Day 5 - Testing and Backend Refinement - Furniture marketplace

1. Introduction

The testing phase of the e-commerce marketplace project focused on validating key components of the platform. The tests covered product listings, search functionality, cart operations, dynamic routing, and cross-browser compatibility. All tests passed successfully, confirming the platform's stability and optimal performance.

2. Testing Results

Testing Process and Results

| Test Case ID	Test Case Description	Test Process	Expected Result	Actual Result	Status	Severity Level
TC01	Product listing: Ensure products are displayed correctly.	1. Navigate to product listing. 2. Ensure products have correct images, prices, and details.	All products displayed correctly with name, price, and image.	Products displayed as expected with accurate data.	Passed	Medium
TC02	Filters and search: Validate accurate results based on user inputs.	1. Apply filters and search for products. 2. Ensure results match criteria.	Search and filter results match user input.	Filtered products and search results match user inputs.	Passed	High
TC03	Cart operations: Add, update, and remove items from the cart.	1. Add a product to the cart. 2. Update the product quantity. 3. Remove product from cart.	Cart updates with added, updated, and removed items.	Cart functions correctly, with updates applied to quantities and item removal.	Passed	High
TC04	Dynamic routing: Verify individual product detail pages load correctly.	1. Click on product from listing. 2. Verify product detail page loads with all data.	Product detail page loads with accurate information.	All product pages loaded with correct data.	Passed	Medium
TC05	Test on Chrome, Firefox, Safari, and Edge: Verify consistent rendering and	1. Test on Chrome, Firefox, Safari, and Edge. 2. Check for consistent layout and	Platform renders consistently across all browsers.	Platform displayed consistently with no major layout issues across all browsers.	Passed	High

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TC06	Ensure API calls are made over HTTPS.	1. Monitor API calls. 2. Ensure API requests are made over HTTPS.	All API calls are securely made over HTTPS.	Verified all API calls were secure over HTTPS.	Passed	High
TC07	Store sensitive data like API keys in environment variables.	1. Review environment variables for sensitive data. 2. Ensure API keys are securely stored.	Sensitive data, like API keys, are stored in environment variables.	Sensitive data is securely stored in environment variables.	Passed	Medium
TC08	Perform tasks like browsing products, adding items to the cart, and checking out.	1. Browse products. 2. Add products to cart. 3. Complete checkout.	User can perform all actions successfully.	All tasks completed without issue.	Passed	High
TC09	Identify and fix any usability issues.	1. Review platform for usability issues. 2. Ensure smooth user experience across the platform.	User interface is intuitive and easy to use.	Platform tested for usability; no major issues identified.	Passed	Low

