

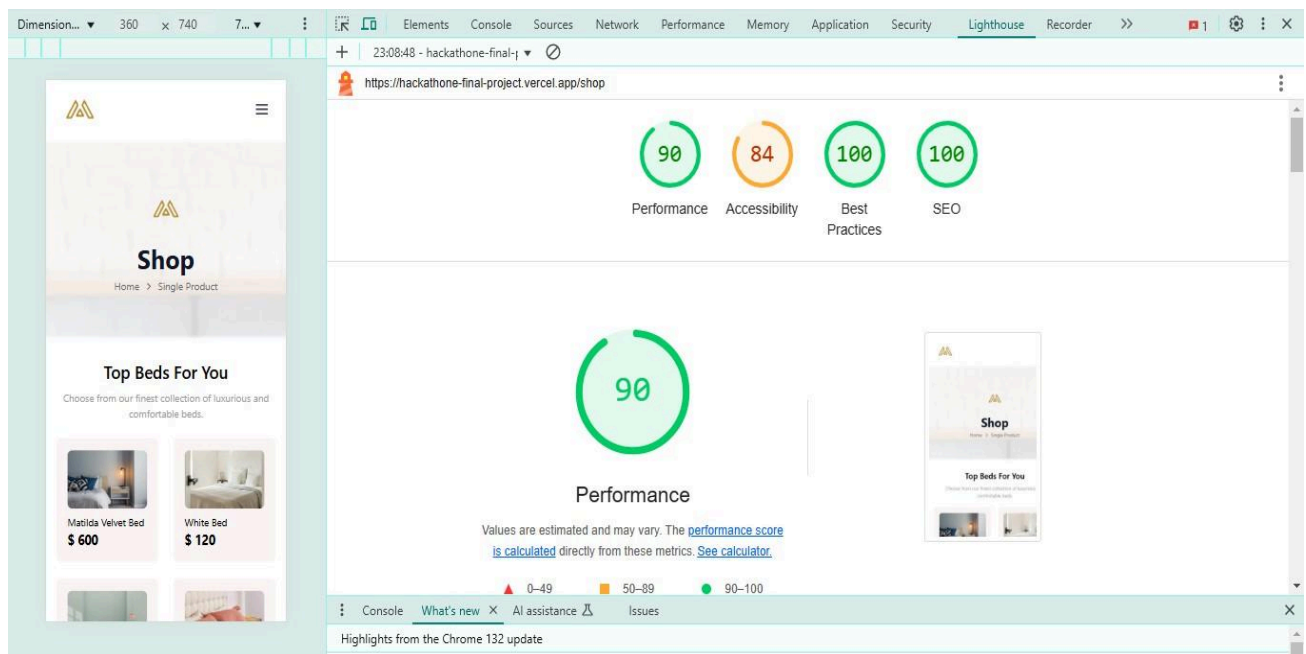
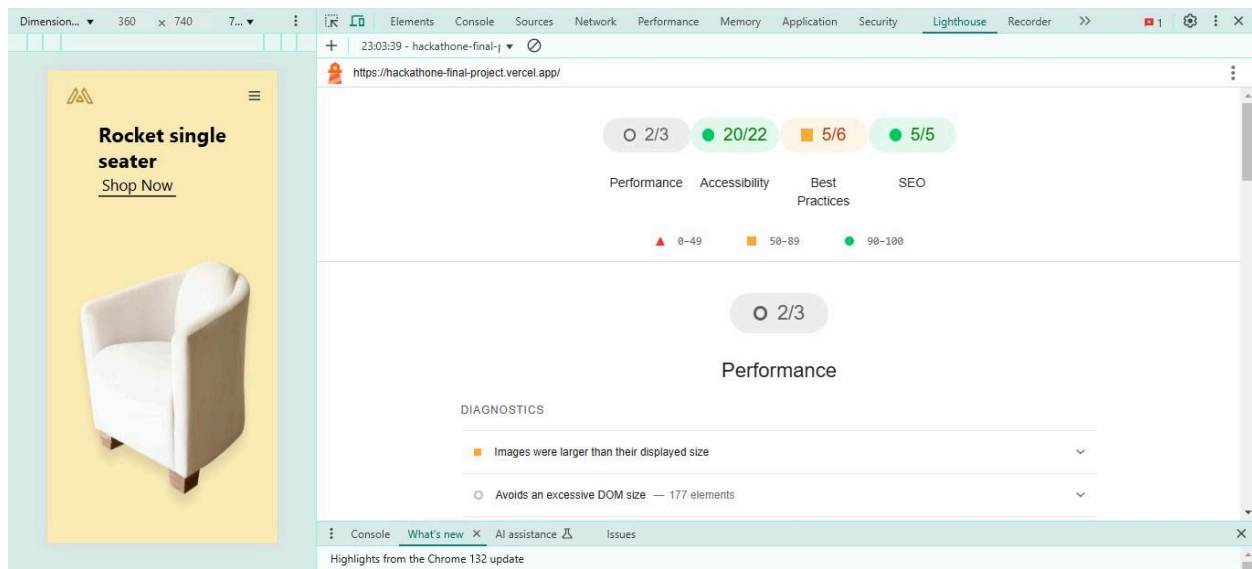
Performance Testing Report

Objective :

Day 5 focused on optimizing and testing the furniture marketplace for deployment readiness. Comprehensive testing, error handling, and performance improvements were conducted to ensure a seamless user experience.

