DAY 5 - TESTING, ERROR HANDLING, AND BACKEND INTEGRATION REFINEMENT--- HECTO - E-commerce Marketplace

Prepared By: Zeenat Yameen

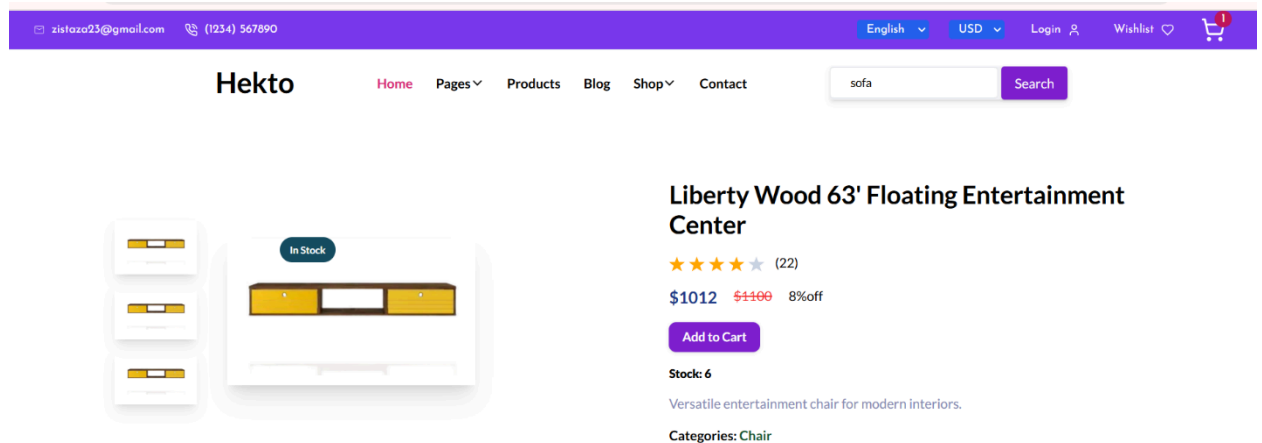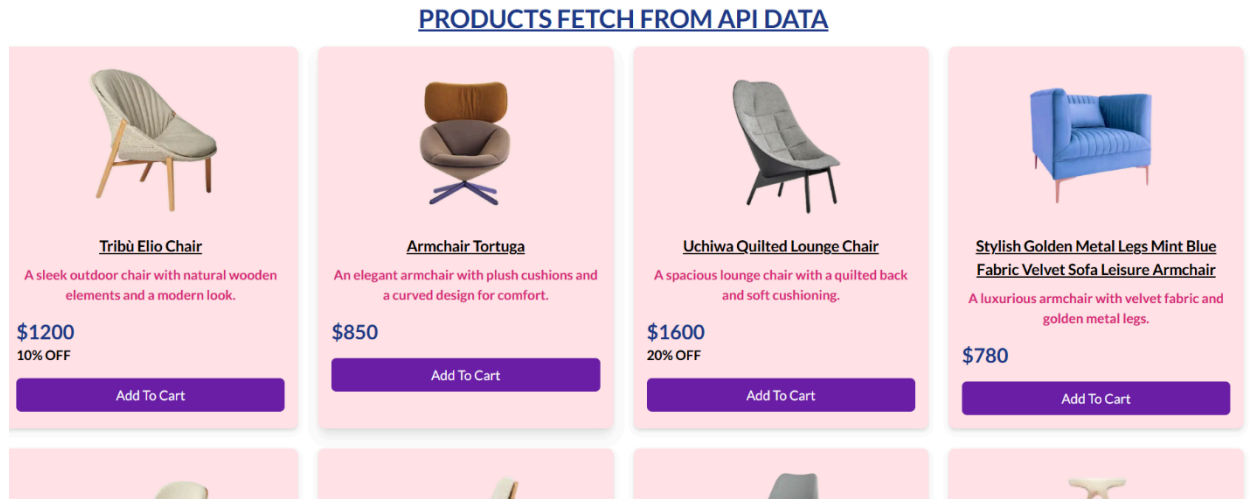**Class Slot: Tuesday, 2:00 PM to 5:00 PM**

Day 5 is dedicated to readying my marketplace for real-world use by conducting comprehensive testing, optimizing its performance, and ensuring it can handle customer traffic effectively. The focus will be on validating backend integrations, implementing effective error handling, and fine-tuning the user experience for a seamless interaction.

