Furniture Marketplace Project Complete

Documentation (Days 1–6)

By Ayesha Nazeer

Overview

The Furniture Marketplace is a digital platform designed to empower small businesses and individuals by offering a secure and efficient online shopping experience for furniture. Throughout six days, the project transitioned from brainstorming ideas to deploying a staging environment, with each day bringing specific contributions to its development.

Day 1: Conceptualization and Marketplace

Design

Key Achievements:

- Identified the marketplace type as a general e-commerce platform for furniture.

Business Objectives:

- Empower small businesses and entrepreneurs.
- Create an accessible platform for buying and selling furniture online.

Data Schema Design:

- **Entities:** Products, Orders, Customers, and Delivery Zones.
- **Relationships:**
    - Customers place orders that refer to products.
    - Delivery zones are assigned to drivers for fulfillment.

Day 2: Technical Planning

Key Achievements:

- **Technology Stack:**
    - **Frontend:** Next.js with Tailwind CSS for styling.
    - **Backend:** Sanity CMS for content management.
    - **Database:** MongoDB for storing sensitive data and authentication.
    - **APIs:** ShipEngine for order tracking, Stripe for payment processing.
- **API Endpoints:**
    - User management: `/register`, `/login`, and `/verify-route`.
    - Product management: `/products`, `/product/:id`.
    - Orders: `/orders (POST)`, `/shipment/:id (GET)`.
- **Deployment Plan:**
    - **Frontend:** Deployed on Vercel.
    - **Backend:** Hosted on AWS Lambda with serverless architecture.

Day 3: Data Migration

Key Achievements:

- **Migration Code:**
    - Data from Sanity CMS migrated to Next.js using GROQ queries.
    - Example GROQ Query: `*[_type == "product"] {title, description, price, image}`
- **Schema Definition:**
    - Product schema included fields for title, slug, description, price, and image.
- **Client Integration:**

- Data dynamically fetched and displayed on the homepage.

Day 4: Development of Dynamic Frontend Components

Key Achievements:

- **Dynamic Product Listings:**
  - Created a `ProductList` component to display furniture fetched from Sanity.
- **Filters and Sorting:**
  - Implemented filters for categories and price ranges, with sorting options by price and popularity.
- **Reusable Components:**
  - `ProductCard`: Displays product images, titles, and prices.
  - `FilterSidebar`: Sidebar for filtering and sorting.
  - `PaginationControls`: Provides page navigation for large datasets.

Day 5: Testing and Backend Refinement

Key Achievements:

- **Types of Testing:**
  - **Functional Testing:** Verified workflows like product listings, cart actions, and API interactions.
  - **Performance Testing:** Used Lighthouse for load time and responsiveness analysis.
  - **Security Testing:** Validated input fields, API keys, and HTTPS.
- **CSV-Based Testing Report:**
  - **Test Cases:** Included tests like verifying navigation, product listings, cart operations, contact form submission, performance metrics, accessibility, and SEO optimization.
  - **Results:** All tests passed, with minor improvements suggested in image ratios.

Day 6: Deployment Preparation and Staging

Environment Setup

Key Achievements:

- **Deployment Strategy:**
    - Hosted the application on Vercel for rapid deployment.
    - Integrated GitHub repository for continuous integration and delivery (CI/CD).
- **Environment Variables:**
    - Configured and securely uploaded sensitive variables like API keys to Vercel.
- **Staging Environment:**
    - Deployed a staging build to simulate a production environment.
    - **Example `.env` File:**

```
NEXT_PUBLIC_SANITY_PROJECT_ID=your_project_id
NEXT_PUBLIC_SANITY_DATASET=production
API_KEY=your_api_key
```

- **Staging Testing:**
    - Verified key workflows, such as product listings and checkout.
    - Performance testing using GTmetrix for speed and responsiveness.
    - Security testing to ensure HTTPS and secure API calls.
- **Documentation:**
    - A comprehensive `README.md` was created, summarizing project structure and deployment steps.
    - The GitHub repository was organized with folders for `src/`, `public/`, and `documents/`.

GitHub Repository Structure:

```
FurnitureHub/
├─── src/
│    ├─── components/
│    │    ├─── ProductCard.js
│    │    ├─── FilterSidebar.js
│    │    ├─── PaginationControls.js
│    └─── pages/
│         ├─── index.js
│         ├─── product/
│         └─── [slug].js
├─── public/
│    ├─── images/
│    └─── assets/
├─── documents/
│    ├─── Day_1_Conceptualization.pdf
│    ├─── Day_2_Technical_Planning.pdf
│    ├─── Day_3_Data_Migration.pdf
│    ├─── Day_4_Dynamic_Components.pdf
│    ├─── Day_5_Testing_Report.csv
│    └─── Day_6_Deployment.pdf
├─── .env
├─── README.md
```

Conclusion

Achievements:

- Comprehensive testing completed.
- Performance metrics improved.
- Security measures implemented.

Next Steps:

1. Resolve any outstanding issues documented during staging tests.
2. Monitor the live environment for feedback and performance metrics.
3. Scale the platform with advanced features like multi-language support and predictive analytics.

This concludes the successful completion of the Furniture Marketplace hackathon project!