Marketplace Technical Foundation – Luxury Home Decore

Introduction

Our e-commerce platform aims to provide luxury home decor items, including vases, luxury chairs, fancy mirrors, and lamps. This document outlines the technical foundation required to build a scalable, user-friendly marketplace.

Define Technical Requirements:

1. Frontend Requirements:

- ***User-friendly Interface***
- ***Responsive Design*** - Ensure seamless navigation and browsing on mobile, tablet, and desktop devices.
- ***Essential Pages:***
    - Home:
        - Showcase featured collections, seasonal trends, and a prominent search bar.
        - Include sections for Latest Collection, Top Categories, Featured Products, and Trending Products.
    - About:
        - Highlight the brand story, mission, values, and what sets your home décor business apart.
    - Contact Us:
        - Provide a contact form for customer inquiries (fields for name, email, and message).
        - Include phone numbers, email addresses, and a physical address (if applicable).
        - Embed a Google Map for location visibility.
    - Product Listing/Shop:
        - Offer filtering options (e.g., by price).
    - Product Details:
        - Highlight product features such as dimensions, materials, variations and care instructions.
        - Provide customer reviews and ratings.
    - Cart:
        - Include an estimated shipping cost calculator.
    - Checkout:
        - Enable guest checkout and account creation options.
        - Include secure payment fields and shipping address validation.
    - Order Confirmation:
        - Show order summary with delivery timeframes and tracking details.

2. Sanity CMS as Backend:

Sanity CMS for managing product data, orders, and customer details.

Here’s a detailed schema design for **Product**, **Order**, **Customer**, **Payment**, **Shipment**, and **Delivery Zone** using Sanity CMS:

[Product]

```
export interface Product {
 _id: string;
name: string;
description: string;
price: number;
images: { _type: 'image'; asset: { _ref: string; _type: 'reference' } }[];
dimensions: string;
material: string;
stock: number;
category: string;
tags: string[];
reviews: number
}
```

[Order]

```
export interface Order {
_id: string;
productID: string;
Quantity: number
totalAmount: number;
orderDate: string
}
```

[Customer]

```
export interface Customer {
_id: string;
name: string;
email: string;
phone: string;
address: string;
}
```

[Payment]

```
export interface Payment {
 _id: string;
order: Order;
paymentMethod: 'Credit Card' | 'PayPal' | 'Stripe' ;
status: 'Pending' | 'Completed' | 'Failed';
transactionId: string;
Amount: number;
paymentDate: string;
 }
```

[Shipment]

```
export interface Shipment {
 _id: string;
order: Order;
trackingNumber: string;
status: 'Pending' | 'In Transit' | 'Delivered' | 'Cancelled';
estimatedDelivery: string;
 }
```

[Delivery Zone]

```
export interface DeliveryZone {

 _id: string;

zoneName: string;

coverageareas: string[];

shippingCost: number;

carrier/assignedDrivers: string;

}
```

3. Third-Party APIs:

- **Shipment Tracking**:
  Integrate APIs like Shippo to provide real-time tracking updates.
- **Payment Gateways**:
  Use Stripe and Use-Shopping-Cart for payment gateway.
- **Contact Form**:
  Use an API like SendGrid or Mailgun to handle form submissions and email notifications.
- **Google Maps**:
  Embed Google Maps for the Contact Us page to display your location.

Design System Architecture:

1. Key Workflows:

- **User Registration**
  - **Frontend (Next.js)** → User fills out the registration form.
  - **Sanity CMS** → User data is stored in the CMS (e.g., name, email, password).
  - **Confirmation** → A confirmation email is sent to the user.
- **Product Browsing**
  - **Frontend (Next.js)** → User browses product categories.
  - **Product Data API (Sanity CMS)** → Fetches product data (e.g., images, descriptions, prices) from Sanity CMS.
  - **Frontend (Next.js)** → Displays product listings dynamically on the website.
- **Order Placement**
  - **Frontend (Next.js)** → User adds items to the cart and proceeds to checkout.
  - **Frontend (Next.js)** → Order details (items, quantities, user information) are sent to Sanity CMS.
  - **Sanity CMS** → Stores the order details in the database.
  - **Payment Gateway** → Securely processes the payment and confirms the transaction.

- **Shipment Tracking**
  - **Sanity CMS** → Updates the order with shipping details (e.g., tracking number, carrier).
  - **Third-Party APIs (Shipment Tracking API)** → Fetches real-time shipment status.
  - **Frontend (Next.js)** → Displays shipment status (e.g., "In Transit", "Delivered") to the user.