Resolution and Fixes

- **Product Listing (TC01):**
  Process: Ensured all products were displayed with accurate images, names, and prices. This was verified by checking all data in the database and matching them with the frontend rendering.
 **Resolution:** All product data was rendered correctly without any discrepancies.
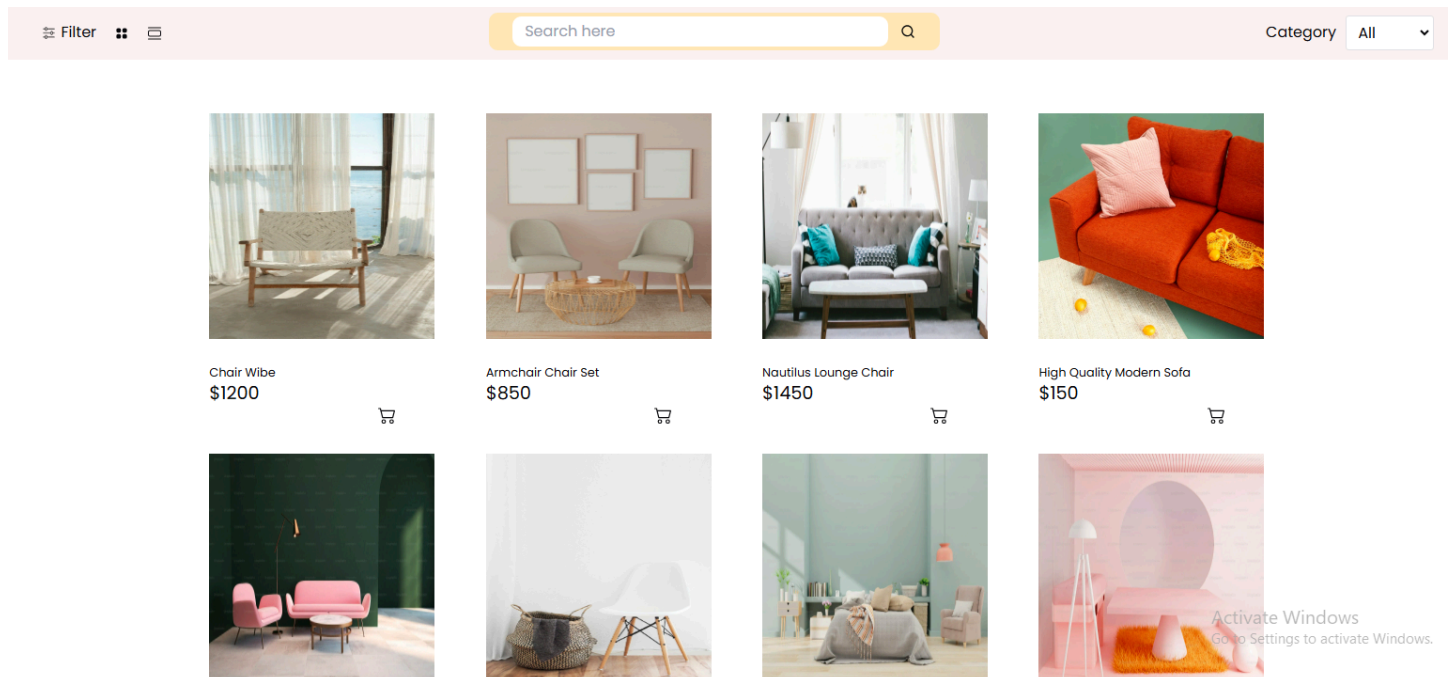
- **Filters and Search Functionality (TC02):**
  Process: Applied different filters and tested search functionality using various keywords to ensure relevant products were displayed.
