Day 4 - Dynamic Frontend Components - Furniture Marketplace

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1. Introduction

This document serves as a submission for **Day 4 - Building Dynamic Frontend Components for Your Marketplace**. The objective was to design and implement **dynamic frontend components** that fetch and display data from **Sanity CMS** or an API, ensuring modularity, reusability, and responsiveness.

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2. Completed Components

1. Add to Cart

- Implemented functionality to add products to the cart dynamically.
- Used **state management** for tracking items.

2. Brands

- Fetched and displayed brand names dynamically.
- Enabled filtering products by brand.

3. Discount Items

- Highlighted **discounted products** with percentage calculations.
- Dynamically updated price after applying discounts.

4. Featured Products

- Displayed selected **featured products** dynamically on the homepage.
- Implemented a **carousel** for better user experience.

5. HeadBar & NavBar

- Designed a **responsive header** with navigation links.

6. Latest Products

- Rendered the most recent products using API data.

7. Product List & Product Grid

- Allowed users to toggle between **list** and **grid** views.
- Optimized UI for a seamless shopping experience.

8. Product Page

- Created a **detailed product page** with descriptions, price, and images.
- Used **dynamic routing** in Next.js.

9. Top Categories

- Displayed **product categories** dynamically.
- Enabled filtering products by selected categories.

10. Filters

- Implemented:
    - **Price range slider**
    - **Brand selection filter**
    - **Stock availability toggle**
    - **Categories**
    - **By Color**
- Used **React state** for real-time filtering.

11. Loader

- Added a **loading animation** while fetching data.
- Improved user experience with smooth UI transitions.

12. Related Products

- Displayed **similar products** based on category or tags.
- Implemented a horizontal scrolling feature for better UX.

13. Review Form

- Allowed users to **submit reviews** and ratings.
- Displayed **average rating** dynamically.

14. SanityRender for Sanity Content

- Used **Sanity.io** to fetch and render structured content dynamically.

15. Checkout Form

- Designed a **multi-step checkout process** with:
    - **Billing & Shipping Address**
    - **Payment Information**
    - **Order Summary**

- Used React hook form and ZOD for form validation

16. Cart Items

- Displayed items added to the **shopping cart** dynamically.
- Allowed quantity updates and removal.

17. Shipping Form

- Created a **shipping details form** with user input validation.
- Used React hook form and ZOD for form validation

18. Order Complete

- Developed a **confirmation page** showing order details and tracking info.

19. Payment Integration (Mock)

- Designed a **payment UI** with multiple payment methods.
- Used **Stripe API** for testing transactions.

20. Login System

- Implemented user **authentication** with login/logout functionality.

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3. Challenges Faced & Solutions

Challenge 1: API Data Fetching Delays

✅ **Solution:** Implemented **lazy loading** and caching to optimize API calls.

Challenge 2: Responsive UI Issues

✅ **Solution:** Used **Tailwind CSS** for mobile-first design and responsiveness.

Challenge 3: State Management for Cart & Filters

✅ **Solution:** Utilized **Redux Toolkit** to handle global state effectively.

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4. Best Practices Followed

✔ **Component Reusability:** Created modular components (`ProductCard`, `FilterPanel`).
✔ **State Management:** Used React's `useState` and `Redux Toolkit` for efficient data handling.
✔ **Performance Optimization:** Implemented **lazy loading** and **debounced API calls**.
✔ **Responsive UI:** Followed **mobile-first design** principles.
✔ **Code Quality:** Maintained **clean and structured** code with proper documentation.

Submission Files

- **GitHub Repository:** Link

Conclusion

This submission successfully implements **dynamic frontend components** for an online marketplace. The project adheres to **real-world industry standards**, ensuring scalability, performance, and reusability.

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