

**Example - Solution Architecture Diagram:**

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