Marketplace Technical Foundation – Online Grocery Store

1. Define Technical Requirements

Frontend Requirements:

- **User-Friendly Interface**:
  - Intuitive navigation for browsing grocery items by categories (e.g., Vegetables, Fruits, Beverages, etc.).
  - Easy-to-use search bar with filtering options (price, popularity, availability, etc.).
  - Feature for users to mark favorite or commonly purchased items.
- **Responsive Design**:
  - Seamless experience on mobile, tablet, and desktop.
  - Adaptive layout for smaller screens, ensuring readability and usability.
- **Essential Pages**:
  - **Home Page**:
    - Highlight featured or discounted grocery items.
    - Display categories for easy access.
  - **Product Listing Page**:
    - Display products with images, names, prices, and stock availability.
    - Pagination or infinite scroll for large inventories.
  - **Product Details Page**:
    - Detailed view with product description, nutritional information, and related products.
    - Add-to-cart button with quantity selector.
  - **Cart Page**:
    - List of selected products with editable quantities.
    - Summary of the total cost including applicable taxes or delivery charges.
  - **Checkout Page**:
    - Input fields for user details (name, address, contact number).
    - Selection of delivery options and payment method.
  - **Order Confirmation Page**:
    - Confirmation details with order number and estimated delivery date.
    - Option to track order status.

Backend: Sanity CMS

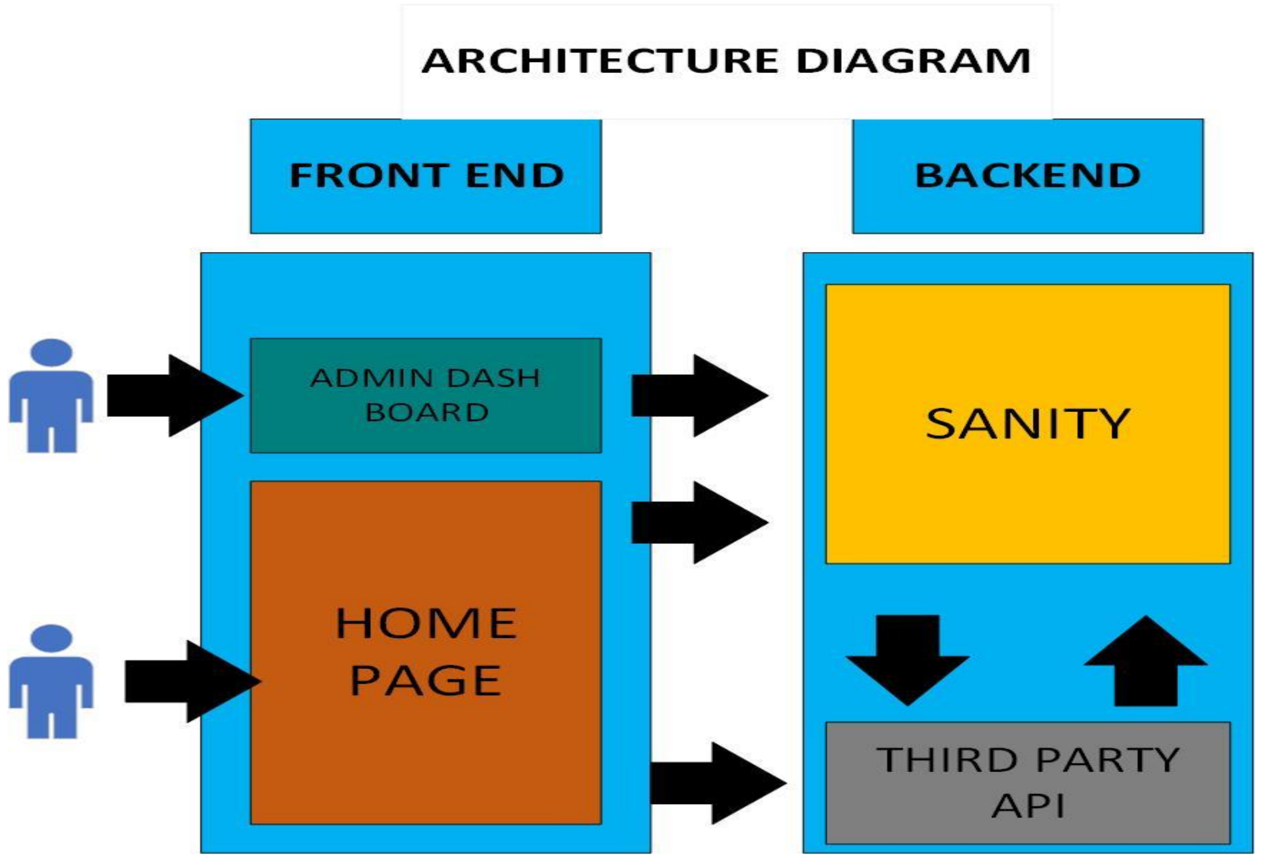
- **Database Management**:
  - Use Sanity CMS to manage and store data such as:
    - Product information: Name, description, price, stock, category, and images.
    - Customer details: Name, address, order history.
    - Order records: Order ID, items purchased, payment status, and delivery status.
  - Design schemas for:
    - **Products**:
      - Fields: Name, SKU, category, price, stock, discount, nutritional info, and image URLs.

