

# Day 5 - Testing and Backend Refinement - CasaEncanto

## Objective:

Day 5 is all about getting the marketplace ready for deployment in the real world, making sure that all the components are tested, optimized for performance and are ready to be able to handle traffic on the other side of the division line, on the customer side. The focus will be on backend integration testing, redirect error messages and generally polish the user experience.

## Key Learning Outcomes:

1. Perform comprehensive testing, including functional, non-functional, user acceptance, and security testing.
2. Implement error handling mechanisms with clear, user-friendly fallback messages.
3. Optimize the marketplace for performance, ensuring smooth responsiveness.
4. Ensure cross-browser compatibility and mobile responsiveness.
5. Develop a structured testing report in CSV format, documenting test cases, issues, and resolutions.

## Functional Testing

### Tested Features:

- **Product Listing Page** – Ensured that all products load dynamically.
- **Product Detail Pages** – Verified accurate routing and data rendering.
- **Search and Filters** – Tested search functionality and category filters.
- **Cart Operations** – Added, updated, and removed items from the cart.
- **User Profile Management** – Checked login/logout and profile updates.



#### Syltherine

30% off

~~\$600.00~~ **\$420.00**



[View Details](#)

[Add to Cart](#)



#### Marble Case

\$419



[View Details](#)

[Add to Cart](#)



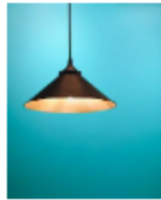
#### Retro Vibes

\$260



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#### The Lucky Lamp

\$280



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[Add to Cart](#)



#### Zen Table

\$220



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#### Sleek Living

\$390



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#### Sunny Chic

50% off

~~\$600.00~~ **\$300.00**



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#### Wood Chair

10% off

~~\$444.00~~ **\$399.60**



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### Bold Nest

★★★★☆ 10 Reviews

**\$260**

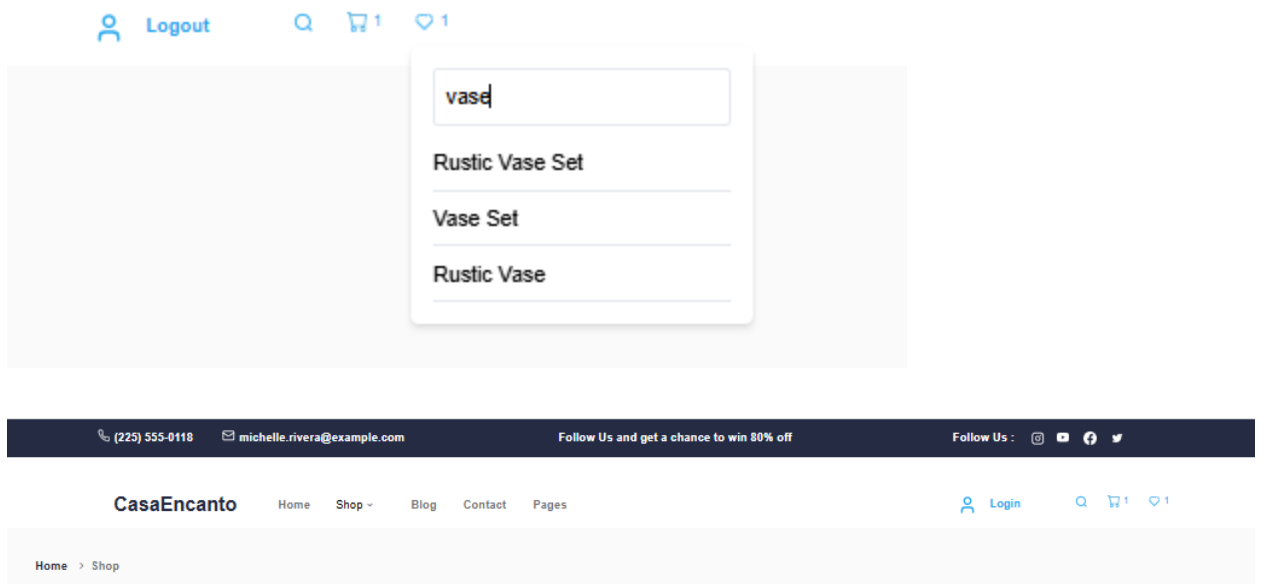
Availability : **Out of stock**

Welcome to BoldNest—where fearless design meets comfort and creativity. Crafted for those who embrace individuality and bold expressions, BoldNest is more than just a piece of furniture; it's a statement. With its striking design, exceptional comfort, and modern aesthetics, BoldNest is perfect for anyone looking to add a unique touch to their home or office. The BoldNest collection combines daring colors, dynamic shapes, and high-quality materials to create an environment where style and comfort coexist in perfect harmony. Whether it's a chair, sofa, or accent piece, each item is designed to stand out while offering a welcoming space for relaxation and enjoyment. Its sturdy construction and thoughtful design ensure that BoldNest not only makes a bold visual impact but also provides lasting durability. Perfect for those who are looking to break away from the ordinary and make their home a reflection of their bold personality. BoldNest is an ideal choice for creating an energetic and unique atmosphere. Key Features: Bold and unique design that adds personality to any space High-quality materials for comfort, durability, and style Available in a variety of striking colors and patterns Perfect for modern homes and offices that embrace creativity Versatile design that complements contemporary and eclectic decor Transform your home into a space that reflects your bold, unique style with BoldNest—where standout design and comfort meet.



