Day 6:

Furniture Marketplace Project: Full Documentation (Days 1–6)

Overview

The Furniture Marketplace is an e-commerce platform aimed at empowering small businesses and individuals by providing a seamless and secure online shopping experience. Over the course of six days, the project evolved from brainstorming ideas to deploying a staging environment. Each day introduced specific tasks that contributed to the overall development.

Day 1: Conceptualization and Marketplace Design

Key Achievements:

- *Defined the **marketplace type** as a general e-commerce platform for furniture.*
- ***Business Goals**:*
  - *Promote small businesses and entrepreneurship.*
  - *Provide a platform to easily buy/sell furniture online.*
- ***Data Schema Design**:*
  - *Entities: Products, Orders, Customers, and Delivery Zones.*
  - *Relationships:*
    - *Customers place orders that reference products.*
    - *Delivery zones are assigned to drivers for fulfillment.*

Day 2: Technical Planning

Key Achievements:

- *Tech 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 and Stripe for payment processing.*
- ***API Requirements**:*
    - *User management: /register, /login, and /verify-route.*
    - *Product management: /products, /product/:id.*
    - *Orders: /orders(POST) and /shipment/:id(GET).*
- ***Deployment Plan**:*
    - *Frontend on Vercel and backend on AWS Lambda with serverless architecture.*

Day 3: Data Migration

Key Achievements:

- ***Custom Migration Code**:*
    - *Data from Sanity CMS was migrated to Next.js using GROQ queries.*
    - *Example GROQ Query: *[_type == "product"] {title, description, price, image}*

- ***Schema Definition**:*
    - *Products schema included fields for title, slug, description, price, and image.*
- ***Client Integration**:*
    - *Fetched and displayed data dynamically on the homepage.*

Day 4: Building Dynamic Frontend Components

Key Achievements:

- ***Dynamic Product Listings**:*
    - *Created a ProductListcomponent to display furniture dynamically fetched from Sanity.*
- ***Filters and Sorting**:*
    - *Implemented filters for categories and price ranges.*

    - *Sorting options included price and popularity.*
- ***Reusable Components:***
    - *ProductCard: Displayed product images, titles, and prices.*
    - *FilterSidebar: Sidebar for filtering and sorting.*
    - *PaginationControls: Enabled page navigation for large datasets.*

Day 5: Testing and Backend Refinement

Key Achievements:

- ***Testing Types:***
    - ***Functional Testing:***
        - *Verified workflows like product listings, cart operations, and API interactions.*
    - ***Performance Testing:***
        - *Used Lighthouse to analyze load times and responsiveness.*
    - ***Security Testing:***
        - *Validated input fields, secure API keys, and HTTPS implementation.*

- ***CSV-Based Testing Report:***

Test Case Table

Test Case ID	*Description*	*Expected Result*	*Actual Result*	*Status*	*Severity*	*Remarks*

TC0 01	*Verify navigation links*	*Links navigate correctly*	*All links function correctly*	*Pass*	*Low*	*None*
TC0 02	*Check product listing display*	*Products display as expected*	*Products displayed correctly*	*Pass*	*Medium*	*None*
TC0 03	*Test shopping cart operations*	*Items add, update, and remove*	*Cart functionality works as expected*	*Pass*	*High*	*None*
TC0 04	*Validate contact form submission*	*Form submits successfully*	*Submission works with valid data*	*Pass*	*Medium*	*None*
TC0 05	*Analyze performance metrics*	*Achieve Performance ≥ 90*	*Performance: 92*	*Pass*	*Medium*	*Optimizations for images implemented*
TC0 06	*Verify accessibility features*	*Accessibility score ≥ 90*	*Accessibility: 96*	*Pass*	*Medium*	*Addressed contrast issues*
TC0 07	*Validate best practices*	*Best Practices score ≥ 90*	*Best Practices: 96*	*Pass*	*Low*	*Minor improvements in image ratios noted*
TC0 08	*Optimize SEO*	*SEO score ≥ 90*	*SEO: 100*	*Pass*	*Low*	*Structured data validated suc*

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CSV Content

Test Case ID,Description,Expected Result,Actual Result,Status,Severity,Remarks
TC001,Verify navigation links,Links navigate correctly,All links

function correctly,Pass,Low,None
TC002,Check product listing display,Products display as expected,Products displayed correctly,Pass,Medium,None
TC003,Test shopping cart operations,Items add, update, and remove,Cart functionality works as expected,Pass,High,None
TC004,Validate contact form submission,Form submits successfully,Submission works with valid data,Pass,Medium,None TC005,Analyze performance metrics,Achieve Performance ≥ 90,Performance: 92,Pass,Medium,Optimizations for images implemented TC006,Verify accessibility features,Accessibility score ≥ 90,Accessibility: 96,Pass,Medium,Addressed contrast issues TC007,Validate best practices,Best Practices score ≥ 90,Best Practices: 96,Pass,Low,Minor improvements in image ratios noted TC008,Optimize SEO,SEO score ≥ 90,SEO: 100,Pass,Low,Structured data validated successfully

Day 6: Deployment Preparation and Staging Environment Setup

Key Achievements:

- ***Deployment Strategy:***
  - *Hosted the application on Vercel for quick deployment.*
  - *Integrated GitHub repository for CI/CD.*
- ***Environment Variables:***
  - *Configured sensitive variables (e.g., API keys) in .envand uploaded them securely to Vercel.*
- ***Staging Environment:***
  - *Deployed a staging build to validate functionality in a production-like environment.*
  - *Example .envFile:*
    NEXT_PUBLIC_SANITY_PROJECT_ID=your_project_id
    NEXT_PUBLIC_SANITY_DATASET=production
    API_KEY=your_api_key

- ***Staging Testing:***
  - *Functional Testing: Verified key workflows like product listings and checkout.*
  - *Performance Testing: Used GTmetrix for analyzing speed and responsiveness.*
  - *Security Testing: Validated HTTPS, input handling, and secure API calls.*
- ***Documentation:***
  - *Created a README.mdsummarizing the project structure and deployment steps.*
  - *Organized the GitHub repository 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

Over the six days, the Furniture Marketplace project progressed from concept to deployment, integrating robust features and ensuring a seamless user experience. With a well-structured GitHub repository, dynamic components, and comprehensive testing, the project is now ready for live deployment in a production environment.

The next steps include:

1. *Addressing any unresolved issues documented in the staging tests.*
2. *Monitoring the live environment for user feedback and performance metrics.*
3. *Scaling the platform to include advanced features like multi-language support and predictive analytics.*

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