

## Day 5 - Testing and Refinement - Ecommerce Website ( Hekto )

On Day 5 , I focused on preparing my marketplace for real-world deployment by ensuring all components are thoroughly tested,optimized for performance.My emphasis was on testing backend integrations,implementing error handling, and refining the user experience.

### Implementation Steps:-

#### 1: Functional testing:-

Ensure that all components of the marketplace (e.g., product listing, cart functionality, checkout) are working as expected.

##### Features Tested:

- **Product Listing:** Products are displaying correctly
- **Dynamic Routing:** Single Product page is also rendering correctly.
- **Filter and search:** Results are based on the user input
- **Cart Functionality:** Cart component is working properly and users can easily add, update and remove items from cart.
- **Checkout Page:** ensure that cart items are displayed on the checkout component.

##### Tools used:

- **Thunder Client:** For API response testing

#### 2: Error Handling:-

Using **try-catch** ensures the application doesn't crash and allows you to manage errors effectively.

In this code:

- The **try** block attempts to fetch data from an API.
- If the API fails (e.g., network issues or a server error), an error is thrown.
- The **catch** block captures the error and logs a meaningful message.

```
export async function fetchData() {
  try {
    const response = await fetch('https://next-ecommerce-template-4.vercel.app/api/product');
    const data = await response.json();
    const products = data.products;
    console.log("Products Response ==> ", products);

    if ((products)) {
      for (const product of products) {
        try {...
        } catch (error) {
          console.error(`Error processing product ${product.name}:`, error);
        }
      }
    } else {
      console.error("Products is not an array:", products);
    }
  } catch (error) {
    console.error('Error fetching data:', error);
  }
}
```

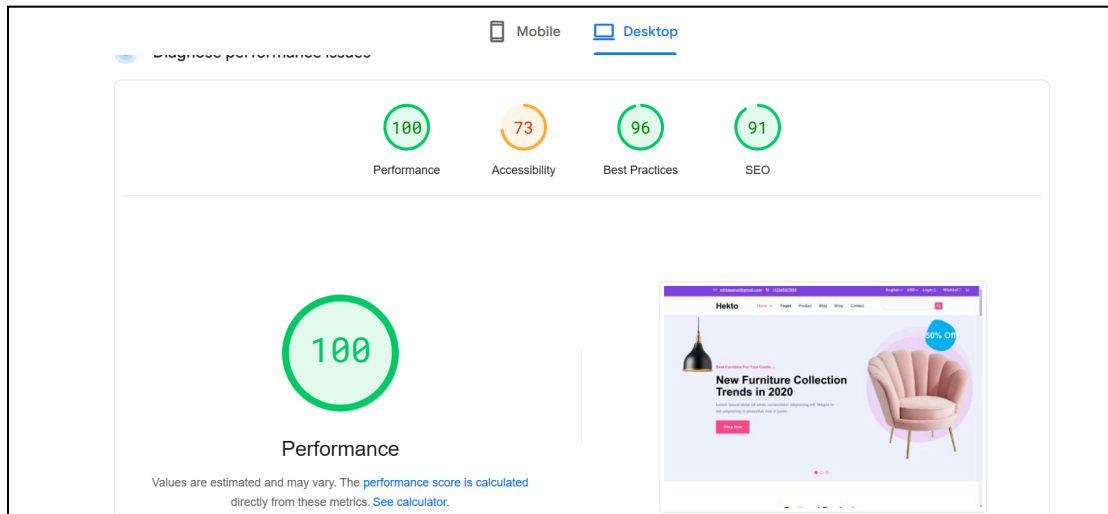
### 3: Performance Optimization:-

Optimize the backend and frontend to handle increased traffic, reduce load times, and improve user experience.

#### Analyze Performance:-

##### By using lighthouse:

Matric	value	Remarks
Performance	100	Excellent performance, no issues.
accessibility	73	Good accessibility, but some improvements needed for better user experience.
Best Practices	96	good adherence to best practices, but minor tweaks could enhance code clarity.
SEO	91	Solid SEO implementation



#### 4: Cross-browser and devices Testing:-

ensures that your website or application functions seamlessly across different browsers and devices. I have Tested on Chrome and Edge. Additionally, it's crucial to test the application on multiple devices—like smartphones, tablets, and desktops—to ensure it remains responsive and provides a consistent user experience regardless of screen size or resolution.

#### Testing Report:-

Test Case ID	Description	Testing steps	Expected Result	Actual result	Status	Remarks
TC001	Navigation Link test	Home > navbar	All links navigate correctly	All links navigate correctly	Passed	No issue found
TC002	Product Listing page validation	Home > Products	Product displaying correctly	Products displaying correctly	Passed	No issue found
TC003	Dynamic routing /single product page	Home > Products > product1	Single product page displayed	Single product page displayed	Passed	A minor issue with discount percentage
TC004	Cart functionality(add,update,remove)	Home>Products>product1>cart	Product added in the cart	Product added in the cart	Passed	pre-rendering error in build
TC005	checkout	Cart > Checkout	checkout page displaying properly	checkout page displaying properly	Passed	No issue found
TC006	Responsive across all devices		Responsive	Responsive	Passed	No issue found
TC007	Filter and searchBar	Product-filter	Filtering properly	Filtering properly	Passed	No issue found
TC008	Deployment to production		Deployed	Build times errors	Failed	Failed due to build time errors

## Testing Report in CSV:-

Test Case ID,Description,Testing steps,Expected Result,Actual result,Status,Remarks

TC001,Navigation Link test,Home > navbar,All links navigate correctly,All links navigate correctly,Passed,No issue found

TC002,Product Listing page validation,Home > Products,Product displaying correctly,Products displaying correctly,Passed,No issue found

TC003,Dynamic routing /single product page,Home > Products > product1 ,Single product page displayed,Single product page displayed,Passed,A minor issue with discount percentage

TC004,"Cart functionality(add,update,remove)",Home>Products>product1>cart,Product added in the cart,Product added in the cart,Passed,pre-rendering error in build

TC005,checkout,Cart > Checkout,checkout page displaying properly,checkout page displaying properly,Passed,No issue found

TC006,Responsive across all devices,,Responsive,Responsive,Passed,No issue found

TC007,Filter and searchBar,Product-filter ,Filtering properly,Filtering properly,Passed,No issue found

TC008,Deployment to production,,Deployed,Build times errors,Failed,Failed due to build time errors

## Conclusion:

Today, I successfully completed functional component testing, tackled error handling, and focused on performance optimization to ensure smooth functionality across the application. I also prepared a comprehensive testing report summarizing the progress and outcomes so far.

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