[Add to Cart](#)





## Welcome Back

Email

Password

[Sign in](#)

or

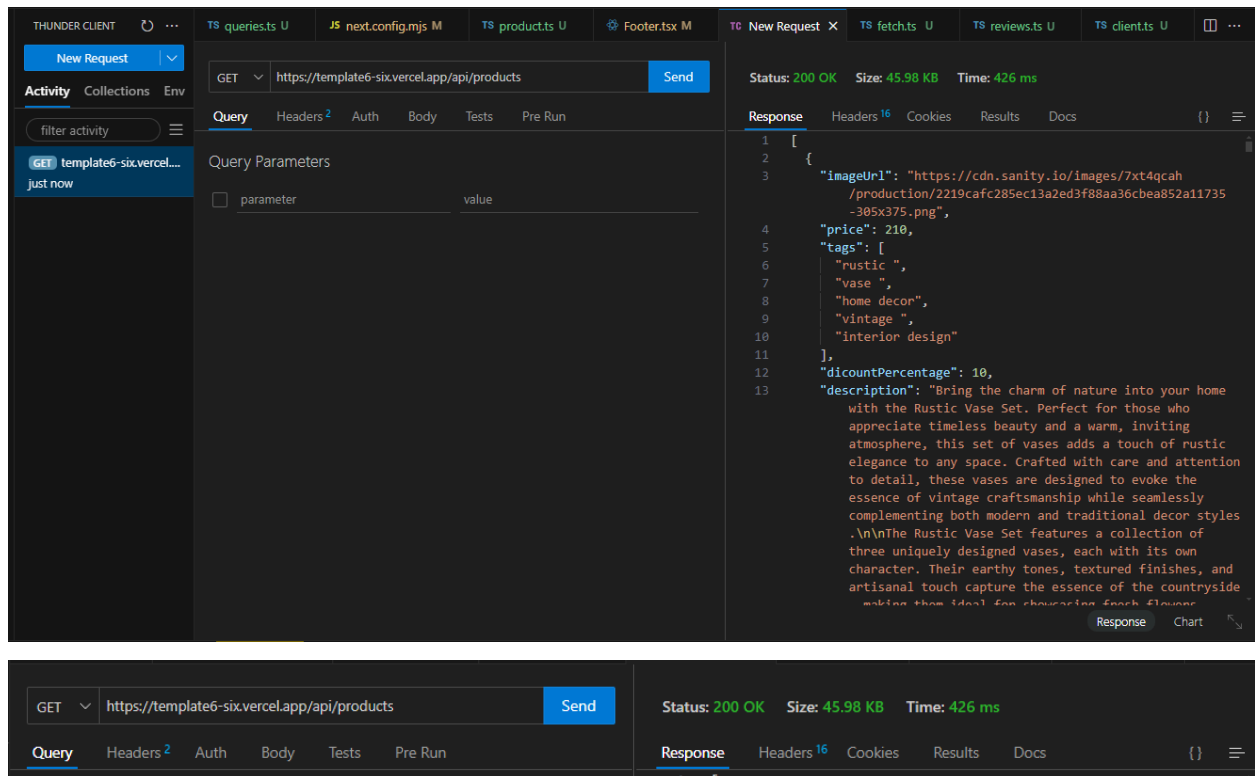
[Sign in with GitHub](#)

## Testing Tools Used:

- **Thunder client**– For API response testing.

# API Testing

API working correctly and products data is complete (status 200 OK)



## Error Handling

### Implemented Mechanisms:

- **API Error Handling:** Used try-catch blocks to gracefully handle API failures.
- **Fallback UI:** Displayed appropriate messages when no products were available.
- **Input Validation:** Implemented validation for search queries and checkout forms.

