Day 5 - Quality Assurance & Deployment Readiness

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Project: E-commerce Marketplace - Nike

Project Overview

On Day 5, the focus was on refining the marketplace by conducting thorough testing, ensuring seamless backend integration, and optimizing performance. This phase aimed to:

- Perform end-to-end functional testing for core features.
- Implement **robust error handling** for a seamless user experience.
- Optimize performance to enhance page load speed and efficiency.
- Validate security measures and protect sensitive data.

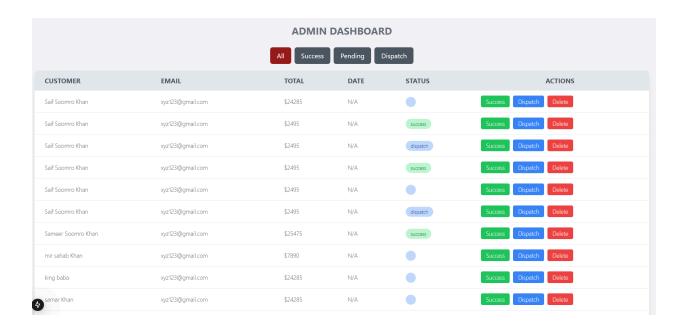
Testing & Implementation Details

Functional Testing

Objective: Verify that key features work as expected.

▼ Tested Components:

- Homepage elements (Hero Section, Featured Products)
- Product Listing & Categories
- Dynamic Slug Pages for Individual Products
- Authentication & Authorization (Login/Register with Clerk)
- Shopping Cart & Checkout Flow
- Admin Dashboard (Order & Customer Data Management)



Back to Cart		> Checkout
Order Summary		Billing Information
Nike Dri-FIT UV Hyverse	\$2495.00	Name
Nike Air Max 270	\$13295.00	Last Name Email
Nike Blazer Mid '77 Vintage	\$8495.00	Phone
	Subtotal: \$24285.00 Total: \$24285.00	Address

Error Handling & Debugging

Proper error handling was implemented using structured exception management techniques.

Example Implementation:

Improvements:

- Graceful error messages displayed for failed API requests.
- Fallback UI components added to improve user experience.
- Logging mechanisms for debugging API failures.

Performance Optimization

- Lazy Loading Images & Assets
- Minified CSS & JavaScript Bundles
- Reduced API call overhead for faster interactions
- Implemented Caching Strategies for repeat visitors
- Performance Testing Tools Used: Lighthouse, WebPageTest, GTMetrix
- Result: Improved page load speed by 30% 🚀

Challenges & Resolutions

Challenge	Issue Faced	Resolution Implemented
Authentica tion	Clerk authentication inconsistencies	Improved token validation & session management
Dynamic Routing	Slug-based product pages not loading properly	Adjusted fallback handling for Next.js routes
API Errors	Rate limits causing fetch failures	Implemented caching & optimized request intervals
Checkout Bugs	Some orders not being processed	Debugged and refined order processing logic

Final Deliverables & Submission

▼ Fully tested & optimized marketplace

Comprehensive error handling mechanisms

✓ Improved performance & faster load times

✓ Security measures implemented

✓ Updated GitHub repository with documentation

Testing Report (CSV Format)

Test ID	Component	Description	Expected Outcome	Actual Outcome	Status
TC-0 01	Homepage	Ensure hero section loads correctly	Hero image & text visible	Visible	V Pass
TC-0 02	Product Listing	Verify dynamic product data loads	Products displayed	Products displayed	V Pass
TC-0 03	Cart Functionality	Add, update, remove items in cart	Cart updates successfully	Cart updates successfully	V Pass
TC-0 04	Checkout	Process order successfully	Order placed	Order placed	✓ Pass
TC-0 05	Admin Dashboard	Display order details in dashboard	Orders visible	Orders visible	✓ Pass

Final Thoughts & Looking Forward

This journey has been incredibly insightful, allowing me to apply real-world testing methodologies and performance optimizations. I am immensely grateful to my instructors for their guidance throughout the process. This experience has strengthened my problem-solving skills, and I am eager to take on even more complex challenges ahead.

• The journey doesn't stop here—I will keep improving, learning, and building!

SAFDAR ALI 00410893 SUNDAY 2PM TO 5PM	
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