# eCommerce Website System Architecture

## Overview

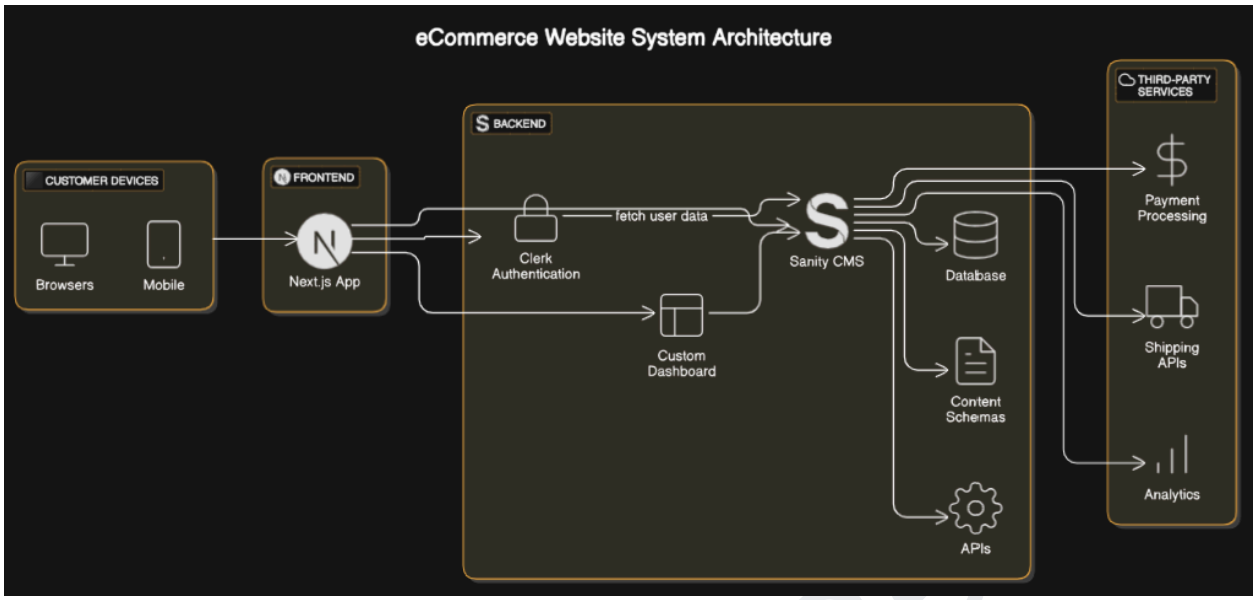
This document outlines the technical foundation and workflows for your eCommerce website, focusing on the sale of furniture. It includes system architecture, workflows, API endpoints, and schema definitions.

## System Architecture

The architecture is designed to handle frontend interactions, backend content management, and third-party service integrations efficiently. Below is the visual representation:

### Components:

1. **Frontend (Next.js)**
    - User interface for browsing and purchasing furniture.
    - Responsive design for desktop and mobile devices.
2. **Backend (Sanity CMS)**
    - Manages product data, customer details, and order records.
    - Custom schemas tailored to business needs.
3. **Third-Party Services**
    - Payment processing for secure transactions.
    - Shipping APIs for real-time order tracking.
    - Analytics for monitoring sales and user behavior.




# Key Workflows

1. **User Registration and Authentication**
   - Users register or log in.
   - Data stored in Sanity CMS.
2. **Product Browsing**
   - Users view product categories and details.
   - Data fetched from Sanity CMS via API.
3. **Order Placement**
   - Users add items to the cart and proceed to checkout.
   - Order details are saved in Sanity CMS.
4. **Payment Processing**
   - Transactions handled through third-party payment gateways.
5. **Shipment Tracking**
   - Shipping updates fetched via third-party APIs and displayed to users.

# API Endpoints

## Table of Possible Endpoints

| Endpoint | Method | Description | Request Body | Response Example |
|---|---|---|---|---|
| `/products` | GET | Fetch all available products | N/A | `[ { "id": 1, "name": "Chair", "price": 100 } ]` |
| `/products/:id` | GET | Fetch details of a specific product | N/A | `{ "id": 1, "name": "Chair", "price": 100, "description": "Wooden chair" }` |
| `/cart` | GET | Fetch items in the user's cart | N/A | `[ { "id": 1, "name": "Chair", "quantity": 2 } ]` |
| `/cart` | POST | Add an item to the cart | `{ "productId": 1, "quantity": 2 }` | `{ "message": "Item added to cart" }` |
| `/cart/:id` | PUT | Update the quantity of an item in the cart | `{ "quantity": 3 }` | `{ "message": "Cart updated successfully" }` |
| `/cart/:id` | DELETE | Remove an item from the cart | N/A | `{ "message": "Item removed from cart" }` |
| `/checkout` | POST | Process the order | `{ "cartId": 123, "paymentDetails": {...} }` | `{ "orderId": 456, "status": "Order placed" }` |
| `/orders` | GET | Fetch order history for a user | N/A | `[ { "orderId": 456, "status": "Delivered" } ]` |
| `/orders/:id` | GET | Fetch details of a specific order | N/A | `{ "orderId": 456, "status": "Shipped", "items": [...] }` |
| `/shipment/:id` | GET | Track shipment status | N/A | `{ "shipmentId": 789, "status": "In Transit", "ETA": "2 days" }` |

# Sanity CMS Schema Examples

**Note:** The schemas below are dummy examples and are not final. You should align your schemas to match the data structure provided by the APIs you will be using to populate Sanity CMS. These examples serve as placeholders to help visualize the structure.

**Product Schema**

---

```
export default {

  name: 'product',
```

```
  type: 'document',
  fields: [
    { name: 'name', type: 'string', title: 'Product Name' },
    { name: 'price', type: 'number', title: 'Price' },
    { name: 'description', type: 'text', title: 'Description' },
    { name: 'stock', type: 'number', title: 'Stock Level' },
    { name: 'category', type: 'string', title: 'Category' },
    { name: 'image', type: 'image', title: 'Product Image' }
  ]
};
```

---

**Order Schema**

---

```
export default {
  name: 'order',
  type: 'document',
  fields: [
    { name: 'orderId', type: 'string', title: 'Order ID' },
    { name: 'customer', type: 'reference', to: [{ type: 'customer' }], title: 'Customer' },
    { name: 'items', type: 'array', of: [{ type: 'reference', to: [{ type: 'product' }] }], title: 'Items' },
    { name: 'totalAmount', type: 'number', title: 'Total Amount' },
    { name: 'status', type: 'string', title: 'Order Status' }
  ]
};
```

---

## Technical Roadmap

1. **Day 1: Initial Setup**
    - Set up Next.js project.
    - Install and configure Sanity CMS.
    - Define schemas for products and orders.
2. **Day 2: API Development**
    - Develop core API endpoints for products, cart, and orders.
    - Test endpoints using Postman.
3. **Day 3: Frontend Integration**
    - Build and design product listing and detail pages.
    - Integrate APIs with frontend pages.
    - Implement cart functionality.
4. **Day 4: Payment and Shipping Integration**
    - Integrate payment processing with third-party APIs.
    - Add shipment tracking functionality.
5. **Day 5: Testing and Deployment**
    - Perform thorough end-to-end testing.
    - Deploy the application to production.

# Conclusion

This document provides a comprehensive guide for building and deploying your furniture eCommerce platform. By following the outlined system architecture, workflows, and roadmap, you can create a robust and scalable application tailored to your business needs.

Thank you for taking the time to explore this blueprint. Let’s bring your vision to life and deliver an exceptional shopping experience to your users!