        - **Customers**:
            - Fields: Name, email, phone, addresses, and order history.
        - **Orders**:
            - Fields: Order ID, customer reference, product list, total price, payment status, and delivery status.
- **Content Delivery**:
    - Use GROQ queries to fetch product and order data efficiently for the frontend.
    - Implement real-time updates for inventory changes or order status.

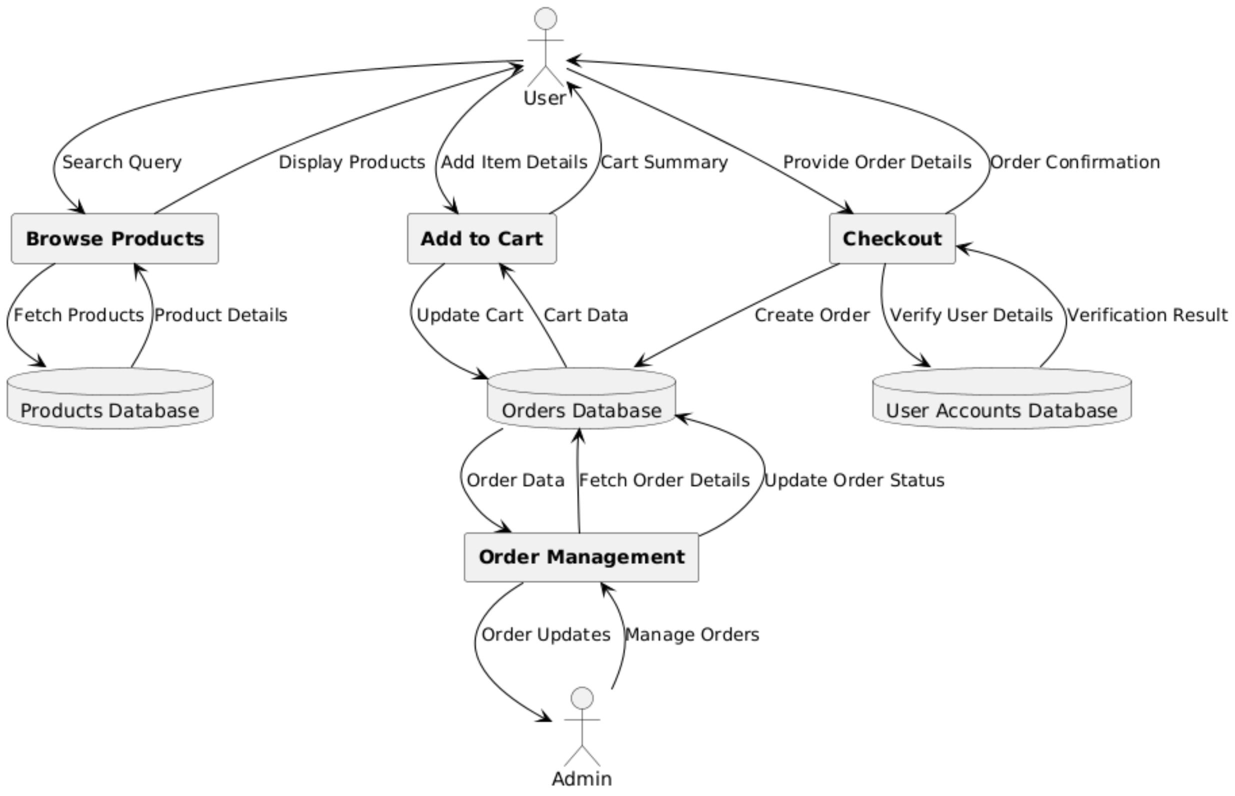
Third-Party APIs

- **Shipment Tracking**:
    - Integrate shipment APIs (e.g., FedEx, DHL, or local delivery services) to provide real-time order tracking.
    - Display tracking status on the Order Confirmation page.
- **Payment Gateway Integration**:
    - Integrate secure payment APIs (e.g., Easy paisa, Jazz Cash etc.) to handle transactions.
    - Support multiple payment methods: Credit/Debit Card, and Easypaisa.

System Architecture Overview



Key Workflows:



Detailed Component Roles:

1. Frontend (Next.js):

- Serves as the user interface for the grocery store.
- Handles user interactions (browsing, searching, ordering).
- Fetches dynamic product and order data from APIs.

2. Sanity CMS:

- Acts as the backend and database for managing:
  - Products, categories, and inventory.
  - Customer profiles and orders.
- Provides APIs to fetch, update, and manage data.

3. Third-Party APIs:

- **Shipment Tracking API**:
  - Retrieves real-time delivery updates for customer orders.
- **Payment Gateway API**:
  - Processes secure payments through credit/debit cards, or Easy paisa.

1. General Endpoints:

1. **Endpoint Name**: `/products`
   - **Method**: GET
   - **Description**: Fetch all available products from Sanity CMS.
   - **Response Example**:

```
[
  { "id": 1, "name": "Apple", "price": 2.5, "stock": 50, "image":
"apple.jpg" },
  { "id": 2, "name": "Banana", "price": 1.2, "stock": 30,
"image": "banana.jpg" }
]
```

2. **Endpoint Name**: `/product/id`
