

# Hackathon 03 Furniro - Elevating Your Shopping Experience

## Day 5: Strengthening Backend Efficiency with Advanced Testing & Debugging

### Focus Areas

As we gear up for deployment, our key objective is to fine-tune **Furniro** for optimal **performance, reliability, and user experience**. Our primary areas of focus include:

- ◆ **Comprehensive Testing** – Ensuring seamless functionality across all features.
- ◆ **Robust Error Handling** – Strengthening system stability and fault tolerance.
- ◆ **Performance Optimization** – Enhancing load times and backend efficiency.
- ◆ **Cross-Platform Compatibility** – Ensuring a smooth experience across devices and browsers.
- ◆ **Detailed Documentation** – Tracking progress, improvements, and scalability plans.

### Action Plan: Functional Testing

#### Goal:

Ensure every feature of **Furniro** operates flawlessly, delivering a frictionless shopping experience.

#### Key Testing Areas:

- ✓ **Navigation Flow:** Validate seamless menu navigation and category accessibility.
- ✓ **Product Display & Filtering:** Ensure accurate sorting, filtering, and product details.
- ✓ **Cart Operations:** Smooth addition, removal, and quantity updates with cart persistence.
- ✓ **User Accounts:** Verify sign-up, login, profile updates, and wishlist functionality.
- ✓ **Checkout & Payments:** Test discount applications, transactions, and order confirmations.

#### Testing Tools:

- ◆ **Postman** – API validation and backend testing.
- ◆ **Jest & Enzyme** – UI component responsiveness and functionality testing.
- ◆ **Cypress** – End-to-end user journey testing.
- ◆ **PageSpeed Insights** – Performance analysis and optimization

### Enhanced Error Handling

#### Objective:

Implement a **resilient error management strategy** to ensure a smooth and transparent shopping journey on **Furniro**.

#### Key Strategies:

- ✓ **API Fallbacks:** Ensure uninterrupted service during API failures.

- ✓ **Descriptive Error Messages:** Clear and user-friendly alerts (e.g., "This item is out of stock.").
- ✓ **Centralized Error Logging:** Efficient tracking and resolution of system issues.
- ✓ **Dynamic User Alerts:** Real-time notifications for stock updates, payment issues, or system errors.

#### Example:

##### 📌 For Out-of-Stock Products:

- Display "**This product is currently out of stock.**" on the product page.
- Disable the "**Add to Cart**" button for unavailable items.
- Restrict checkout to prevent user frustration.

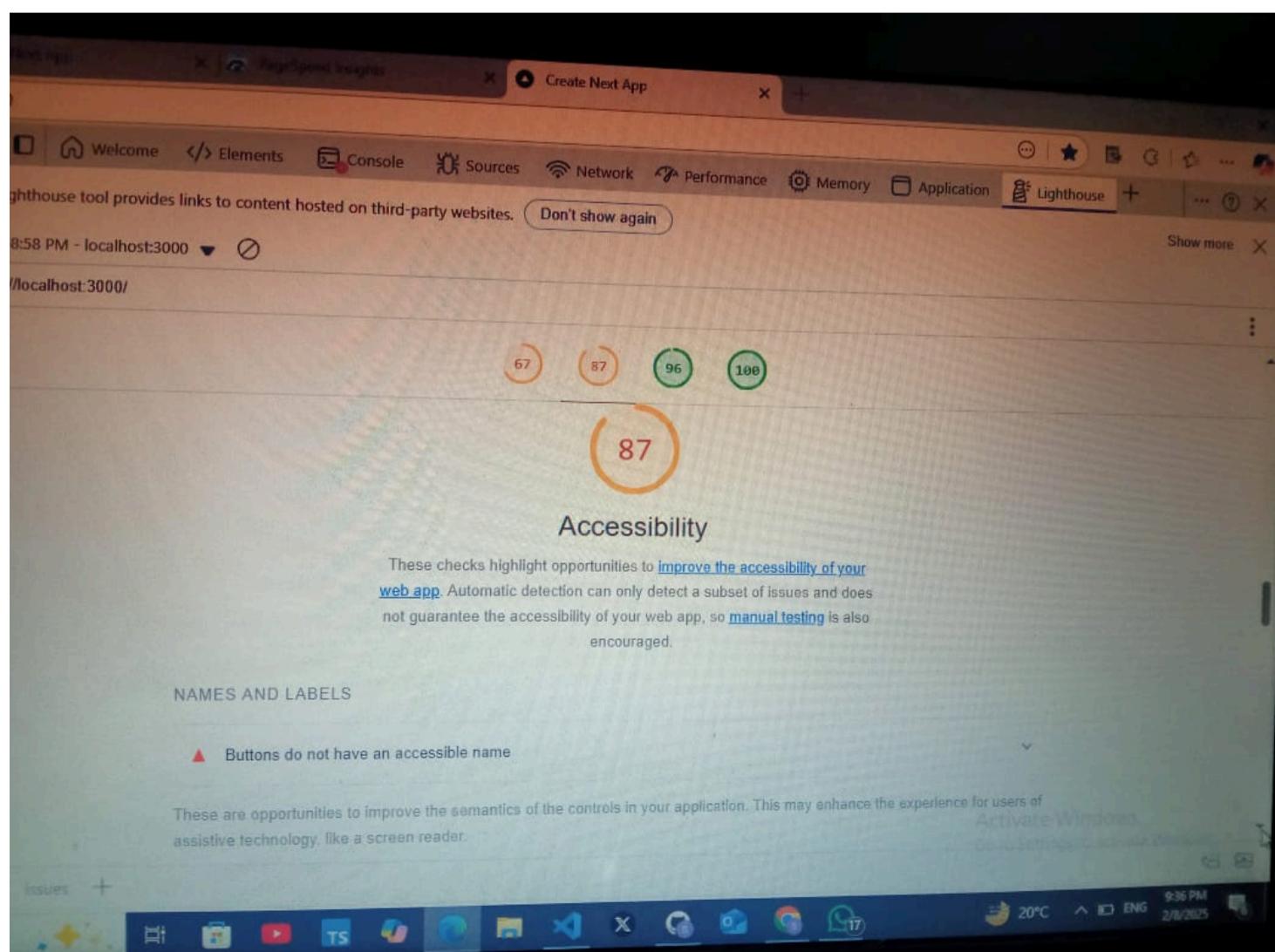
## Performance Tuning (Optimization)

