Hackathon_Day2
Furniture_ECommerce Marketplace
Technical Documentation

Introduction:

This document outlines the technical plan for a furniture e-commerce marketplace. The goal of this project is to create a seamless platform where users can browse furniture, place orders, and track shipments in real-time. Built using modern tools like Next.js, Sanity CMS, and third-party APIs, the marketplace emphasizes scalability, user-friendliness, and secure transactions.

Tech Stack:

1. Frontend:

- **Next.js:** Enables responsive and fast user interfaces.
- **Tailwind CSS**: Simplifies styling with utility-first CSS.
- **Shadcn UI** : Provides customizable and reusable components for a consistent design.

2. Backend:

Sanity CMS: It efficiently handles product data, categories, orders, and customer details with structured content schemas. This allows you to organize all your data in one place and manage your website’s content easily.

This ensures that your backend system operates smoothly and efficiently.

3. Third-Party APIs:
    - Payment Gateways:
        - 2Checkout
        - PayFast
        - QuickPay
    - Shipment Tracking:
        - ShipEngine API for real-time tracking and updates.

4. Development Tools:
    - GitHub: Version control for code collaboration.
    - Postman: Testing and validating APIs.
    - Lucidchart/Excalidraw: For creating architecture and workflow diagrams.

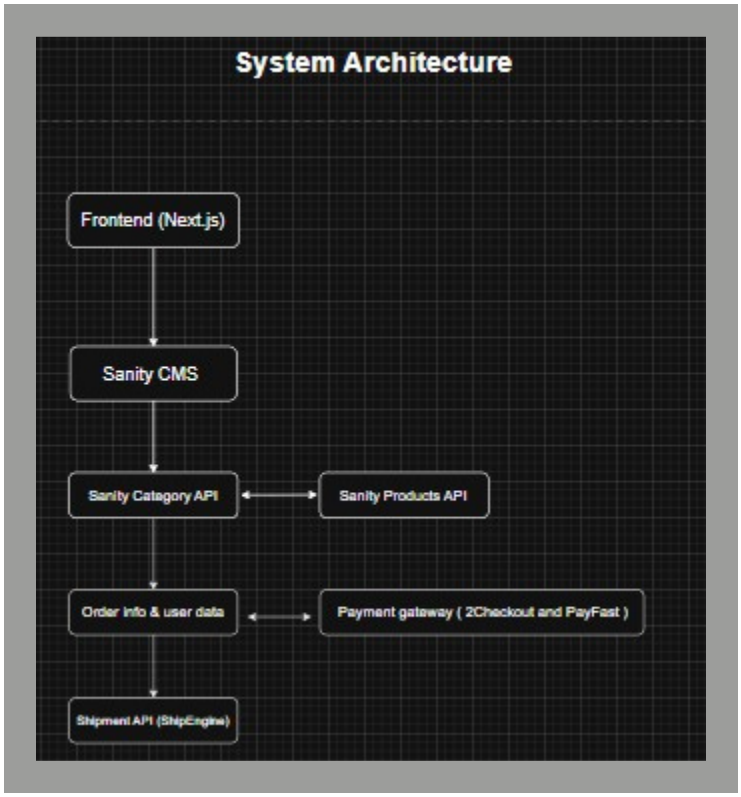
Essential Pages:

