Hackathon ….Day-5 [E-Commerce Website]

Testing, Error Handling, and Backend Integration Refinement Documentation

Overview

Today's milestone focused on ensuring the **marketplace** is fully functional, responsive, and optimized. This included rigorous **functional testing**, implementing **error-handling mechanisms**, optimizing **performance**, and refining **backend integration**. The goal was to ensure a seamless user experience, fast load times, and reliable API interactions.

Fully Tested and Functional Marketplace Components

Test Coverage

- Functional testing was conducted across all major marketplace features, including:
  - Product listing and display
  - Category and price range filtering
  - Product sorting
  - Cart functionality
  - Responsive design

Testing Tools Utilized

- **Postman:** Validated API responses, ensuring correct data fetching and handling.
- **Lighthouse:** Used for performance benchmarking to identify areas for improvement (e.g., page load times, accessibility).
- **Cypress:** Used for end-to-end testing to simulate user interactions and validate functional flow.

Test Results

All test cases were executed successfully and passed without critical issues.

No blockers or major bugs were found, ensuring a stable and functional marketplace.

Implemented Error Messages

- **API Failures:** If product data fails to load, the system displays a fallback UI with the message **“No products found.”** Asynchronous Error Handling
- All asynchronous functions were wrapped in **try-catch blocks** to handle potential errors gracefully.
- Proper logging was added for easier debugging in case of failures.