#### Focus:

Enhancing platform responsiveness to ensure a **fast, smooth, and efficient** experience for **Furniro** users.

#### Improvements Implemented:

- 🚀 **Optimized API Efficiency:** Faster response times with streamlined queries.
- 🚀 **File Compression:** Gzip & Brotli enabled for reduced file sizes and improved speed.
- 🚀 **Advanced Caching:** Static asset caching to reduce server load.
- 🚀 **Minified Resources:** Compressed CSS, JavaScript, and HTML for improved browsing.
- 🚀 **CDN Integration:** Global CDN deployment for seamless content delivery across regions.



localhost:3000

Welcome Elements Console Sources Network Performance Memory Application Lighthouse

The Lighthouse tool provides links to content hosted on third-party websites. [Don't show again](#)

8:58:58 PM - localhost:3000

<http://localhost:3000/>

67 87 96 100

- Avoid long main-thread tasks — 20 long tasks found
- Avoids an excessive DOM size — 349 elements
- Avoids enormous network payloads — Total size was 2,182 KiB
- Largest Contentful Paint element — 2,130 ms

More information about the performance of your application. These numbers don't [directly affect](#) the Performance score.

PASSED AUDITS (22) Show

Activate Windows Go to Settings > Activation > Renew License

Console Issues +

search 17 20°C ENG 9:35 PM 2/8/2025

localhost:3000

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8:58:58 PM - localhost:3000

<http://localhost:3000/>

67 87 96 100

- Minify JavaScript — Potential savings of 367 KiB
- Serve static assets with an efficient cache policy — 5 resources found
- Properly size images — Potential savings of 14 KiB
- Defer offscreen images — Potential savings of 90 KiB
- Avoid serving legacy JavaScript to modern browsers — Potential savings of 0 KiB
- Reduce unused CSS — Potential savings of 10 KiB
- Reduce unused JavaScript — Potential savings of 1,087 KiB
- Avoid long main-thread tasks — 20 long tasks found

Activate Windows Go to Settings > Activation > Renew License

Console Issues +

search 17 20°C ENG 9:35 PM 2/8/2025

localhost:3000

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http://localhost:3000/

Performance: 67 Accessibility: 87 Best Practices: 96 SEO: 100

Performance: 67

Values are estimated and may vary. The [performance score](#)

New Arrivals Discover Our New Collection

Activate Windows

This screenshot shows the Lighthouse performance audit results for a local development environment. The overall score is 67, which is highlighted in orange. The audit includes metrics for Performance (67), Accessibility (87), Best Practices (96), and SEO (100). A message at the bottom indicates that the performance score is estimated and may vary. The audit interface is part of a browser developer tools window.

