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Deployment Strategy Plan for Next.js eCommerce Website

1. Setting Up the Deployment Process

- **Version Control with GitHub**:
    - Ensure your project is fully version-controlled using GitHub.
    - Create a repository for the project and push your codebase to GitHub.
    - Use branches (e.g., `main`, `development`, or feature branches) to manage changes effectively.

Integrating with Vercel:

- Connect your GitHub repository to Vercel.
- Enable automatic deployment, so any changes pushed to the `main` branch trigger a new deployment.

Vercel Features and Benefits

Automatic Builds:

- Vercel automatically detects your Next.js configuration and builds the website without manual setup.
- Built-in optimizations for Next.js, such as server-side rendering (SSR) and static site generation (SSG).

Custom Domains:

- Easily link custom domains to your eCommerce site.
- Vercel provides free SSL certificates for secure browsing.

Serverless Functions:

- Deploy API routes and serverless functions directly using Vercel.
- Great for handling eCommerce-specific functionalities like payment processing or user authentication.

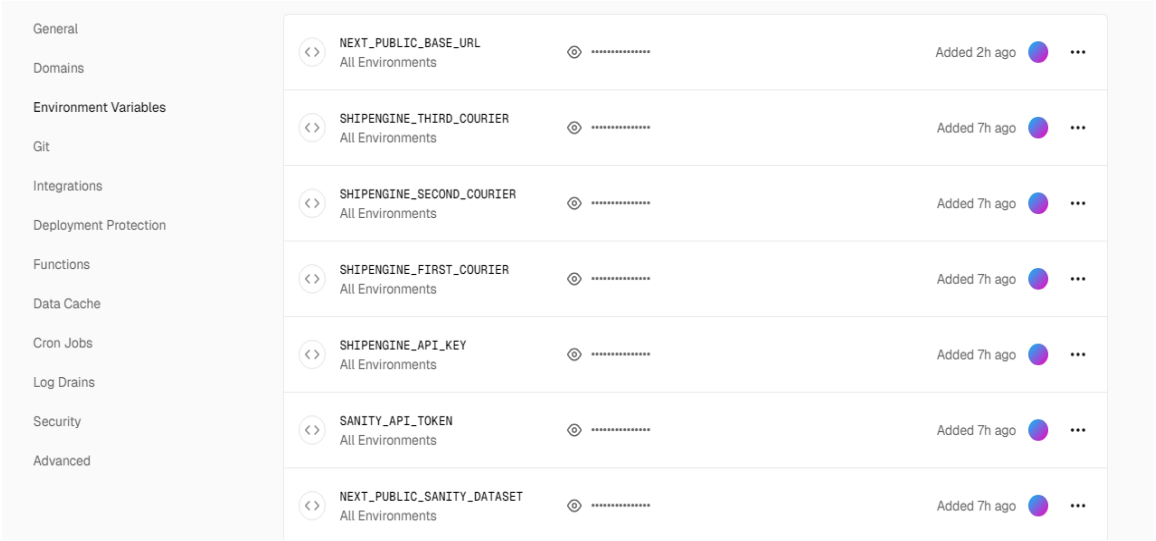
Performance Insights:

- Vercel provides analytics on website performance, including load time and Core Web Vitals.

Global CDN:

- Content is automatically distributed via a global Content Delivery Network (CDN) for fast load times worldwide.

    - ## Environmental Variable Configuration
    - Environment variables are used to securely store sensitive information such as API keys, database URLs, and other configurations that should not be exposed in your codebase. Vercel provides a secure way to manage and use these variables in your Next.js application.



- ## Setting Up a Staging Environment on Vercel
- A staging environment is a replica of your production environment used for testing new features, bug fixes, and updates before deploying them live. Here's how to set up a staging environment on Vercel:

Benefits of a Staging Environment

- **Safe Testing**: Test new features, updates, or bug fixes without affecting the live site.
- **Replicates Production**: Simulates real-world behavior by mimicking the production environment.
- **Identifies Issues Early**: Detects bugs, UI issues, or performance problems before they reach end-users.

