Marketplace Builder Hackathon 2025 (Day-2)

General E-Commerce Marketplace Plan

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Objective

To build a scalable, user-friendly e-commerce platform with the following features:

- Product browsing and management via Sanity CMS.
- Authentication using Clerk.
- Order tracking with ShipEngine API.
- Secure payments via Stripe.
- Modern tools like `useContext` for cart functionality.

System Architecture Diagram

Graph TD:

- User[User] -->|Signin| Clerk → [**Clerk Authentication**]
- User -->|Browses| Frontend → [**Next.js**]
- Frontend -->|Fetches Data| → [**Sanity CMS**]
- Frontend -->|Manages Cart| → [**useContext API**]
- Frontend -->|Places Order| → [**Stripe Checkout**]
- Frontend -->|Generates Label| → [**ShipEngine API**]
- Sanity -->|Stores| → [**Product Data**]
- ShipEngine -->|Tracks Order| → [**Order Tracking**]

Features & Workflow

Frontend

- **User Authentication (Clerk):**
    - Use Clerk's pre-built authentication components.
    - Manage user sessions without storing data in Sanity CMS.

- **Product Browsing:**
    - Fetch and display products from Sanity CMS using GROQ queries.
- **Cart Management:**
    - Use useContext to manage cart state globally.
    - Add/remove items and calculate totals dynamically.
- **Checkout Process:**
    - Collect user details and payment via Stripe-hosted checkout.
    - Display order confirmation after successful payment.
- **Order Tracking:**
    - Generate a shipping label ID using ShipEngine.
    - Provide label ID to users for tracking.

Backend

- **Sanity CMS:**
    - Manage products and orders using Sanity Studio.
- **Custom APIs:**
    - /api/products: Fetch product data.
    - /api/shipping-label: Generate shipping labels using ShipEngine.
    - /api/track-order: Retrieve tracking details using ShipEngine.
    - /api/checkout: Integrate with Stripe for payments.
- **Admin Panel:**
    - Use Sanity Studio for inserting and managing data.

API Requirements

Endpoint	Method	Description
/api/products	GET	Fetch product data from Sanity CMS.
/api/shipping-label	POST	Generate a shipping label using ShipEngine.
/api/track-order	GET	Retrieve order status using ShipEngine label ID.
/api/checkout	POST	Integrate Stripe for payment processing.

Tools & Libraries

- **Clerk:** Authentication.
- **Sanity CMS:** Content management.
- **ShipEngine API:** Shipping and tracking.
- **Stripe:** Payment gateway.
- **React Context API:** Cart functionality.

Data Models

Sanity Schemas

Product Schema:

```
export default {
  name: 'product',
  title: 'Product',
  type: 'document',
  fields: [
    { name: 'name', type: 'string' },
    { name: 'subname', type: 'string' },
    { name: 'discount', type: 'number' },
    { name: 'price', type: 'number' },
    { name: 'description', type: 'text' },
    {
      name: 'image',
      type: 'image',
      options: {
        hotspot: true, // Optional: This
        allows image cropping in the
        Sanity Studio
      },
    },
  ],
};
```

Deliverables

1. **System Architecture Diagram:** Shows component interaction.
2. **Sanity Schemas:** For products and orders.
3. **API Endpoints:** For shipping, tracking, and payments.
4. **Frontend Pages:** Authentication, product browsing, cart management, and order confirmation.
5. **Portfolio-Ready Submission:** Polished project showcasing full-stack e-commerce skills.