

Project Overview: Avion – E-commerce Furniture Marketplace

Introduction

Avion is an innovative e-commerce platform designed to revolutionize how customers browse, purchase, and experience furniture. The platform combines a user-friendly interface with powerful backend systems to deliver a seamless shopping experience. Avion is built on cutting-edge technologies like Next.js 14 for the frontend and Sanity CMS for backend management, ensuring flexibility, scalability, and efficiency.

Vision

To create a one-stop solution for premium furniture shopping that prioritizes customer satisfaction, personalized services, and operational excellence.

Key Features

1. User-Friendly Interface:

Easy navigation for product browsing.

A responsive design optimized for mobile, tablet, and desktop users.

2. Product Catalog:

Detailed product listings with images, descriptions, and pricing.

Advanced search and filtering options.

3. Checkout Process:

Secure and intuitive cart and checkout system.

Integration with multiple payment gateways for convenience.

4. Order Management:

Real-time order tracking with shipment updates.

Integration with shipment zones for accurate delivery calculations.

5. Personalization:

AI-powered product recommendations based on user preferences.

6. CMS Integration:

Sanity CMS for managing product data, customer details, and orders efficiently.'

Technological Foundation

Frontend: Next.js 14 for high performance and fast rendering.

Backend: Sanity CMS for content and data management.

APIs:

Shipment API for delivery tracking and cost calculation.

Payment Gateway API for secure transactions.

Database: Sanity's real-time database for managing zones, orders, and customer details.

Target Audience

Homeowners looking for premium furniture.

Businesses in need of commercial furniture solutions.

Interior designers and decorators.

Goals

Customer-Centric Shopping: Deliver a seamless, intuitive shopping experience.

Scalability: Build a platform that can handle growing demands and user bases.

Efficiency: Automate operations like inventory, shipping, and order management.

E - Commerce Website Architecture

Planning the technical foundation for an e commerce furniture website using next.js 14.

involves several considerations to ensure scalability, performance, and maintainability.

Core Requirements

Features.

- 1.Product Listing
- 2.Product Filtering
- 3.Shopping Cart & Checkout
- 4.User Authentication
- 5.Responsive Design
- 6.CMS for managing content
- 7.Wishlist functionality
- 8.Payment Gateway Integration
- 9.Admin Dashboard (optional)
- 10.SEO: Ensure Website Rank well on search engine.

Architecture & Tools

Frontend (Next.js 14)

1. App Router: Use the app directory for modern routing and layouts.

2. Server Actions: Leverage built-in actions for backend functionality like form submission or API calls.

3. Dynamic & Static Rendering.

Static Rendering (SSG): For product pages and home pages.

Dynamic Rendering: For user-specific content (e.g. personalized recommendation).

4. Styling: Use Tailwind CSS, ShadCN ,Framer Motion for responsive design and speed.

5. Global State Management: Redux Toolkit.

Backend...

APIS:

Use Next.js API routes or integrate with HEADLESS CMS like Sanity for content Management.

ShipEngine API : For Shipment tracking and delivery management.

Stripe API : For Secure and seamless payment processing.

Database:

PostgreSQL Or MySQL

Authentication:

OAuth Or Clerk....

Payment Gateway:

Integrate Stripe for handling payments securely.

Performance Optimization:

