**Day 6 - Deployment Preparation and Staging Environment Setup Report**

**Objective:**

The goal of Day 6 was to prepare the marketplace for deployment by setting up a staging environment, configuring hosting platforms, and validating that the application functions correctly in a production-like environment. This ensures readiness for the customer-facing application.

**Key Learning Outcomes:**

1. **Staging Environment Setup:**
   * Selected **Vercel** as the hosting platform for deployment.
   * Connected the GitHub repository to Vercel for continuous integration and deployment.
   * Configured build and deployment settings to ensure successful staging builds.
   * Securely added environment variables to the hosting platform to manage sensitive data.
   * Validated the application's functionality in the staging environment to ensure it mirrors the production environment.
2. **Professional Environment Management:**
   * Gained an understanding of the various professional environment types: TRN, DEV, SIT, UAT, PROD, and DR.
   * Focused on **DEV (Development)**, **SIT (System Integration Testing)**, and **UAT (User Acceptance Testing)** for this phase.
3. **Staging Environment Testing:**
   * **Functional Testing:** Ensured all features (product listings, search, and cart operations) worked as expected.
   * **Performance Testing:** Used tools like **Lighthouse** and **GTmetrix** to analyze site speed, load times, and responsiveness.
   * **Security Testing:** Ensured input validation to prevent vulnerabilities like SQL injection, HTTPS usage, and secure API communications.
4. **Documentation and Reports:**
   * Generated detailed test case reports, performance reports, and deployment instructions.
   * Created a **README.md** file summarizing the project structure, deployment steps, and testing results.
   * Organized project files in a clear folder hierarchy for easy understanding and maintenance.

**Steps for Implementation:**

**Step 1: Hosting Platform Setup**

* **Platform Chosen:** **Vercel**
  + **GitHub Repository Connection:** Linked the repository to Vercel.
  + **Build Configuration:** Set up automatic deployments on push and pull requests.

**Step 2: Environment Variables Configuration**

* **.env File Creation:** Defined sensitive variables like API keys and project identifiers.

NEXT\_PUBLIC\_SANITY\_PROJECT\_ID=your\_project\_id

NEXT\_PUBLIC\_SANITY\_DATASET=production

API\_KEY=your\_api\_key

* **Platform Configuration:** Added environment variables securely via Vercel's dashboard.

**Step 3: Deploy to Staging**

* **Deployment Process:** Deployed the application to the staging environment.
* **Deployment Validation:** Verified that the build process completed without errors and that the application loaded correctly in the staging environment.

**Step 4: Staging Environment Testing**

* **Functional Testing:** Verified product listing, cart functionality, and API error handling.
* **Performance Testing:** Generated a performance report using **Lighthouse** to analyze loading time, speed, and responsiveness.
* **Security Testing:** Checked for vulnerabilities like SQL injection, proper HTTPS configuration, and safe API communication.

**Example Test Cases:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Description** | **Steps** | **Expected Result** | **Actual Result** | **Status** | **Remarks** |
| TC001 | Validate product listing | Open product page > Verify products | Products displayed | Products displayed | Passed | No issues found |
| TC002 | Test API error handling | Disconnect API > Refresh page | Show fallback message | Fallback message shown | Passed | Handled gracefully |
| TC003 | Check cart functionality | Add item to cart > Verify cart | Cart updates correctly | Cart updates correctly | In Progress | In Progress |
| TC004 | Test responsiveness layout | Resize browser window > Check layout | Layout adjusts properly | Layout adjusts properly | Passed | Responsive verified |

**Expected Outputs:**

1. **Staging Environment Deployment Link:** Deployed successfully on Vercel.

**Organized GitHub Repository:** All project files are organized with a clear folder structure.

**Conclusion:**

The project frontend is now successfully deployed in the staging environment, and all critical tests have been completed. The marketplace is functioning well in a production-like setting. Only Backend is not live or deployed.