Key Areas of Focus:

# 1. Functional Testing

The following key features were tested:

1. **<u>Dynamic Product Display:</u> Products are retrieved in real-time from Sanity CMS and rendered accurately.**

<u>PRODUCTS FETCH FROM API DATA</u>

Tribù Elio Chair	Armchair Tortuga	Uchiwa Quilted Lounge Chair	Stylish Golden Metal Legs Mint Blue Fabric Velvet Sofa Leisure Armchair
A sleek outdoor chair with natural wooden elements and a modern look.	An elegant armchair with plush cushions and a curved design for comfort.	A spacious lounge chair with a quilted back and soft cushioning.	A luxurious armchair with velvet fabric and golden metal legs.
$1200 10% OFF	$850	$1600 20% OFF	$780
Add To Cart	Add To Cart	Add To Cart	Add To Cart

zistaza23@gmail.com   (1234) 567890   English ⌄   USD ⌄   Login 👤   Wishlist ♡   🛒 1

Hekto   Home   Pages ⌄   Products   Blog   Shop ⌄   Contact   [sofa]   Search

Liberty Wood 63' Floating Entertainment Center

★★★★☆ (22)

$1012 $1100   8%off

Add to Cart

Stock: 6

Versatile entertainment chair for modern interiors.

Categories: Chair

2. **<u>Product Filtering and Search:</u> Efficient filtering by category and search functionality that provides immediate results.**
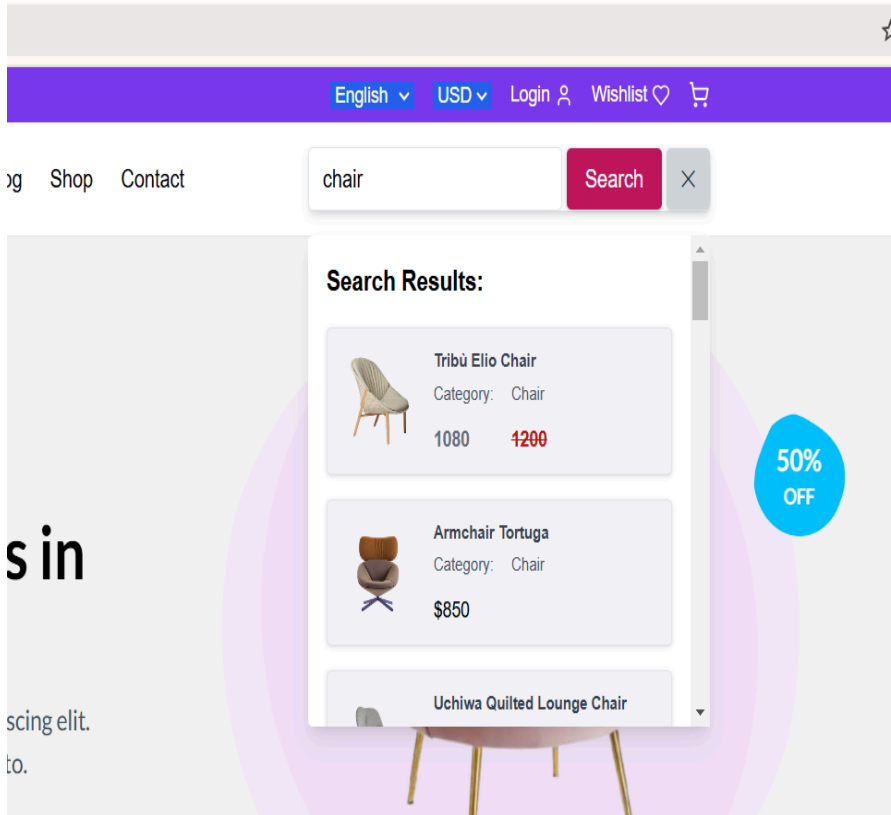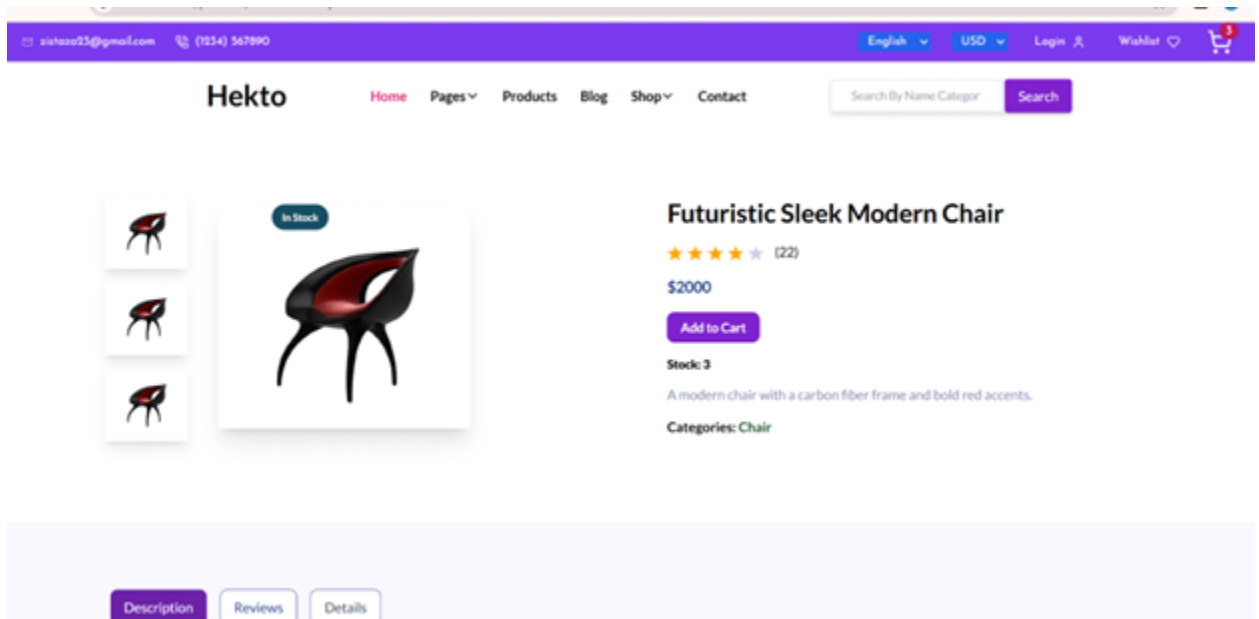
3. <u>**Cart Management:**</u> **Smooth operations for adding, removing, and updating items dynamically.**
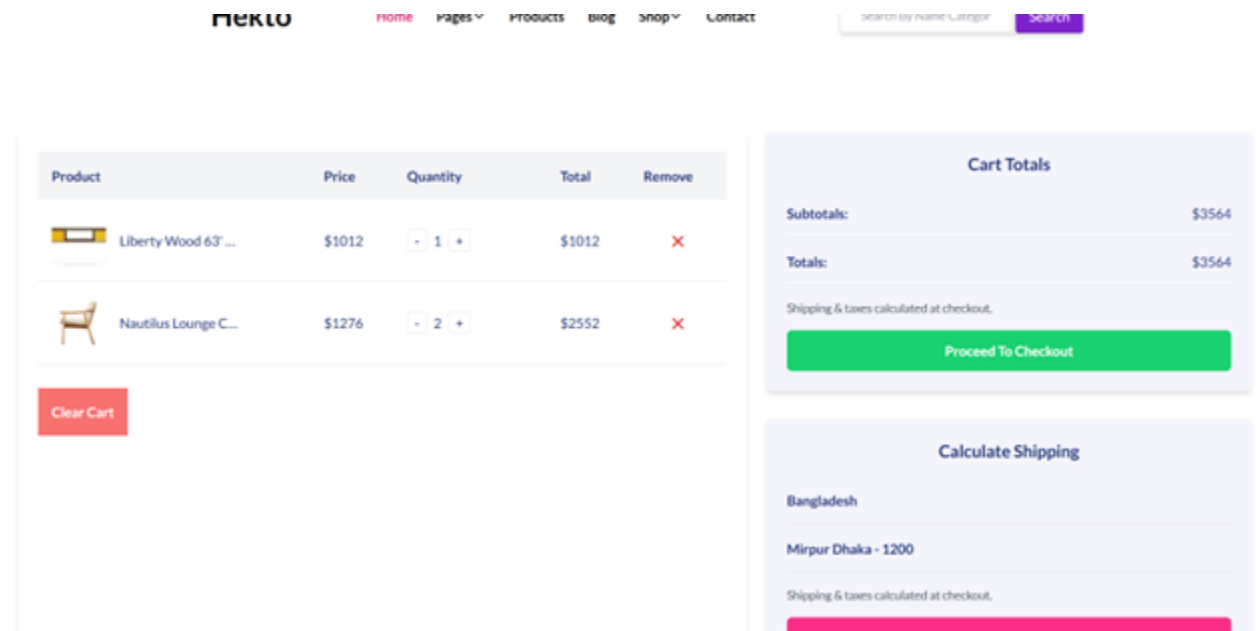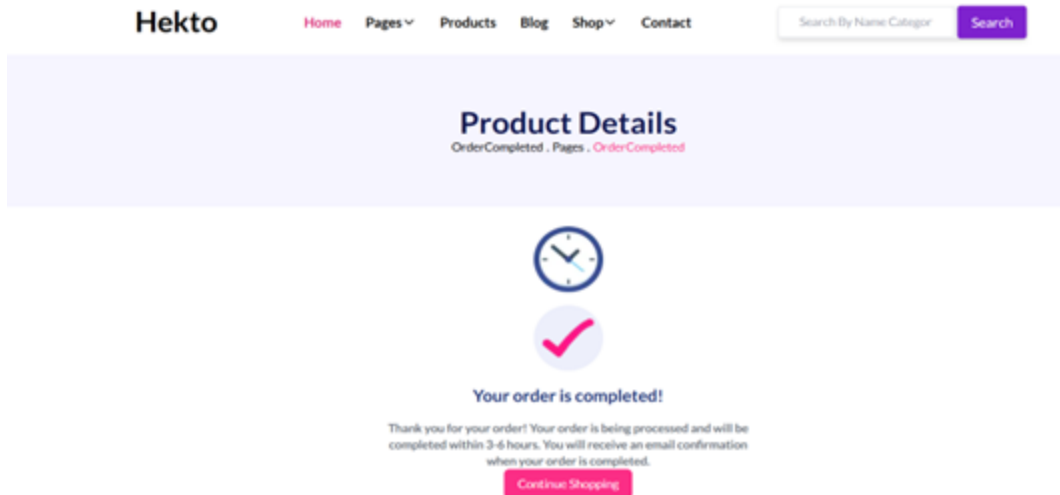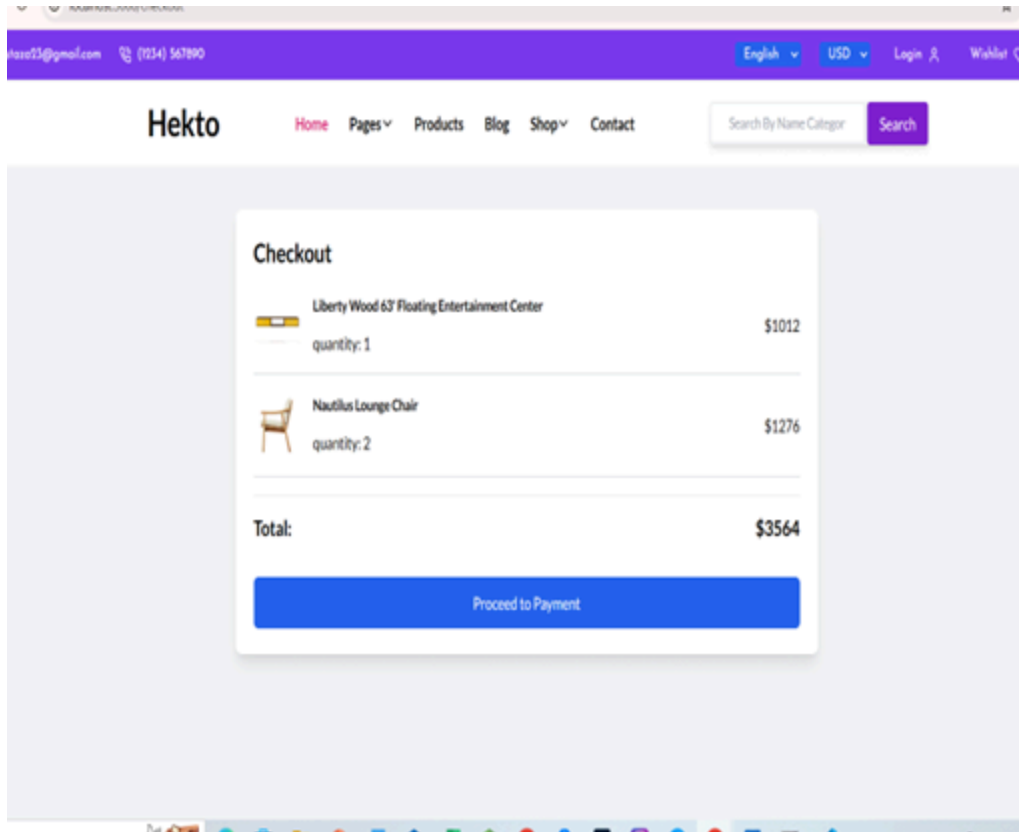
4. <u>Interactive Product Detail Page:</u> Features like rating submissions and related product recommendations.

5. <u>Checkout Process:</u> Capturing billing details and integrating payment methods for order completion.

2. Error Handling

Test Details:

- **Action Taken:** Qroq Query was intentionally disconnected, and the page was refreshed.

- **Expected Outcome:** A clear and visible error message should be displayed on the screen.

- **Observed Outcome:** The error message appeared successfully as expected.

- **Test Status: Passed**

- **Security Impact: Low**

- *Additional Notes:* **The error message was displayed correctly without any issues.**

Tools and Techniques Used

- **API Testing: Postman was used to validate endpoints for product data, orders, and authentication**
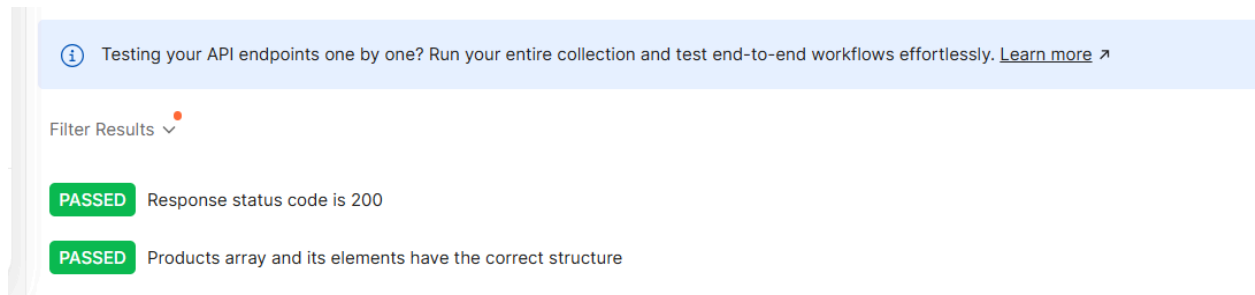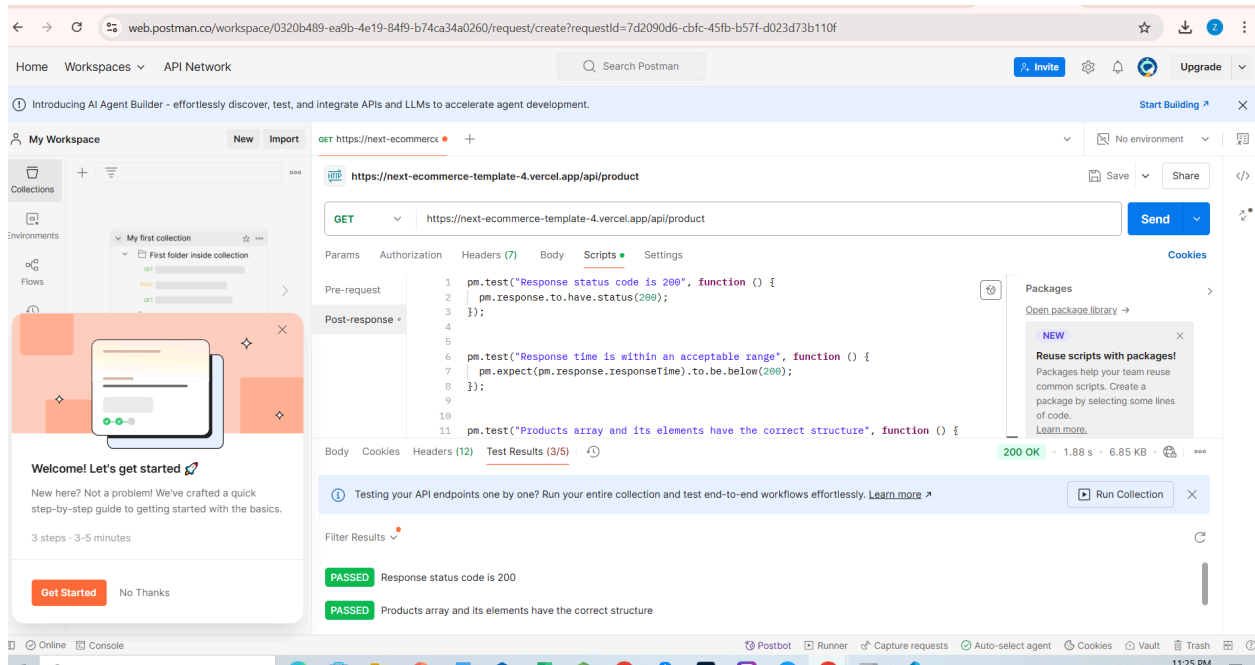
UI Testing:

tested UI components and workflows like navigation, search, and cart operations.

Cross-Browser Testing:

Browsertool simulated different environments, including mobile devices.

Challenges Faced and Solutions Implemented

1. Unstable API Responses

- **Challenge:** Some API calls failed intermittently due to latency issues.

- **Solution:** Introduced a retry mechanism and displayed fallback alerts like "Unable to load products" to handle failed requests gracefully.

2. Inaccurate Search Functionality

- **Challenge:** The search feature struggled with partial keywords, leading to inconsistent results.

- **Solution:** Updated the query logic to support partial matching and fine-tuned the indexing for better accuracy and faster searches.

3. Page Performance Issues

- **Challenge:** Loading times were impacted by large product images.

- **Solution:** Reduced image sizes through compression and activated lazy loading to enhance performance and load critical elements first.

4.Cart Functionality

The cart functionality was tested to ensure proper operation. The test involved adding items to the cart and verifying the contents to confirm accurate updates. The expected outcome was that the cart would reflect the added products, and this was achieved successfully. The cart updated as expected without any issues.

The test was marked as <mark>passed,</mark>

with a medium security level assigned. Overall, the functionality works as intended.

<mark>5.The Loader</mark>

The loader was implemented to indicate asynchronous operations like API calls, database queries, and dynamic content loading. It enhances the user experience by keeping users informed during processing. Testing verified that the loader functions smoothly and effectively.
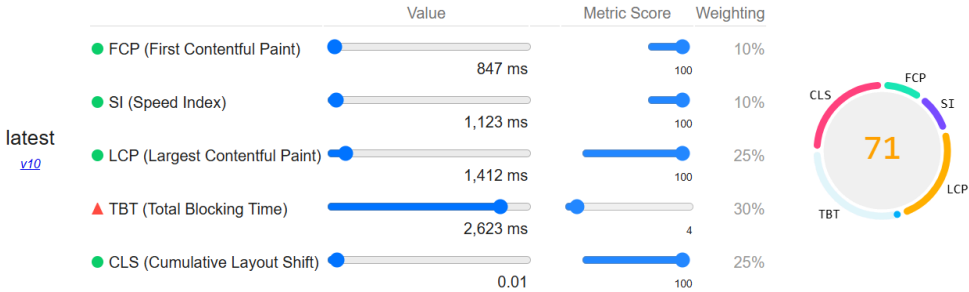
<mark>3.Performance Testing</mark>

To ensure an optimal user experience, I rigorously tested the performance of the Hekto Marketplace using tools like Lighthouse, which provided detailed insights into key metrics such as page speed, First Contentful Paint (FCP), and overall responsiveness.

