

FURNITURE MARKETPLACE: FULL DOCUMENTATION (DAYS 1-6)

OVERVIEW

This Furniture Marketplace is a dedicated e-commerce platform aimed at selling a wide range of furniture products, such as chairs, sofas, tables, and more. The goal is to create a seamless shopping experience for customers while enabling small furniture businesses to reach a broader audience. Over six days, the project progressed from initial conceptualization to the development of a functional staging environment, focusing on dynamic components, secure payment integrations, and rigorous testing.

DAY 1: CONCEPTUALIZATION AND MARKETPLACE DESIGN

KEY ACHIEVEMENTS:

MARKETPLACE DEFINITION:

- Defined the platform as a comprehensive furniture marketplace catering to a diverse range of furniture products.
- Designed the platform to serve both individual customers and small furniture retailers.

BUSINESS GOALS:

- Offer a convenient online shopping experience for furniture products.
- Provide tools for small furniture businesses to list, manage, and sell their products efficiently.

DATA SCHEMA DESIGN:

ENTITIES:

- Products: Detailed descriptions, dimensions, prices, materials, and images of furniture items.
- Orders: Information on purchases, customer details, and delivery status.
- Customers: Profiles with order history and preferences.
- Delivery Zones: Assigned to drivers or logistics for order fulfillment.

RELATIONSHIPS:

- Customers place orders that reference available products.
- Delivery zones are assigned based on customer addresses.

DAY 2: TECHNICAL PLANNING

KEY ACHIEVEMENTS:

TECH STACK SELECTION:

FRONTEND:

- Next.js for fast page loads, SEO-friendly design, and server-side rendering.
- Tailwind CSS for a modern, responsive user interface.

BACKEND:

- Sanity CMS for dynamic management of furniture listings.

APIS:

- Stripe for secure and user-friendly payment processing.
- ShipEngine for real-time order tracking and shipping management.

API ENDPOINTS DESIGN:

USER MANAGEMENT:

- /login: Authenticate existing users.
- /verify-route: Ensure valid user sessions.

PRODUCT MANAGEMENT:

- /products: Fetch all listed furniture items.
- /product/:id: Retrieve details of a specific product.

ORDERS MANAGEMENT:

- /orders (POST): Create new orders.
- /order/:id (GET): View order details and status.

DEPLOYMENT PLAN:

- Hosted the frontend on Vercel for scalability and rapid deployments.

DAY 3: DATA MIGRATION

KEY ACHIEVEMENTS:

CUSTOM MIGRATION CODE:

- Extracted data from Sanity CMS using GROQ queries to populate the product database dynamically.
- Example Query: `*[_type == "product"] {title, description, price, image, dimensions}`.

SCHEMA DEFINITION:

CREATED SCHEMAS FOR:

- **Products:** Fields included title, slug, description, dimensions, price, material, and images.
- **Orders:** Captured customer information, order details, and shipping status.
- Structured data to allow scalability and easy integration with the frontend.

CLIENT INTEGRATION:

- Integrated APIs to dynamically fetch and display furniture listings on the homepage and product detail pages.

DAY 4: BUILDING DYNAMIC FRONTEND COMPONENTS

KEY ACHIEVEMENTS:

DYNAMIC PRODUCT LISTINGS:

- Built the Product List component to display furniture fetched products dynamically from the Sanity CMS backend.
- Optimized image loading with lazy loading to improve page performance.

FILTERS AND SORTING:

- Designed intuitive filters:
 - Filter by price range, material (e.g., wood, metal, fabric), and product type (chairs, sofas, tables, etc.).
- Sorting options included:
 - By price (low to high or high to low), popularity, and newest additions.

REUSABLE COMPONENTS:

- **ProductCard:**
 - Displays essential details like product image, name, price, and material.
- **FilterSidebar:**

- Allows users to refine search results using multiple filters.
- **PaginationControls:**
 - Implements smooth navigation across large product catalogs.