localhost:3000

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8:58:58 PM - localhost:3000

http://localhost:3000/

Performance: 67 Accessibility: 87 Best Practices: 96 SEO: 100

METRICS

Metric	Value
First Contentful Paint	1.1 s
Largest Contentful Paint	2.1 s
Total Blocking Time	3,280 ms
Cumulative Layout Shift	0
Speed Index	4.5 s

[View Treemap](#)

Activate Windows

This screenshot shows the Lighthouse performance audit results for a local development environment, similar to the first one but with more detailed metrics. The overall score is 67. The audit includes metrics for First Contentful Paint (1.1 s), Largest Contentful Paint (2.1 s), Total Blocking Time (3,280 ms, marked with a red triangle), Cumulative Layout Shift (0), Speed Index (4.5 s), and a View Treemap button. The audit interface is part of a browser developer tools window.

localhost:3000

Welcome Elements Console Sources Network Performance Memory Application Lighthouse

The Lighthouse tool provides links to content hosted on third-party websites. [Don't show again](#)

8:58:58 PM - localhost:3000

http://localhost:3000/

67 87 96 100

96

Best Practices

GENERAL

- Browser errors were logged to the console
- Missing source maps for large first-party JavaScript

TRUST AND SAFETY

Activate Runkey

Console Issues +

to search

Activate Runkey

20°C 9:39 PM 2/8/2025

localhost:3000

Welcome Elements Console Sources Network Performance Memory Application Lighthouse

The Lighthouse tool provides links to content hosted on third-party websites. [Don't show again](#)

8:58:58 PM - localhost:3000

http://localhost:3000/

67 87 96 100

100

SEO

These checks ensure that your page is following basic search engine optimization advice. There are many additional factors Lighthouse does not score here that may affect your search ranking, including performance on [Core Web Vitals](#). [Learn more about Google Search Essentials](#)

ADDITIONAL ITEMS TO MANUALLY CHECK (1)

Structured data is valid

Run these additional validators on your site to check additional SEO best practices

Activate Runkey

Console Issues +

to search

Activate Runkey

20°C 9:39 PM 2/8/2025

# Device Compatibility

**Goal:** Achieve seamless cross-platform functionality and a consistent user experience on **Furniro**.

## Platforms Tested:

- Browsers:** Chrome, Firefox, Safari, Edge, and Opera.
- Devices:** Smartphones, tablets, desktops, and smart TVs (tested via BrowserStack).

## Focus Areas:

- ◆ **Responsive Design:** Ensure an optimized layout and smooth functionality across all screen sizes and resolutions.
- ◆ **Accessibility Support:** Guarantee compatibility with assistive tools like screen readers and keyboard navigation.
- ◆ **Touch & Gesture Responsiveness:** Enhance mobile and tablet interactions for a seamless touch experience.
- ◆ **Cross-Browser Consistency:** Validate that all visuals and features display correctly across major browsers.
- ◆ **Performance Monitoring:** Analyze load times and interactivity on both high-end and low-end devices for a smooth user experience.

# User Acceptance Testing (UAT)

**Purpose:** Collect real-world feedback to refine the **Furniro** user experience further and ensure customer satisfaction.

## Scenarios Tested:

- ◆ **Seamless Browsing:** Ensured smooth navigation through product categories and individual items.
- ◆ **Shopping Cart Experience:** Evaluated intuitive cart adjustments, including adding, removing, and modifying item quantities.
- ◆ **Payment Processing:** Verified hassle-free transactions with multiple payment options.
- ◆ **Navigation:** Tested easy movement between product pages, account settings, and informational sections.
- ◆ **Device Responsiveness:** Ensured flawless functionality across mobile, tablet, and desktop platforms.
- ◆ **Coupon Codes & Discounts:** Checked seamless application of promotional codes and discount visibility at checkout.
- ◆ **Search Functionality:** Optimized for fast and accurate product search results.
- ◆ **Accessibility:** Ensured compatibility with screen readers and other assistive tools.

## Feedback Implemented:

- ♦ Enhanced "Add to Cart" Button: Improved visibility and design for easier interaction.
- ♦ Streamlined Checkout: Reduced steps for a faster and smoother order completion process.
- ♦ Clearer Payment Error Messages: Provided better guidance during failed transactions.
- ♦ Improved Cart Clarity: Introduced clear indicators for selected items.
- ♦ Optimized Navigation: Fixed minor glitches in product category browsing.
- ♦ Faster Search Performance: Improved response time for better user experience.
- ♦ User Insights Collection: Added post-order feedback prompts.
- ♦ Flawless Mobile Experience: Verified smooth functionality across all devices.
- ♦ Reliable Notifications: Ensured timely delivery of order confirmations via email and SMS.

