

**Report: Day 5**  
**Marketplace Testing, Error Handling, and Backend Integration Refinement**  
**E-Commerce (Avion)**

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## **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**

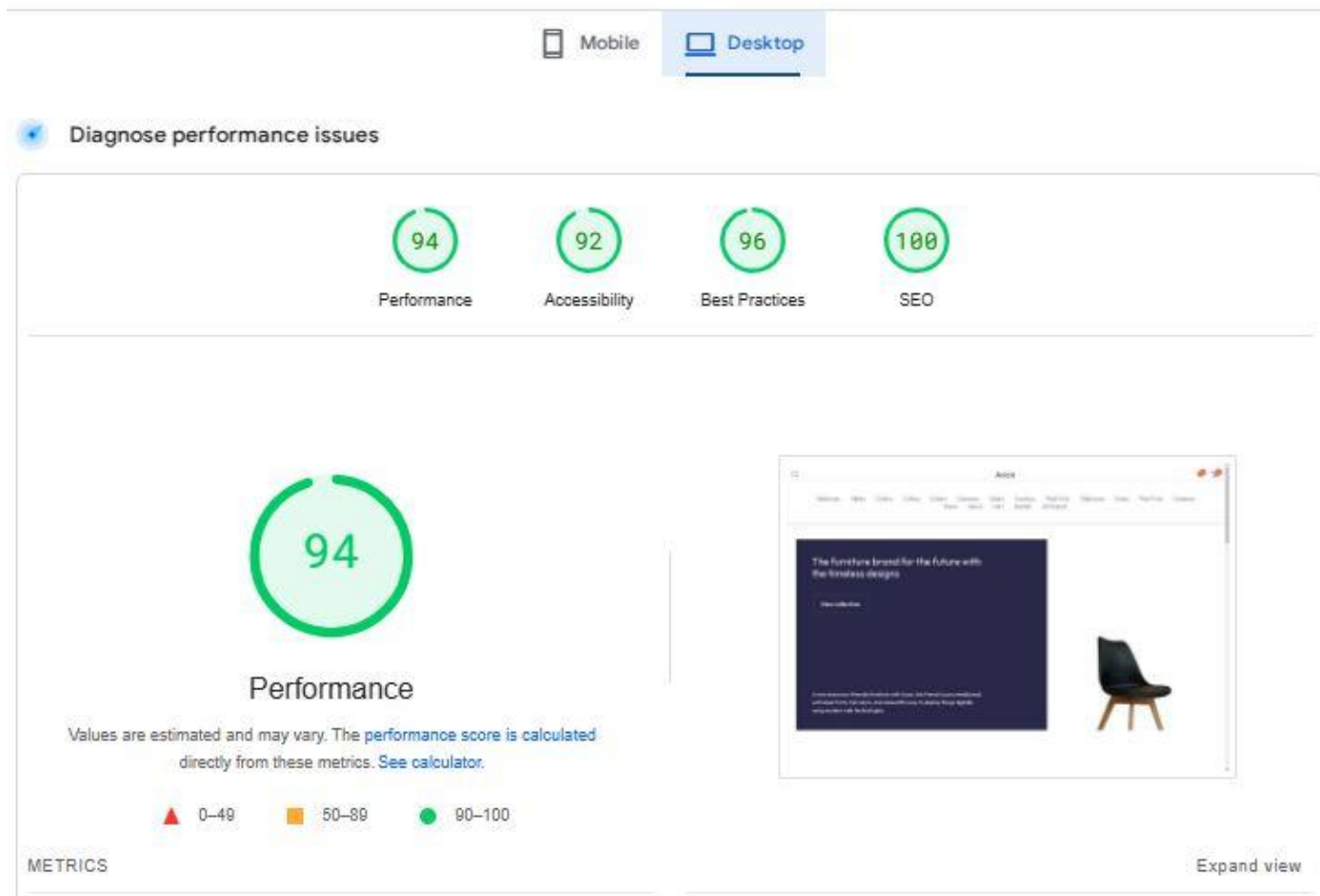
A series of functional tests were performed to validate key marketplace features:

- **Product Listing:** Verified that all products display correctly on the homepage.
- **Search and Filter 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:** 94/100
- **Accessibility Score:** 92/100
- **Best Practices Score:** 96/100
- **SEO Score:** 100/100