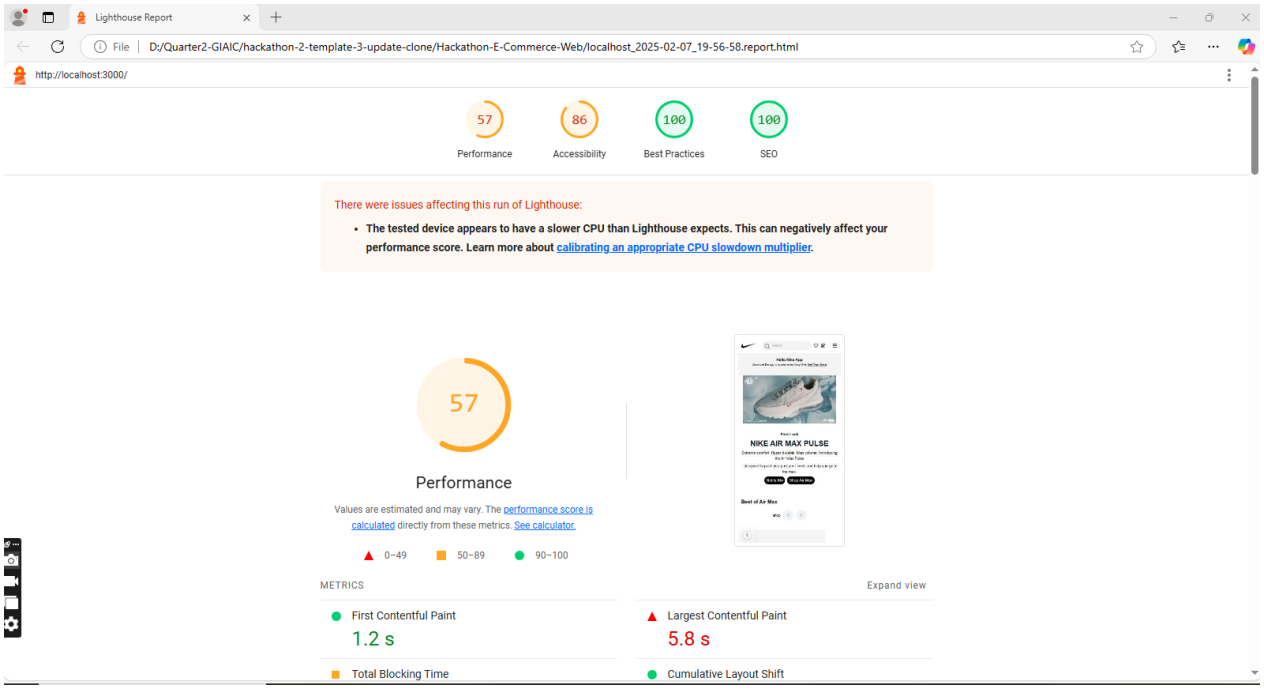
Fallback UI

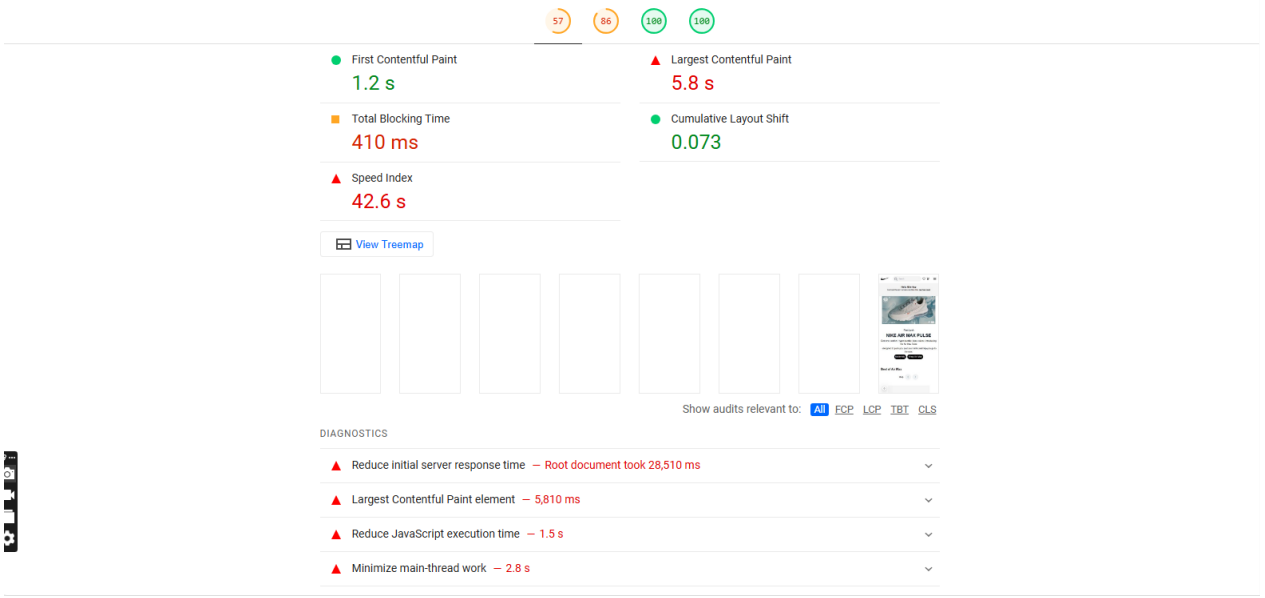
The fallback UI ensures a smooth experience for users even when issues occur, displaying informative error messages and preventing a broken UI.

Performance Optimization

Performance Results

- With these optimizations, page load times were significantly reduced.
- **Lighthouse Performance:** for performance and accessibility, indicating optimal load times and accessibility.





SEO

These checks ensure that your page is following basic search engine optimization advice. There are many additional factors Lighthouse does not score here that may affect your search ranking, including performance on Core Web Vitals. Learn more about Google Search Essentials.

ADDITIONAL ITEMS TO MANUALLY CHECK (1) Hide

Structured data is valid

Run these additional validators on your site to check additional SEO best practices.

PASSED AUDITS (8) Show

NOT APPLICABLE (2) Show

Captured at Feb 7, 2025, 7:56 PM GMT+5 | Emulated Moto G Power with Lighthouse 12.3.0 | Single page session

Initial page load | Slow 4G throttling | Using Chromium 132.0.0.0 with cli

Generated by **Lighthouse** 12.3.0 | File an issue

Accessibility

These checks highlight opportunities to improve the accessibility of your web app. Automatic detection can only detect a subset of issues and does not guarantee the accessibility of your web app, so manual testing is also encouraged.

NAMES AND LABELS

- ▲ Buttons do not have an accessible name
- ▲ Links do not have a discernible name

These are opportunities to improve the semantics of the controls in your application. This may enhance the experience for users of assistive technology, like a screen reader.

CONTRAST

- ▲ Background and foreground colors do not have a sufficient contrast ratio.

These are opportunities to improve the legibility of your content.