High-level Diagram:

[Frontend (Next.js)]

|

|-----> [Sanity CMS] <---------> [Product Data API]

| |

| |---> [Order Data API]

|

|-----> [Payment Gateway] (e.g., Stripe)

|

|-----> [Third-Party APIs] (e.g., Shipment Tracking API)

Plan API Requirements:

1. Endpoint: /products

- **Method**: GET
- **Description**: Fetch all available products.
- **Response Example**:

```
[
  {
    "_id": "prod_001",
    "name": "Wooden Coffee Table",
    "description": "A stylish wooden coffee table.",
    "price": 150,
    "images": [
      { "_type": "image", "asset": { "_ref": "image_ref_001", "_type": "reference" } }
    ],
    "dimensions": "120x60x45 cm",
    "material": "Wood",
    "stock": 25,
    "category": "Living Room",
    "tags": ["sale", "new arrival"],
    "reviews": 4.5
  }
]
```

2. Endpoint: /order

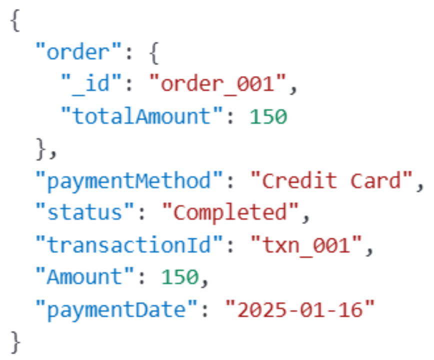
- **Method:** POST
- **Description:** Create a new order.
- **Payload:** **Response Example:**

```
{
  "productID": "prod_001",
  "Quantity": 2,
  "totalAmount": 300,
  "orderDate": "2025-01-16"
}
```

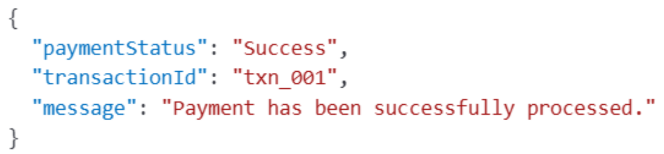
```
{
  "status": "Success",
  "message": "Order created successfully.",
  "order": {
    "_id": "order_001",
    "productID": "product_001",
    "quantity": 2,
    "totalAmount": 600,
    "orderDate": "2025-01-16"
  }
}
```

4. Endpoint: /payment

- **Method:** POST
- **Description:** Process payment for an order.
- **Payload:** **Response Example:**



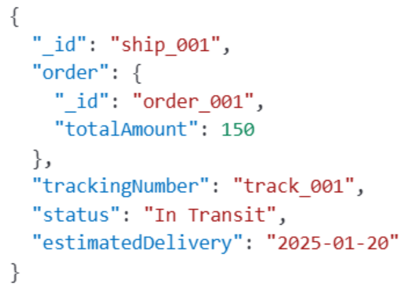
```
{
  "order": {
    "_id": "order_001",
    "totalAmount": 150
  },
  "paymentMethod": "Credit Card",
  "status": "Completed",
  "transactionId": "txn_001",
  "Amount": 150,
  "paymentDate": "2025-01-16"
}
```



```
{
  "paymentStatus": "Success",
  "transactionId": "txn_001",
  "message": "Payment has been successfully processed."
}
```

5. Endpoint: /shipment

- **Method**: GET
- **Description**: Track the shipment status for an order.
- **Response Example**:



