Deployment Preparation and Staging Environment Setup - Hunar Bazaar

1.0 Objective:

To deploy the Hunar Bazaar marketplace to a staging environment, validate functionality in a production-like setting, and prepare for final deployment. This includes configuring secure environment variables, conducting thorough testing, and documenting the process to meet industry standards.

2.0 Key Learning outcomes:

- **Staging Environment Setup**: Deploy the application to a staging environment using Vercel.
- **Secure Configuration**: Manage API keys and sensitive data via environment variables in Vercel.
- **Staging Testing**: Conduct functional, performance, and security testing to identify pre-deployment issues.
- **Documentation**: Create a structured GitHub repository with professional reports and a README

3.0 Steps for Implementation:

Step 1: Hosting Platform Setup

1. Platform Selection:

- Choose Vercel for seamless Next.js integration and automated deployments.

2. GitHub Integration:

- Connected repository to Vercel.

Step 2: Environment Variable Configuration:

1. Local Development

- Created .env.local with placeholders for API keys.

2. Vercel Dashboard:

- Added environment variables securely (e.g., Sanity CMS credentials).
- Verified variables are not exposed in client-side bundles.

Step 3: Deploy to Staging:

1. Trigger Deployment:

- Created .env.local with placeholders for API keys.

2. Validation:

- Added environment variables securely (e.g., Sanity CMS credentials).
- Verified variables are not exposed in client-side bundles.

Step 4: Staging Environment Testing:

1. **Functional Testing:**

   - **Tools:** React Testing Library (cart, search).
   - **For Example:** Test Validated adding/removing items, updating quantities, and calculating total prices.

2. **Performance Testing:**

   - **Tools:** Lighthouse
   - Audited performance, accessibility, and SEO, achieving scores of 75 (mobile) and 81 (desktop).

3. **Security Testing:**

   - **Tools:** manual code review.
   - **Findings:** No critical vulnerabilities; HTTPS enforced.
   - Configured securely in Vercel dashboard (e.g., Sanity CMS project ID, API keys).

Step 5: Documentation Updates:

1. **README.md:**

   - Project Overview: Integration of Days 2–5 work (API, components, testing).
   - Deployment Instructions: Staging and production guidelines.
   - Testing Summary: Links to CSV reports and Lighthouse scores

2. **Repository Organization:**

   - Merged all days' documentation into /documentation with clear subfolders.

Challenges & Resolutions:

Challenge: Staging deployment failed due to nextjs 15.1 with react 19 and some middleware config issue due to clerk BuiltIn Authentication

Resolution: Convert React 19 to 18.2 and update middleware.

Challenge: Mobile Lighthouse score dropped to 70 during initial staging.

Resolution: Optimized images and removed unused dependencies. (still need improvement working on it)

Checklist for Day 6:

- [✓] Deployment Preparation: Vercel setup, environment variables configured.

- [✓] Staging Testing: Functional, performance, and security tests completed.

- [✓] Documentation: README updated, CSV report, performance screenshots added.

- [✓] Final Review: Code quality, responsiveness, and security validated.