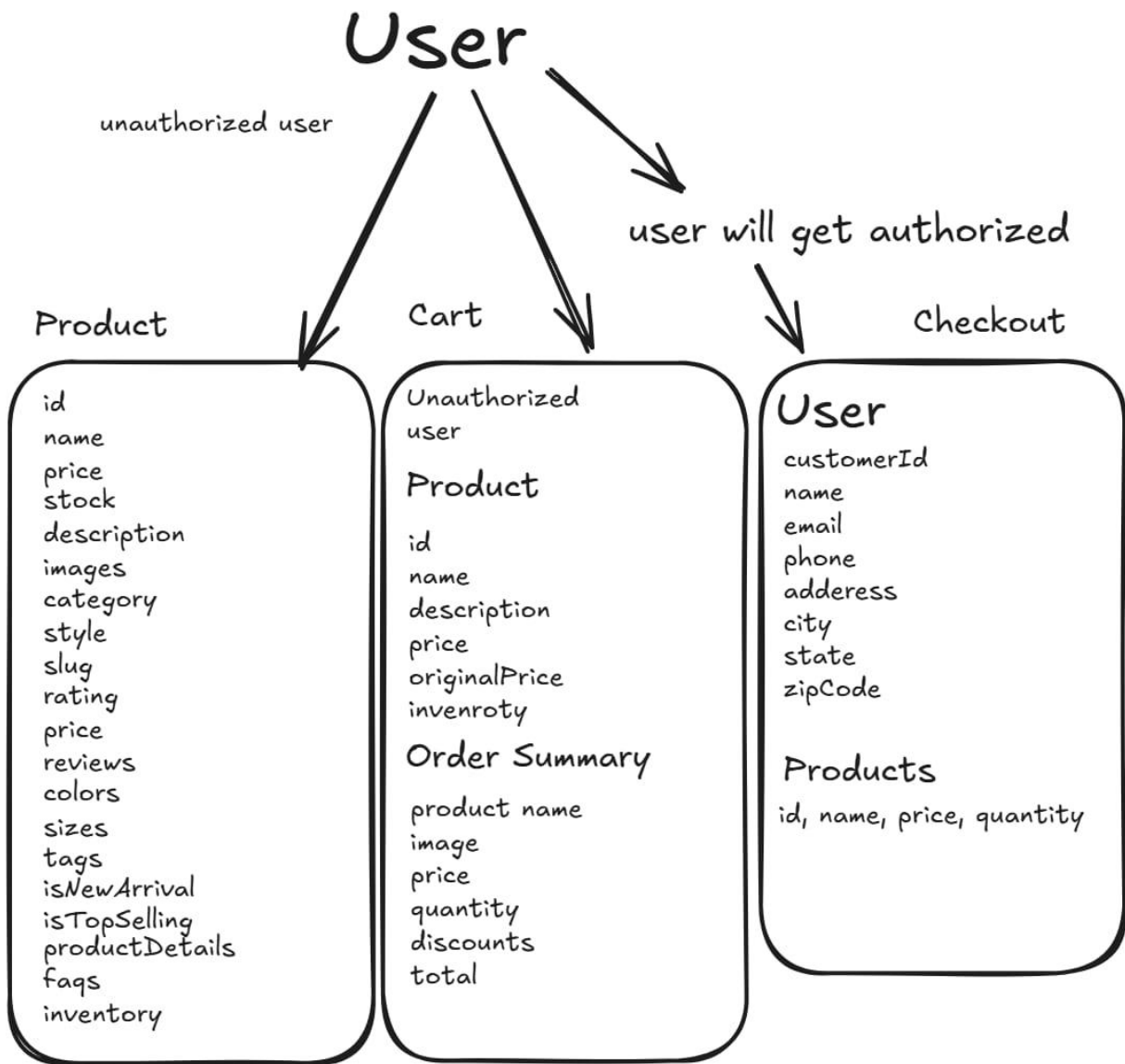
1. Image Optimization: Use Next.js next/image for furniture images.
2. Caching : Use built in Next.js caching and leverage a CDN (e.g Vercel CDN).

Third Party Integrations :

1. CMS : Sanity for managing product content.
2. Search : Alogolia for real time search.
3. Payment Gateway : Stripe.
4. Email Services : AWS for order confirmation.

Deployment & Hosting :

1. Hosting : Deploy on Vercel for seamless integration with next.js.



Sanity Schema For E-Commerce Furniture Website.

Product Schema :

```
export default {
  name: 'product',
  title: 'Product',
  type: 'document',
  fields: [
    {
      name: 'title',
      title: 'title',
      type: 'string',
    },
    {
      name: 'slug',
      title: 'Slug',
      type: 'slug',
      options: {
        source: 'title',
        maxLength: 96,
      },
    },
  ],
}
```

```
name: 'description',
title: 'Description',
type: 'text',
},
{
name: 'price',
title: 'Price',
type: 'number',
},
{
name: 'category',
title: 'Category',
type: 'reference',
to : [{ type : 'category' }],
},
{
name: 'images',
title: 'Images',
type: 'array',
of : [{ type : 'image' }]
},
{
name: 'stock',
title: 'Stock',
```



```
type: 'number',  
},  
{  
  name: 'featured',  
  title: 'Featured',  
  type: 'boolean',  
},  
]  
};
```

Category Schema :

```
export default {  
  name: 'category',  
  title: 'Category',  
  type: 'document',  
  fields: [  
    {  
      name: 'title',  
      title: 'title',  
      type: 'string',  
    },  
    {  
      name: 'slug',  
      title: 'Slug',
```

```
type: 'slug',
options : {
source: 'title',
maxLength: 96,
}
},
{
name: 'description',
title: 'Description',
type: 'text',
},
]
};
```

User Schema :

```
export default {
name: 'user',
title: 'User',
type: 'document',
fields: [
{
name: 'name',
title: 'Name',
type: 'string',
```

```
},  
{  
  name: 'email',  
  title: 'Email',  
  type: 'string',  
},  
{  
  name: 'address',  
  title: 'Address',  
  type: 'text',  
},  
{  
  name: 'orders',  
  title: 'Orders',  
  type: 'array',  
  of: [{ type: 'reference', to: [{ type: 'order' }] }]  
},  
],  
};
```