### Code for Error Handling:

```

async function importProducts() {
  try {
    const response = await fetch('https://template6-six.vercel.app/api/products');

    if (!response.ok) {
      throw new Error(`HTTP error! Status: ${response.status}`);
    }

    const products = await response.json();

    for (const product of products) {
      await uploadProduct(product);
    }
  } catch (error) {
    console.error('Error fetching products:', error);
  }
}

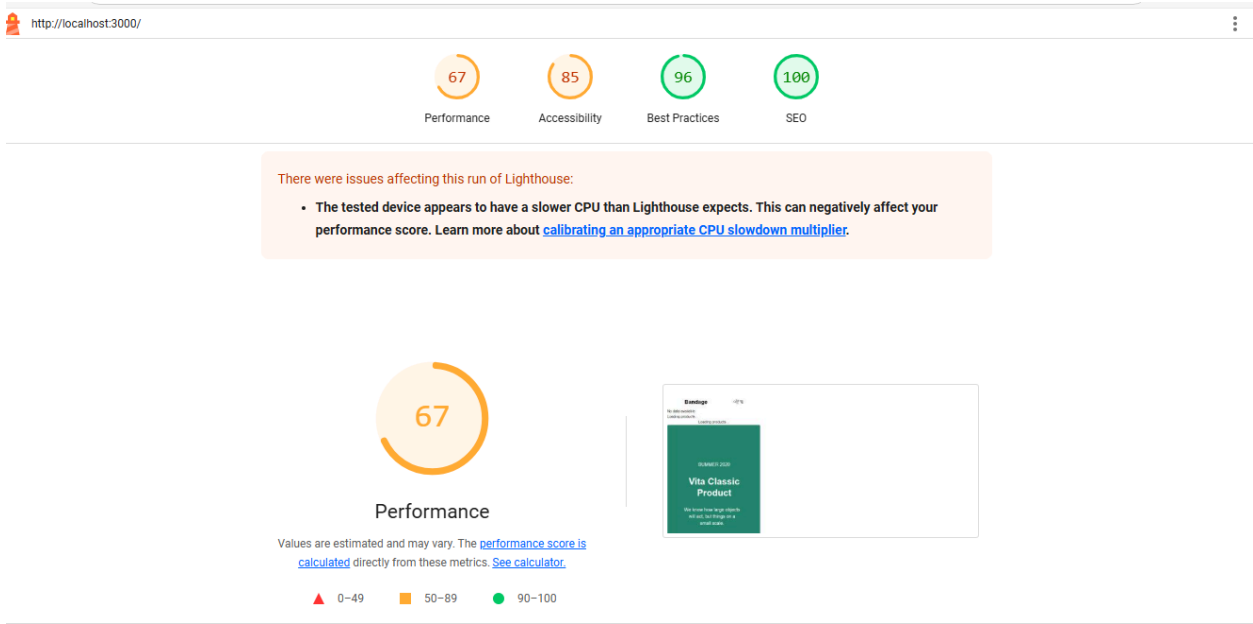
```

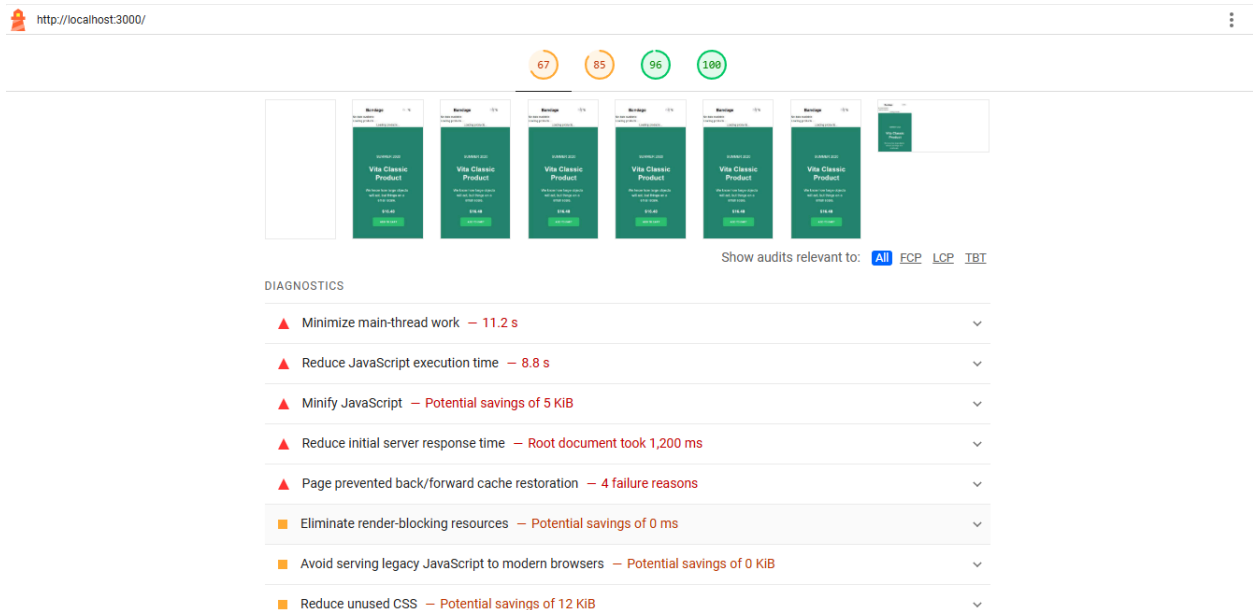
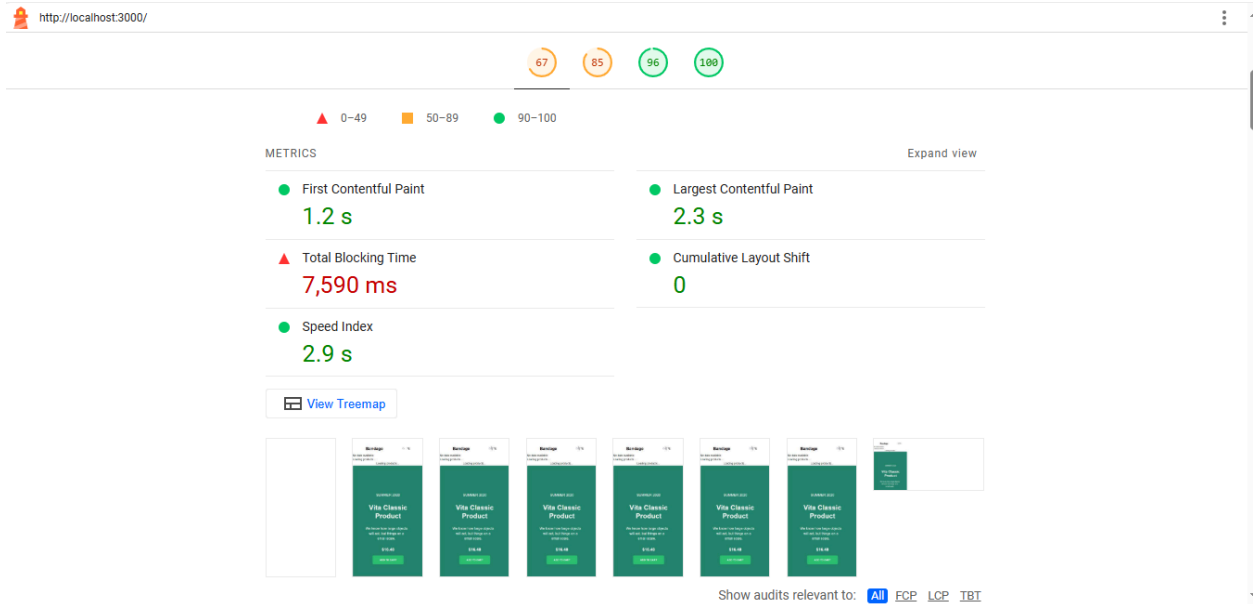
## Testing Report

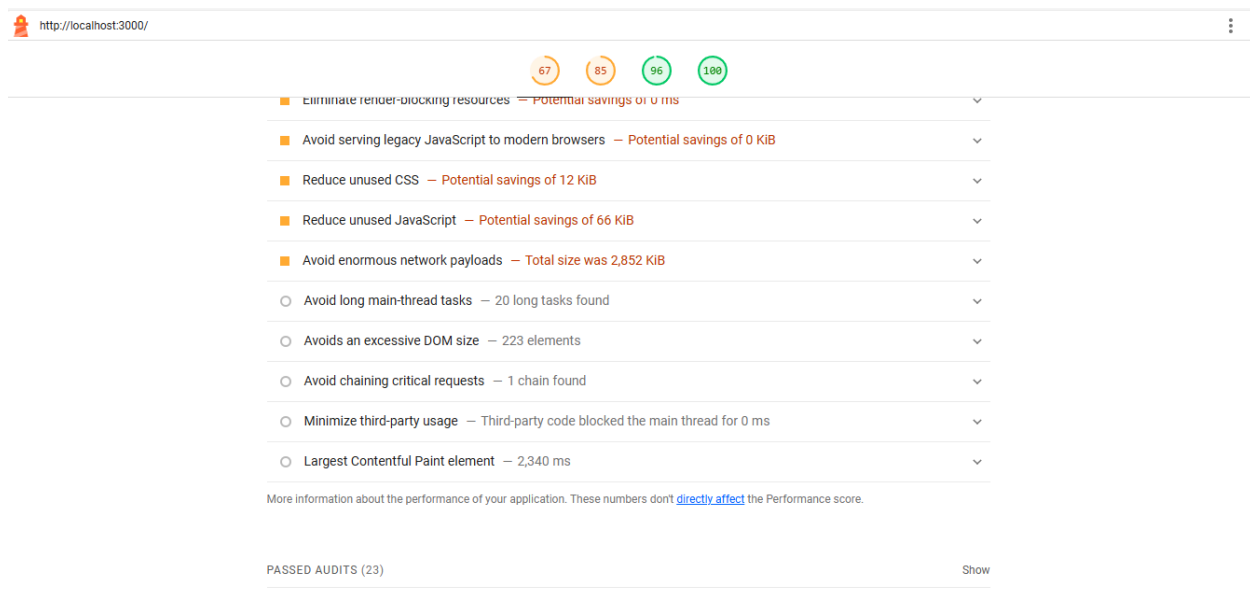
Test Case ID	Test Case Description	Test Steps	Expected Results	Actual Results	Status	Severity Level	Assigned to	Remarks
TC001	Validate product listing page	Open product page > Verify products	Products displayed correctly	Products displayed correctly	Passed	Low	-	Works as expected
TC002	Test API error handling	Disconnect API > Refresh page	Show fallback UI with error message	Error message shown	Passed	Low	-	Handled gracefully
TC003	Check cart functionality	Add product to cart > Verify cart contents	Cart updates with added product	Cart updates as expected	Passed	Medium	-	No issues found
TC004	Ensure responsiveness on	Resize browser window	Layout adjusts properly to	Responsive layout working	Passed	Medium	-	Test Successful

