

# HACKATHON 3 - DAY 5

## Comprehensive Testing Report

### Objective:

The focus of Day 5 was to ready the marketplace application for deployment in a real-world environment. This involved thorough testing, implementing error-handling strategies, refining backend integrations, and enhancing performance.

### Key Learning Outcomes

- Executed detailed functional and non-functional testing across the application.
- Established robust mechanisms for handling errors effectively.
- Optimized the application for speed and responsiveness.
- Ensured compatibility across multiple browsers and devices.
- Delivered professional testing documentation, including CSV reports.

### Functional Testing

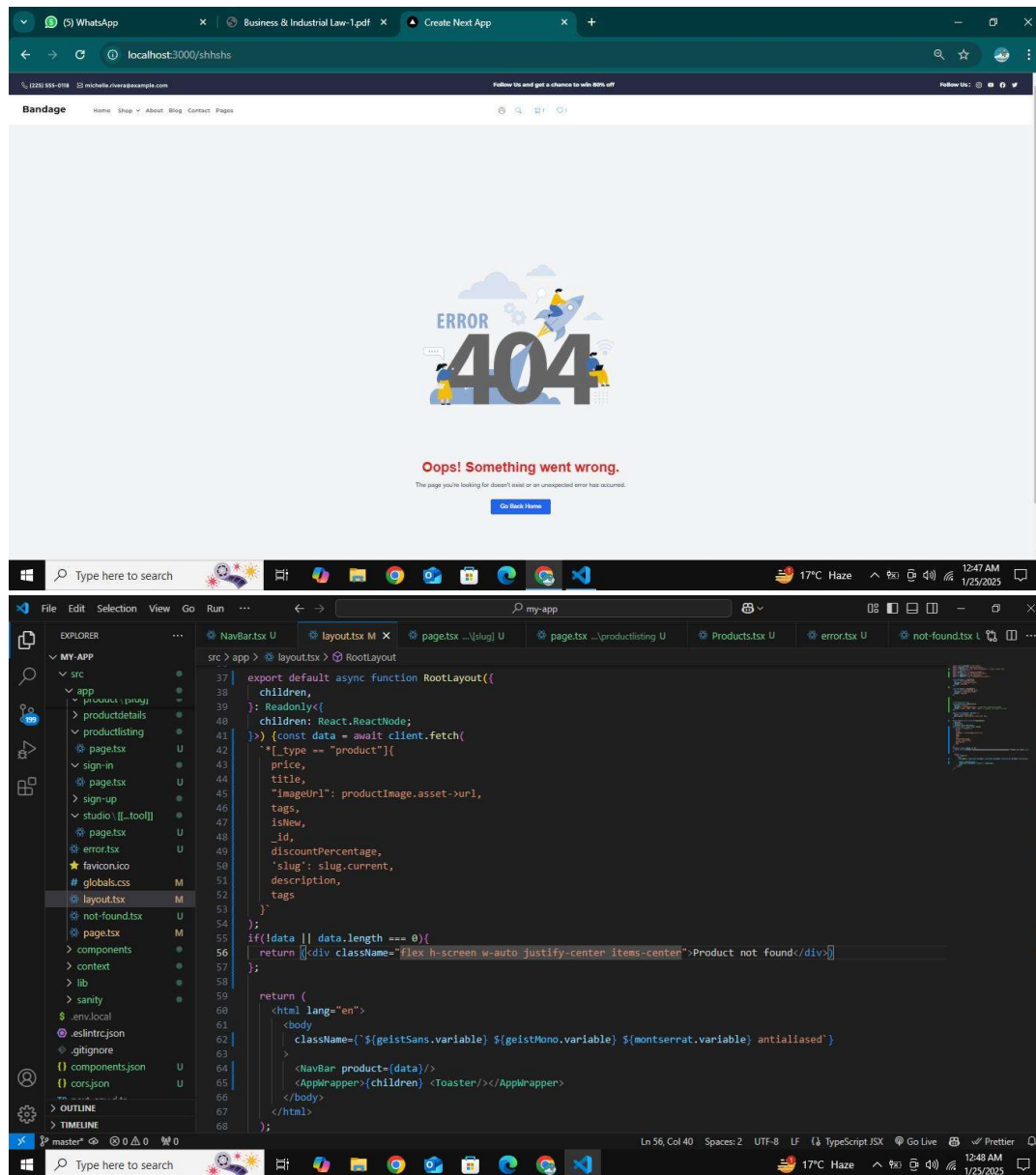
Extensive testing was carried out to verify that all core features functioned as expected:

- **Product Listing Pages:** Ensured accurate display of product information.
- **Search Functionality:** Tested for precise and relevant search results.
- **Cart Operations:** Verified seamless addition, updating, and removal of items.
- **Dynamic Routing:** Confirmed proper navigation and accurate data rendering on product detail pages.
- **Check out page:** Insured that checkout page collects user info properly, deploys it to the firebase database and routes user to the order confirmation page.