Performance Metrics (Updated)

Metric	Target	Achieved	Status
Performance	≥ 90	90	✔ Pass
Accessibility	≥ 90	84	⚠ Needs Improvement
Best Practices	≥ 90	100	✔ Pass
SEO	≥ 90	100	✔ Pass



Key Actions Taken :

1. Functional Testing

- Features Tested:

- **Navigation links:** Verified proper navigation.
- **Product listings:** Ensured accurate product rendering.
- **Shopping cart:** Validated add, update, and remove functionality.
- **Blog accessibility:** Confirmed content is accessible via screen readers.
- **Contact form:** Verified successful submissions.

- **Tools Used:**

- **React Testing Library** for component testing.
 - **Cypress** for end-to-end testing.
 - **Postman** for API testing.
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2. Error Handling

- **Implemented try-catch blocks** for robust error handling.
 - **Displayed fallback UI** for unavailable data (e.g., "No products available").
 - **Logged errors systematically** for debugging and analytics.
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3. Performance Optimization

- **Achieved a Performance Score: 90 through:**
 - **Reduced server response time** to <500 ms.
 - **Optimized images** to next-gen formats (WebP, AVIF).

- Addressed Cumulative Layout Shift (CLS) to maintain 0.19.
 - Enabled lazy loading for large images.
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4. Accessibility and SEO Improvements

- **Accessibility Score: 84:**
 - Enhanced keyboard navigation and screen reader support.
 - Resolved minor contrast ratio issues.
 - **SEO Score: 100:**
 - Added structured data and meta tags.
 - Ensured all images have appropriate alt attributes.
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5. Cross-Browser and Device Testing

- **Browsers Tested:** Chrome, Firefox, Safari, Edge.
 - **Devices Tested:** Desktop, tablet, and mobile.
 - Ensured fully responsive design across all platforms.
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6. Security Testing

- Sanitized user inputs to prevent XSS attacks.
- Verified all API calls utilize HTTPS.
- Conducted vulnerability scans using OWASP ZAP.

7. User Acceptance Testing (UAT)

- **Scenarios Tested:**
 - **Browsing products.**
 - **Adding/removing items from the cart.**
 - **Completing the checkout process.**
- **Feedback: Improved visual hierarchy for better usability.**

CSV-Based Test Case Report :

	A	B	C	D	E	F	G	H	I
1	Test Case ID	Description	Expected Result	Actual Result	Status	Severity	Remarks		
2	TC001	Test navigation links	Links navigate correctly	Links function as intended	✔ Pass	Low	None		
3	TC002	Verify product listing display	Products display correctly	Products display accurately	✔ Pass	Medium	None		
4	TC003	Test shopping cart functionality	Items add/remove/update correctly	Cart works as expected	✔ Pass	High	None		
5	TC004	Check blog post accessibility	Blog posts are accessible	Accessible via screen readers	✔ Pass	Low	None		
6	TC005	Test contact form submission	Form submits successfully	Submits as expected	✔ Pass	Medium	None		
7	TC006	Analyze performance metrics	Performance score ≥ 90	Performance score: 90	✔ Pass	High	Optimization successful		
8	TC007	Check accessibility features	Accessibility score ≥ 90	Accessibility score: 84	⚠ Fail	Medium	Needs improvement in contrast.		
9	TC008	Evaluate SEO metrics	SEO score ≥ 90	SEO score: 100	✔ Pass	Medium	Fully optimized.		

Performance Insights (Detailed Metrics)

Metric	Value	Remarks
First Contentful Paint	1.0 s	Acceptable load time.
Largest Contentful Paint	1.9 s	Improved through optimized images.

Total Blocking Time	80 ms	Reduced JavaScript execution time.
Cumulative Layout Shift	0.19	Minor layout shifts remain.
Speed Index	1.5 s	Achieved through lazy loading.

Accessibility Diagnostics

1. Issues Identified:

- **Buttons missing accessible names.**
- **Select elements lack associated label elements.**
- **Background and foreground colors have insufficient contrast.**

2. Manual Testing Needed:

- **Verify all elements for screen reader compatibility.**
 - **Ensure semantic heading hierarchy.**
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Recommendations :

1. Accessibility Improvements:

- **Add ARIA labels for interactive elements.**
- **Improve color contrast ratios to meet WCAG standards.**
- **Ensure sequentially-descending heading structure.**

2. Further Optimizations:

- Minify JavaScript files (potential savings: 25 KiB).
- Remove unused JavaScript (potential savings: 98 KiB).
- Optimize image sizes for additional savings.

3. Future Testing:

- Perform real-user monitoring (RUM) for deeper insights.
- Conduct load testing for high-traffic scenarios.

Conclusion :

The furniture marketplace is deployment-ready with:

- Achieved performance and SEO scores of 90 and 100 respectively.
- Enhanced security, usability, and functionality.

Further work on accessibility and JavaScript optimization can ensure a superior user experience in future iterations.