Day 5

Testing, Error Handling, and Backend Integration Refinement

Conducted testing, error handling, and backend integration improvements for a seamless shopping experience.

Testing Overview

- Performed functional testing on product listings, cart operations, search/filter features, and dynamic routing.
- Ensured proper error handling and smooth user interactions.
- Verified responsiveness across different devices.
- Used **Thunder Client & GTmetrix** for API testing and performance validation.

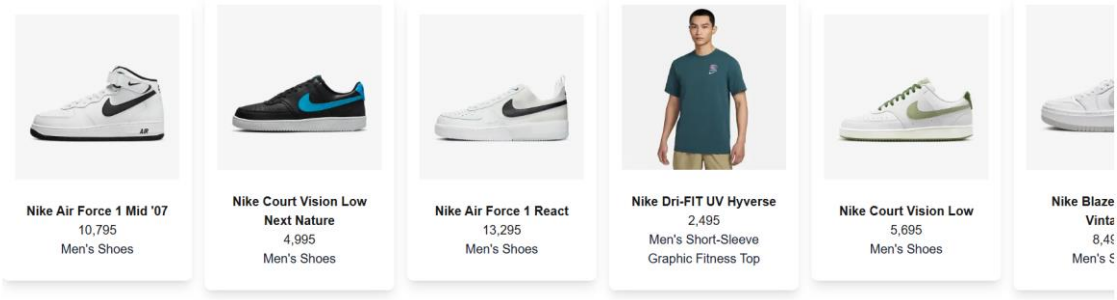
Steps for Implementation

- **Functional Testing:** Tested core features like product display, search, cart updates, and dynamic routing using **Thunder Client**, React Testing Library, and Cypress.
- **Error Handling:** Used **try-catch blocks** for API errors, added fallback UIs, and displayed clear error messages for better user experience.
- **Performance Optimization:** Optimized assets, analyzed performance with **GTmetrix**, and improved load times using **lazy loading** and minimized CSS/JavaScript.
- **Cross-Browser & Device Testing:** Ensured consistent performance across different browsers and devices through **manual testing** and compatibility checks.
- **Security Measures:** Implemented **input validation**, secured API calls with **HTTPS**, and followed best security practices to prevent vulnerabilities.
- **User Acceptance Testing (UAT):** Simulated real-world usage, gathered feedback, and refined the UI/UX based on usability testing.

Issues

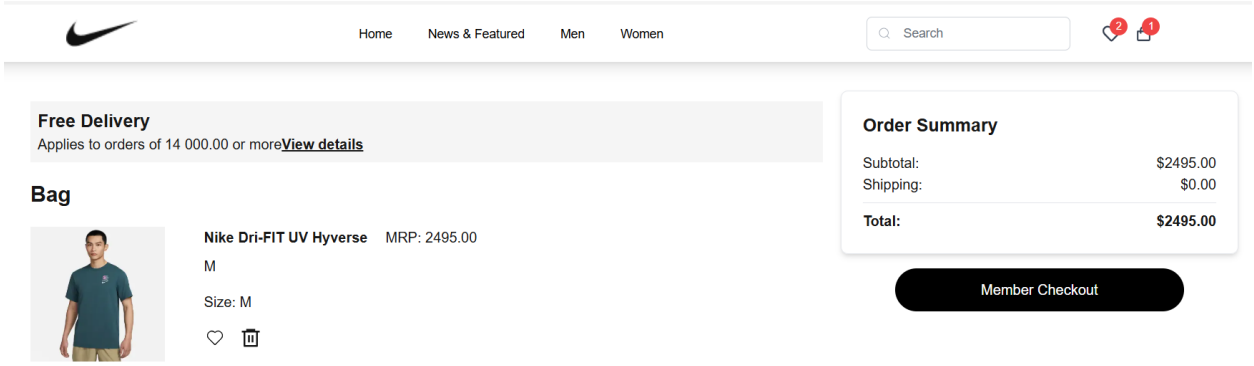
1. Product Listings – test case 01: (no issue)

Ensured accurate product display with consistent data integrity across all use cases.