## Error Handling Enhancements

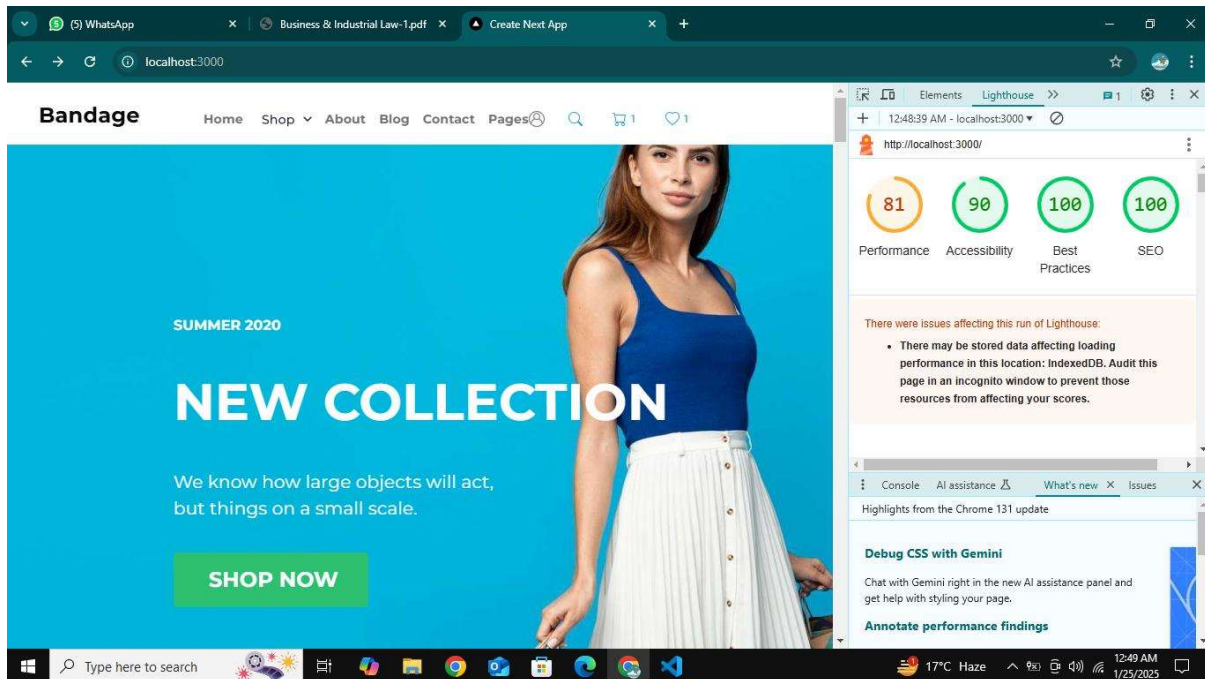
Implemented mechanisms to address potential errors:

- **Network Failures:** Displayed fallback messages like "Unable to load products. Please try again later."
- **Invalid Data:** Presented clear error messages for missing or incorrect input.
- **Unexpected Server Errors:** Logged errors and provided user-friendly fallback interfaces.