For Mobile:

🔒 Lighthouse Scoring Calculator

Device type: [Mobile ▾]   Versions: [v10, v11, v12 ▾]

	Value	Metric Score	Weighting
🟢 FCP (First Contentful Paint)	847 ms	100	10%
🟢 SI (Speed Index)	1,123 ms	100	10%
🟢 LCP (Largest Contentful Paint)	1,412 ms	100	25%
🔺 TBT (Total Blocking Time)	2,623 ms	4	30%
🟢 CLS (Cumulative Layout Shift)	0.01	100	25%

latest
v10

71

FCP SI LCP TBT CLS

Learn more about scoring at web.dev/performance-scoring.
▶ Scores under 5/100 are not supported by this UI. Why?
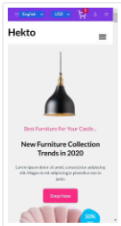
🟢 8/8   🟢 8/8

Performance   Best
Practices

🟢 8/8

Performance

🔺 0–49   🟧 50–89   🟢 90–100

METRICS   Expand view

🟢 Total Blocking Time   🟢 Cumulative Layout Shift
0 ms   **0**

🟢 Interaction to Next Paint

http://localhost:3000/

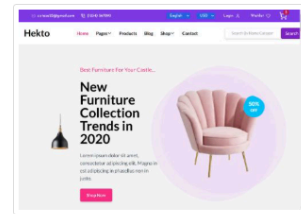| 65	73	78	91
Performance	Accessibility	Best Practices	SEO

65

Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.

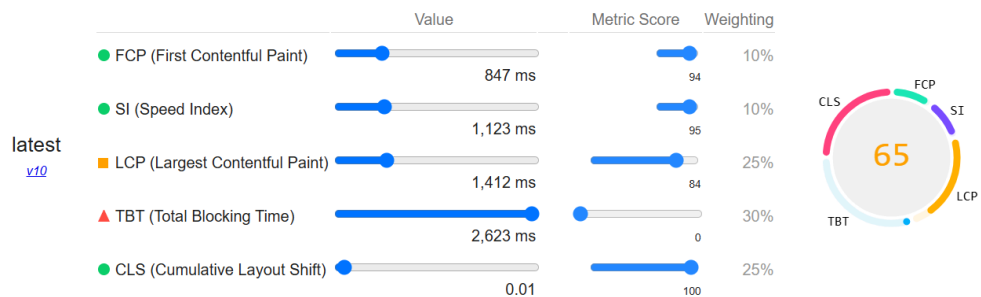▲ 0–49   ■ 50–89   ● 90–100

METRICS   Expand view

● First Contentful Paint   ■ Largest Contentful Paint
0.8 s   **1.4 s**

🏮 Lighthouse Scoring Calculator

Device type: [Desktop ▾]   Versions: [v10, v11, v12 ▾]

	Value	Metric Score	Weighting
● FCP (First Contentful Paint)	847 ms	94	10%
● SI (Speed Index)	1,123 ms	95	10%
■ LCP (Largest Contentful Paint)	1,412 ms	84	25%
▲ TBT (Total Blocking Time)	2,623 ms	0	30%
● CLS (Cumulative Layout Shift)	0.01	100	25%

latest
v10

65

FCP · SI · LCP · TBT · CLS

4. Cross-Browser and Device Testing

Objective:

Ensure the website functions properly across multiple browsers.

Test Steps:

1. Access the website on the following browsers: Chrome, Firefox, and Edge.

2. Navigate through the core functionalities, including product listing, filtering, and checkout.

Expected Outcome:

The website should display and function consistently on all tested browsers.

Observed Outcome:

All tested functionalities worked as expected across Chrome, Firefox, and Edge.