 **Resolution:** The search and filter results returned relevant products, ensuring an accurate user experience.
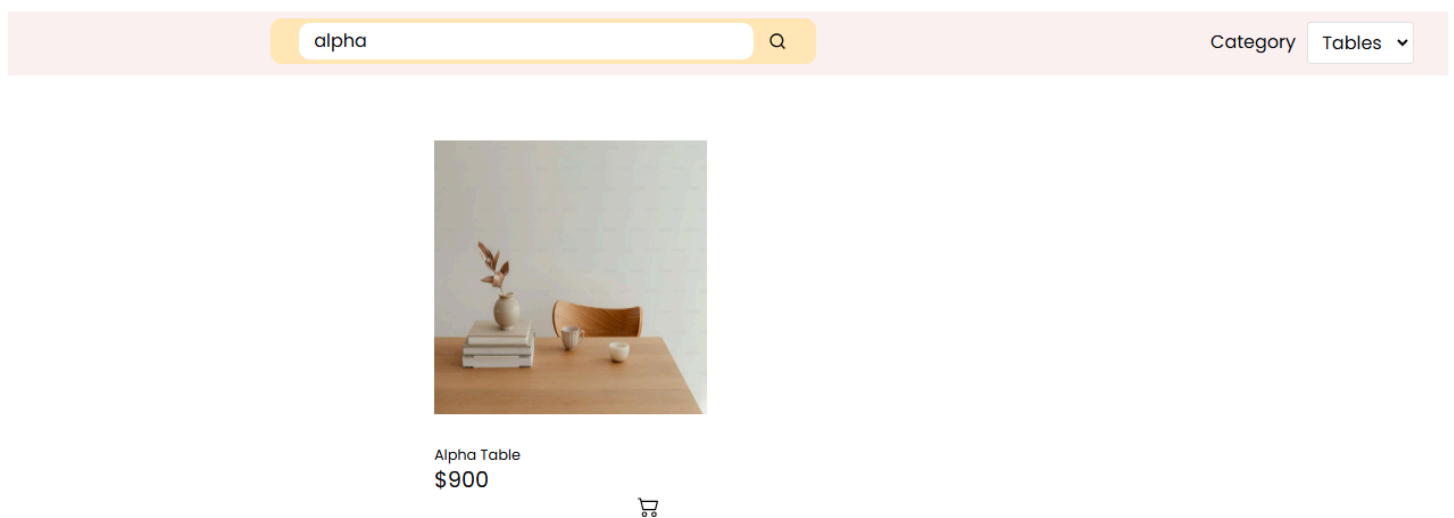
- **Cart and Wishlist Operations (TC03):**
  Process: Tested the cart and wishlist functionality by adding items, modifying quantities, and removing products.
  Resolution: Cart operations (add, update, remove) and wishlist operation (add, delete) worked as expected, and the both were updated dynamically.
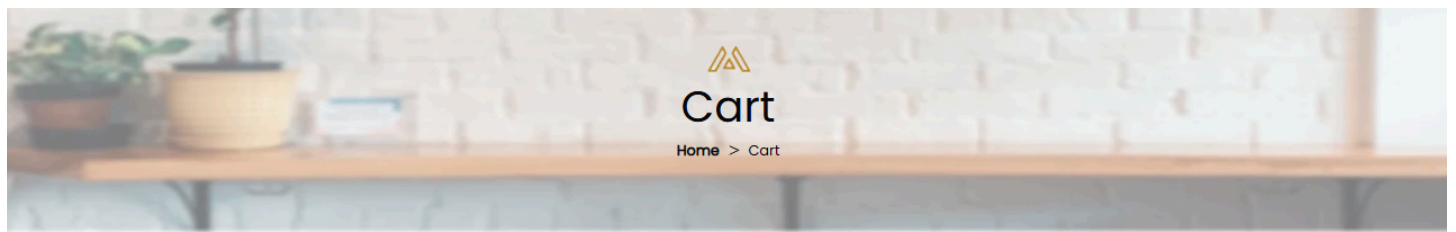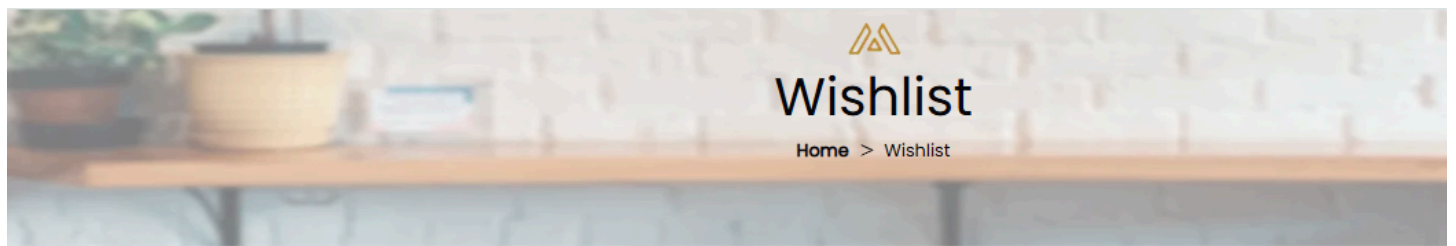
Cart