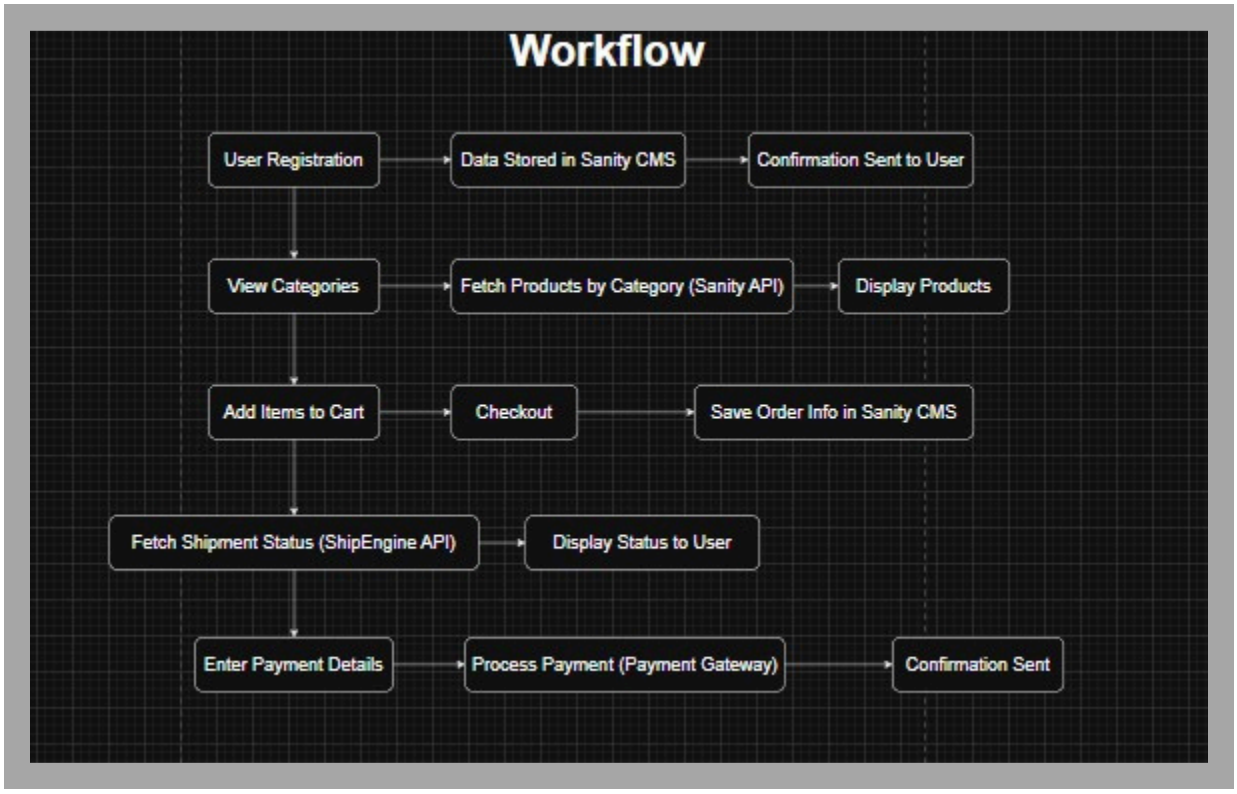
1. Home Page:
    - Highlights featured products, deals, and popular categories.
2. Product Listing Page:
    - Displays products filtered by categories or all available products.
3. Product Details Page:
    - Provides detailed product descriptions, pricing, stock availability, and images.
4. Cart Page:
    - Allows users to review their selected items and modify quantities.

5. Checkout Page:
    - ◯ Collects user details, shipping address, and payment information.
6. Order Confirmation Page:
    - ◯ Displays a summary of the completed order along with a success message.
7. User Login/Registration Page:
    - ◯ Allows new users to sign up and existing users to log in.
8. Order History Page:
    - ◯ Displays the user's past orders and shipment statuses.

System Architecture (Workflow Overview):

1. User Registration:
    - ◯ User data is sent to Sanity CMS, and a confirmation is sent back to the user.
2. Viewing Categories and Products:
    - ◯ Categories are fetched from Sanity CMS Category API, and products are retrieved based on the selected category or displayed as a complete list.
3. Order Placement:
    - ◯ Items are added to the cart, and user details with order data are saved in Sanity CMS.
4. Shipment Tracking:
    - ◯ Order status is fetched via ShipEngine API and displayed to the user.
5. Payment Processing:
    - ◯ Payments are securely processed via 2Checkout, PayFast, or QuickPay, and a confirmation is sent back to the user while being recorded in Sanity CMS.