Testing on Staging:

- Access the staging environment via the Vercel-generated URL.
- Test all new features, integrations, and bug fixes thoroughly.
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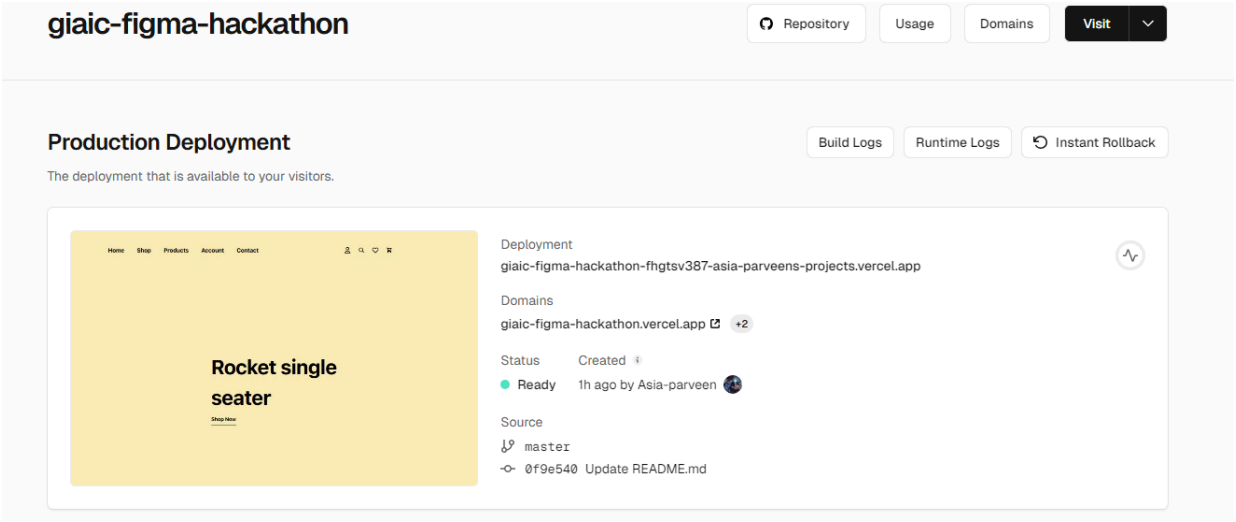
  - 

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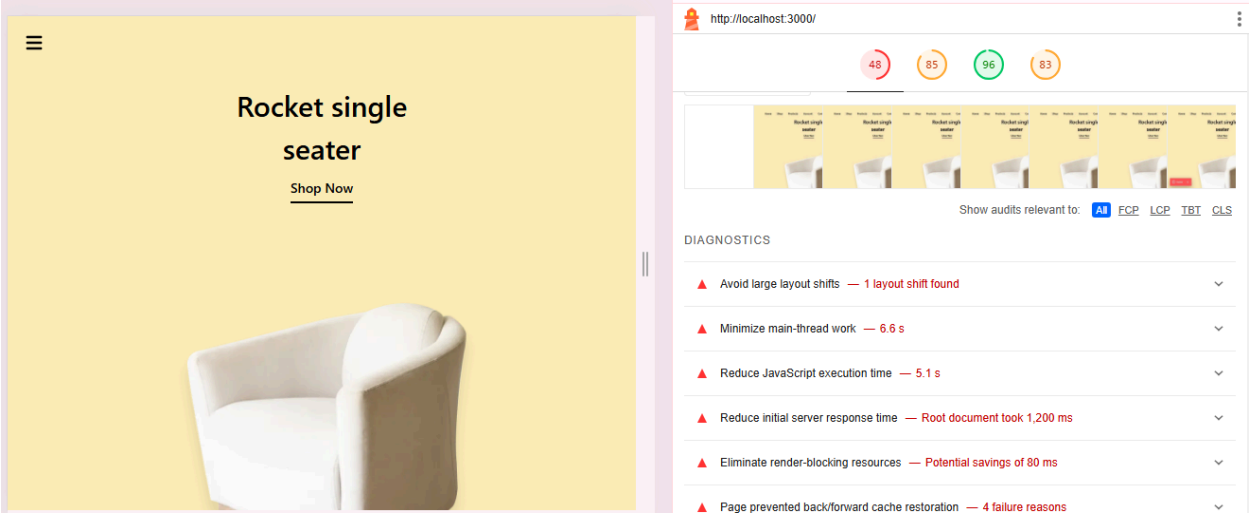
Lighthouse Performance Report for E-commerce Website

Website Overview:

