

## Day 5 - Testing Backend Refinement - COMFORTY

**Objective:** The goal for Day 5 was to ensure that the furniture marketplace is ready for real-world deployment by conducting thorough testing, implementing error-handling mechanisms, and refining backend integration. This report outlines the testing efforts, error-handling mechanisms, performance optimizations, and updates made to the project.

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### Testing Overview:

#### 1. Functional Testing:

- Tested core features including:
  - **Product Listing:** Verified that products are displayed correctly.
  - **Filters and Search:** Ensured accurate results based on user inputs.
  - **Cart Operations:** Validated adding, updating, and removing items from the cart.
  - **Dynamic Routing:** Confirmed individual product detail pages load properly.
- **Tools Used:**
  - Postman for API testing.
  - React Testing Library for component behavior.
  - Cypress for end-to-end testing.
- **Results:**
  - All critical functionalities passed the tests.
  - Identified minor issues with filter responsiveness, which were resolved.

## 2. Error Handling:

- Added try-catch blocks for API error management.
- Implemented fallback UI elements for better user experience.
  - Example: Displayed "No products available" when the product API returned no data.
- **Outcome:**
  - Improved error messaging for network failures and invalid data inputs.

## 3. Performance Testing:

- Tools used: Lighthouse, GTmetrix.
- Key actions taken:
  - Compressed large images using TinyPNG.
  - Implemented lazy loading for images.
  - Reduced unused CSS and JavaScript.
- **Results:**
  - Initial page load time reduced to under 2 seconds.

## 4. Cross-Browser and Device Testing:

- Tested on Chrome, Firefox, Safari, and Edge.
- Verified responsiveness using BrowserStack.
- Conducted manual testing on a physical mobile device.
- **Outcome:**
  - Confirmed consistent rendering and functionality across all platforms.

## 5. Security Testing:

- Sanitized inputs to prevent SQL injection and XSS attacks.

- Ensured API calls use HTTPS.
- Stored sensitive keys in environment variables.
- Tools used: OWASP ZAP and Burp Suite.
- **Results:**
  - No critical vulnerabilities identified.

#### 6. User Acceptance Testing (UAT):

- Simulated real-world usage, including browsing, searching, and checkout workflows.
  - Collected feedback from peers for usability improvements.
  - **Outcome:**
    - Verified that the user experience is intuitive and error-free.
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### Performance Optimization Summary:

- Optimized assets and implemented caching strategies.
- Improved page load speed and interaction responsiveness.

### Documentation Updates:

- Created a detailed testing report in CSV format.
  - Documented all identified issues, fixes, and optimization steps.
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### Testing Report Highlights:

- **Test Cases Executed:**
  - Total: 20
  - Passed: 18
  - Failed: 2 (Fixed)

- **Common Issues Found:**
    - Minor CSS inconsistencies on Edge.
    - Delay in image loading for slower networks.
  - **Resolutions:**
    - Fixed styling issues for Edge compatibility.
    - Added loading placeholders for images.
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**Conclusion:** Day 5 efforts ensured that the marketplace is robust, secure, and user-friendly. With comprehensive testing and optimization, the platform is now ready for deployment. Continuous monitoring and feedback collection will further improve its reliability.