Marketplace Technical Foundation

QUICK GROCERY

Quarter 2
Hackathon 3
Task: Day 2
Student Umair Ahmed Siddiqui
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1. Introduction

The Quick Grocery Q-Commerce store aims to provide customers with real-time inventory updates from local departmental stores and fast delivery services using a trusted riding network. This document outlines the technical foundation for the platform, including system architecture, workflows, and API requirements.

2. Technical Requirements

Frontend Requirements

1. User Interface:
   - A dynamic and responsive design.
   - Essential pages: Home, Product List, Product Details, Cart, Checkout, Order Tracking.
2. Key Features:
   - Real-time product inventory display.
   - Order tracking with live rider location.
   - Search and filter functionality.
3. Technology Stack:
   - Framework: Next.js.
   - Styling: Tailwind CSS.

Backend Requirements

1. Data Management:
   - Sanity CMS for managing product, order, and customer data.
   - Integration with local departmental stores for inventory updates.
2. APIs:
   - Payment gateway API for secure transactions.
   - Delivery service API for rider tracking.

Third-Party APIs

1. Store Inventory API: Provides real-time stock updates.
2. Delivery API: Tracks rider location and delivery status.
3. Payment API: Handles secure transactions.

3. System Architecture

High-Level Architecture Diagram

Workflow Descriptions

1. Product Browsing:
   - Customers view products from Sanity CMS, updated via the Store Inventory API.
2. Order Placement:
   - Order details are saved in Sanity CMS, and payment is processed through the Payment Gateway.
3. Delivery Tracking:
   - Delivery status is updated in real-time via the Delivery API.

4. Data Schema

Entities and Attributes:

1. Customer:
   - customer_id (PK)
   - name
   - email
   - phone_number
   - address
   - total_spent
2. Order:
   - order_id (PK)
   - customer_id (FK)
   - order_status
   - order_total
   - payment_status
   - created_at
   - updated_at
3. Product:
   - product_id (PK)
   - product_name
   - price
   - quantity
   - store_id (FK)
   - size
   - weight
4. Store:
   - store_id (PK)
   - store_name
   - location
5. OrderItem:
   - order_id (FK)
   - product_id (FK)
   - quantity
   - price_per_item

Note: ‘PK’ stands for Primary Key and ‘FK’ stands for Foreign Key.

5. API Requirements

Products API:

- Endpoint: `/products`
- Method: GET
- Description: Fetches available grocery items.
- Response Example:

```
{
  "id": 101,
  "name": "Milk (1L)",
  "price": 2.5,
  "stock": 15,
  "storeId": 3,
  "lastUpdated": "2025-01-20T12:00:00Z"
}
```

Orders API:

- Endpoint: `/orders`
- Method: POST
- Description: Saves a new order.
- Payload Example:

```
{
  "customerId": 12,
  "products": [
      {"productId": 101, "quantity": 2},
      {"productId": 102, "quantity": 1}
      ],
  "totalAmount": 15.5
}
```

Delivery API:

- Endpoint: `/rider`
- Method: GET
- Description: Fetches real-time rider location.
- Response Example:

```
{
  "riderId": 5,
  "status": "En Route",
  "currentLocation": "Main Street, Block A",
  "ETA": "10 minutes"
}
```

6. Sanity Schema

Schema for Products

```
export default {
  name: 'product',
  type: 'document',
  title: 'Product',
  fields: [
    { name: 'productName', type: 'string', title: 'Product Name' },
    { name: 'price', type: 'number', title: 'Price' },
    { name: 'quantity', type: 'number', title: 'Stock Quantity' },
    { name: 'storeId', type: 'reference', to: [{ type: 'store' }], title: 'Store' },
    { name: 'size', type: 'string', title: 'Size (optional)' },
    { name: 'weight', type: 'string', title: 'Weight (optional)' },
    { name: 'lastUpdated', type: 'datetime', title: 'Last Updated' }
  ]
};
```

Schema for Stores

```
export default {
  name: 'store',
  type: 'document',
  title: 'Store',
  fields: [
    { name: 'storeName', type: 'string', title: 'Store Name' },
    { name: 'location', type: 'string', title: 'Location' }
  ]
};
```

Schema for Customers

```
export default {
  name: 'customer',
  type: 'document',
  title: 'Customer',
  fields: [
    { name: 'name', type: 'string', title: 'Full Name' },
    { name: 'email', type: 'string', title: 'Email' },
    { name: 'phoneNumber', type: 'string', title: 'Phone Number' },
    { name: 'address', type: 'text', title: 'Address' },
    { name: 'totalSpent', type: 'number', title: 'Total Spent' }
  ]
};
```

Schema for Orders

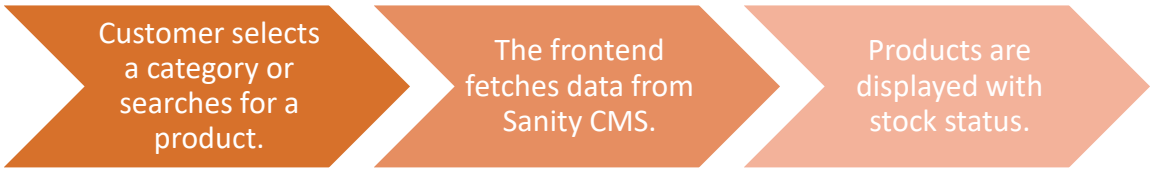
```
export default {
  name: 'order',
  type: 'document',
  title: 'Order',
  fields: [
    { name: 'customerId', type: 'reference', to: [{ type: 'customer' }], title: 'Customer' },
    { name: 'orderStatus', type: 'string', title: 'Order Status', options: { list: ['Pending', 'Shipped',
'Delivered', 'Cancelled'] } },
    { name: 'orderTotal', type: 'number', title: 'Total Amount' },
    { name: 'paymentStatus', type: 'string', title: 'Payment Status', options: { list: ['Paid', 'Pending',
'Failed'] } },
    { name: 'createdAt', type: 'datetime', title: 'Order Created At' },
    { name: 'updatedAt', type: 'datetime', title: 'Last Updated' }
  ]
};
```

Schema for Order Items

```
export default {
  name: 'orderItem',
  type: 'document',
  title: 'Order Item',
  fields: [
    { name: 'orderId', type: 'reference', to: [{ type: 'order' }], title: 'Order' },
    { name: 'productId', type: 'reference', to: [{ type: 'product' }], title: 'Product' },
    { name: 'quantity', type: 'number', title: 'Quantity' },
    { name: 'pricePerItem', type: 'number', title: 'Price Per Item' }
  ]
};
```

7. Key Workflows

1. Product Browsing Workflow:



2. Order Placement Workflow:

3. Delivery Tracking Workflow: