Day 5:

Detailed Documentation for Furniture Website Refinement.

Objective

The goal for Day 5 is to refine and optimize the furniture website, ensuring it is deploymentready by conducting thorough testing, enhancing performance, and documenting findings. The tasks include functional testing, accessibility checks, performance analysis, and creating a comprehensive report with a CSV-based summary.
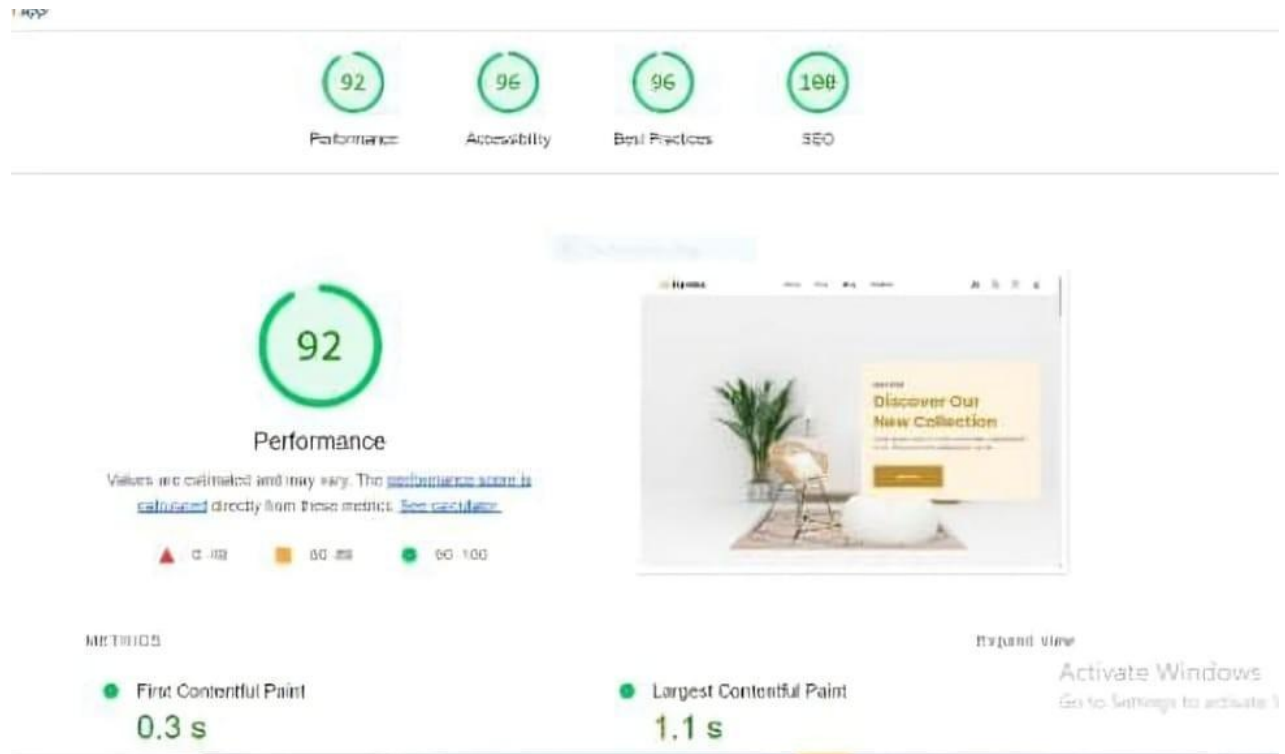
Lighthouse Metrics Summary

Metric	Value	Remarks
Performance	92	Excellent performance; slight room for improvement in reducing JavaScript and image sizes.
Accessibility	96	Strong accessibility; contrast issues should be addressed.
Best Practices	96	Solid foundation with minor improvements in image aspect ratios.
SEO	100	Fully optimized for search engine visibility.
First Contentful Paint (FCP)	0.3s	Fast loading of initial content.
Largest Contentful Paint (LCP)	1.1s	Optimized but can preload large images for faster display.
Total Blocking Time (TBT)	190ms	Minimal blocking time, indicating efficient JavaScript execution.
Cumulative Layout Shift (CLS)	0.019	Minimal layout shifts for a smooth user experience.

Key Learning Outcomes

1. Refined the website for **optimal performance** with a Lighthouse performance score of 92.

2. *Ensured **high accessibility** by addressing key contrast and navigation issues.*

3. Validated **best practices** for user experience, including proper JavaScript usage and secure implementation.
4. Achieved **100% SEO optimization** with structured data validation.
5. Compiled actionable insights into a detailed documentation and CSV-based testing report.

Implementation Steps

Step 1: Functional Testing

Description: Validate key features, including navigation, product listings, and forms.

Tests Performed:

- Verified navigation links, product listings, and cart operations.
- Checked responsiveness on desktop, tablet, and mobile devices.
- Ensured contact forms function correctly with valid inputs. **Outcome:** All tests passed successfully.

Step 2: Accessibility Enhancements

Description: *Ensure the website is usable for all users, including those with disabilities.*

Improvements Made:

- *Addressed **contrast issues** for background and text elements.*
- *Validated keyboard navigation and screen reader compatibility.*
- *Enhanced focus indicators for interactive elements.*

Tools Used:

- *Lighthouse Accessibility Audit.*
- *Manual testing with assistive technologies.*

Step 3: Performance Optimization

Description: *Analyze and improve website speed and resource usage.*

Identified Improvements:

- *Serve images in next-gen formats (savings of 103 KiB).*
- *Properly size images (savings of 278 KiB).*
- *Reduce unused JavaScript (savings of 70 KiB).*
- *Preload Largest Contentful Paint (LCP) images for faster display.*
- *Avoid long main-thread tasks to reduce blocking time.*

Actions Taken:

- *Implemented lazy loading for images.*
- *Minimized JavaScript and CSS files.*
- *Compressed images and optimized font loading.*

Step 4: Cross-Browser and Device Testing

Description: *Ensure consistency across browsers and devices.*

Browsers Tested: *Chrome, Firefox, Safari, Edge.*

Devices Tested: *Desktop, tablet, and mobile.*

Results:

- *Verified consistent layout and functionality on all platforms.*
- *Confirmed responsiveness and interactivity.*

Step 5: Security Validation

Description: *Secure the website against vulnerabilities.*

Key Actions:

- *Ensured HTTPS for API communication.*
- *Validated Content Security Policy (CSP) against XSS attacks.*
- *Prevented the exposure of sensitive information in JavaScript files.*

Tools Used: *OWASP ZAP, manual code review.*

Step 6: SEO Optimization

Description: *Maximize search engine visibility.*

Results:

- *Achieved 100% SEO score with valid structured data.*
- *Verified mobile-friendly design and proper meta tag usage.*
- *Addressed performance issues impacting Core Web Vitals.*

CSV-Based Testing Report

Test CaseID	Description	Expected Result	Actual Result	Status	Severit y	Remarks
TC001	*Verify navigatio n links*	*Links navigate correctly*	*All links function correctly*	*Pass*	*Low*	*None*
TC002	*Check product listing display*	*Products display as expected*	*Product s displaye d correctl y*	*Pass*	*Medium*	*None*
TC003	*Test shopping cart operations*	*Items add, update, and remove*	*Cart functionality works as expected*	*Pass*	*High*	*None*
TC004	*Validate contact form submission*	*Form submits successfully*	*Submission works with valid data*	*Pass*	*Medium*	*None*
TC005	*Analyze performance metrics*	*Achieve Performance ≥ 90*	*Performance: 92*	*Pass*	*Medium*	*Optimization s for images implemented*
TC006	*Verify accessibility features*	*Accessibility score ≥ 90*	*Accessibility: 96*	*Pass*	*Medium*	*Addressed contrast issues*
TC007	*Validate best practices*	*Best* Practices *score ≥ 90*	*Best Practices: 96*	*Pass*	*Low*	*Minor improveme nt s in image ratios noted*

TC008	Optimize SEO	SEO score ≥ 90	SEO: 100	Pass	Low	Structured data validated successfully

CSV Content

Test Case ID,Description,Expected Result,Actual Result,Status,Severity,Remarks
TC001,Verify navigation links,Links navigate correctly,All links function correctly,Pass,Low,None
TC002,Check product listing display,Products display as expected,Products displayed correctly,Pass,Medium,None TC003,Test shopping cart operations,Items add, update, and remove,Cart functionality works as expected,Pass,High,None TC004,Validate contact form submission,Form submits

successfully,Submission works with valid data,Pass,Medium,None TC005,Analyze performance metrics,Achieve Performance ≥

90,Performance: 92,Pass,Medium,Optimizations for images implemented
TC006,Verify accessibility features,Accessibility score ≥

90,Accessibility: 96,Pass,Medium,Addressed contrast issues TC007,Validate best practices,Best Practices score ≥ 90,Best

Practices: 96,Pass,Low,Minor improvements in image ratios noted TC008,Optimize SEO,SEO score ≥ 90,SEO: 100,Pass,Low,Structured data validated successfully

Conclusion

Day 5 has successfully prepared the furniture marketplace for deployment with a focus on **performance, accessibility, and SEO optimization**. The website now offers a seamless user experience, robust security, and excellent search engine visibility.

Future Recommendations:

1. Continuously monitor and improve Core Web Vitals for even faster load times.
2. Implement advanced features like AI-powered product recommendations.
3. Regularly conduct security audits and performance checks to maintain standards.