Testing and Optimization Report

1. Introduction:

This report covers the testing and optimization process for the **"Hematite Furniture", "E-Commerce Website".** It includes functional, performance, and security tests, along with the measures taken to optimize performance and secure the application.

2. Test Cases Executed and Their Results
✓ Functional Testing:

- ✓ **Validate Product Listing Page:** Click on the "Shop", products displayed correctly and quickly. There is no problem to fetching the data from the API.
- ✓ Product add, update and deleted is easily from the cart.
- ✓ **Dynamic Routing:** Implemented dynamic routing using slugs to create unique URLs for each product, ensuring smooth navigation to detailed product pages.
  API Data Fetching: Successfully fetched product-specific data from the API based on the slug, displaying relevant information on dynamic pages.
  Functionality Verification: Verified that each product link correctly routes to its respective detail page with accurate data rendering.
- ✓ **Test API Error Handling:** following error will be shown (Network Failure, Product Not Found, Cart is Empty, Fill all the required fields)
- ✓ **Check Cart Functionality:** Click on the "Add to Cart" product can go to "CartIcon". Product smoothly going to the Cart. Where show the product: Image, Price +/- button and "Removed" button also (Product removed easily) show in the page. "Order Summary" have subtotal property and the button of "Proceed to Checkout".
- ✓ **Search Bar Functionality:** Relevant Product displayed quickly.
- ✓ **Checkout Functionality:** Click on the "Proceed to Checkout" where message shown to confirm "Proceed to Checkout" click "Yes proceed". After clicking the button "Yes Proceed" user will go the "Checkout" Page,
- ✓ **Order Placed:** where user see the "Order Summary" and "Billing Information form". After fill the form click the button "Place Order" message will be shown "Success". If user empty any field of form error will be show "field must be required".
- ✓ **User Data add to Sanity:** User Data correctly sending in Sanity Database and order shown in order schema folder.
- ✓ **Ensure Responsive on Mobile:** this project responsive for all the devices (laptop, tablet and mobile).

- ## **Performance Testing:**

  - ✓ The website's core pages, including **Home**, **Shop, Cart**, and **Checkout**, demonstrate excellent load times, consistently rendering within seconds.
  - ✓ Dynamic Routing is perfectly working. Product Detail page easily showing.
  - ✓ **API responses** are highly efficient, ensuring smooth data retrieval and minimal latency throughout user interactions.

- ## **Security Testing**

  - ✓ All input fields validated to prevent injection attacks.
  - ✓ HTTPS enforced across the entire application.
  - ✓ Sensitive API keys securely stored in environment variables, not exposed in frontend code.

6. Conclusion

The testing process revealed some performance and functional issues, which were resolved through optimization and debugging. Security measures have been successfully implemented, ensuring the application's integrity. The application is now stable and ready for deployment.