Day 5 Report: Testing, Error Handling, and Backend Integration Refinement

Introduction

Today's focus was on testing the functionality, performance, and error handling of the FurnitureMart.pk marketplace application. The goal was to ensure a seamless user experience, optimize performance, and gracefully handle any errors or edge cases. Key features tested include the homepage, product listing, cart management, and pagination.

Testing Results

Functional Testing

All core functionalities were thoroughly tested to ensure they met expected behaviors. Here are the highlights:

1. **Homepage**: Successfully loaded with all components (header, footer, featured products).
2. **Navigation**: All links (Home, Products, Cart) worked correctly, redirecting users to the respective pages.
3. **Product Listing**: Products were fetched from the Sanity and displayed correctly, including names, prices, and images.
4. **Search Functionality**: Worked as expected, returning accurate results for valid queries.
5. **Add to Cart and Remove from Cart**: Items were added and removed successfully with cart totals updating dynamically.
6. **Empty States**: Both "Empty Cart" and "Products Not Found!!!" states were handled gracefully with appropriate messages.
7. **Pagination**: Products were paginated correctly, with "Next" and "Previous" buttons functioning as expected.
8. **Cart Persistence**: Items remained in the cart even after refreshing the page, leveraging local storage.

Error Handling

- **API Failure**: Tested with mock API failures. The app displayed "Products not found" messages as a fallback.
- **Empty API Response**: Proper messages were displayed when no products were returned from the API.

Challenges and Solutions

1. **Cart Logic**:
   - Challenge: Ensuring cart persistence on page reload.
   - Solution: Successfully implemented using local storage.
2. **Performance Optimization**:
   - Challenge: Improving mobile performance for large product images. o Solution: Used lazy loading and compression tools for partial improvement.

Future Enhancements

1. **Login and Sign-Up Functionality**: Integrate NextAuth.js for authentication and account creation.
2. **Order and Shipment Tracking**: Implement backend logic to save orders in Sanity CMS and integrate ShipEngine API for tracking.
3. **Enhanced Social Sharing**: Debug sharing issues for platforms other than Twitter.
4. **Improved Mobile Optimization**: Further reduce image sizes and optimize loading for slower connections.