Order Schema :

```
export default {  
  name: 'order',  
  title: 'Order',
```

```
type: 'document',
fields: [
  {
    name: 'orderId',
    title: 'Order ID',
    type: 'string',
  },
  {
    name: 'user',
    title: 'User',
    type: 'reference',
    to: [{ type: 'user' }],
  },
  {
    name: 'products',
    title: 'Products',
    type: 'array',
    of: [
      {
        type: 'object',
        fields: [
          {
            name: 'product',
            title: 'Product',
```

```
    type: 'reference',
    to: [{ type: 'product' }],
  },
  {
    name: 'quantity',
    title: 'Quantity',
    type: 'number',
  },
],
},
],
},
{
  name: 'totalAmount',
  title: 'Total Amount',
  type: 'number',
},
{
  name: 'status',
  title: 'Status',
  type: 'string',
  options: {
    list: [
      { title: 'Pending', value: 'pending' },
```

```
    { title: 'Shipped', value: 'shipped' },
    { title: 'Delivered', value: 'delivered' },
    { title: 'Cancelled', value: 'cancelled' },
  ],
},
},
{
  name: 'createdAt',
  title: 'Created At',
  type: 'datetime',
},
],
};
```

Zone Schema :

```
export default {
  name: 'zone',
  title: 'Zone',
  type: 'document',
  fields: [
    {
      name: 'name',
      title: 'Zone Name',
      type: 'string',
```

```
description: 'The name of the delivery zone (e.g., North America, Europe).',
},
{
  name: 'regions',
  title: 'Regions or Countries',
  type: 'array',
  of: [{ type: 'string' }],
  description: 'List of regions or countries within this zone.',
},
{
  name: 'shippingCost',
  title: 'Shipping Cost',
  type: 'number',
  description: 'Base shipping cost for this zone.',
},
{
  name: 'deliveryTime',
  title: 'Estimated Delivery Time',
  type: 'string',
  description: 'Estimated delivery time for this zone (e.g., 3-7 business days).',
},
{
  name: 'notes',
  title: 'Additional Notes',
```

```
    type: 'text',
    description: 'Any specific restrictions or additional details about this zone.',
  },
],
};
```

Shipment Schema :