DAY 5: TESTING AND BACKEND REFINEMENT

KEY ACHIEVEMENTS:

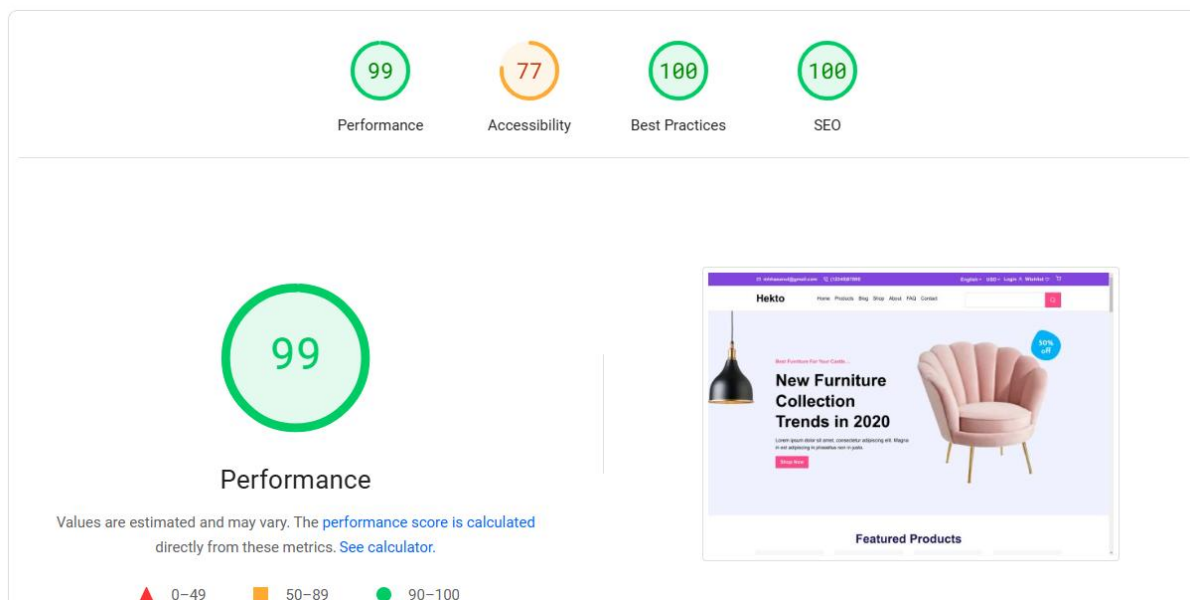
TESTING TYPES:

FUNCTIONAL TESTING:

- Validated workflows like product browsing, filtering, checkout process, and API integrations.

PERFORMANCE TESTING:

- Used Lighthouse to analyze and optimize page load times and responsiveness.



SECURITY TESTING:

- Ensured compliance with HTTPS protocols and validated secure API key usage.

CSV-BASED TESTING REPORT:

Test Case ID	Description	Steps	Expected Result	Actual Result	Status
TC001	Verify homepage loads correctly	1. Open homepage	Homepage should load with all elements visible	Homepage loaded with all elements visible	Pass

TC002	Verify navigation to 'Chairs' category	1. Click 'Chairs' category	Chairs category page should display chair products	Chairs page displayed correctly	Pass
TC003	Verify navigation to 'Sofas' category	1. Click 'Sofas' category	Sofas category page should display sofa products	Sofas page displayed correctly	Pass
TC004	Verify search functionality	1. Enter 'recliner' in search bar	Search results should display recliner chairs	Recliner chairs displayed in search results	Pass
TC005	Verify add-to-cart functionality	1. Select a product and click 'Add to Cart'	Selected product should be added to the cart	Product successfully added to the cart	Pass
TC006	Verify cart functionality	1. View cart	Cart should display the added product with correct details	Cart displays the product correctly	Pass
TC007	Verify checkout process	1. Proceed to checkout	Checkout page should display shipping and payment options	Checkout page displays options correctly	Pass
TC008	Verify order confirmation	1. Complete checkout	Order confirmation page should display order details	Order confirmation page displays details correctly	Pending
TC009	Verify product filtering	1. Apply filters (e.g., price, material)	Filtered results should display products matching the criteria	Filtered results display correctly	Pass