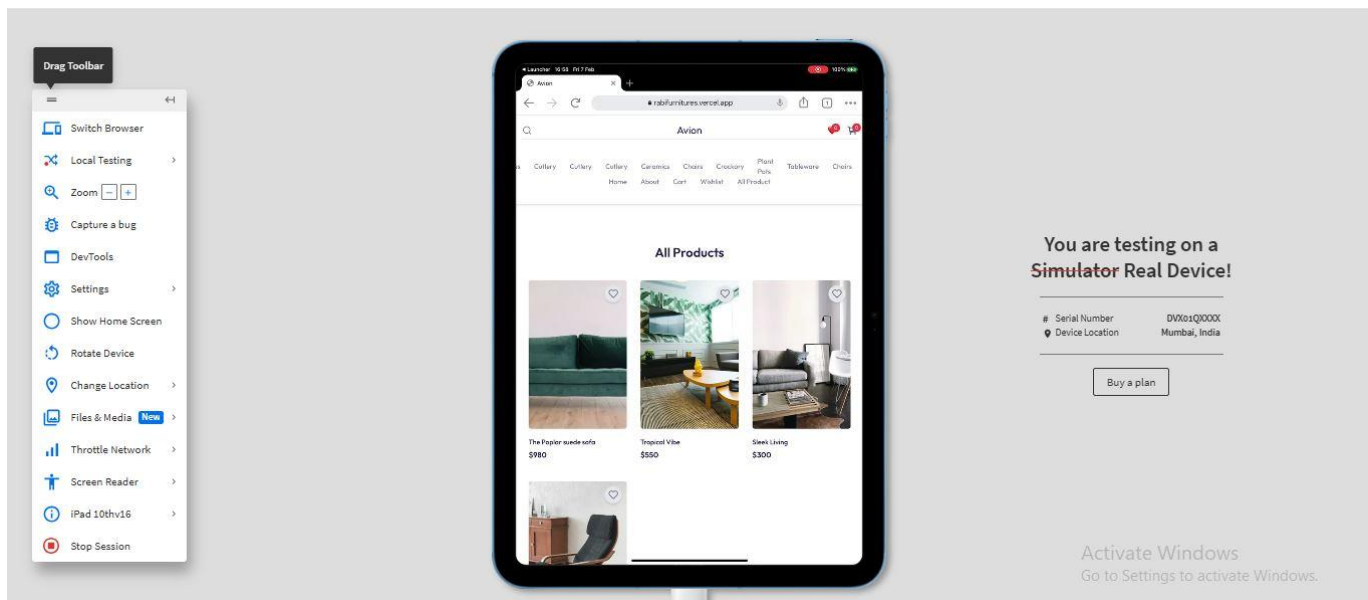
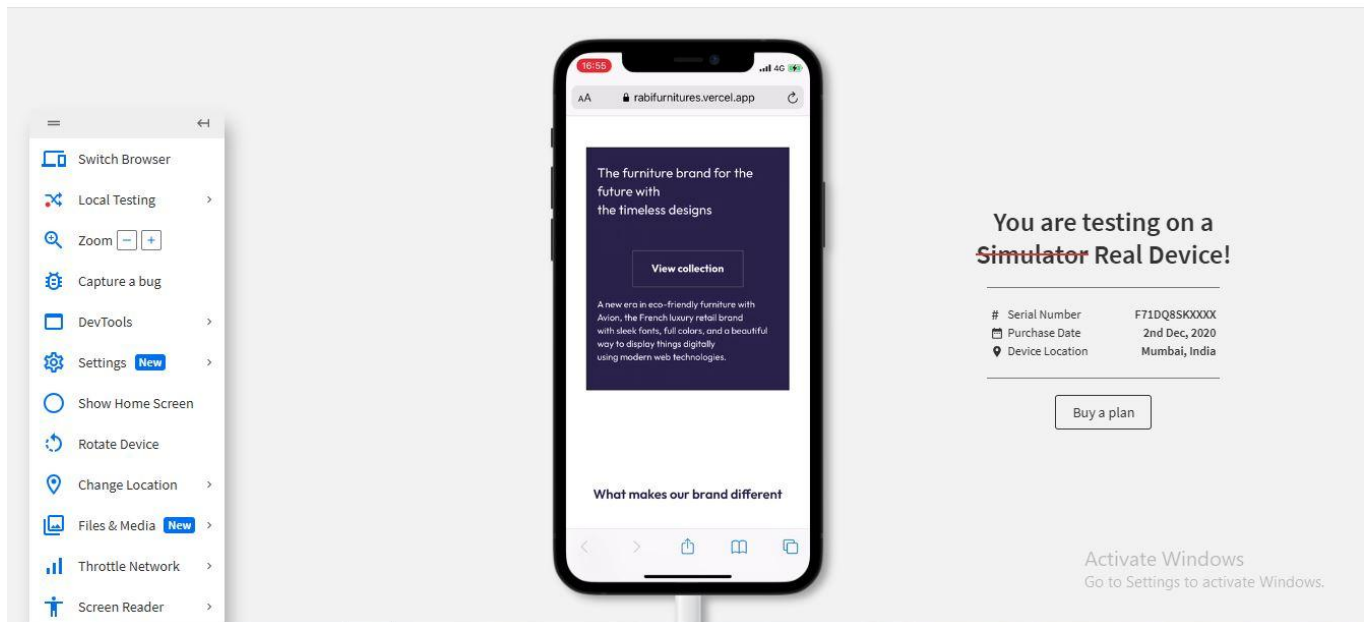


These optimizations ensure the marketplace meets performance benchmarks for speed and responsiveness, even under real-world conditions.

