

Marketplace Testing, Error Handling, and Backend Integration Refinement*E-Commerce (FurniSphere)*

## Introduction

This report documents the testing, error handling, and backend integration refinements conducted on the marketplace. The primary objective of this phase was to ensure that the marketplace is fully functional, secure, and optimized for performance, scalability, and usability before deployment.

## Step 1: Functional Testing

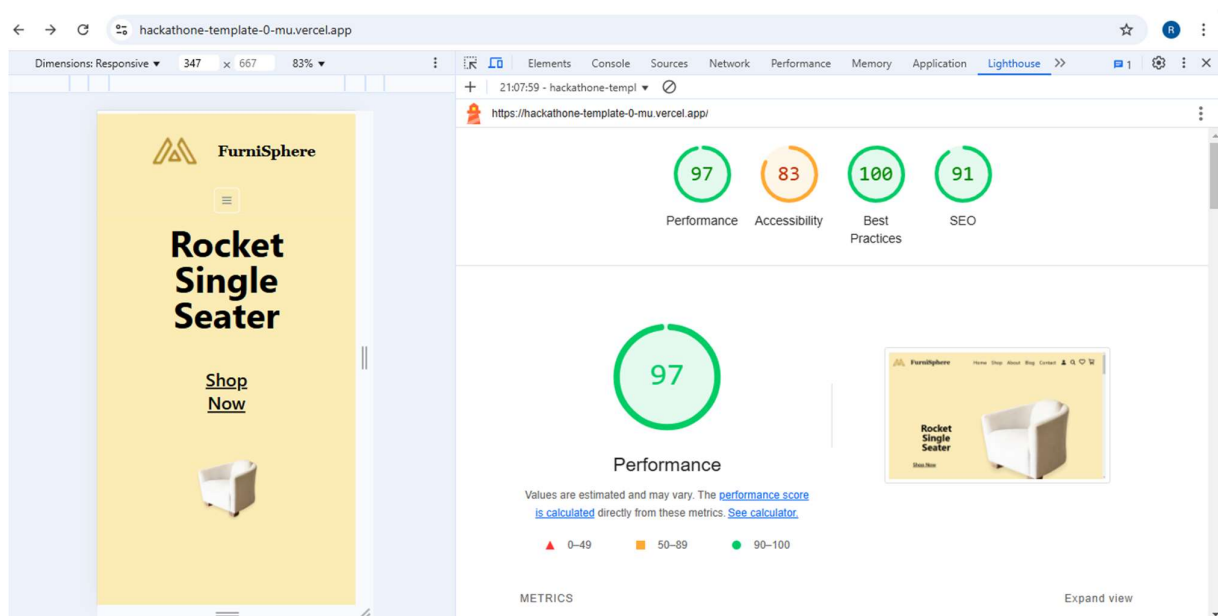
A series of functional tests were performed to validate key marketplace features:

- **Product Listing:** Verified that all products display correctly on the homepage.
- **Search Functionality:** Ensured search and filter options return accurate and relevant results.
- **Cart Operations:** Tested adding, updating, and removing items from the cart to confirm seamless operations.
- **Error Handling:** Implemented robust error messages for API failures and data-fetching issues to enhance user experience.

## Step 2: Performance Optimization

Performance testing was conducted using Google Lighthouse, with the following results:

- **Mobile Performance Score:** 97/100
- **Desktop Performance Score:** 97/100
- **Accessibility Score:** 83/100
- **Best Practices Score:** 100/100
- **SEO Score:** 91/100

