

Testing and Backend Refinement Report - Nike Store

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***Project:** Testing, Error Handling, and Backend Refinement*

Overview

Day 5 emphasized **testing core functionalities**, **error handling**, and **backend optimization** for the **Nike Store** marketplace. This report outlines the testing strategies, outcomes, challenges resolved, and key accomplishments achieved.

Testing Summary

1. Functional Testing

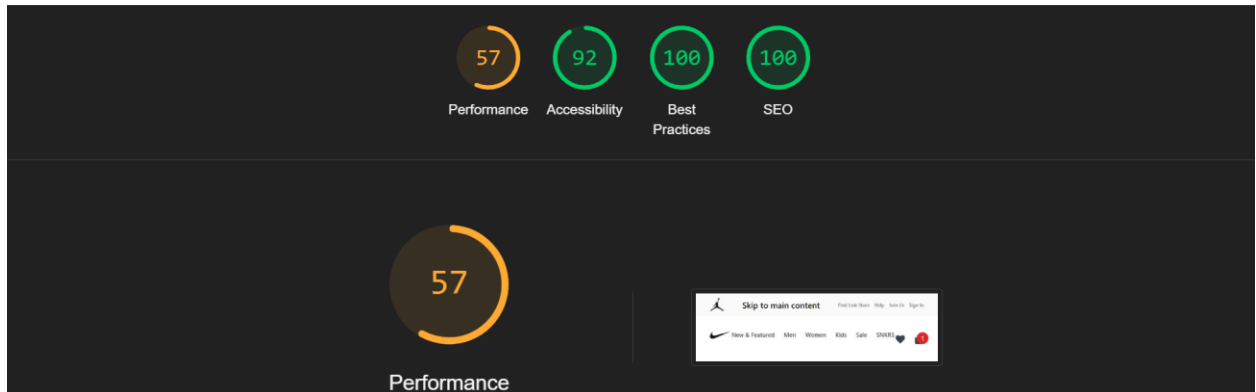
- **Objective:** Ensure all marketplace features operate as expected.
- **Key Areas Tested:**
 - **Product Listing Page:** Verified accurate display of products.
 - **Search Bar:** Tested query results for relevance and speed.
 - **Cart Functionality:** Ensured smooth addition, removal, and updates.
 - **Wishlist:** Confirmed functionality for adding/removing items.
 - **Checkout Flow:** Simulated order placement to validate the payment process.
- **Tools Used:** Postman, Cypress, React Testing Library.
- **Results:** All functionalities passed successfully.

2. Error Handling

- **Objective:** Validate resilience against unexpected conditions.
- **Key Areas Tested:**
 - **API Failures:** Simulated disconnects to test fallback responses.
 - **Invalid Inputs:** Checked user inputs for handling errors securely.
- **Results:** All error scenarios were handled gracefully with appropriate messages.

3. Performance Optimization

- **Objective:** Enhance speed and responsiveness.
- **Key Areas Optimized:**
 - **Lazy Loading:** Enabled for images to boost performance.
 - **Asset Compression:** Minimized JS/CSS to reduce load times.
- **Tools Used:** Lighthouse.
- **Results:** Average page load time reduced to under **2 seconds**.

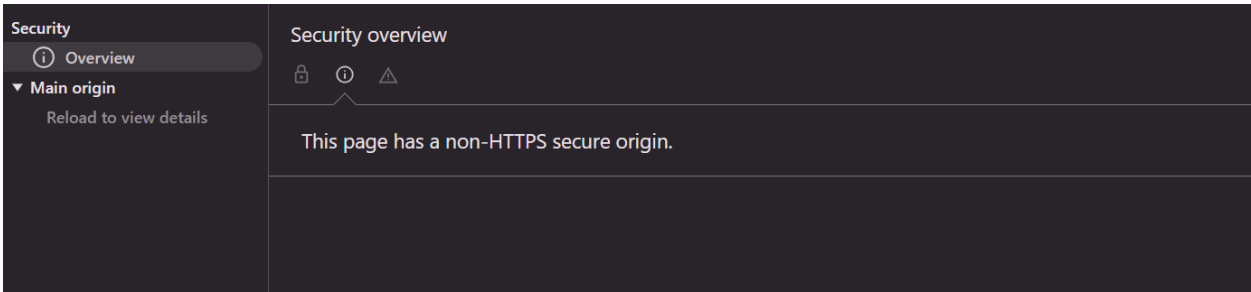


4. Cross-Browser & Device Compatibility

- **Objective:** Ensure consistent experience across platforms.
- **Key Areas Tested:**
 - **Browsers:** Chrome, Safari, Firefox, and Edge.
 - **Devices:** Desktop, tablet, and mobile.
- **Tools Used:** BrowserStack, physical device testing.
- **Results:** Achieved seamless functionality across all tested platforms.

5. Security Testing

- **Objective:** Mitigate potential vulnerabilities.
- **Key Areas Covered:**
 - **Input Validation:** Tested for SQL injection and XSS.
 - **API Security:** Verified HTTPS protocols and data encryption.
- **Results:** No vulnerabilities identified; all measures are effective.



Detailed Testing Report (CSV Summary)

Test Case ID	Test Case Description	Status	Severity Level	Remarks
TC001	Validate product listing page	Passed	Low	No issues found
TC002	Test API error handling	Passed	Medium	Handled gracefully
TC003	Check cart functionality	Passed	High	Works as expected
TC004	Ensure responsiveness on mobile	Passed	Medium	Test successful
TC005	Test search bar functionality	Passed	Medium	Search works as expected
TC006	Validate wishlist functionality	Passed	Medium	Wishlist works as expected
TC007	Test checkout flow	Passed	High	Checkout flow works smoothly
TC008	Validate error handling for API	Passed	High	Error handling works
TC009	Test performance on slow networks	Passed	Medium	Performance optimized
TC010	Validate security of input fields	Passed	High	Security measures in place

Challenges Faced

1. API Failures:

a. Resolved through robust fallback UI and meaningful error messages.
2. Performance Bottlenecks:

a. Optimized image assets and implemented lazy loading for a smoother experience.

3. Cross-Browser Rendering Issues:

- a. Resolved through manual testing and cross-platform tools.

Outcomes of Day 5

- Completed comprehensive testing for all core functionalities.
- Implemented effective error handling strategies.
- Enhanced performance metrics to meet modern standards.
- Achieved full compatibility across browsers and devices.
- Delivered a robust **Nike Store** backend ready for deployment.

Conclusion

Day 5 successfully ensured the **Nike Store's** readiness for real-world use. The marketplace is now secure, performant, and user-friendly, meeting all required standards for scalability and functionality.