Technical Planning

Introduction

This document presents a comprehensive technical plan for creating an e-commerce marketplace designed to empower small businesses and individuals. The platform will enable sellers to list products and customers to shop seamlessly.

Core Technologies

- **Frontend Framework:** Next.js
- **Content Management**: Sanity CMS
- **Order Tracking**: ShipEngine API
- **Hosting**: Vercel (frontend),
- **Payment Gateways**: Stripe, Jazz Cash, Easy Paisa

System Architecture

Frontend (Next.js)

- Combines server-side and client-side rendering for a balance of optimization and fast interactivity.
- Pulls dynamic content from Sanity CMS for real-time updates.

Content Management (Sanity CMS)

- Used to manage marketing materials, product highlights, and homepage banners with a user-friendly interface.
- Ensures integration with external services like payment gateways and shipping APIs.
- Managing product details, order information, order history, client data, and payment records efficiently.

Order Tracking

- Real-time shipment updates are powered by ShipEngine, offering accurate delivery information to users.

Payments

- Secure and flexible payment processing through Stripe and local payment options.

Deployment Infrastructure

- hosted on Vercel for efficient scaling and CI/CD pipelines

System Workflows and Components

1. **User Authentication**:
   - APIs manage user registration, login, and verification.
2. **Dynamic Content Management**:
   - Admins use Sanity CMS to manage product catalogs, banners, and marketing content.
   - The frontend fetches and displays updated content via GROQ queries.
3. **Product Catalog and Checkout Process**:
   - Server-side rendered product pages enhance user experience and SEO.
   - Sanity support browsing, filtering, and adding items to the cart.
4. **Order Management and Tracking**:
   - Orders are processed through backend APIs, with status updates available in real time.
   - ShipEngine integration ensures accurate delivery tracking.
5. **Payments**:
   - Payment gateways like jazz cash enable secure online transactions.
   - Supports multiple options, including COD, for user convenience.

API Endpoints

User Management

- Method:(POST) /api/auth/register – Register a new user.
- Method:(POST) /api/auth/login – Authenticate a user.
- Method:(GET) /api/users/profile – Retrieve user profile (authentication required).
- Method:(PUT) /api/users/update – Update user details.

Products

- Method:(GET) /api/products – Retrieve all products.
- Method:(GET) /api/products/:id – Get details of a specific product.
- Method:(POST) /api/products – Add a product (requires admin/seller access).

Orders

- Method:(POST) /api/orders – Create a new order.

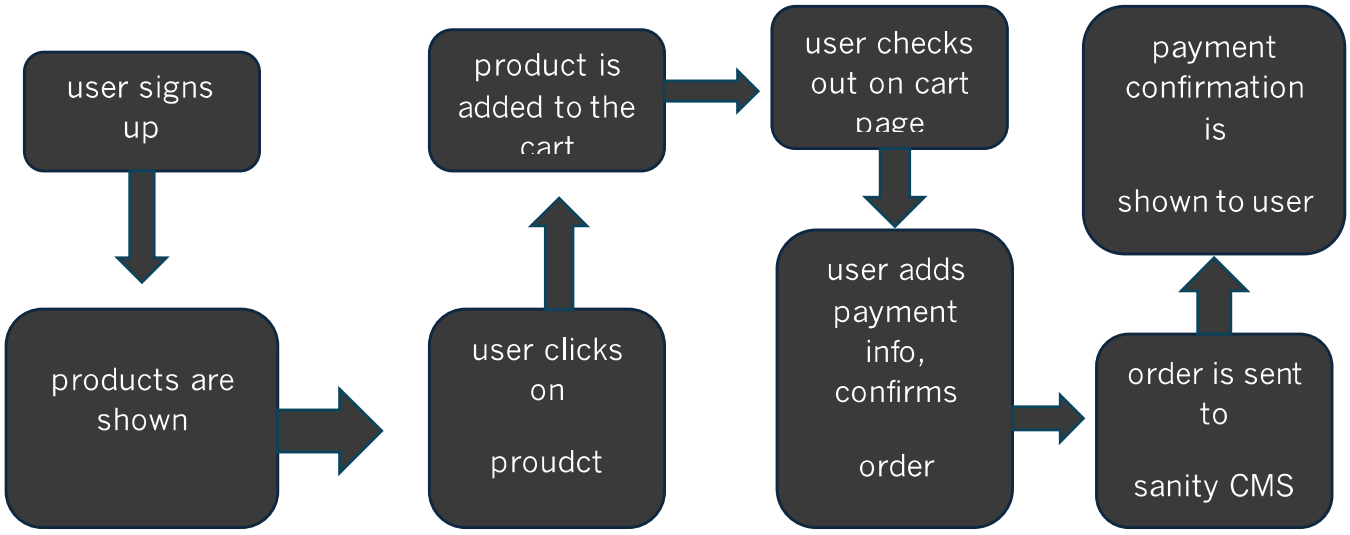
Payments

- Method:(POST) /api/payments – Process a payment.
- Method:(GET) /api/payments/status – Retrieve the status of a payment.

Shipments

- Method:(POST) /api/shipments – Create a shipment.
- Method:(GET) /api/shipments/track – Track shipment delivery.

User interactions with the frontend



Integration Overview

1. **Sanity CMS**:
    a. Manages homepage banners, product highlights, and blog content.
    b. GROQ queries provide dynamic updates to the frontend.
2. **ShipEngine**:
    a. Handles shipping label generation and live tracking updates.
3. **Stripe**:
    a. Supports secure payment processing, refunds, and subscriptions.

Deployment Strategy

1. **Deployment**:
    - Hosted on Vercel with automated builds and deployment from GitHub

Closing Summary

This technical blueprint provides a detailed roadmap for creating a modern and scalable e-commerce platform. By leveraging advanced frameworks and services, this marketplace will deliver an exceptional user experience while supporting small businesses in their growth journey.