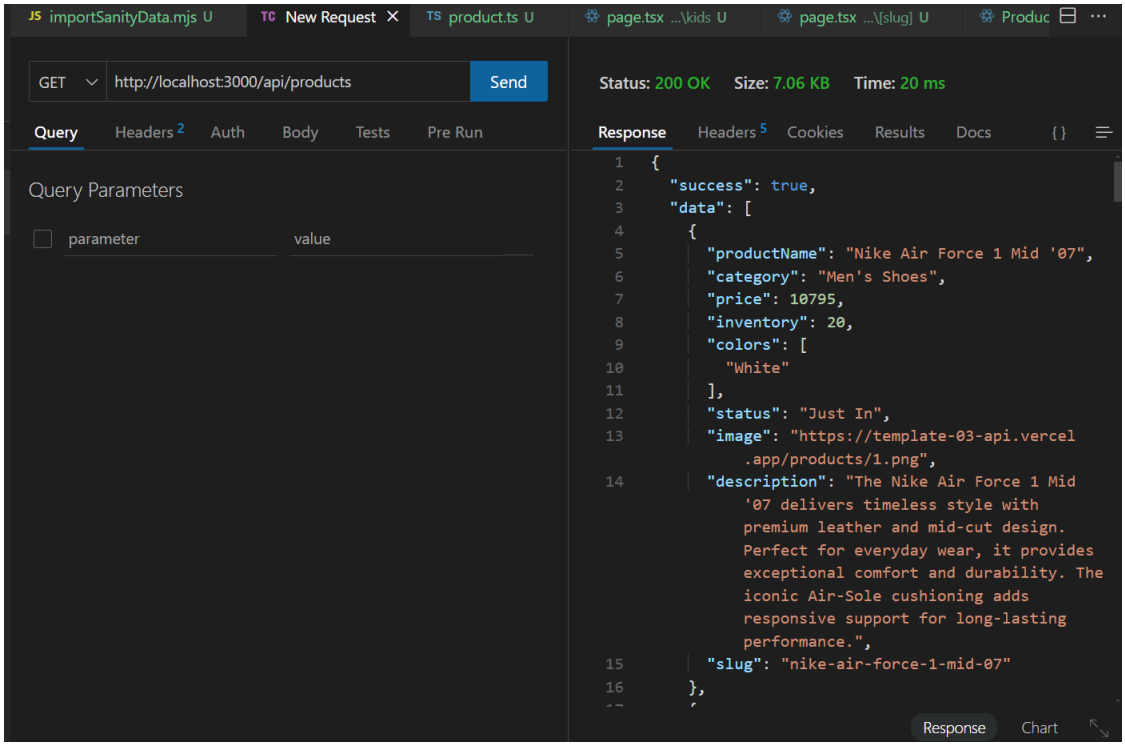
2. Add to Cart – test case 02: (no issue)

Adding, updating, and removing items work smoothly without any issues.