	mobile	> Check layout	screen size	as intended				
TC005	Test search functionality	Search for a product and check results	Relevant products should appear	Searched products shown	Passed	Medium	-	Works as expected

## Performance Analysis & Optimization Plan







## Issues & Fixes

**Problem:** Unoptimized JavaScript slowing down performance.

**Fix:**

- Minify and compress JS using **Terser** or **UglifyJS**.
- Use **Tree Shaking** to eliminate unused JS.

**Problem:** Extra JavaScript files increasing load time.

**Fix:**

- Remove unnecessary libraries/functions.
- Optimize Next.js components and lazy load non-critical scripts.

**Problem:** Slow backend API responses.

**Fix:**

- Optimize database queries, enable caching (e.g., **Redis**).
- Deploy a **CDN (Cloudflare, Vercel Edge)**.
- Reduce API calls and optimize backend logic.



**Problem:** Extra CSS files are increasing page load time.

**Fix:**

- Implement **PurgeCSS** to remove unused styles.
- Minify and optimize CSS files.

**Problem:** Extra JS is being downloaded but not used.

**Fix:**

- Remove unused functions/libraries.
- Optimize frameworks (e.g., remove unused components in Next.js).

**Problem:** Large assets slowing down page load.

**Fix:**

- Compress and optimize images using **WebP**.
- Load fonts using `font-display: swap`.
- Implement **Lazy Loading** for non-critical assets.

 http://localhost:3000/



#### 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.

#### CONTRAST

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

These are opportunities to improve the legibility of your content.

#### TABLES AND LISTS

# Lighthouse Accessibility Score

- **Current Score:** 85/100
- **Target Score:** 95+

## Issues & Fixes

**Problem:** Background and foreground colors have insufficient contrast, affecting readability.

**Fix:** Adjust colors to meet WCAG contrast ratio (4.5:1 for normal text, 3:1 for large text). Use contrast-checker tools.