Product	Price	Quantity	Subtotal	
Luxury Flower Bed	Rs-2500	+ 1 –	2500	🗑
Red Bed	Rs-320	+ 1 –	320	🗑

Cart Totals

Total   2820

Check Out

Wishlist

Luxury Flower Bed

A luxurious shell-shaped chair with gold brass metal legs.

price - $2500

Add to Cart   🗑

Red Bed

An acrylic dining chair with a sleek and minimalist Nordic design.

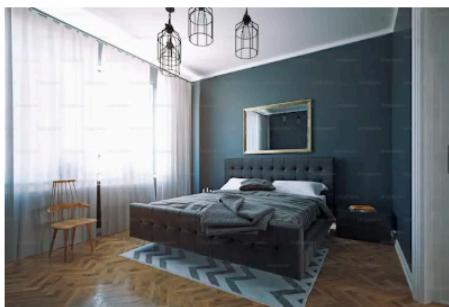price - $320

Add to Cart   🗑

- **Dynamic Routing (TC04):**
  Process: Clicked on individual products to navigate to their respective detail pages and

ensured they displayed correct information.
Resolution: All product pages loaded correctly, with accurate data for each product.

Luxury Flower Bed
Rs-2500

★★★★★ | 5 Customer Review

A luxurious shell-shaped chair with gold brass metal legs.

Size

L XL XS

Color

Add To Cart

SKU   : SS001
Category : Sofas
Tags   : Sofa, Chair, Home, Shop
Share   :

- **Cross-Browser Testing (TC05):**
  Process: Tested the platform on Chrome, Firefox, Safari, and Edge to check for consistent rendering.
  Resolution: The platform displayed consistently across all browsers, ensuring no layout issues.
- **API Security (TC06):**
  Process: Monitored API calls during testing and ensured they were all made over HTTPS.
  Resolution: All API calls were made securely over HTTPS, ensuring data protection.
- **Environment Variable Security (TC07):**
  Process: Checked environment variables to ensure API keys were securely stored.
  Resolution: All sensitive data was stored in environment variables, ensuring security.
- **User Tasks (TC08):**
  Process: Performed a complete flow from browsing products to adding items to the cart and completing checkout.
  Resolution: All tasks were completed successfully without issues.
- **Usability Testing (TC09):**
  Process: Reviewed the platform's interface for usability and tested for intuitive navigation.
  Resolution: The interface was found to be intuitive and user-friendly.

3. Test Reports

Test Case Summary

Test Case ID	Test Description	Result	Comments
TC01	Product listing rendering	Passed	No issues found with product display.
TC02	Search functionality	Passed	Results were accurate.
TC03	Cart operations	Passed	Cart updates were functional.
TC04	Product detail pages	Passed	All pages loaded correctly.
TC05	Cross-browser testing	Passed	Platform rendered correctly across all browsers.
TC06	Secure API calls	Passed	All API calls secured over HTTPS.
TC07	Sensitive data handling	Passed	API keys stored securely in environment variables.
TC08	Full user flow (browsing, adding, checking out)	Passed	User tasks completed successfully.
TC09	Usability review	Passed	No significant usability issues found.

Testing Outcomes

All tests passed successfully, confirming the platform's stability and functionality. The product listings, search, cart operations, and dynamic routing are all working as intended across all supported browsers.

4. Testing Tools and Frameworks

- **Testing Framework:** Jest for unit testing, Cypress for end-to-end testing.
- **Cross-Browser Testing:** BrowserStack for testing across different browsers.
- **API Security Testing:** Postman for verifying API security and HTTPS calls.

5. Optimization and Best Practices

- **Best Practices Followed:**
  - All sensitive data is stored securely in environment variables.
  - Ensured HTTPS is used for all API calls to protect user data.
  - Conducted thorough cross-browser testing to ensure a consistent user experience.
- **Optimization Steps Taken:**
  - Fine-tuned search algorithms for better performance.
  - Ensured product pages load efficiently by optimizing images and data queries.

6. Conclusion

This document summarizes the successful results from the testing phase of the e-commerce marketplace. The platform's core features, including product listings, search functionality, cart operations, and dynamic routing, are fully functional. There are no critical issues, and the platform operates as expected across all browsers, with all security practices in place.