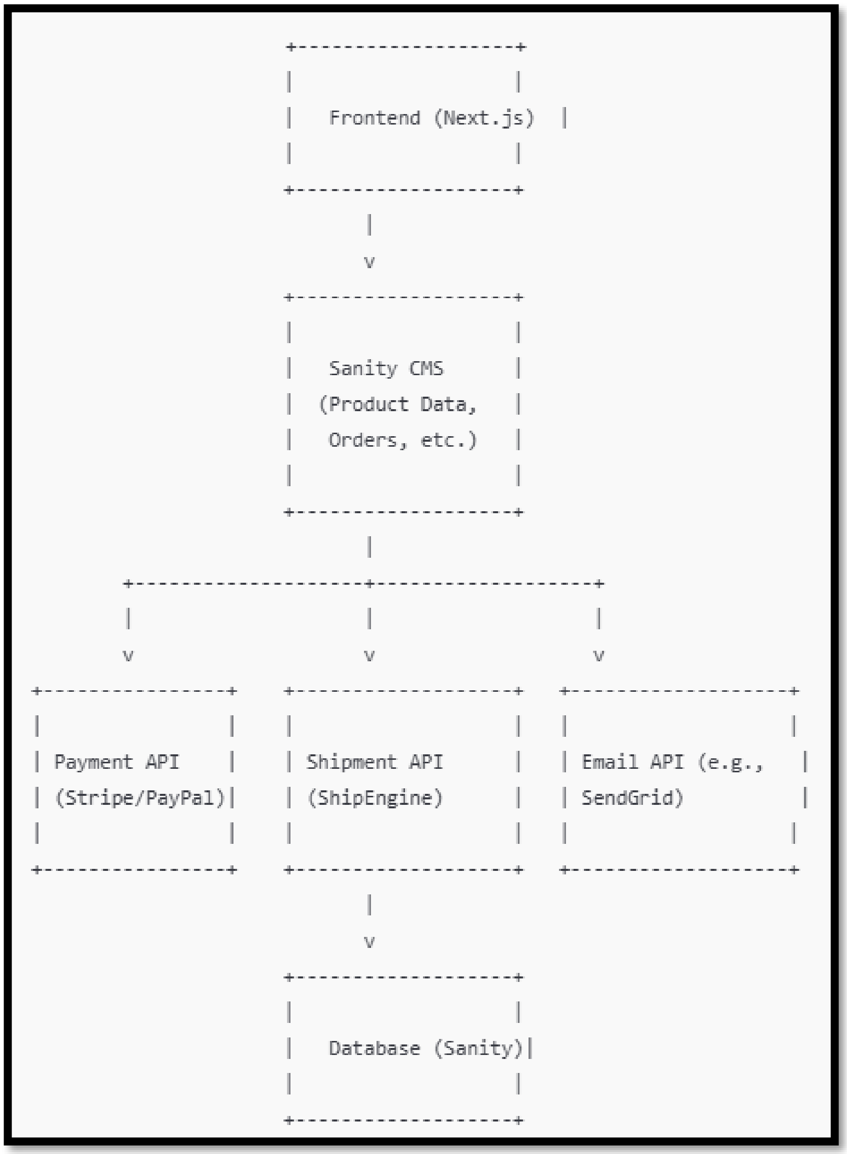
```
{
  "_id": "ship_001",
  "order": {
    "_id": "order_001",
    "totalAmount": 150
  },
  "trackingNumber": "track_001",
  "status": "In Transit",
  "estimatedDelivery": "2025-01-20"
}
```

6. Endpoint: /delivery-zone

- **Method**: GET
- **Description**: Fetch all delivery zones and their details.
- **Response Example**:

```
[
  {
    "_id": "zone_001",
    "zoneName": "Zone 1",
    "coverageareas": ["City A", "City B"],
    "shippingCost": 20,
    "carrier": "Carrier 1",
    "assignedDrivers": "Driver 1, Driver 2"
  }
]
```

Write Technical Documentation:



```
                +-------------------+
                |                   |
                |   Frontend (Next.js)  |
                |                   |
                +-------------------+
                        |
                        v
                +-------------------+
                |                   |
                |   Sanity CMS      |
                |  (Product Data,   |
                |   Orders, etc.)   |
                |                   |
                +-------------------+
                        |
       +--------------------+-------------------+
       |                    |                   |
       v                    v                   v
+----------------+   +-------------------+  +-------------------+
|                |   |                   |  |                   |
| Payment API    |   | Shipment API      |  | Email API (e.g.,   |
| (Stripe/PayPal)|   | (ShipEngine)      |  | SendGrid)          |
|                |   |                   |  |                   |
+----------------+   +-------------------+  +-------------------+
                        |
                        v
                +-------------------+
                |                   |
                |   Database (Sanity)|
                |                   |
                +-------------------+
```

Explanation of the Diagram:

1. **Frontend (Next.js)**:
    - The user interacts with the frontend, which is built using Next.js. The frontend displays products, manages the cart, and handles the checkout process.
    - It communicates with Sanity CMS to fetch product data and manage orders.
    - It also interacts with third-party APIs for payment processing and shipment tracking.
2. **Sanity CMS**:
    - Sanity acts as the backend database and CMS. It stores product data, customer information, and order details.
    - The frontend makes API requests to Sanity to fetch and display product details, add orders, and track inventory.
3. **Third-Party APIs**:
    - **Payment API** (e.g., Stripe or PayPal): Handles payment transactions when users make purchases.
    - **Shipment API** (e.g., ShipEngine, AfterShip): Tracks the shipment status of orders, including real-time updates on delivery.
    - **Email API** (e.g., SendGrid): Sends email notifications to customers for order confirmations, shipping updates, etc.
4. **Database (Sanity)**:
    - Sanity CMS also functions as a database for storing the products, orders, and other relevant data. It is tightly integrated with the frontend and third-party services.