Zerformance Testing Documentation

Project: MERN Ecommerce

Date: 7 August 2025

Team ID: [PNT2025TMID10691]

Project Overview

This document outlines the performance testing strategy and results for the MERN Ecommerce application. The goal is to verify that the application performs reliably and efficiently under expected user loads, ensuring responsiveness, stability, and scalability.

The key performance aspects tested include page load times, API response times, system throughput, concurrency handling, and resource utilization (CPU, memory).

Testing Period

Start Date: [30 july 2025]

End Date: [6 august 2025]

Features and Functionalities Tested

- User registration and login response times
- Browsing and searching the product catalog
- Adding, updating, and removing items in the shopping cart
- Checkout and payment processing times
- Admin operations such as product management and order tracking
- API load handling under concurrent user requests

Testing Environment

Parameter	Details
Server Environment	[e.g., AWS EC2, local server]
Backend Version	[Insert commit/version]
Frontend Version	[Insert commit/version]
Database	MongoDB [version]
Network Conditions	[LAN, WAN, simulated network speed]
Testing Tools	[e.g., JMeter, LoadRunner]
Browser(s) Used	[e.g., Chrome, Firefox]

Performance Test Cases

Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
PT-001	User Registration Response Time	1. Submit registration form with valid data. 2. Measure time for server to respond and confirm registration.	Response time < 2 seconds; no errors	[Record actuals]	[Pass/Fail]
PT-002	Product Search Under Load	1. Simulate 100 concurrent users performing product search queries. 2. Measure average and max response times.	Average response time < 3 seconds; no timeouts or crashes	[Record actuals]	[Pass/Fail]

PT-003	Add to Cart Performance	1. Simulate multiple users adding products to cart simultaneously. 2. Track UI and backend response times and system resource use.	Operations complete within 2 seconds; system CPU < 80%	[Record actuals]	[Pass/Fail]
PT-004	Checkout Process Time	1. Perform checkout with valid payment details. 2. Measure end-to-end processing time including payment gateway response.	Checkout completes under 5 seconds; no errors	[Record actuals]	[Pass/Fail]
PT-005	Admin Product Update Under Load	1. Simulate 20 admin users updating product details concurrently. 2. Verify system stability and response times.	All updates processed within 3 seconds; no data conflicts	[Record actuals]	[Pass/Fail]
PT-006	API Throughput	1. Perform load test simulating 500 API requests per minute. 2. Monitor server CPU, memory, and database query times.	Sustained throughput without degradation; CPU usage < 85%	[Record actuals]	[Pass/Fail]

Bug Tracking

Bug ID	Bug Description	Steps to Reproduce	Severity	Status	Additional Feedback
BG-001	Slow response during peak loads	Simulate 100+ users adding to cart simultaneously	High	Open/In Progress/Closed	[Comments or fixes noted]
BG-002	Occasional timeout on checkout	Perform multi-user checkout process	Critical	Open/In Progress/Closed	[Comments or fixes noted]
BG-003	Memory usage spikes under load	Conduct API throughput testing with 500+ requests per minute	Medium	Open/In Progress/Closed	[Comments or fixes noted]

Sign-off

Testing Completion Date: [6 august 2025]

Test Conducted By: [Mihir Patel]