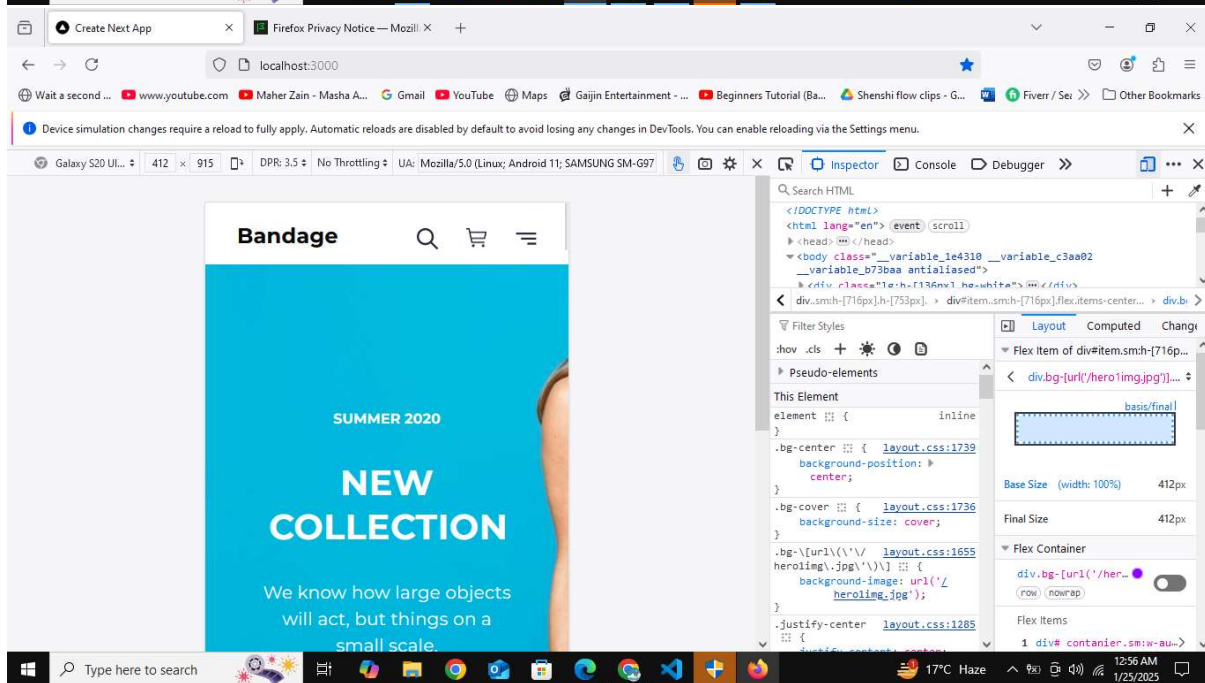
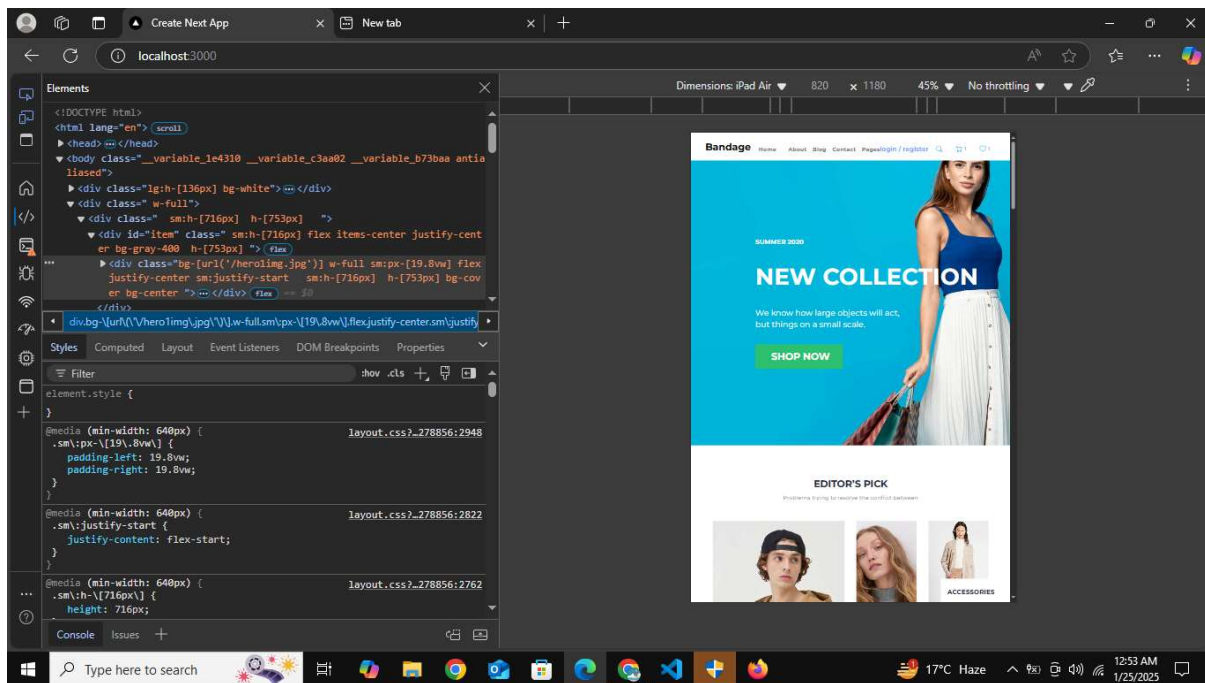
## Performance Enhancements

- **Code Optimization:**
  - Reduced unused CSS and JavaScript.
  - Implemented caching for static resources.
- **Performance Testing:**
  - Identified and resolved bottlenecks using Lighthouse.
  - Achieved a speed index score of 0.6.



