### **Marketplace Technical Foundation [E-Commerce]**

#### **System Architecture Overview:**

* **Website**:
  + **Frontend**:
    - **Next.js**: For building modern, dynamic, and server-rendered UIs.
    - **Tailwind CSS**: For creating a responsive and visually appealing design.
    - **Vercel Deployment**: Ensures fast and reliable deployment for Next.js applications.
  + **Backend**:
    - **TypeScript (TS)**: Provides strong typing and enhances code clarity and maintainability.
    - **Sanity CMS**: A flexible platform to manage and structure content effectively.
    - **Development Tools**: Various tools for development and debugging purposes.
  + **APIs & Integrations**:
    - **Ship Engine**: For shipment tracking and delivery management.
    - **Stripe**: For secure and reliable payment processing.
    - **Postman**: A tool used for API testing.
    - **SMS Notifications**: Integrated via **Twilio** or **Nexmo** for sending SMS updates to users.

#### **System Architecture Flowchart:**

Frontend (Next.js) <--> Tailwind CSS <--> Vercel Deployment

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Backend (TypeScript) <--> Sanity CMS

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APIs & Integrations: Ship Engine, Stripe, SMS Notifications

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Postman (API Testing Tool)

#### **Key Features & Workflows:**

* **Features**:
  + **Product Listing Page**: Display a list of products available for purchase.
  + **Product Detail Page**: Show detailed product descriptions, images, sizes, and colors.
  + **Cart Page**: Users can add products to their cart, view totals, and proceed to checkout.
  + **Wishlist Page**: Users can save products for future purchases.
  + **Checkout Page**: Securely complete purchases via **Stripe**.
  + **Payment Integration**: Handle payment securely through **Stripe**.
  + **Shipping Label Generation & Order Tracking**: Managed via **Ship Engine**.
  + **Product & Order Management**: Manage products and orders effectively via **Sanity CMS**.
  + **SMS Notifications**: Notify users about order status, promotions, or cart reminders.
* **Main Pages**:
  + **HOME**
  + **PRODUCT LISTING**
  + **PRODUCT DETAIL**
  + **CART**
  + **WISHLIST**
  + **CHECKOUT**
  + **SIGNUP**
  + **LOGIN**
  + **ABOUT**
  + **SHOP**
  + **CONTACT**

#### **Main Pages Flowchart:**

[HOME] <--> [PRODUCT LISTING] <--> [PRODUCT DETAIL]

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[CART] <--> [WISHLIST] <--> [CHECKOUT] --> [Payment via Stripe]

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[Order Confirmation] --> [Shipping via Ship Engine] --> [SMS Notifications]

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[Product & Order Management via Sanity CMS]

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[Main Pages]

[SIGNUP] <--> [LOGIN] <--> [SHOP] <--> [ABOUT] <--> [CONTACT]

#### **API Endpoints:**

* **Authentication**:
  + POST /api/signup: Register a new user.
  + POST /api/login: Authenticate the user and provide access token.
* **Products**:
  + GET /api/products: Fetch all products.
  + GET /api/products/:id: Get details of a specific product.
  + POST /api/products: Add a new product.
  + PUT /api/products/:id: Update product details.
  + DELETE /api/products/:id: Delete a specific product.
* **Cart**:
  + GET /api/cart: Fetch the user's cart.
  + POST /api/cart: Add an item to the cart.
  + DELETE /api/cart/:id: Remove an item from the cart.
* **Wishlist**:
  + GET /api/wishlist: Fetch the user's wishlist.
  + POST /api/wishlist: Add an item to the wishlist.
  + DELETE /api/wishlist/:id: Remove an item from the wishlist.
* **Checkout & Payment**:
  + POST /api/checkout: Process checkout.
  + POST /api/payment: Handle Stripe payment processing.
* **Order Management**:
  + GET /api/orders: Fetch order history.
  + GET /api/orders/:id: Get specific order details.
  + POST /api/orders: Create a new order.
  + PUT /api/orders/:id: Update order status.
  + DELETE /api/orders/:id: Cancel an order.
* **Shipping**:
  + POST /api/shipping: Generate a shipping label.
  + GET /api/shipping/:id: Track the order shipment.
* **Notifications**:
  + POST /api/notifications/sms: Send an SMS notification to the user.

#### **API Endpoints Flowchart:**

Authentication

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[POST /api/signup] --> [POST /api/login]

Products

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[GET /api/products] --> [GET /api/products/:id]

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[POST /api/products] --> [PUT /api/products/:id] --> [DELETE /api/products/:id]

Cart

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[GET /api/cart] --> [POST /api/cart] --> [DELETE /api/cart/:id]

Wishlist

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[GET /api/wishlist] --> [POST /api/wishlist] --> [DELETE /api/wishlist/:id]

Checkout & Payment

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[POST /api/checkout] --> [POST /api/payment]

Order Management

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[GET /api/orders] --> [GET /api/orders/:id] --> [POST /api/orders] --> [PUT /api/orders/:id] --> [DELETE /api/orders/:id]

Shipping

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[POST /api/shipping] --> [GET /api/shipping/:id]

Notifications

|

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[POST /api/notifications/sms]