System Architecture
Frontend (Next.js)
Sanity CMS
Sanity Category API
Sanity Products API
Order info & user data
Payment gateway (2Checkout and PayFast)
Shipment API (ShipEngine)


Workflow
User Registration
Data Stored in Sanity CMS
Confirmation Sent to User
View Categories
Fetch Products by Category (Sanity API)
Display Products
Add Items to Cart
Checkout
Save Order Info in Sanity CMS
Fetch Shipment Status (ShipEngine API)
Display Status to User
Enter Payment Details
Process Payment (Payment Gateway)
Confirmation Sent

Key Features of the Marketplace:

1. Category-Based Browsing:
    - ◯ Users can filter products by categories (e.g., Living Room, Bedroom).
2. Real-Time Shipment Tracking:
    - ◯ Users can check their order status, fetched through ShipEngine API.
3. Secure Payment Gateways:
    - ◯ Multiple payment gateways ensure secure transactions (2Checkout, PayFast, QuickPay).
4. Customizable Furniture Options:
    - ◯ Certain products allow users to choose colors, materials, and sizes.
5. Mobile-Optimized Design:
    - ◯ Responsive layouts ensure a seamless experience on both desktop and mobile devices.
6. Order History:
    - ◯ Users can view and track their past orders along with statuses.

API Specifications:

1. User Registration:

- Endpoint: `/register`
- Method: `POST`
- Description: Saves user data in Sanity CMS and sends a confirmation response.

Payload Example:

```
{
 "name": "Haroon Rasheed",
 "email":
 "itxharoonkhan@gmail.com",
 "password": "securepassword"
}
```

Response Example:

```
{

  "message": "Registration successful",
  "userId": "12345"

}
```

---

2. Fetch Categories:

- Endpoint: `/categories`
- Method: `GET`
- Description: Retrieves all product categories stored in Sanity CMS.

Response Example:

```
[
  { "id": "1", "name": "Living Room" },
  { "id": "2", "name": "Bedroom" }
]
```

3. Fetch Products by Category:

- Endpoint: `/products?category={categoryId}`
- Method: `GET`
- Description: Fetches all products under a specific category. If no category is specified, all products are returned.

Response Example:

```
[
  { "id": "101", "name": "Sofa", "price": 500, "stock": 10 },
  { "id": "102", "name": "Dining Table", "price": 800, "stock": 5 }
]
```

4. Place Order:

- Endpoint: `/orders`
- Method: `POST`
- Description: Saves the user's order details and items in Sanity CMS.

Payload Example:

```
{
  "userId": "12345",
  "orderItems": [
    { "productId": "101", "quantity": 1 },
```

```
{ "productId": "102", "quantity": 2 }
  ],
  "totalAmount": 2100
}
```

Response Example:

```
{
  "message": "Order placed successfully",
  "orderId": "78901"
}
```

5. Track Shipment:

- Endpoint: `/shipment/{orderId}`
- Method: `GET`
- Description: Retrieves shipment tracking details via the ShipEngine API.

Response Example:

```
{
  "shipmentId": "SE123",
  "status": "In Transit",
  "estimatedDelivery": "2025-01-18"
}
```

6. Process Payment:

- Endpoint: `/payment`
- Method: `POST`
- Description: Processes payment securely via a payment gateway.

Payload Example:

```
{
  "orderId": "78901",
  "amount": 2100,
  "paymentMethod": "PayFast"
}
```

Response Example:

```
{
  "message": "Payment successful",
  "transactionId": "TX456789"
}
```

Sanity CMS Schemas

1. Products Schema:

```
export default {

  name: 'product',
  type: 'document',
  fields: [
    { name: 'name', type: 'string', title: 'Product Name' }, { name:
    'price', type: 'number', title: 'Price' }, { name: 'stock', type:
    'number', title: 'Stock' }, { name: 'category', type: 'reference',
    to: [{ type: 'category' }]
},
    { name: 'description', type: 'text', title: 'Description' },
    { name: 'images', type: 'array', of: [{ type: 'image' }], title:
'Product Images' }
  ]
};
```

---

2. Orders Schema:

```
export default {
name: 'order',
type: 'document',
fields: [
    { name: 'userId', type: 'reference', to: [{ type: 'user' }],
title: 'User' },
    { name: 'orderItems', type: 'array', of: [{ type: 'orderItem' }],
title: 'Order Items' },
    { name: 'totalAmount', type: 'number', title: 'Total Amount' },
    { name: 'status', type: 'string', title: 'Order Status', options:
{ list: ['Pending', 'Completed', 'Shipped'] } }
  ]
};
```

3. Users Schema:

```
export default {
  name: 'user',
  type: 'document',
  fields: [
    { name: 'name', type: 'string', title: 'Full Name' },
    { name: 'email', type: 'string', title: 'Email Address' },
    { name: 'password', type: 'string', title: 'Password' }
  ]
};
```