**Problem:** `<li>` elements are not properly nested within `<ul>`, `<ol>`, or `<menu>`.

**Fix:** Ensure all list items are wrapped inside proper list parent elements.

**Problem:** Buttons and links are too small, making them difficult to tap on mobile.

**Fix:** Increase button size to at least **44x44px** with enough spacing.

**Problem:** Heading elements are not in sequentially descending order, impacting screen readers.

**Fix:** Ensure `<h1>` is followed by `<h2>`, then `<h3>`, avoiding skipped heading levels.

**Problem:** Custom controls are missing **ARIA roles** and labels.

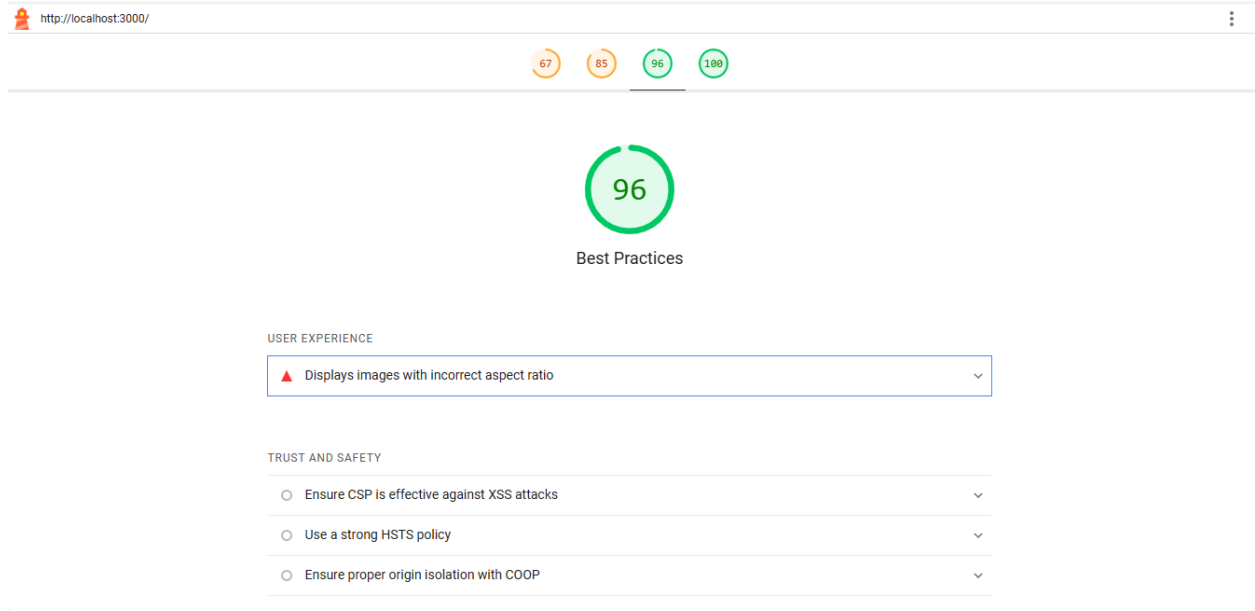
**Fix:** Add **ARIA roles** (`role="button"`, `aria-label`) and **labels** where needed.

**Problem:** Some offscreen content is still visible to assistive technologies.

**Fix:** Use `aria-hidden="true"` for non-visible elements.

**Problem:** Page elements may not follow logical tab order.

**Fix:** Ensure a meaningful **tabindex** order in the DOM structure.



## Lighthouse Best Practices Score

- **Current Score:** 96/100
- **Target Score:** 100

### Identified Best Practices Issues & Fixes

**Problem:** Displays images with incorrect aspect ratio

**Fix:** Use `width` & `height` attributes or `object-fit: cover`; to maintain aspect ratios. Use responsive images with `srcset`.

**Problem:** Content Security Policy (CSP) may not be effective against XSS attacks.

**Fix:** Implement strict CSP headers like `Content-Security-Policy: default-src 'self'; script-src 'self' 'nonce-XYZ'`; to prevent XSS.

**Problem:** Missing **Strict-Transport-Security (HSTS)** policy.

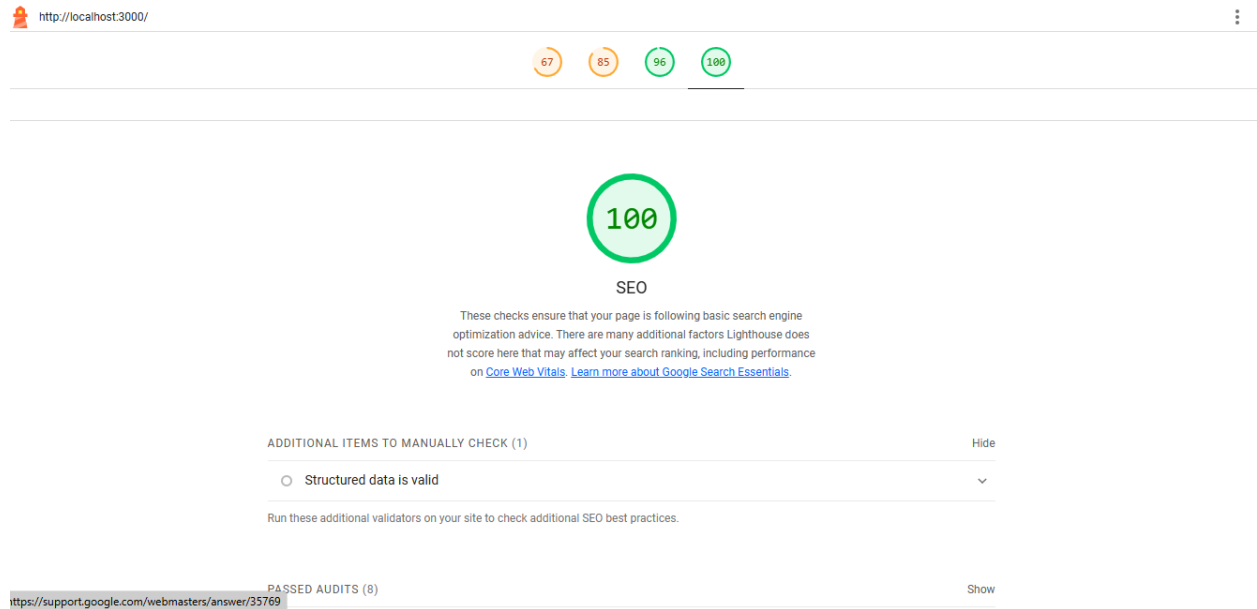
**Fix:** Enforce HTTPS with `Strict-Transport-Security: max-age=31536000; includeSubDomains; preload`.