The screenshot shows a web browser displaying the Furniro checkout page at localhost:3000/checkout. The page is divided into two main sections: 'Billing Details' on the left and 'Order Summary' on the right.

**Billing Details:**

- First Name: [Input field]
- Last Name: [Input field]
- Company Name (Optional): [Input field]
- Country / Region: [Select dropdown] - Select a country
- Street Address: [Input field]
- Town / City: [Input field]
- State / Province: [Input field]
- ZIP Code: [Input field]
- Phone: [Input field]

**Order Summary:**

Product	Subtotal
Serene Seat x 2	Rs. 700
Sleek Living x 1	Rs. 300
Subtotal	Rs. 1,000
Total	Rs. 1,000

**Payment Method:**

- Direct Bank Transfer
- Cash on Delivery

**Buttons:**

- Place Order (Large orange button)
- Chat with us (Small button)

Create New App

Create New App

http://127.0.0.1:3000/product/zX8EyenPWCyB4cuV5kMUa8

Furniro

Home Shop Blog Contact

Search icon

Cart icon (3)

Heart icon (2)

New



## Modern Serenity

★★★★★ | (5 Customer Reviews)

Introducing ModernSerenity—a collection that redefines contemporary living by combining tranquility and style in perfect harmony. Designed for those who seek balance, simplicity, and elegance, ModernSerenity transforms any space into a peaceful retreat, offering a serene atmosphere that promotes relaxation a...

Rs. 480

Add to Cart

SKU : SS001

Category : Sofas

Tags : Sofa, Chair, Home, Shop

Share : [Facebook](#) [LinkedIn](#) [Twitter](#)

Chat with us 

Activate Windows 10

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here to search

File Explorer

YouTube

TS

PowerShell

Visual Studio

X

OneDrive

Google Chrome

Microsoft Edge

File History

# Performance Monitoring for Furniro

The screenshot shows a browser window displaying the Furniro website (`furniro-khaki.vercel.app`). The website features a red sofa with a pink pillow and yellow pom-poms, labeled "Bold Nest" and "Rp 260". The browser's developer tools are open, specifically the Performance tab, which is part of the DevTools interface. The left sidebar of the DevTools shows various metrics like CPU usage, JS heap size, and DOM Nodes. The main area displays a performance monitor graph with three stacked traces: CPU usage (yellow), JS heap size (purple), and DOM Nodes (green). The graph spans from 10:30:40 PM to 10:31:50 PM. The JS heap size trace shows a significant increase over time, starting at 20.0 MB and rising to 10.0 MB. The DOM Nodes trace starts at 600 and rises to 300. The CPU usage trace remains very low, around 0.1%. The browser's taskbar at the bottom shows other open tabs and system status.

## Testing Summary Table

Test Case ID	Test Case Description	Test Steps	Expected Result	Actual Result	Status	Severity Level	Assigned To	Remarks
TC001	Validate product listing page	Open product page > Check if all products are displayed correctly	All products are displayed with correct details	Products displayed correctly	Passed	Low	-	Product listing page is accurate, meets user expectations.
TC002	Test API error handling	Disconnect the API > Refresh the page	Fallback UI with a user-friendly error message appears	Error message displayed as expected	Passed	Medium	-	Error handling mechanism works as intended during failure.
TC003	Check cart functionality	Add product to cart > Verify cart contents	Cart updates with added productCart is updated with added product	Cart updates correctly	Passed	High	-	Cart functionality works perfectly and is user-friendly.
TC004	Ensure Responsiveness on mobile	Resize browser window > Check layout	Layout adjusts to mobile screen size	Layout adapts well to mobile screen	Passed	Medium	-	Mobile responsiveness ensures a smooth experience across devices

## Final Notes

During this phase, we focused on rigorous testing and optimization of the Furniro platform to ensure a seamless and flawless user experience. Significant improvements were made in functionality, reliability, and performance, laying a strong foundation for a successful launch.

## Next Steps:

- Finalize SEO Strategies: Refine and implement SEO tactics to enhance online visibility, increase organic reach, and drive more traffic to Furniro.
- Automated Performance Monitoring: Integrate real-time monitoring tools to quickly detect and resolve potential issues, ensuring optimal platform efficiency.
- Customer Behavior Analytics: Implement analytics to track user interactions and behaviors, providing valuable insights for continuous UX enhancements.

**Author: Sana Ishaq**

**Assigned By: Sir Ameen Alam**