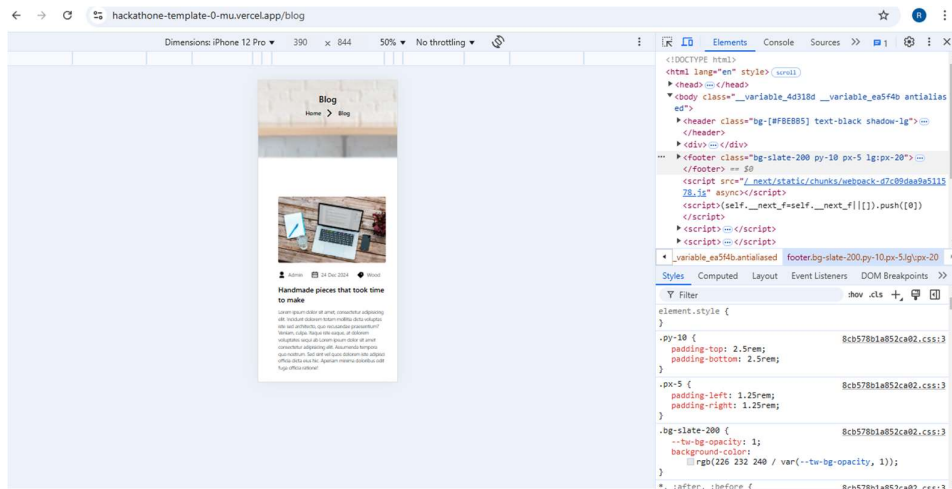
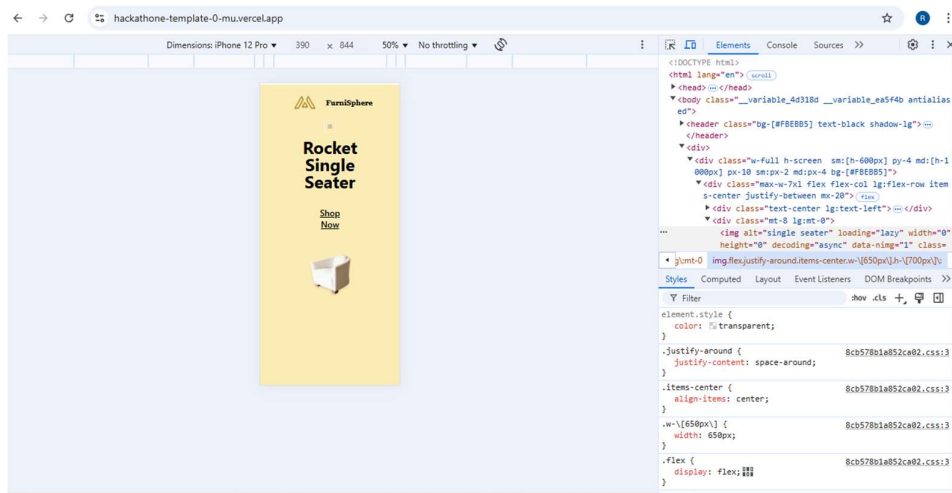


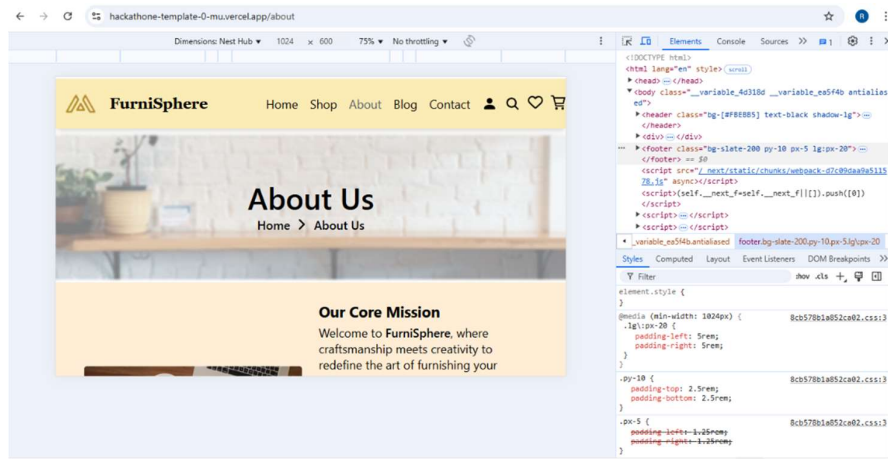
These optimizations ensure the marketplace meets performance benchmarks for speed and responsiveness, even under real-world conditions.