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

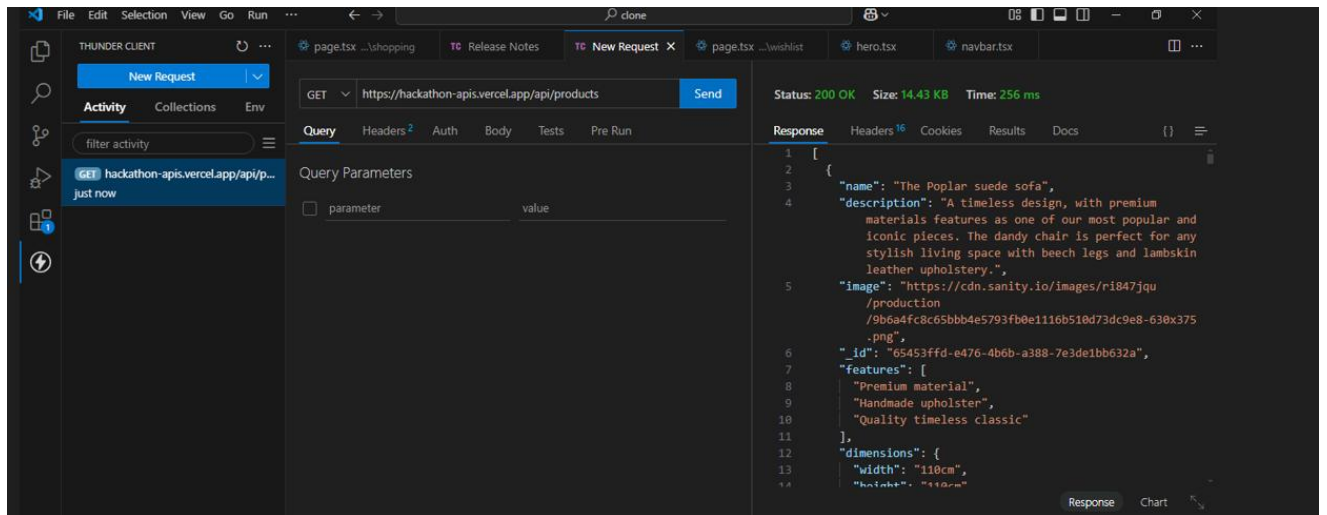
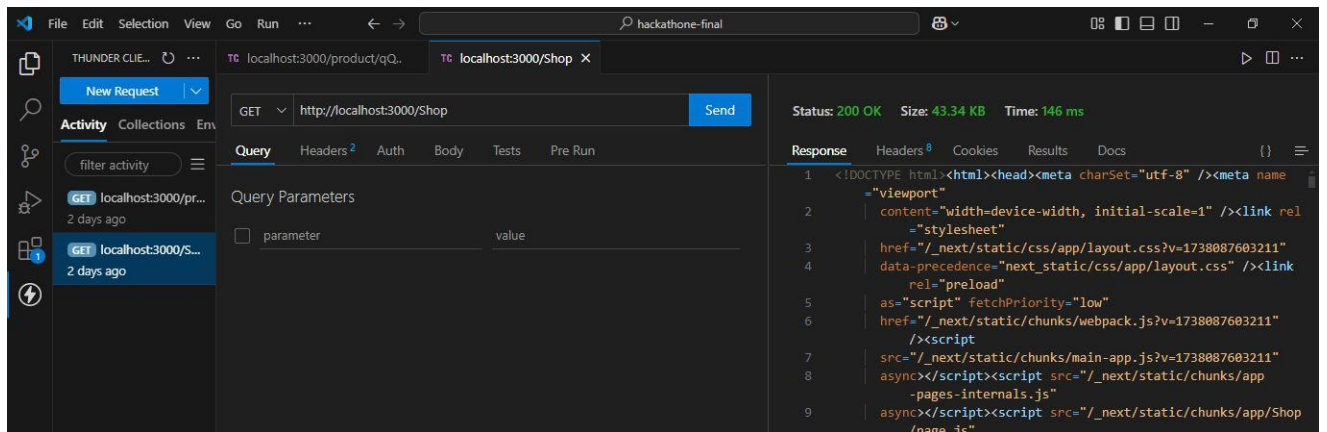
#### Testing on Browser Stack (Mobile & Desktop):

- 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 Description	Expected Result	Actual Result	Status
TC001	Check home page load time	Home page should load in under 3 seconds	Home page loaded in 2.5 seconds	Pass
TC002	Test website responsiveness on mobile devices	Website should display correctly on mobile	Website displayed correctly on mobile	Pass
TC003	Verify menu item functionality	All menu items should redirect to the correct pages	All menu items redirected correctly	Pass
TC006	Check broken links on the website	All links should be working without errors	No broken links found	Pass
TC007	Verify product page functionality	Product page should load correctly and display details	Product page loads correctly and displays details	Pass

## 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.