

Hackathon Day 2: Technical Foundation

“Avion” Décor and Furniture E-Commerce Website

Platform Architecture

Our **furniture and decor e-commerce platform** is designed using cutting-edge technologies to ensure scalability, maintainability, and an excellent user experience:

- **Next.js 14:** A fast and scalable frontend framework.
 - **TypeScript:** Ensures robust, maintainable, and error-free code.
 - **Sanity CMS:** Facilitates seamless content and data management.
 - **Tailwind CSS:** Enables customized, responsive, and visually appealing designs.
 - **Node.js:** Powers the backend with efficiency and reliability.
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Key Components

1. **Website Pages & Components:** Enhance the user experience with smooth navigation.
 2. **Admin Functionalities:** Enable efficient management (e.g., product and order control).
 3. **Sanity CMS:** Provides seamless data management and real-time updates.
 4. **Payment Gateway Integration:** Secure and fast payment processing with Stripe.
 5. **Search Functionality:** Helps users find products effortlessly.
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System Architecture

Frontend

Built with **Next.js 14** and **TypeScript**, the frontend delivers fast server-side rendering (SSR) and dynamic routing.

Routes:

- Home
- About
- Products
- Products/[slug] (dynamic route for product details)
- Cart
- Checkout

Components

Product Components:

- **ProductCard.tsx**: Displays product summaries.
- **ProductDetails.tsx**: Provides a detailed product view.

Reusable Components:

- UpNavbar
- DownNavbar
- HeroSection
- NavbarLinks
- BrandCard
- BrandSection
- FeatureCeramics
- Cart
- SignUp_Login
- Checkout
- Payment
- Shipment
- UserDetail
- PaymentForm

All reusable components are designed with **.tsx** extensions for consistency and scalability.

Sanity (Headless CMS)

- **Data Models:**
 - **Products**: Stores product details (e.g., name, price, category, stock).
 - **Users**: Manages user data like login credentials and order history.
 - **Orders**: Tracks items purchased, quantities, and shipping info.
 - **Shipments**: Manages shipment tracking via the Shippo API.
 - **Analytics**: Tracks sales, revenue, and product performance.
- **Data Management:**
 - **Schemas**: Define structures for products, orders, shipments, etc.
 - **GROQ Queries**: Fetch real-time data from Sanity's content lake.

API Management

Third-Party APIs:

- **Stripe API**: Secure payment processing.
- **Shippo API**: Real-time shipment tracking and logistics management.

API Integration:

- Axios library ensures seamless communication with third-party services.
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Payment Gateway Integration

Stripe:

- **Purpose:** Secure payment processing.
 - **Features:**
 - Use **Stripe Elements** for collecting payment details.
 - Process payments via the Stripe API, ensuring safety and efficiency.
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Shipment Tracking

Shippo API:

- **Purpose:** Real-time order and shipment tracking.
 - **Features:**
 - Displays live shipment tracking information on the user's order history page.
 - Provides updates via **Shipment.tsx** for a seamless user experience.
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Workflow

1. **Visit Home Page**
 - Users browse dynamically fetched products from Sanity via third-party API integration.
 2. **Add to Cart**
 - Users click "Add to Cart" to prepare for checkout.
 3. **Checkout**
 - On the Checkout page, users provide shipping and payment details.
 4. **Payment Processing**
 - Payment data is securely processed through Stripe via the **PaymentForm.tsx** component.
 5. **Shipment Tracking**
 - After payment, shipment details are fetched from the Shippo API and displayed dynamically on the user's order history page.
 6. **User Portal**
 - Logged-in users can access their portal to view order and shipment history.
 - User data is fetched and matched from Sanity CMS for a personalized experience.
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🌟 Conclusion

This thoughtfully crafted architecture ensures the platform remains:

- **Scalable:** Built with reusable components and dynamic pages.
- **Flexible:** Powered by Sanity CMS for efficient content management.
- **Secure:** Backed by reliable third-party APIs like Stripe and Shippo for payment and shipment functionality.

By combining advanced technologies with a user-centric workflow, this platform delivers a seamless, robust, and efficient e-commerce experience. 🚀