Test Case Report (template 8)

Project Name: Hackathon 3 General E-Commerce
Hosted URL: https://hackathon-project-2-by-ureefa-aly.vercel.app/
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1. Introduction

This document provides a comprehensive report on the testing process for the Hackathon 3 Generall E-Commerce application. The objective of the testing was to evaluate the **functionality, performance, deployment stability, and error handling** of the application hosted on Vercel.

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2. Testing Scope

The following key aspects were tested:

1. **User Interface Testing** – Ensuring responsiveness, navigation, and UI consistency.
2. **Functional Testing** – Validating form submissions, API integrations, and data retrieval.
3. **Deployment Testing** – Checking for deployment success and runtime errors.
4. **Performance Testing** – Evaluating page speed, stress handling, and optimization.
5. **Error Handling Testing** – Verifying how the application responds to incorrect inputs and failures.

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3. Test Cases & Results

3.1 User Interface Testing

- **Test Case UI-001**: Verified that the homepage loads successfully without errors.
  - **Expected Result:** The homepage should display correctly.

- **Actual Result:** The homepage loaded as expected.
- **Status:** Passed
- **Test Case UI-002**: Tested responsiveness across different devices (mobile, tablet, and desktop).
  - **Expected Result:** The layout should adjust appropriately for all screen sizes.
  - **Actual Result:** The layout adapted correctly.
  - **Status:** Passed
- **Test Case UI-003**: Checked all navigation links to ensure they direct users to the correct pages.
  - **Expected Result:** All links should function correctly.
  - **Actual Result:** Navigation worked as expected.
  - **Status:** Passed

3.2 Functional Testing

- **Test Case FN-001**: Submitted a form with valid data.
  - **Expected Result:** Data should be saved, and a success message should appear.
  - **Actual Result:** Form submission was successful, and a success message was displayed.
  - **Status:** Passed
- **Test Case FN-002**: Submitted a form with invalid data.
  - **Expected Result:** Validation error messages should be displayed.
  - **Actual Result:** Validation messages appeared as expected.
  - **Status:** Passed
- **Test Case FN-003**: Tested API response time for data retrieval.
  - **Expected Result:** API should return data within 2 seconds.
  - **Actual Result:** API responded within the expected timeframe.
  - **Status:** Passed

3.3 Deployment Testing

- **Test Case DP-001**: Verified successful deployment of the application on Vercel.
  - **Expected Result:** The application should deploy without errors.

- - **Actual Result:** Deployment was completed successfully.
  - **Status:** Passed
- **Test Case DP-002**: Tested runtime errors after deployment.
  - **Expected Result:** No runtime errors should occur.
  - **Actual Result:** No runtime error was detected.
  - **Status:** Passed

3.4 Performance Testing

- **Test Case PF-001**: Measured page load time.
  - **Expected Result:** Page should load within 3 seconds.
  - **Actual Result:** The page loaded within the expected time.
  - **Status:** Passed
- **Test Case PF-002**: Conducted a stress test under high traffic.
  - **Expected Result:** The application should remain stable.
  - **Actual Result:** The application handled the load without crashing.
  - **Status:** Passed
- **Test Case PF-003**: Analyzed performance using Google PageSpeed Insights.
  - **Expected Result:** The application should achieve a performance score of 90+ on desktop.
  - **Actual Result:** The current score is **85**, indicating room for improvement.
  - **Status:** ⚠️ Needs Improvement

3.5 Error Handling Testing

- **Test Case EH-001**: Tested handling of 404 errors by entering an invalid URL.
  - **Expected Result:** A custom 404 page should be displayed.
  - **Actual Result:** The correct 404 page appeared.
  - **Status:** Passed
- **Test Case EH-002**: Checked error messages during deployment failures on Vercel.
  - **Expected Result:** Clear error messages should be displayed.
  - **Actual Result:** Error messages were informative and provided guidance.
  - **Status:** Passed

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4. Summary of Findings

✅ Strengths

- **Responsive UI:** The application adapts well across different devices.
- **Functionality:** Form submissions and API calls work as expected.
- **Error Handling:** Validation messages and 404 error pages function correctly.

⚠️ Areas for Improvement

- **Performance Optimization:** The **PageSpeed Insights score (85)** should be optimized to reach **90+** by improving image compression and script execution.

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5. Conclusion & Next Steps

The **Hackathon 3 General E-Commerce application is functional and stable** under most conditions. However, some refinements are required to **resolve deployment errors and improve performance**.

◆ Action Items

1. Optimize images, caching, and scripts to **improve the PageSpeed Insights score**.
2. Conduct a **re-test after fixes are implemented**.

With these enhancements, the application's **stability, performance, and user experience** will improve significantly.