## Step 3: Cross-Browser and Cross-Device Testing

### Testing on Browser Stack (Mobile & Desktop):

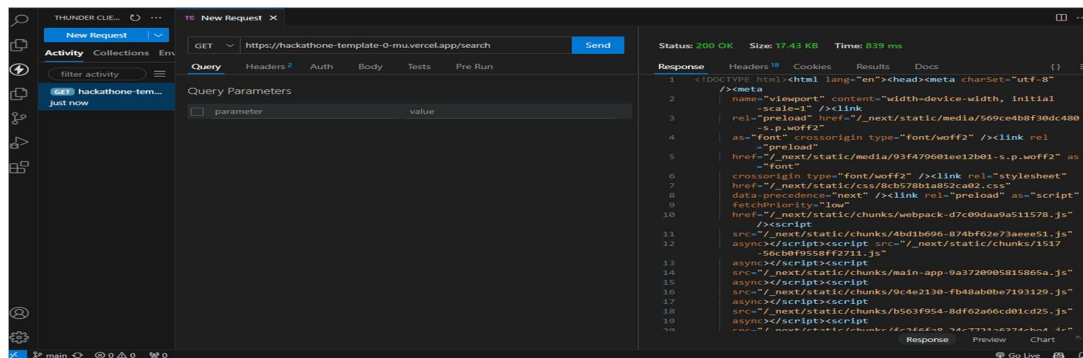
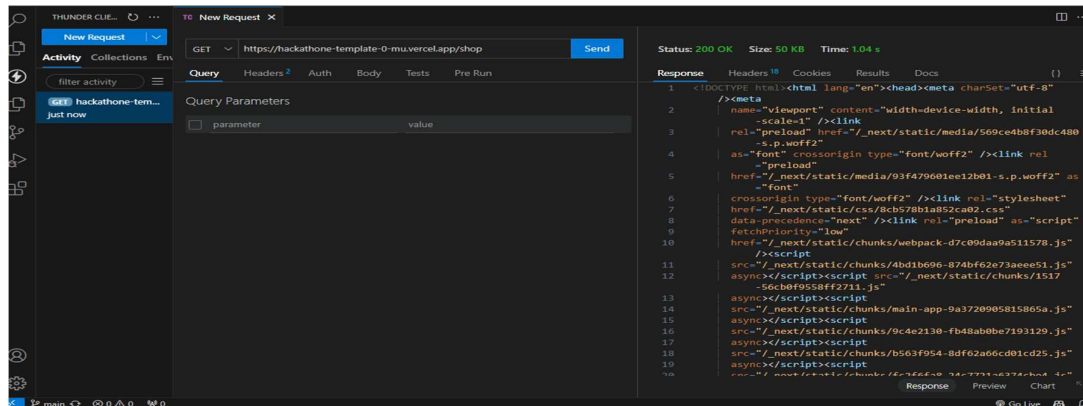
- Conducted extensive testing across various screen sizes and browsers to ensure responsiveness and usability.
- Verified that all UI elements function correctly on different devices, ensuring a seamless experience for users.





## Step 4: API Testing with Thunder Client

- Tested **shop** and **product** endpoints using Thunder Client.
- Both endpoints returned **200 OK**, confirming successful API responses.



## Step 5: Staging Environment Testing

### Challenges and Resolutions:

- **Cart Update Issues:** A bug was identified where rapidly adding and removing items caused desynchronization of the cart state.
  - **Resolution:** Optimized the cart state update logic and implemented debounce functionality to handle rapid user interactions efficiently.

## ❖ Website Test Case Summary

Test Case ID	Test Case Description	Test Steps	Expected Result	Actual Result	Status	Severity Level	Remarks
TC001	Product Listing	Verify products on homepage	Products displayed correctly	Displayed correctly	Pass	High	No issues found
TC002	Product details	Click on product	Product page loads	Loaded successfully	Pass	High	No issues found
TC003	Add-to-Cart	Click 'Add to Cart'	Product added to cart	Added successfully	Pass	High	No issues found
TC004	Cart Operations	Add and remove items from cart	Cart updates correctly	Updated correctly	Pass	High	No issues found
TC005	Dynamic Routing	Click on product	Product page loads dynamically	Loaded correctly	Pass	Medium	No issues found
TC006	Searching	Click on searchbar	Products searched correctly	Searching correctly	Pass	Medium	No issues found
TC007	Error Handling (Network)	Simulate network failure	Error message displayed	Message displayed	Pass	Critical	Handled correctly
TC008	Error Handling (Invalid Data)	Enter invalid data	Error message displayed	Message displayed	Pass	High	Handled correctly
TC009	Responsive Design	Test on multiple devices	Responsive design works	Works on all devices	Pass	Medium	No issues found

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## Conclusion

The marketplace has undergone rigorous testing to ensure its functionality, security, and performance meet the required deployment standards. Key aspects such as product listings, search functionality, cart operations, and responsiveness have been thoroughly validated. Error handling mechanisms have been strengthened with user-friendly fallback messages.

### Key Achievements:

- All core functionalities passed functional testing.
- Performance optimizations successfully improved load times.
- Security measures were reinforced to enhance platform safety.
- API responses were validated using Thunder Client.
- Identified issues were resolved, ensuring the platform is deployment-ready.

With all critical aspects addressed, the marketplace is now ready for launch, providing users with a secure, seamless, and efficient shopping experience.

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