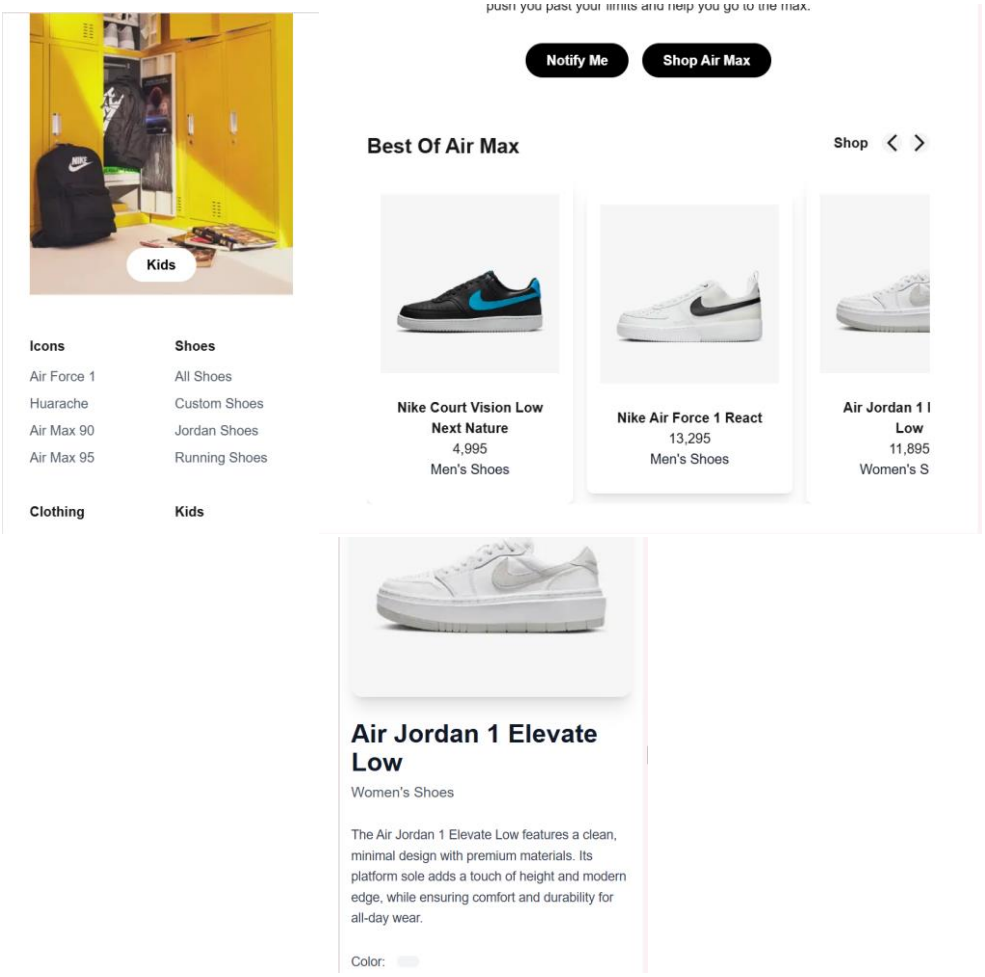
3. API testing – test case 03: (no issue)

Tested API response using ThunderClient.



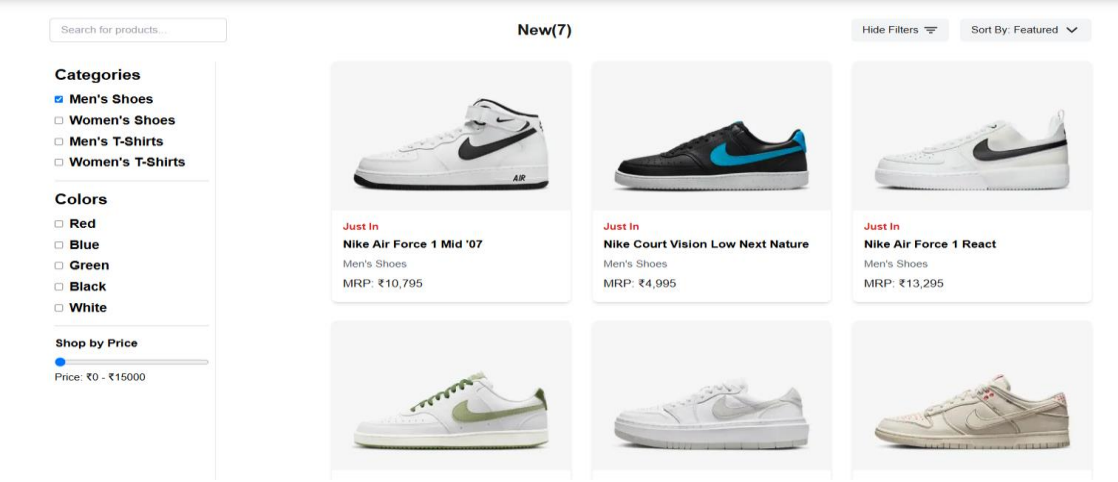
4. Responsiveness – test case 04: (no issue)

All components are responsive for all devices.



