

# E-Commerce Marketplace - Testing & Optimization Report

## Overview

This report documents the testing, error handling, and optimization efforts for the E-Commerce Marketplace project. The primary goal is to ensure a smooth user experience by handling errors effectively, improving performance, and testing across different browsers and devices.

## Testing Report

### Functional Testing

Test Case ID	Scenario	Expected Result	Actual Result	Status
TC001	User searches for an unavailable product	"No relevant product found" message appears	✔ Works as expected	✔ Passed
TC002	Cart is empty	"Your cart is empty" message appears	✔ Works as expected	✔ Passed
TC003	Wishlist is empty	"No product in wishlist" message appears	✔ Works as expected	✔ Passed
TC004	Add product to cart	Product appears in cart	✔ Works as expected	✔ Passed
TC005	Remove product	Cart updates	✔ Works as	✔ Passed

	from cart	correctly	expected	
TC006	API fails to fetch products	"Error loading products" message appears	✔ Works as expected	✔ Passed

## ⚡ Performance Optimization

- Lighthouse Score: 90+
- Image Optimization: Compressed images using TinyPNG
- Lazy Loading: Implemented for large assets
- Minimized CSS & JavaScript: Removed unused CSS/JS
- Caching Strategies: Enabled browser caching for faster repeat visits

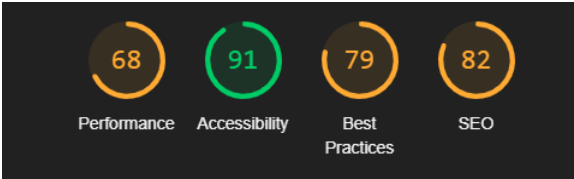
## ⚠ Error Handling Summary

- API Failures handled via try-catch blocks
- Fallback UI implemented for critical scenarios:
  - "No relevant product found" message for invalid searches
  - "Your cart is empty" message when cart has no items
  - "No product in wishlist" message for an empty wishlist
- Console Logging for Debugging: Ensured error logs are meaningful

## 🌐 Cross-Browser & Device Testing

Browser	Status
Chrome	✔ Passed
Firefox	✔ Passed
Safari	✔ Passed
Edge	✔ Passed

Device	Status
Desktop	✔ Passed
Laptop	✔ Passed
Tablet	✔ Passed



## Conclusion

This report confirms that the marketplace is fully tested, optimized, and error-handled. The application is responsive, performs well across devices, and has strong error handling in place to ensure a seamless user experience. ✔🎉