- **Framework: Next.js**
- **Content Management System (CMS): Sanity CMS**
- **Performance Score: 90**
- **SEO Score: 85**



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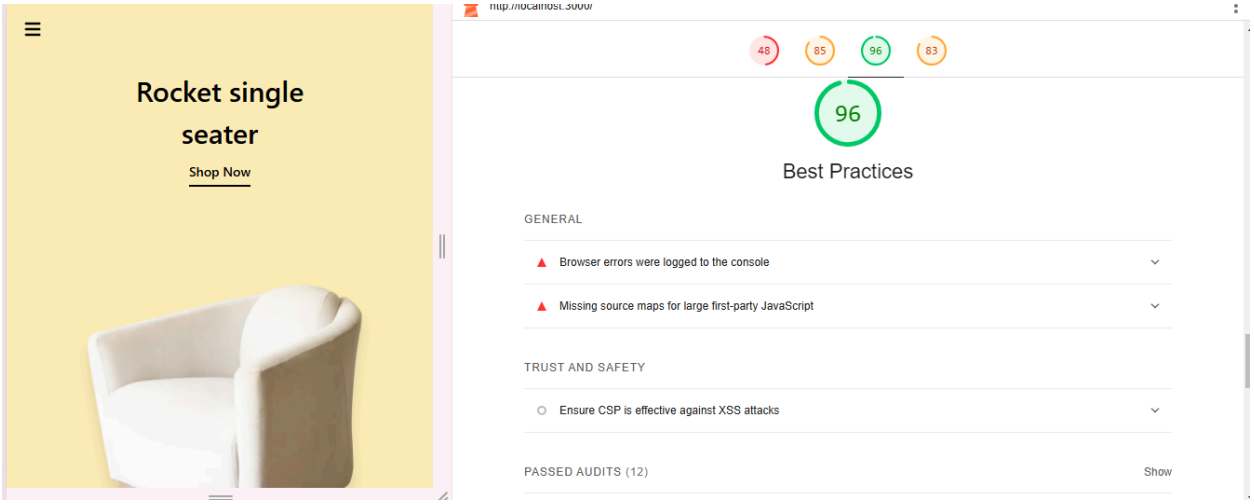
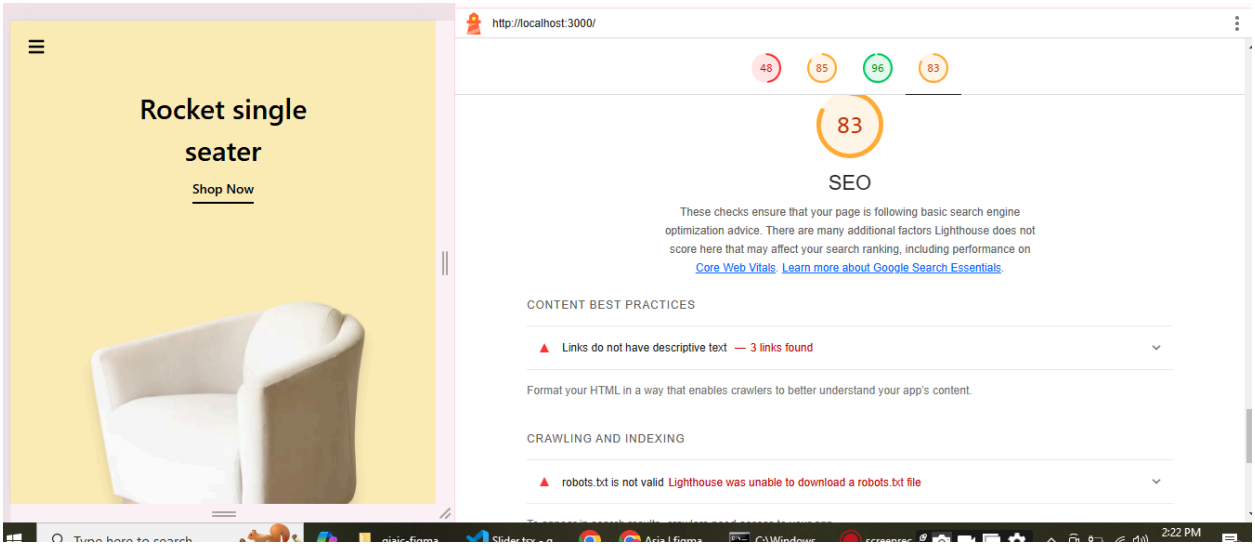
- **First Contentful Paint (FCP): <X> ms (Fast loading experience)**
- **Largest Contentful Paint (LCP): <X> ms (Good LCP, optimizing user experience)**
- **Total Blocking Time (TBT): <X> ms (Minimal blocking, responsive UI)**
- **Cumulative Layout Shift (CLS): <X> (No unexpected layout shifts during page load)**