   - **Method**: GET
   - **Description**: Fetch detailed information for a specific product.
   - **Response Example**:

```
{
  "id": 1,
  "name": "Apple",
  "price": 2.5,
  "stock": 50,
  "description": "Fresh red apples from organic farms.",
  "image": "apple.jpg"
}
```

2. Order Management:

1. **Endpoint Name**: `/orders`
   - **Method**: POST
   - **Description**: Create a new order in Sanity CMS.
   - **Payload Example**:

```
{
  "customer": {
    "name": "John Doe",
    "email": "john@example.com",
    "address": "123 Main St, City, Country"
  },
  "orderDetails": [
    { "productId": 1, "quantity": 3 },
    { "productId": 2, "quantity": 1 }
  ],
  "paymentStatus": "Paid"
}
```

   - **Response Example**:

```
{ "orderId": 12345, "status": "Order Placed", "total": 9.7 }
```

2. **Endpoint Name**: `/orders/Id`
   - **Method**: GET
   - **Description**: Fetch order details for a specific order.
   - **Response Example**:

```
{
  "orderId": 12345,
  "customer": {
    "name": "John Doe",
    "email": "john@example.com",
    "address": "123 Main St, City, Country"
  },
  "orderDetails": [
    { "productId": 1, "name": "Apple", "quantity": 3, "price": 
2.5 },
    { "productId": 2, "name": "Banana", "quantity": 1, "price": 
1.2 }
  ],
  "paymentStatus": "Paid",
  "total": 9.7,
  "status": "Processing"
}
```

3. Shipment Tracking:

1. **Endpoint Name**: `/shipment`
   - **Method**: GET
   - **Description**: Track order status via a third-party API.
   - **Response Example**:

```
{
  "shipmentId": "SHIP123",
  "orderId": 12345,
  "status": "In Transit",
  "expectedDelivery": "2025-01-20T15:00:00Z"
}
```

2. **Endpoint Name**: `/shipment/Id`
   - **Method**: GET
   - **Description**: Fetch detailed shipment tracking information.
   - **Response Example**:

```
{
  "shipmentId": "SHIP123",
  "orderId": 12345,
  "status": "Out for Delivery",
  "location": "City Warehouse",
  "expectedDelivery": "2025-01-20T15:00:00Z"
}
```