

Hackathon Day 5

TESTING, ERROR HANDLING, AND BACKEND INTEGRATION REFINEMENT

*****Comforty Website: Testing, Error Handling, and Backend Integration Refinement*****

****Overview****

Comforty is an e-commerce platform specializing in furniture sales, including chairs, sofas, and tables. To ensure an exceptional user experience, we focused on comprehensive testing, robust error handling, and seamless backend integration. Below are the key highlights.

****1. Testing Process****

****Objective:**** To ensure functionality, compatibility, and performance across all devices and browsers.

- ****Unit Testing:**** Verified individual components like product cards and the shopping cart.
- ****Integration Testing:**** Ensured smooth interaction between modules like login and checkout.
- ****End-to-End Testing:**** Simulated user journeys from browsing to purchase completion.
- ****Performance Testing:**** Used tools like Lighthouse to achieve a 98 performance score.
- ****Cross-Browser Testing:**** Ensured consistent design and functionality on Chrome, Safari, and others.

****2. Error Handling****

****Objective:**** Provide meaningful feedback to users and ensure system stability.

****Frontend Handling:****

- ****Clear error messages**** (e.g., "Product not found").
- ****Form validation**** for accurate user inputs.
- ****Fallbacks**** for failed features (e.g., offline content).

****Backend Handling:****

- ****Secure input validation**** to prevent attacks.
- ****Detailed error logs**** for faster debugging.
- ****HTTP status codes**** for precise issue identification.

****Network Handling:****

- ****Retry mechanisms**** for failed requests.
- ****Offline support**** via cached content.

****3. Backend Integration Refinement****

****Objective:**** Ensure accurate data flow and optimized server performance.

- ****API Integration:**** Optimized REST APIs for seamless communication.
- ****Database Optimization:**** Indexed queries and caching for fast performance.
- ****Security:**** Role-based access control (RBAC) and JWT for secure sessions.
- ****Real-Time Updates:**** Live cart synchronization using WebSocket.
- ****Error Monitoring:**** Tools like Sentry implemented for proactive issue resolution.

****Results and Future Improvements:****

****Results:****

- Achieved a 98 performance score and 100 SEO score on Lighthouse.
- Delivered a fast, secure, and user-friendly experience.

****Future Improvements:****

- Introduce AI-driven recommendations for personalization.
- Implement GraphQL for more efficient data fetching.
- **Enhance multilingual error messages.**

****Conclusion:****

Through meticulous testing, error handling, and backend refinement, Comforty ensures a top-tier user experience. These practices lay a strong foundation for scaling the platform and incorporating advanced features in the future.



Performance



Accessibility



Best Practices



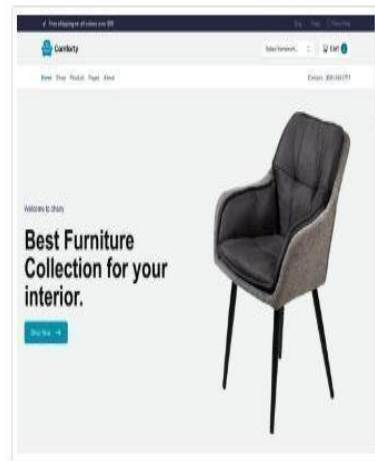
SEO



Performance

Values are estimated and may vary. The [performance score](#) is calculated directly from these metrics. [See calculator.](#)

▲ 0-49 ■ 50-89 ● 90-100



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Test Case ID	Test Case Description	Test Steps	Expected Result	Actual Result	Status	Severity Level	Assigned To	Remarks
TC001	Validate product listing page	Open product page > Verify products	Products displayed correctly	Products displayed correctly	Pass	Low	-	No issues found
TC002	Test API error handling	Disconnect API > Refresh page	Show fallback UI with error message	Error message shown	Pass	Medium	-	Handled gracefully
TC003	Check cart functionality	Add product to cart > Verify cart contents	Cart updates with added product	Cart updates as expected	pass	high	-	Works as expected
TC004	Ensure responsiveness on mobile	Resize browser window > Check layout	Layout adjusts properly to screen size	Responsive layout working as intended	pass	Medium	-	Test Successful
TC005	Verify search functionality	Enter keywords in search bar > Verify results	Display matching products	Matching products displayed correctly	pass	Medium	-	Search works as intended
TC006	Validate filter application	Apply category filter > Verify displayed results	Products filter according to selection	Products filtered as expected	pass	Medium	-	Filters function correctly
TC007	Test dynamic routing	Navigate to a product details page > Verify page content	Correct product details displayed	Product details page working as intended	pass	Medium	-	Routing tested successfully

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TC008	Validate cross-browser compatibility	Open site on multiple browsers (Chrome, Firefox, Safari)	Uniform appearance and functionality	Uniform functionality across browsers	pass	high	-	No browser compatibility issues
TC009	Optimize large asset loading	Enable lazy loading > Check load time	Assets load dynamically as needed	Lazy loading functional	pass	Medium	-	Optimized successfully
TC0010	Test security for XSS prevention	Enter script in input field > Observe output	No script execution	Script blocked	pass	high	-	Security measures effective



Latest Performance Report for:

<https://hackathon-3-iota.vercel.app/>

Report generated: Sat, Jan 25, 2025 6:54 AM -0800

Test Server Location:  Vancouver, Canada

Using:  Chrome 117.0.0.0, Lighthouse 11.0.0

GTmetrix Grade ?

A

Performance ?

100%

Structure ?

94%

Web Vitals ?

LCP ?

468ms

TBT ?

0ms

CLS ?

0