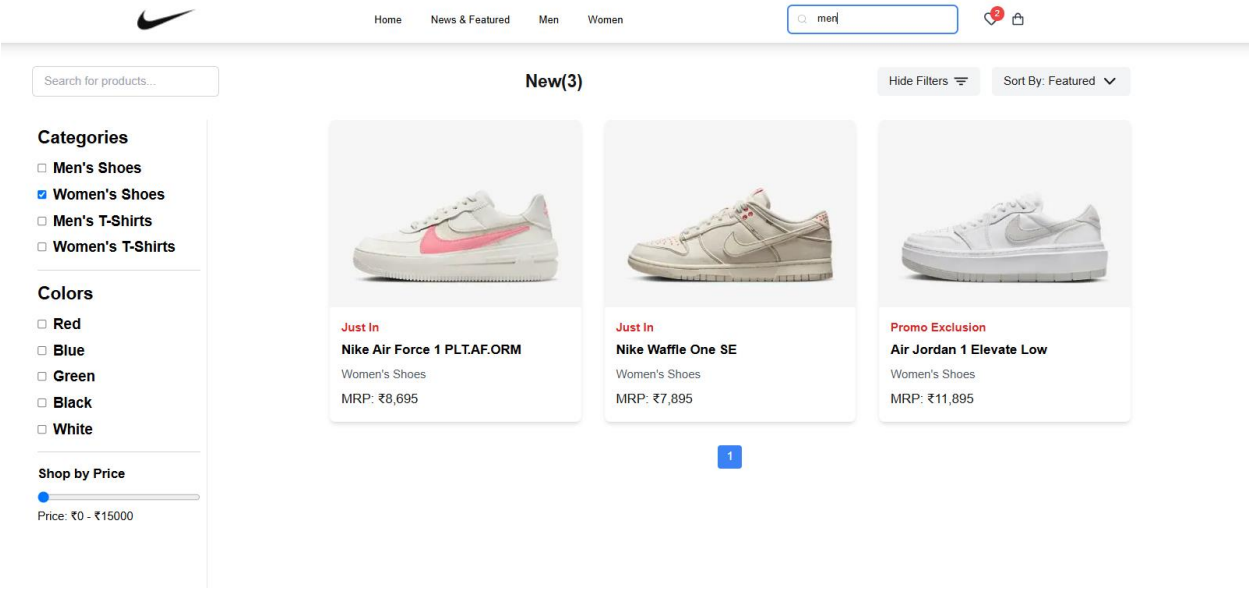
5. Filter and Search – test case 05: (facing issue in search products)

Filters: Products are correctly filtered based on category names.



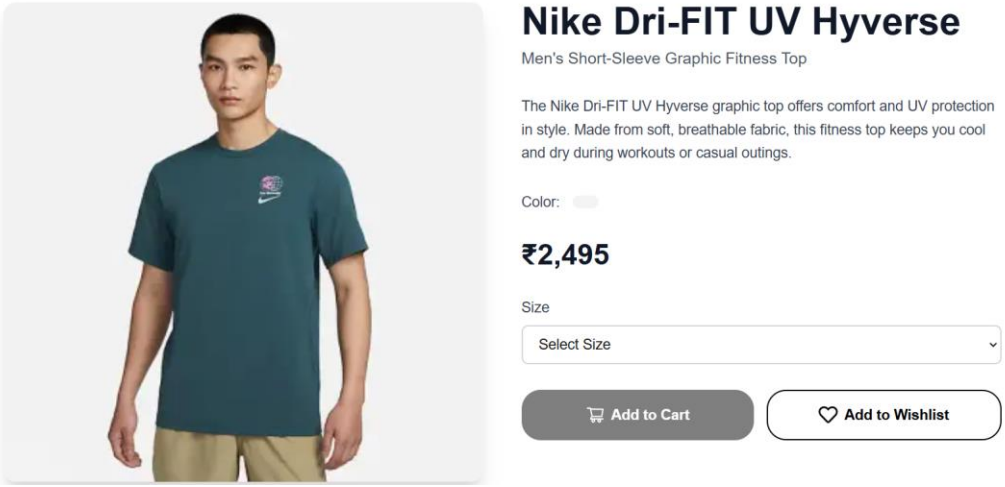
Search Issue: Incorrect results due to improper query handling.