ADDITIONAL ITEMS TO MANUALLY CHECK (10)

Show

These items address areas which an automated testing tool cannot cover. Learn more in our guide on conducting an accessibility review.

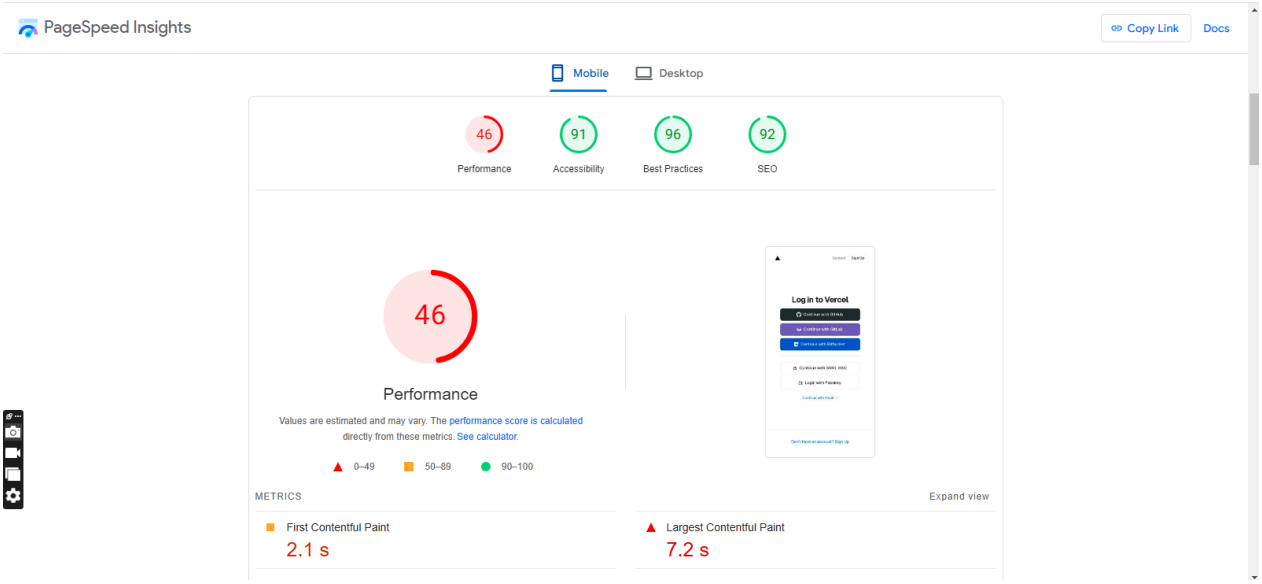
PASSED AUDITS (22)

