Solution Architecture: ShopSmart
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Project Name: ShopSmart – Your Digital Grocery Store Experience

Solution Architecture

Solution architecture is a structured process that connects business needs with technology solutions. In the **ShopSmart Project**, the goal is to build a seamless online grocery shopping platform with secure user authentication, product filtering, order management, and a modern, user-friendly interface.

Goals of the Solution Architecture

- ✅ Build a full-stack application using **MERN stack** (MongoDB, Express, React, Node.js).

- ✅ Enable secure **user authentication** using JWT tokens.

- ✅ Provide **category-wise filtering**, search, and product sorting.

- ✅ Allow users to **add items to cart** and place orders.

- ✅ Track and display **order history and order status**.

- ✅ Build a visually rich UI with **product images, prices, brand names**, and smooth CSS styling.

ShopSmart Project Architecture and Data Flow

A typical architecture and data flow for the ShopSmart platform includes:

1. **Frontend (React.js):**

   - User registration & login

   - Product listing and filtering

   - Cart and checkout functionality

   - Order history and user profile

2. **Backend (Node.js + Express):**

   - RESTful API endpoints for products, users, cart, orders

   - Authentication and authorization (JWT)

   - Business logic and route handling

3. **Database (MongoDB):**

   - Collections: Users, Products, Orders, Cart Items

   - Schema-based modeling with Mongoose

4. **Authentication (JWT):**

   - Secure token-based login and protected routes

   - Role-based access for admin and users

5. **Data Flow Overview:**

   - User actions (e.g., add to cart) trigger frontend requests

   - Frontend sends data to backend API

   - Backend processes logic and updates the database

   - Responses are sent back and rendered in the UI