E-Commerce Platform Documentation

Introduction

This document outlines the architecture of a modern e-commerce platform. Built with **Next.js** and **TypeScript**, the platform integrates **Sanity CMS** for content management, alongside robust APIs for payment and shipment tracking. Below is a detailed explanation of the system's structure and workflows.

System Overview

Frontend Design

- **Framework**: Next.js 14 with TypeScript for server-side rendering (SSR) and enhanced performance.
- **Primary Pages**:
    - **Homepage**: Displays featured collections and trending items.
    - **About Us**: Shares details about the brand and its story.
    - **Products**: Lists all available furniture pieces.
    - **Product Details**: Dynamically renders individual product details via route parameters.
    - **Cart**: A simplified interface for viewing and editing cart items.
    - **User Portal**:
        - **Login/Sign Up**: Manages user authentication.
        - **Dashboard**: Displays user-specific data, such as order history and shipping updates.

Core Components

- **Reusable Elements**:
    - **ProductTile.tsx**: A versatile card component to showcase furniture items.
    - **HeroBanner.tsx**: Highlights featured promotions or new collections.
    - **CategoryList.tsx**: Lists product categories for easy navigation.
- **Feature Components**:
    - **TrendingProducts.tsx**: Displays popular items dynamically.
    - **Testimonials.tsx**: Showcases customer reviews.

Content Management System (CMS)

- **Sanity Features**:
  - **Products**: Stores data such as pricing, descriptions, and stock levels.
  - **Orders**: Tracks customer purchases and fulfillment status.
  - **Users**: Manages user profiles and credentials.
  - **Inventory**: Maintains real-time stock updates.
  - **Analytics**: Tracks sales trends and product performance.
- **Data Handling**:
  - **Custom Schemas**: Define structures for products, orders, users, and inventory.
  - **Real-Time Queries**: Fetch up-to-date content using GROQ.

Backend API Integrations

Mock APIs

- Simulate backend operations for seamless testing:
  - `/api/products`: Fetch product details.
  - `/api/cart`: Handle cart-related operations.
  - `/api/orders`: Manage order processing.

Payment System

- **Stripe Integration**:
  - Facilitates secure transactions using **Stripe Elements**.
  - Mock payment functionality during development.

Shipment Tracking

- **Ship Engine API**:
  - **Endpoints**:
    - Create shipments and generate tracking numbers.
    - Fetch real-time tracking details for user convenience.

User Workflows

Customer Journey

1. **Browse Products**:
   - Items are dynamically rendered from Sanity's dataset.
2. **Add to Cart**:
   - Users can save selected products to a cart stored locally or linked to their account after logging in.
3. **Place Order**:

    - Users provide shipping and payment details via a streamlined checkout flow.
4. **Track Shipment**:
    - Shipment details and status updates are displayed in the user dashboard.

Technologies Used

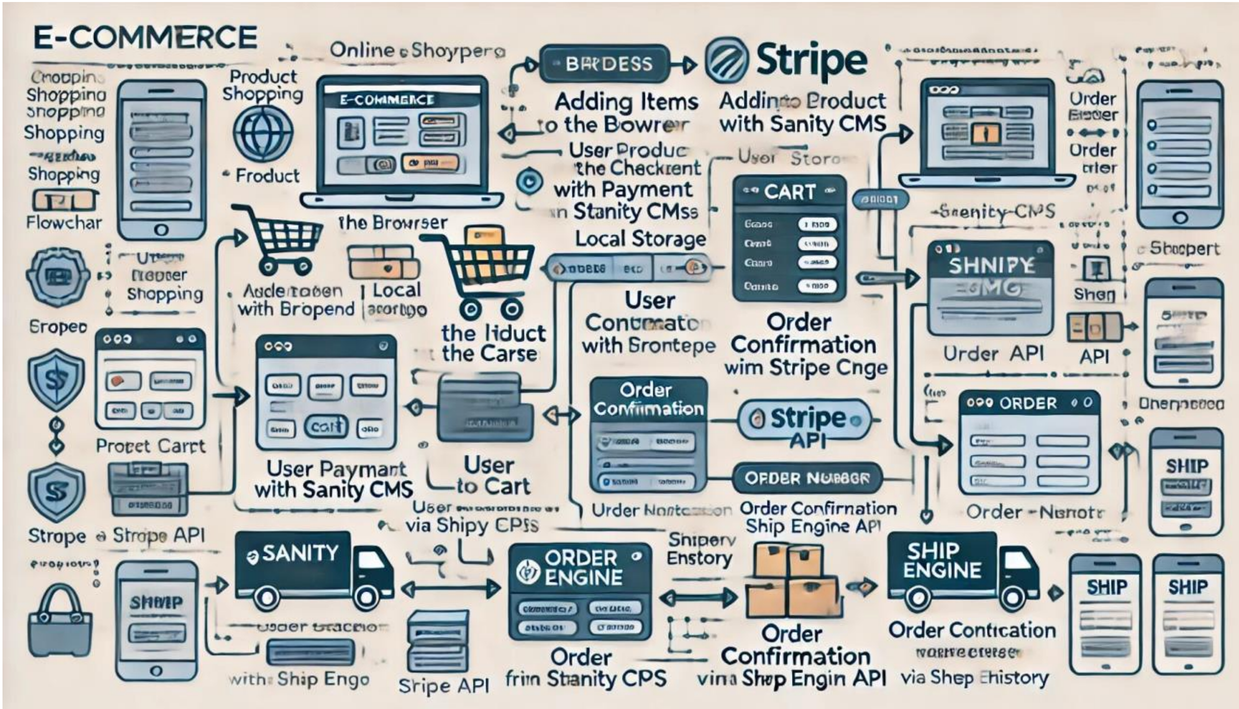
- **Frontend**: Next.js 14 with TypeScript for modular and scalable development.
- **CMS**: Sanity for real-time content management.
- **Payment Gateway**: Stripe for secure online transactions.
- **Shipping Integration**: Ship Engine API for efficient order tracking.
- **Hosting**: Vercel for seamless deployment and performance optimization.

Data Flow

1. **Products**: Sourced from Sanity, ensuring real-time updates on the frontend.
2. **Cart Data**: Temporarily stored in local storage, synced to the user account after login.
3. **Orders**: Persisted in Sanity, accessible to both users and admins.
4. **Payments**: Managed securely via Stripe API.
5. **Shipment Tracking**: Real-time updates fetched from the Ship Engine API.

Conclusion

This architecture offers a robust foundation for an e-commerce platform. By leveraging the flexibility of Next.js, the scalability of Sanity, and integrations with Stripe and Ship Engine, the platform is well-equipped to deliver a smooth and modern shopping experience.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