**Problem:** Ensure proper origin isolation with **Cross-Origin-Opener-Policy (COOP)**.

**Fix:** Set `Cross-Origin-Opener-Policy: same-origin` to protect against cross-origin data leaks.

**Problem:** Missing source maps for large first-party JavaScript files.

**Fix:** Generate and include JavaScript source maps (`.map` files) in production builds for better debugging.



## Lighthouse SEO Score

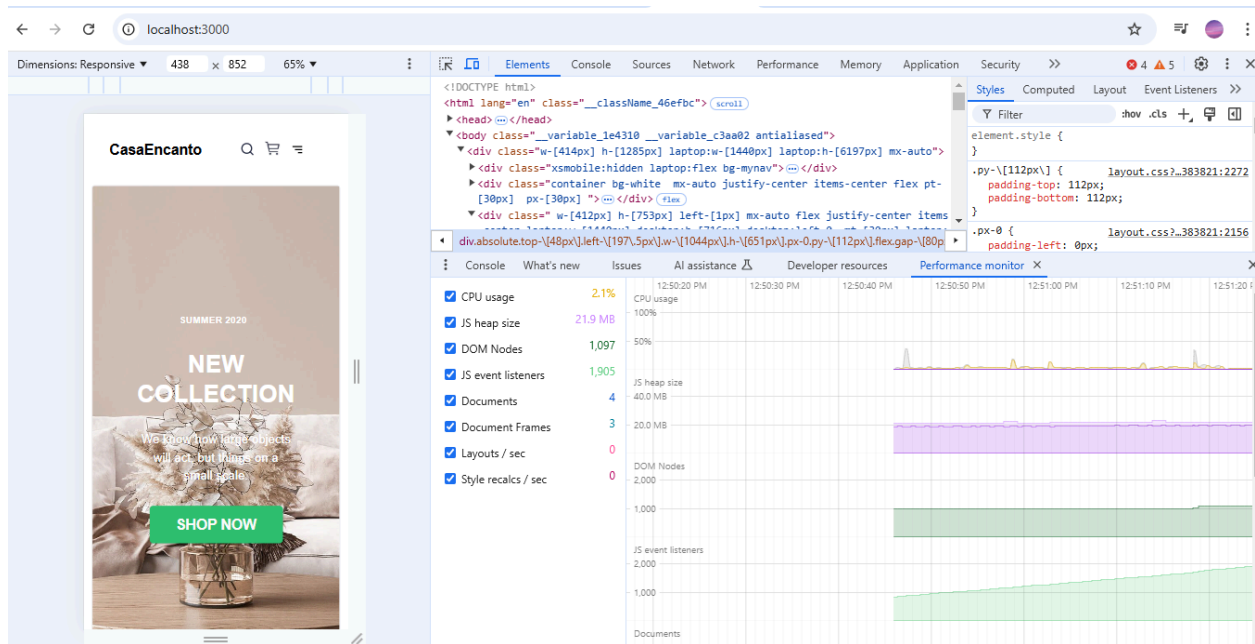
- **Current Score: 100/100**
- **Target Score: Maintain 100**