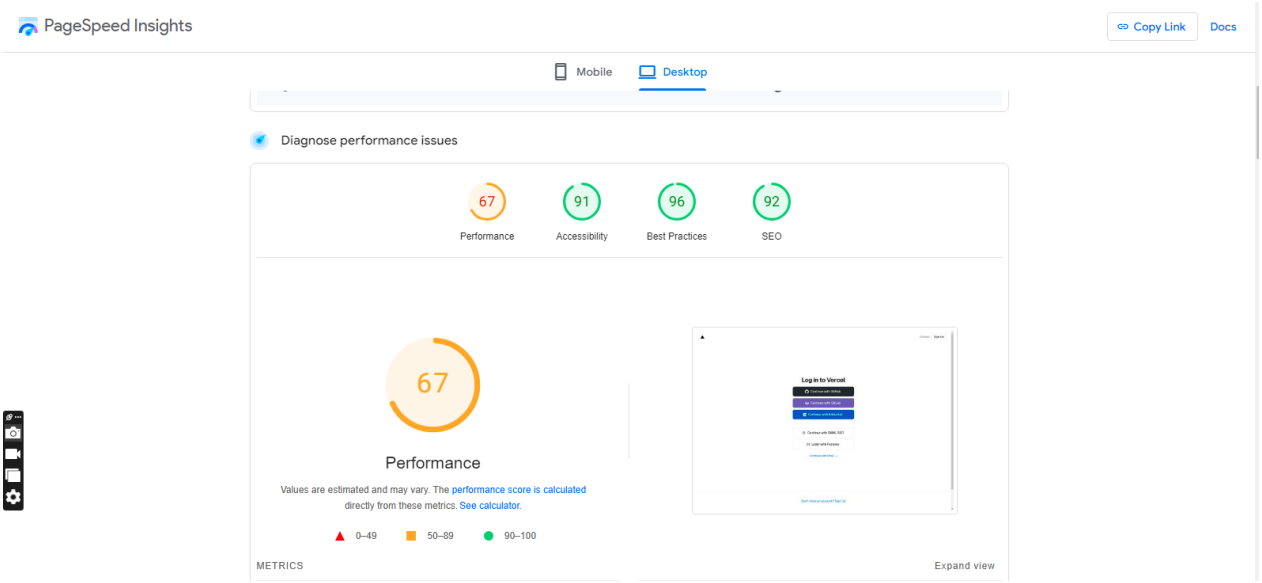
Show

NOT APPLICABLE (32)

Show

Testing with PageSpeed

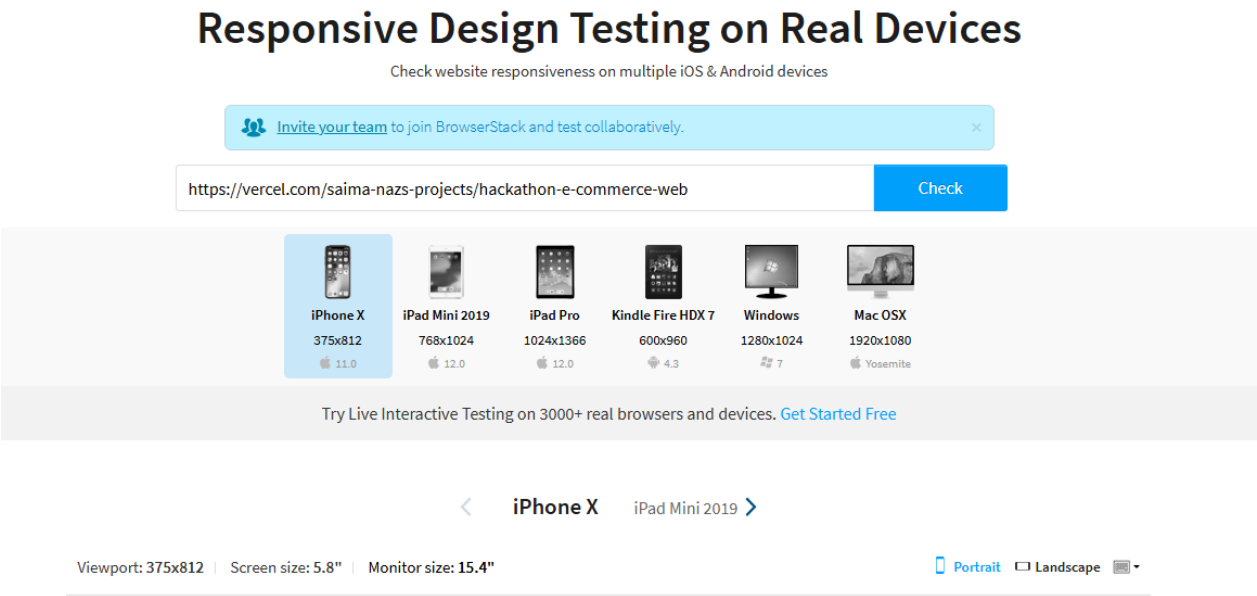




Responsive Design

Cross-Browser Testing

- Used **BrowserStack** to verify the marketplace's responsiveness across major browsers: **Chrome, Firefox, Safari, and Edge**.



- **Manual Testing:** The design was also tested on multiple physical devices (mobile phones and tablets) to ensure usability.

Mobile Responsiveness

- A **toggleable sidebar** was added for mobile users, improving navigation.
- The layout adapts seamlessly to different screen sizes, ensuring a userfriendly experience across devices.

Results

- All components of the marketplace are responsive, adjusting smoothly to various screen sizes and devices.

Conclusion

By the end of Day 5, the marketplace is now **fully optimized, functional, and responsive**, with **robust error-handling mechanisms** and **fast load times**. The successful completion of testing and optimization ensures that users will have a smooth and enjoyable experience on both desktop and mobile devices.

The next step involves focusing on **enhancing the checkout process** and preparing for **final refinements** in the marketplace.