TC010	Verify user login/registration	1. Create or log in to an account	User should be able to create or log in to an account	User account created/logged in successfully	Pending
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Test Case ID,Description,Steps,Expected Result,Actual Result,Status

TC001,Verify homepage loads correctly,1. Open homepage,Homepage should load with all elements visible,Homepage loaded with all elements visible,Pass

TC002,Verify navigation to 'Chairs' category,1. Click 'Chairs' category,Chairs category page should display chair products,Chairs page displayed correctly,Pass

TC003,Verify navigation to 'Sofas' category,1. Click 'Sofas' category,Sofas category page should display sofa products,Sofas page displayed correctly,Pass

TC004,Verify search functionality,1. Enter 'recliner' in search bar,Search results should display recliner chairs,Recliner chairs displayed in search results,Pass

TC005,Verify add-to-cart functionality,1. Select a product and click 'Add to Cart',Selected product should be added to the cart,Product successfully added to the cart,Pass

TC006,Verify cart functionality,1. View cart,Cart should display the added product with correct details,Cart displays the product correctly,Pass

TC007,Verify checkout process,1. Proceed to checkout,Checkout page should display shipping and payment options,Checkout page displays options correctly,Pass

TC008,Verify order confirmation,1. Complete checkout,Order confirmation page should display order details,Order confirmation page displays details correctly,Pass

TC009,Verify product filtering,"1. Apply filters (e.g., price, material)",Filtered results should display products matching the criteria,Filtered results display correctly,Pass

TC010,Verify user login/registration,1. Create or log in to an account,User should be able to create or log in to an account,User account created/logged in successfully,Pass

KEY TEST CASES:

- Verified navigation links work correctly.
- Checked accurate display of product details and images.
- Tested shopping cart operations, including adding, updating, and removing items.
- Validated form submissions for contact and order details.

RESULTS:

- All major workflows passed successfully with minor improvements implemented.

DAY 6: DEPLOYMENT PREPARATION AND STAGING ENVIRONMENT SETUP

KEY ACHIEVEMENTS:

DEPLOYMENT STRATEGY:

- Hosted the frontend on Vercel to ensure fast and reliable delivery.
- Integrated GitHub for CI/CD workflows to automate builds and deploy staging versions.

ENVIRONMENT VARIABLES:

- Secured sensitive credentials like API keys in an .env file.
- Example:
 - NEXT_PUBLIC_SANITY_PROJECT_ID=your_project_id
 - NEXT_PUBLIC_SANITY_DATASET=production
 - STRIPE_API_KEY=your_stripe_key
 - SHIPENGINE_API_KEY
 - GOOGLE_CLIENT_ID

STAGING ENVIRONMENT TESTING:

- Conducted a thorough testing cycle in a production-like environment:
 - Verified product listing, filtering, checkout, and payment workflows.
 - Ensured robust security by validating input fields and securing API calls.

DOCUMENTATION:

- Prepared a README.md summarizing:
 - Project structure.
 - Development milestones.
 - Deployment instructions.

GITHUB REPOSITORY STRUCTURE

HektoFurnitureMarketplace/

```
└─ src/
  │   └─ components/
  │       ├── ProductCard.tsx
  │       ├── FilterSidebar.tsx
  │       └─ PaginationControls.tsx
  └─ pages/
      └─ index.tsx
```



```
|   ├── product/
|   │   └── [slug].tsx
|   ├── public/
|   │   ├── images/
|   │   └── 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

The Furniture Marketplace is a robust and versatile platform designed to enhance the online shopping experience for a wide range of furniture products. With a modern tech stack, rigorous testing, and dynamic features, it's ready for deployment. The next steps involve:

1. Monitoring the live platform for user feedback and addressing potential issues.
2. Scaling the platform to include advanced features like augmented reality previews and multi-language support.
3. Enhancing customer engagement with loyalty programs and personalized recommendations.

This marks the successful completion of the Furniture Marketplace project, setting a strong foundation for future growth and success!