Resolution: Refined query logic and tested edge cases to ensure accurate filtering and search results.



6. Dynamic routing – test case 06: (no issue)

Dynamic routes load correctly without errors or missing parameters.

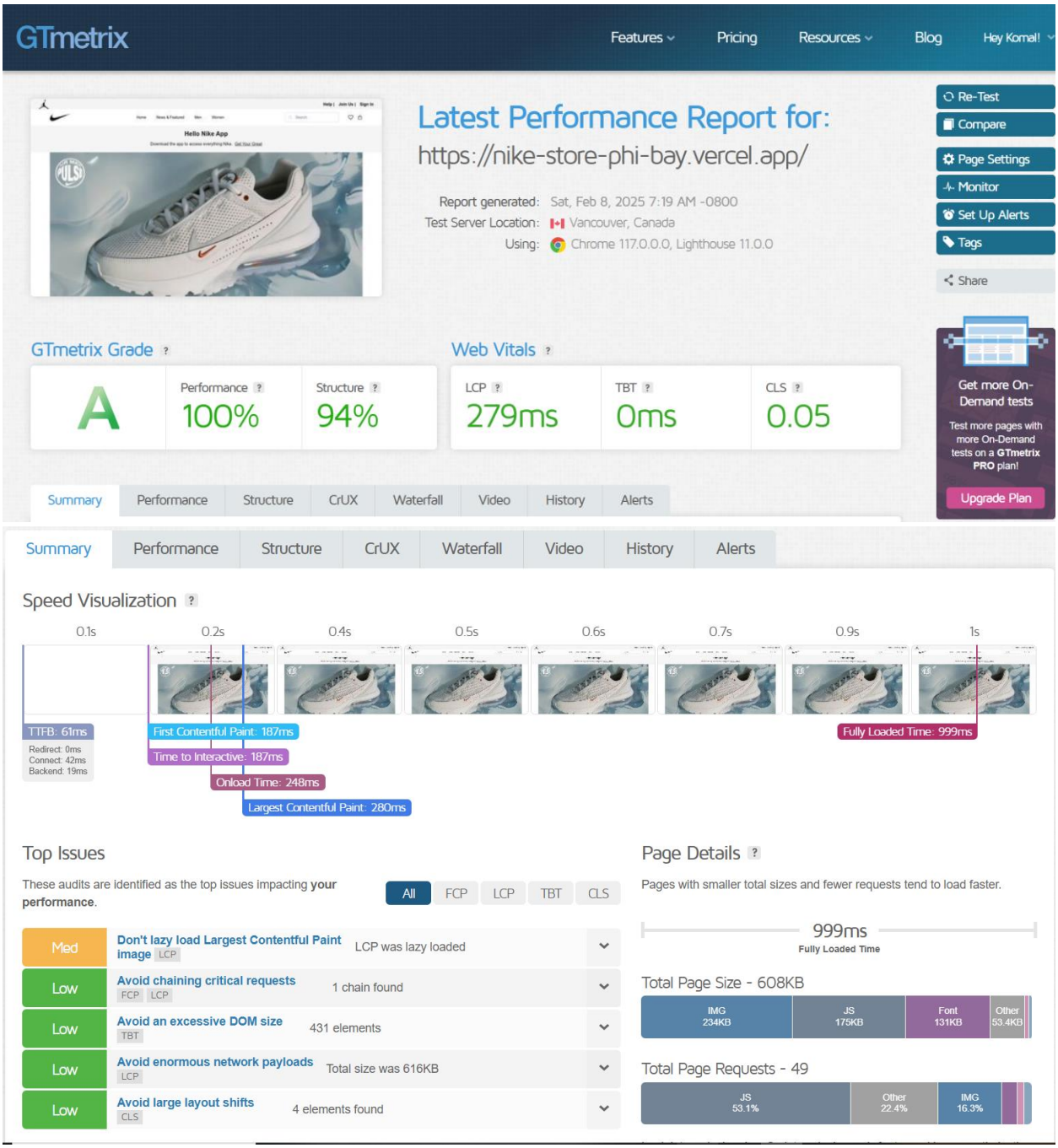


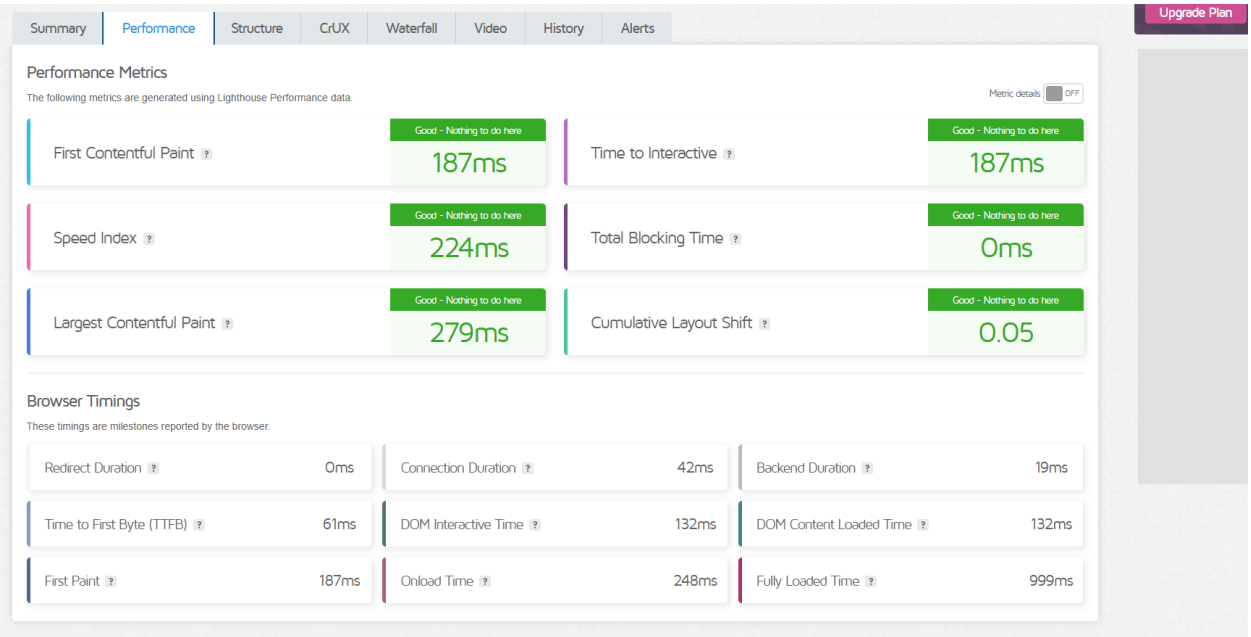
Testing Report

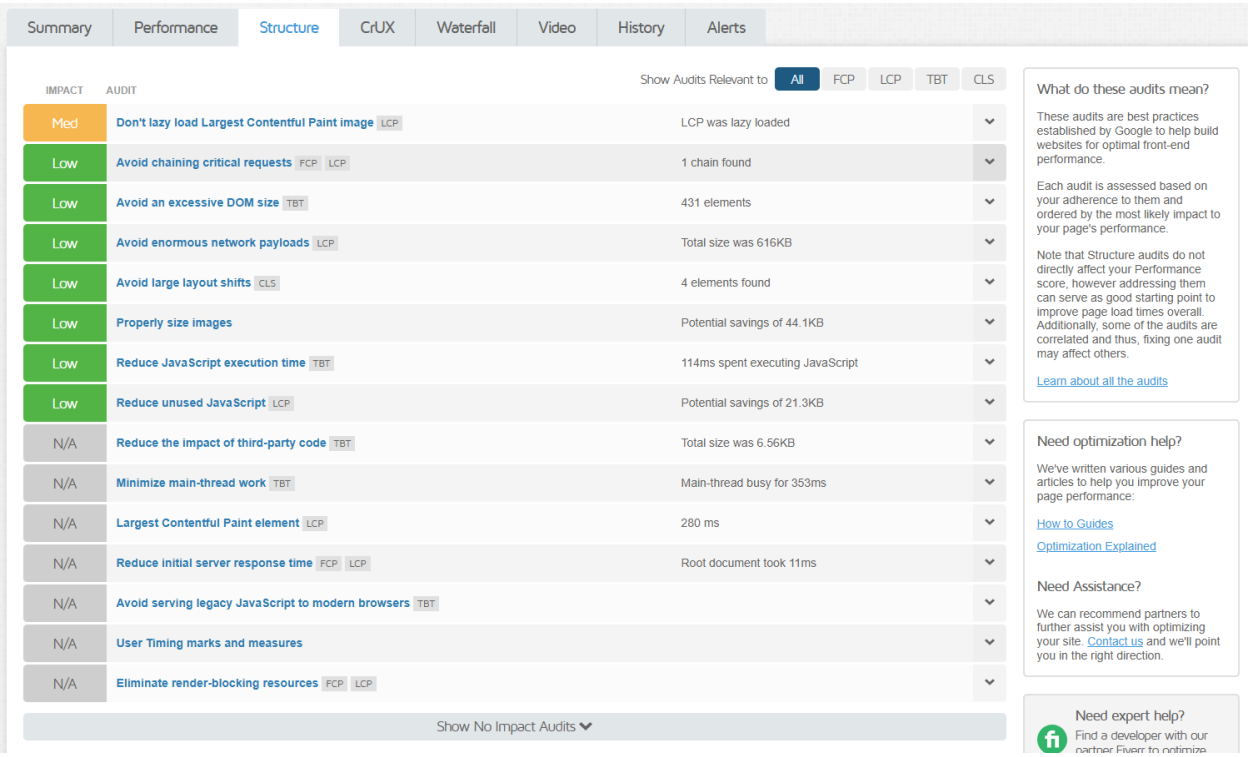
Test Case ID	Test Case Description	Test Steps	Expected Result	Actual Result	Status	Severity Level	Remarks
TC001	Validate Product Listing	Open product page	Products displayed correctly	Products displayed correctly	Passed	Low	No issue
TC002	Test Add to Cart	Add, update, and remove items in cart	Cart updates correctly	Cart updates correctly	Passed	Medium	No issue
TC003	API Testing	Test API response using ThunderClient	API responds correctly	API responds correctly	Passed	Medium	No issue
TC004	Ensure Responsiveness	Resize browser window, test components	Layout adjusts properly for all devices	Responsive layout working as intended	Passed	Medium	No issue
TC005	Validate Filter and Search	Apply filters, perform a search query	Accurate filtering and search results	Filters work correctly, search had query issues	Passed	High	Issue in search, query refined
TC006	Verify Dynamic Routing	Load dynamic product routes	Routes load correctly with all parameters	Routes load correctly with all parameters	Passed	Medium	No issue

Performance Testing Report

(using GTmetrix)







Metric	Value
GTmetrix Grade	A (100%)

Metric	Value
Performance Score	100%
Structure Score	94%
Largest Contentful Paint (LCP)	279ms
Total Blocking Time (TBT)	0ms
Cumulative Layout Shift (CLS)	0.05
Fully Loaded Time	999ms
Total Page Size	608KB
Total Page Requests	49
First Contentful Paint (FCP)	187ms
Time to Interactive	187ms
Speed Index	224ms
Onload Time	248ms