- **Status:** Passed

- **Security Level:** Low

Remarks:

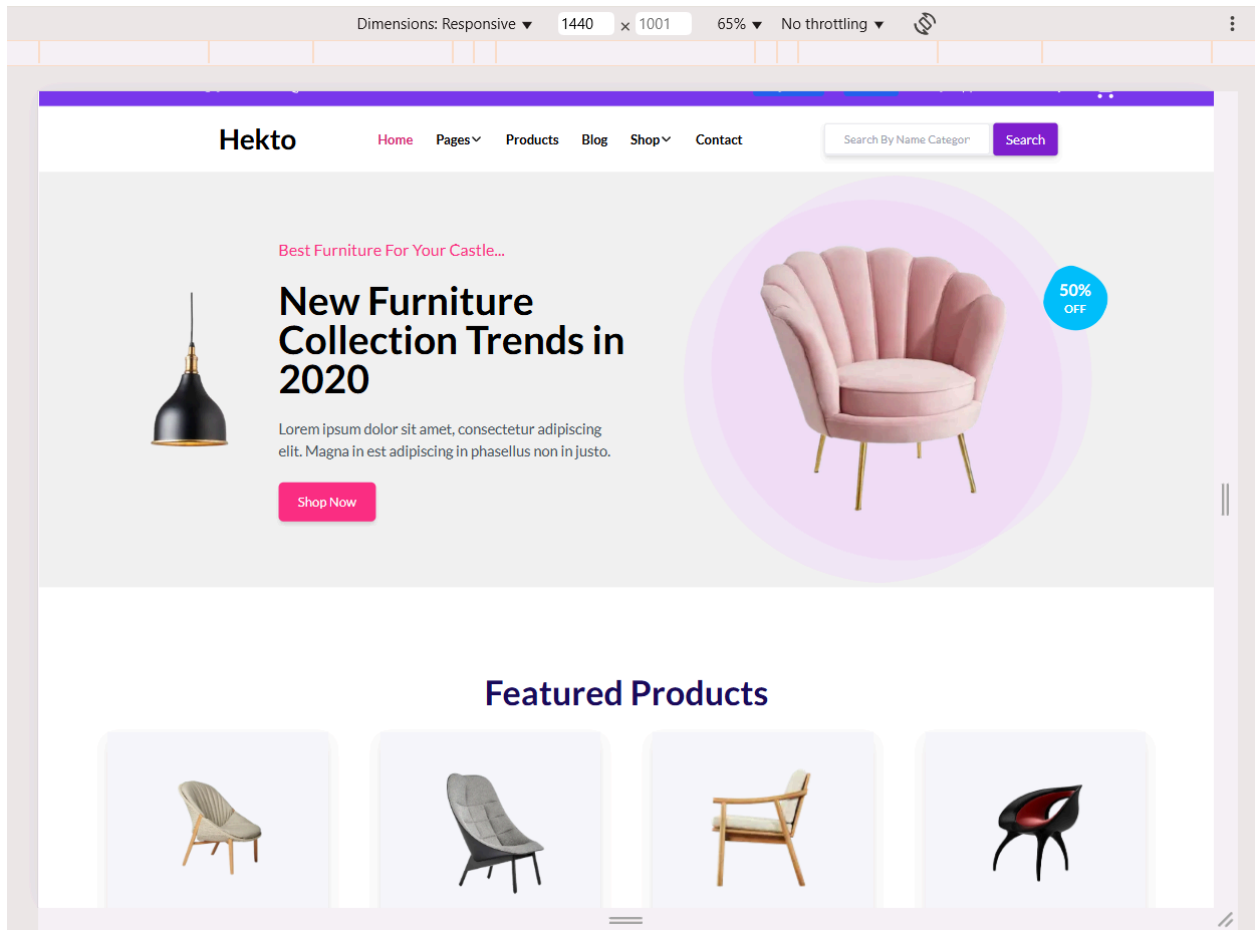- The website is fully compatible with the tested browsers.

Hekto

≡

Best Furniture For Your Castle...

New Furniture Collection Trends in 2020

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Magna in est adipiscing in phasellus non in justo.

Shop Now

5.User Acceptance Testing (UAT)

UAT Testing Summary

Search Functionality	Ensured accurate search results for full and partial keywords.

Product Filters	Checked filters like price range and category to ensure correct results.
Cart Management	Validated adding/removing items and modifying quantities in the cart.
Checkout Process	Successfully tested checkout, including billing, shipping, and payment.
Account Management	Verified login, sign-up, and password reset functionalities.
Mobile Responsiveness	Tested on mobile to ensure proper layout and functionality across devices.
Usability Issues	Identified minor adjustments for smoother user flow.
Performance	Website performed well with no significant delays.

Usability Issues Identified:

Minor adjustments for smoother flow. Performance: Website performed well without significant delays.