### SEO Audit Summary:

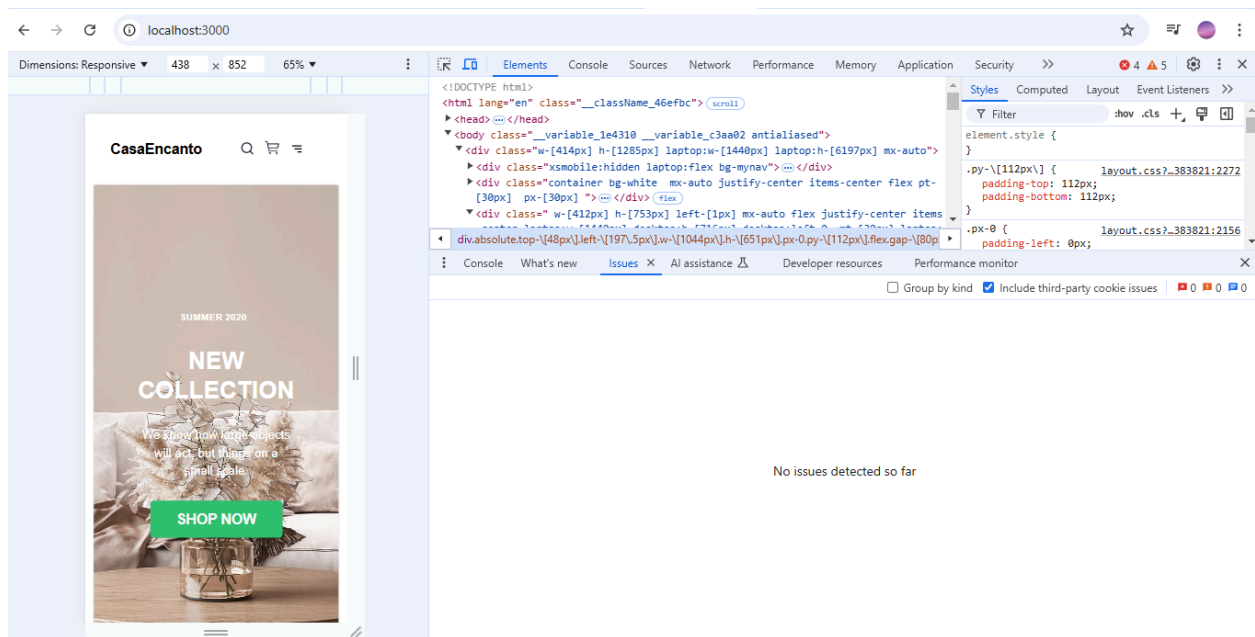
Metric	Status	Details
Structured Data Validation	Passed	Structured data is correctly formatted and valid.
Meta Tags Optimization	Passed	Title, description, and Open Graph tags are properly configured.
Mobile-Friendliness	Passed	The site is responsive and optimized for mobile users.
Crawlability & Indexing	Passed	Search engines can index all important pages.
Performance Impact on SEO	Passed	No major performance bottlenecks affecting rankings.
Internal Linking	Passed	Proper internal linking for SEO optimization.



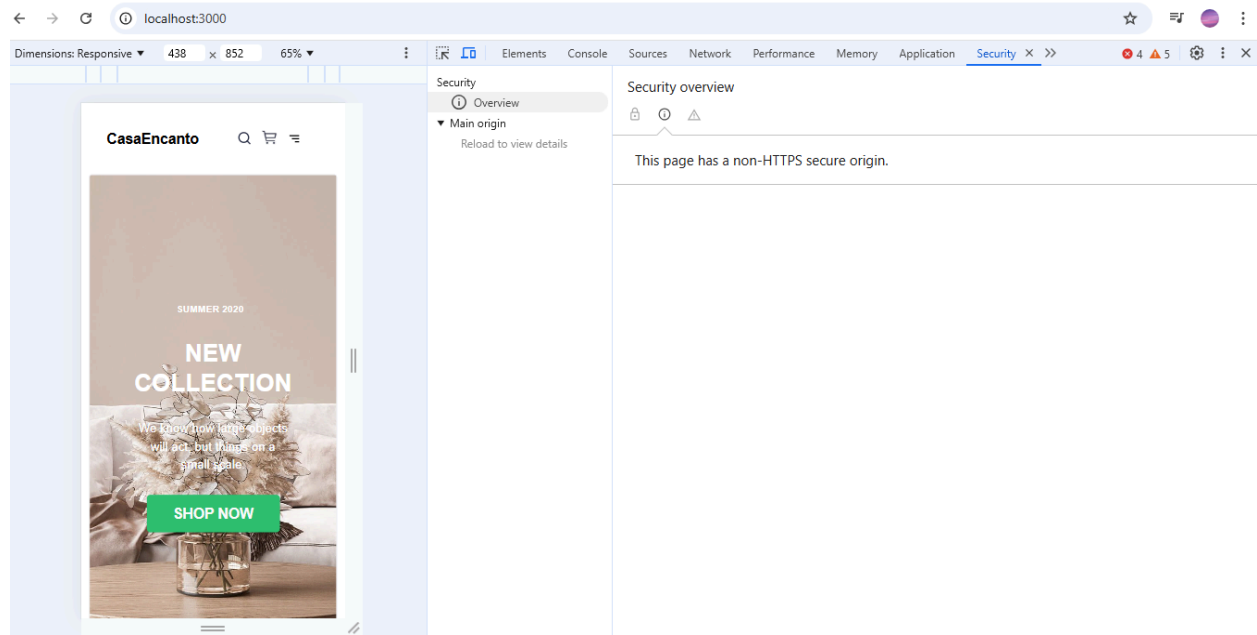
# Performance Monitor



# Issues



# Security



## Conclusion & Next Steps

This testing and refinement phase significantly improved the marketplace's reliability, performance, and user experience. However, further improvements will be made in the coming days.

