Day 4 - TESTING, ERROR HANDLING, AND BACKEND INTEGRATION REFINEMENT

On Day 5, the focus was on testing, optimizing, and refining the marketplace to ensure smooth deployment. Key tasks included:

- **Testing Backend Integrations:** Verified that **Stripe, Clerk, and Sanity** are properly connected and functioning.
- **Error Handling Implementation:** Added user-friendly error messages for failed payments, invalid inputs, and API failures.
- **Performance Optimization:** Improved load times using caching strategies and optimized data fetching in **Next.js 15**.
- **User Experience Refinement:** Enhanced navigation, checkout flow, and responsiveness for a seamless customer journey.

With these improvements, CottonCloud is now **more stable, efficient, and ready for real-world use**. The next steps will focus on **security checks and deployment**.

Key Areas of Focus

1. Functional Testing

- Ensured all marketplace features operate as expected.
- Tested core functionalities, including:
    - Product listing and detail pages.
    - Cart operations and checkout flow.
    - User profile management and order tracking.
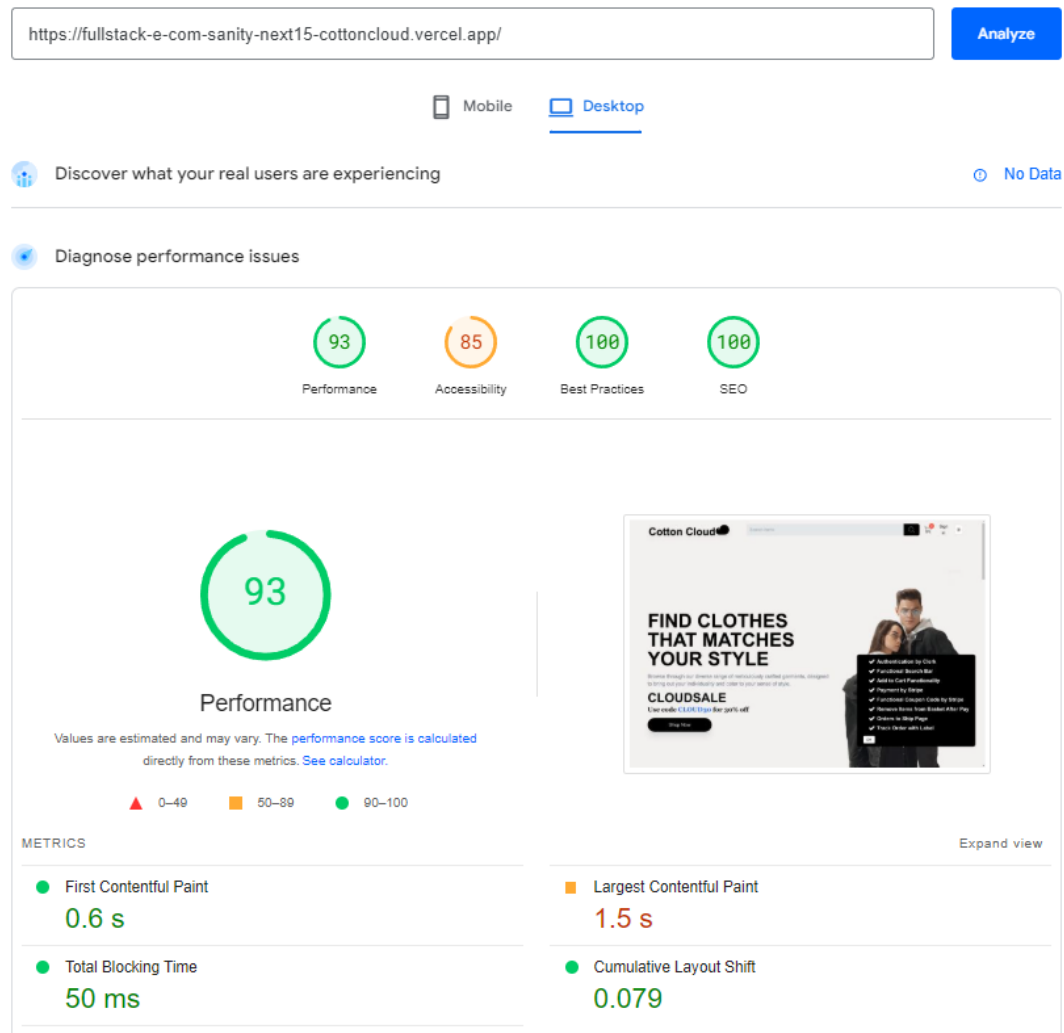
Error Handling

- Implemented clear error messages for:
    - **Network failures**.
    - **Invalid or missing data**.
    - **Unexpected server errors**.
- Added fallback UI elements like "No products available" when no data is returned from the API.
-

Performance Testing

- Conducted performance testing using **Google PageSpeed**.

Report from Feb 7, 2025, 3:30:16 AM

https://fullstack-e-com-sanity-next15-cottoncloud.vercel.app/   **Analyze**

Mobile   Desktop

Discover what your real users are experiencing   ⓘ No Data

Diagnose performance issues

93	85	100	100
Performance	Accessibility	Best Practices	SEO

93

Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.

▲ 0–49   ■ 50–89   ● 90–100

Cotton Cloud

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CLOUDSALE
Use code CLOUD50 for 50% off

✓ Authentication by Clerk
✓ Functional Search Bar
✓ Add to Cart Functionality
✓ Payment by Stripe
✓ Functional Coupon Code by Stripe
✓ Remove Items from Basket After Pay
✓ Orders in Ship Page
✓ Track Order with Label

METRICS   Expand view

● First Contentful Paint
0.6 s

■ Largest Contentful Paint
1.5 s

● Total Blocking Time
50 ms

● Cumulative Layout Shift
0.079

- Identified bottlenecks and optimized key areas, including:
  - **Image Optimization:** Compressed and resized images for faster loading.
  -

Cross-Browser and Device Testing

- Tested the marketplace on **Chrome, Firefox, Safari, and Edge** to ensure compatibility.
- Verified responsiveness across **desktop, tablet, and mobile** devices.

- Used **BrowserStack and LambdaTest** for accurate cross-device testing.
- Ensured a seamless user experience across all screen sizes.

Security Testing

- Implemented **input validation** to prevent injection attacks.
- Ensured all communication is over **HTTPS** for security.
- Verified that **API keys are not exposed** in the frontend code.

User Acceptance Testing (UAT)

- Simulated real-world user interactions to ensure a smooth experience.
- Verified that browsing, searching, and checkout workflows are **intuitive and error-free**.

Documentation Updates

- Recorded testing results, fixes, and best practices.
- Summarized key findings and resolutions in **detailed test reports**.
- Ensured reports follow **market standards** with a structured format.
- Maintained consistency in headings and subheadings.
- Added a **table of contents** for easy navigation.