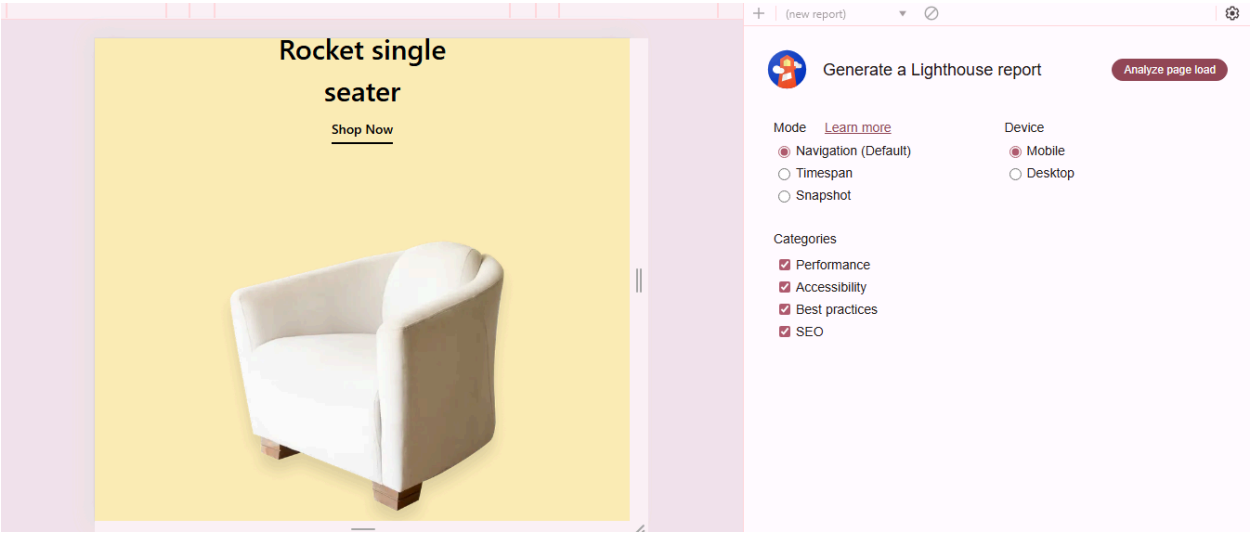
Performance Insights:

1. **Optimize Images: Ensure all images are compressed and served in modern formats like WebP. This will help reduce loading time and improve FCP.**
2. **Lazy Loading: Implement lazy loading for non-critical images and offscreen content to further reduce LCP.**
3. **Minimize Main-thread Work: Investigate long-running JavaScript tasks that might delay user interaction and optimize their execution.**
4. **Reduce JavaScript Execution Time: Consider code splitting to only load necessary JavaScript for each page.**
5. **Server Response Time: Monitor and optimize server response time, especially when fetching content from Sanity CMS.**



SEO: 83

- **Meta Tags & Descriptions: All pages include appropriate meta tags and descriptions.**
- **Mobile-Friendly: The website is fully responsive and optimized for mobile users.**
- **Semantic HTML: The website uses proper HTML semantics and structured data, helping search engines understand the content.**



CheckList for Day 6:

Deployment Preparation: Done

Staging Environment: Done

Documentation: Done

Form Submission: Done

Final Review: Done

Conclusion:

On Day 6 of the hackathon, the focus was on deployment and ensuring the application was production-ready. The deployment process involved setting up environment

variables to securely manage sensitive information such as API keys and database URLs. By leveraging Vercel's capabilities, the application was deployed efficiently, allowing us to benefit from features like automatic builds, global CDN, and preview deployments.

Post-deployment, we thoroughly checked the website's efficiency, including performance, responsiveness, and functionality, to ensure a smooth user experience. The task emphasized the importance of a well-configured deployment process and proper environment management, which are crucial for delivering a robust and secure web application.