DAY 02 OF HACKATHON

PLANNING THE TECHNICAL FOUNDATION

Introduction:

Today, we are focusing on building the technical foundation for our marketplace, creating a high-level architecture diagram, and outlining how system components interact.

System Overview:

Our marketplace will connect users to a dynamic inventory of products fetched from a backend CMS (Sanity) and external APIs. The frontend will be built using Next.js and styled with Tailwind CSS, while payment gateways like Stripe and PayPal handle transactions.

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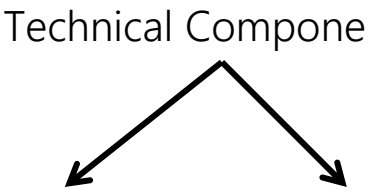
System Architecture Diagram

Below is a high-level architecture diagram illustrating the interaction between the frontend, backend, and external services.



Frontend

Framework: Next.js

Styling: TailWind Css

Key pages:

- Landing page
- Product Details Page
- Checkout Page
- Login/Register Page
- Orders Page

Backend

CMS: Sanity CMS

Data Models:

- Product
  (Name, Description, Price, Discount etc)
- Users
  (Name, Email, Phone, Address, etc)
- Orders:
  (Shipment ID, Customer Info, Payment Status)

External APIs

Product API: Fetch from sanity.

Payment Gateways:

- Stripe: Card payments.
- PayPal: Account and linked card payments.

User Flow

Landing Page → Product Details Page

- User lands on the homepage.
- Product data is fetched from Sanity CMS.
- User clicks a product to see details.

Next Actions: User click on a specific product to

- Frontend (Next.js) sends a request to the backend (Sanity CMS) to fetch product data.
- Backend retrieves product details (name, price, discount, buying percentage, availability) and sends them to the frontend.
- Frontend displays the list of products.

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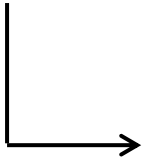
- Frontend (Next.js) sends a request to the backend (Sanity CMS) to fetch product data.
- Backend retrieves product details (name, price, discount, buying percentage, availability) and sends them to the frontend.
- Frontend displays the list of products.

Product Details Page → Checkout

User selects one of three options:

- Add to Wishlist: Saves the product for later.
- Add to Cart: Adds the product to the shopping cart for future checkout.
- Proceed to Checkout: Moves to payment and shipping details.



If "Add to Wishlist" is selected:

- Frontend sends a request to the backend to update the user's wishlist with the selected product.
- Confirmation is displayed to the user.

If "Add to Cart" is selected:

- Frontend sends a request to update the user's cart in the backend.
- Confirmation is displayed to the user.

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Checkout Flow

Logged-In User:

- User is directed to the Checkout Page.
- Frontend fetches:
  - User's saved shipping address from the backend.
  - Product details in the cart from the backend.
- Displays:
  - Shipping address (with an option to add a new address).
  - Shipping fee and estimated delivery time.
  - Total price, including discounts and taxes.
  - Payment options (Stripe or PayPal).
- User selects a payment option and proceeds.

Guest User:

- User is redirected to the Login/Register Page.
- Provides:
  - Name, Email, Password, Phone Number.
  - Optionally, shipping address.
- Backend saves user details in the database.
- User is redirected back to the Checkout Page to proceed.

Payment:

- User selects a payment method:
  - Stripe: Enters card details securely.
  - PayPal: Redirected to PayPal for account-based payment.
- Payment Gateway verifies the payment and sends a success/failure status back to the backend.

Abd

1. Post-Payment Actions:
   - If payment is successful:
     - Order data is saved in the backend:
       - Shipment ID
       - Customer ID
       - Customer contact details (phone, email, address)
       - Payment status
       - Product details
     - Backend triggers email confirmation to the user (optional).
     - User is redirected to the Order Confirmation Page.
   - If payment fails:
     - User is notified and can retry.

Login/Register Flow

Guest User Navigating to Checkout:

Redirected to the Login/Register Page.

User Action:

- For login: Enters email and password.
- For registration: Provides name, email, phone number, and password.

System Response:

- Backend verifies login credentials or creates a new user record.
- On successful login/registration:
    - User session is created.
    - Redirects the user to the previous page (e.g., Checkout).

Technical Roadmap

Phase 1: Project Setup and Planning

Goals and Scope

- Define project objectives, features, and scope.
- Finalize technology stack: Next.js, Tailwind CSS, Sanity CMS, Stripe, PayPal.

Development Environment Setup

- Initialize a GitHub repository.
- Set up Next.js project and integrate Tailwind CSS.
- Configure Sanity CMS for the backend.

API Documentation

- Define endpoints for user, product, order, and payment management.

Phase 2: Frontend Development

Design System

- Create reusable components using Tailwind CSS for consistent UI/UX.

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Core Pages

1. Landing Page: Fetch and display products from Sanity CMS.
2. Product Details Page: Show product information and actions (add to cart, wishlist, etc.).
3. Checkout Page: Display cart summary, shipping address, and payment options.
4. Login/Register Page: Authentication for guest users.
5. Orders Page: Show order history and shipment statuses.

Integration

- Connect frontend with backend APIs for dynamic data.

Phase 3: Backend Development

Sanity CMS Setup

- Define schemas for products, users, orders, and payments.
- Enable webhooks for real-time updates.

API Integration

- Implement the Api which given :

Phase 4: Third-Party Integrations

Payment Gateways

- Integrate Stripe and PayPal APIs for secure transactions.

External Product API

- Set up synchronization with external APIs for product updates.

Phase 5: Testing and Deployment

Testing

- Unit tests for components and APIs.
- End-to-end tests for key user flows (checkout, payment, order tracking).

Deployment

- Deploy the frontend on Vercel.
- Deploy Sanity CMS on a managed platform.

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