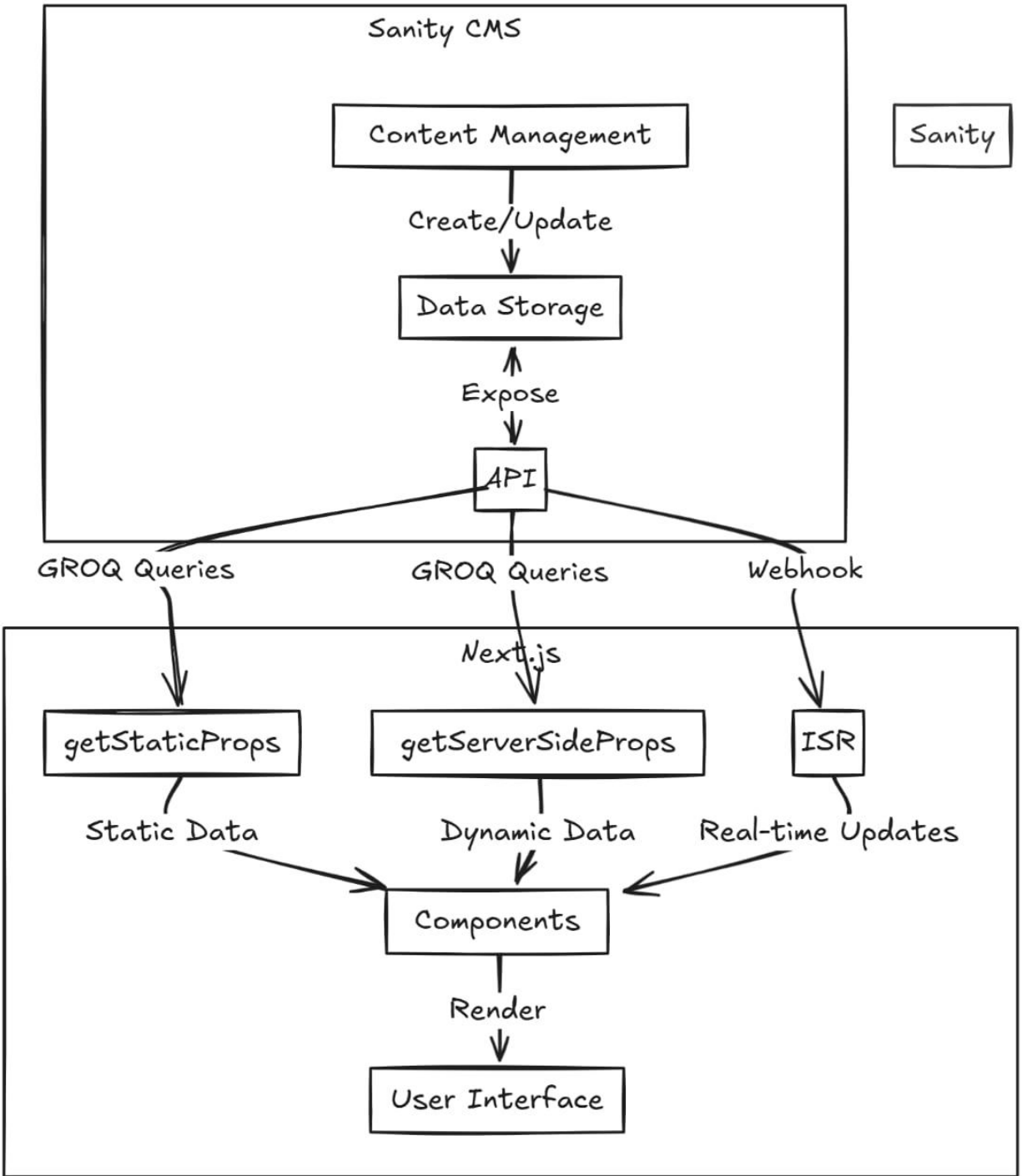
```
export default {
  name: 'shipment',
  title: 'Shipment',
  type: 'document',
  fields: [
    {
      name: 'shipmentID',
      title: 'Shipment ID',
      type: 'string',
      description: 'Unique identifier for the shipment.',
    },
    {
      name: 'order',
      title: 'Order',
      type: 'reference',
      to: [{ type: 'order' }],
      description: 'The order associated with this shipment.',
    }
  ]
}
```



```
},  
{  
  name: 'customerDetails',  
  title: 'Customer Details',  
  type: 'object',  
  fields: [  
    { name: 'name', title: 'Customer Name', type: 'string' },  
    { name: 'address', title: 'Shipping Address', type: 'text' },  
    { name: 'contact', title: 'Contact Number', type: 'string' },  
  ],  
},  
{  
  name: 'carrier',  
  title: 'Carrier',  
  type: 'string',  
  description: 'The shipping service provider (e.g., FedEx, DHL).',  
},  
{  
  name: 'tracking',  
  title: 'Tracking Info',  
  type: 'object',  
  fields: [  
    { name: 'trackingNumber', title: 'Tracking Number', type: 'string' },  
    { name: 'trackingURL', title: 'Tracking URL', type: 'url' },
```

```
    ],  
  },  
  {  
    name: 'status',  
    title: 'Shipment Status',  
    type: 'string',  
    options: {  
      list: [  
        { title: 'Pending', value: 'pending' },  
        { title: 'Shipped', value: 'shipped' },  
        { title: 'In Transit', value: 'inTransit' },  
        { title: 'Delivered', value: 'delivered' },  
        { title: 'Cancelled', value: 'cancelled' },  
      ],  
    },  
  },  
},  
{  
  name: 'deliveryDate',  
  title: 'Delivery Dates',  
  type: 'object',  
  fields: [  
    { name: 'estimated', title: 'Estimated Delivery Date', type: 'datetime' },  
    { name: 'actual', title: 'Actual Delivery Date', type: 'datetime' },  
  ],  
}
```

```
    },  
    {  
name: 'zone',  
    title: 'Shipping Zone',  
    type: 'reference',  
    to: [{ type: 'zone' }],  
    description: 'The zone where the shipment is being delivered.',  
    },  
    {  
name: 'notes',  
    title: 'Notes',  
    type: 'text',  
    description: 'Additional remarks or delivery instructions.',  
    },  
    ],  
};
```



API Endpoints of the Avion E-Commerce furniture website

Module	Endpoint	Action	Flow
User Management	POST/api/users/register	Register a new user	Frontend API Sanity CMS Response to frontend
	POST/api/users/login	Authenticate user and return token	Frontend API Authentication service Token Response to frontend
Product Management	GET/api/products	Fetch All Products	Frontend API Sanity CMS Response to frontend
	GET/api/products/ : id	Fetch specific product details	Frontend API Sanity CMS Response to frontend
Cart Management	POST/api/cart	Add a product to cart	Frontend API Sanity CMS Response to frontend
	GET /api /cart / : userId	Get cart details	Frontend API Sanity CMS Response to frontend

Order Management	POST/api/orders	Place an order	Frontend API Sanity CMS Response to frontend
	GET /api /orders/ : orderId	Get Specific order details	Frontend API Sanity CMS Response to frontend
Shipment Management	GET /api/shipment/:shipmentId	Track shipment status	
Payment Management	POST/api/payment	Process payment	Frontend API Sanity CMS Response to frontend
Zone Management	GET/api/zones	Get delivery zones and shipping info	Frontend API Sanity CMS Response to frontend