## Cross-Browser and Device Compatibility

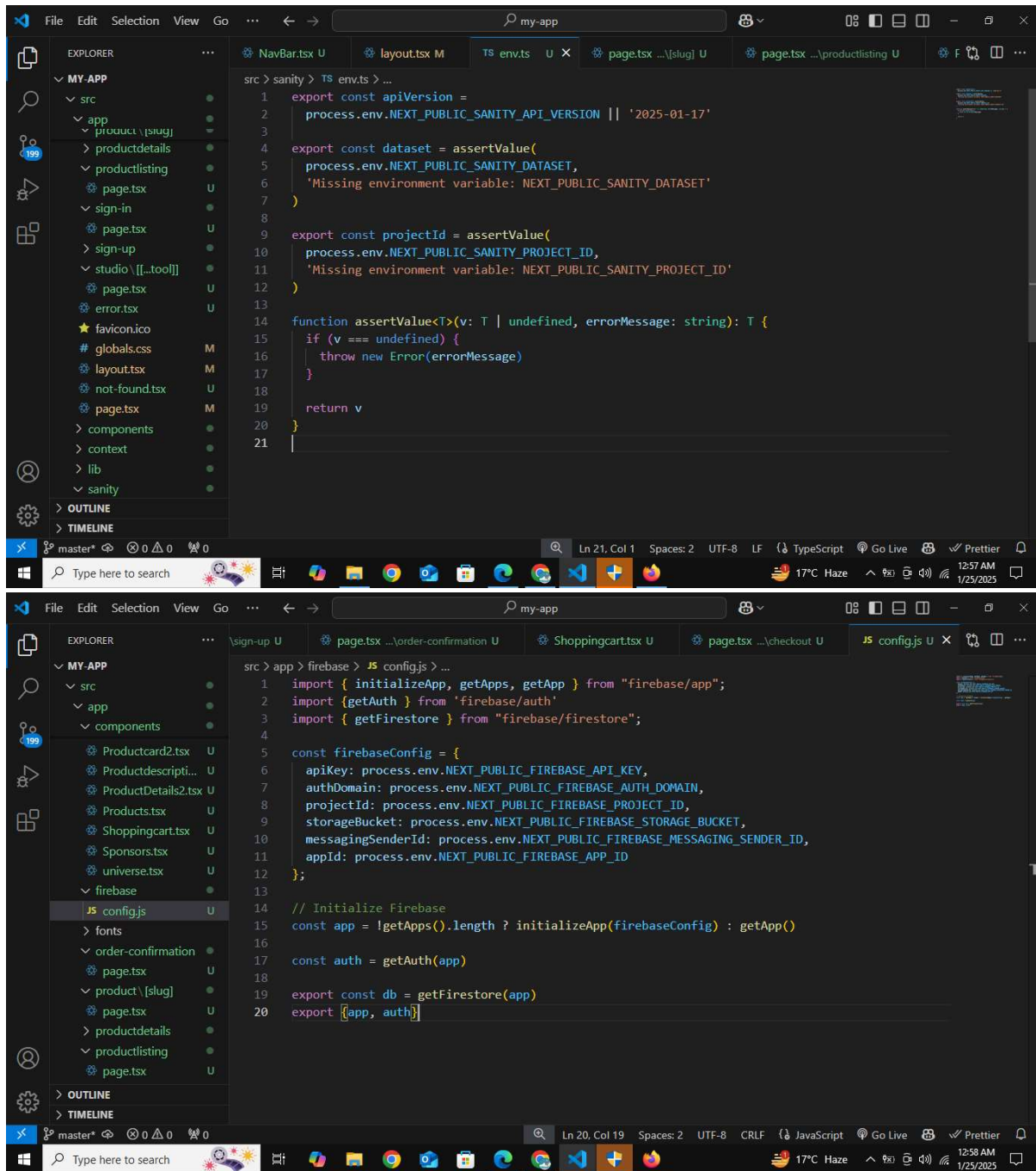
- Tested functionality and layout on leading browsers, including Chrome, Firefox, and Edge.
- Verified responsiveness across desktop, tablet, and mobile devices using browser developer tools and simulations.



## Security Testing

Measures to enhance security included:

- Validation of input fields to prevent injection attacks.
- Enforcing HTTPS for secure communications.
- Storing sensitive API keys securely in environment variables.





User Acceptance Testing (UAT)

- Simulated user actions such as browsing, searching, and completing checkout workflows.
- Gathered feedback from peers to refine functionality and address usability concerns.

CSV Testing Report:

|    | A            | B                                   | C  | D  | E                                      | F      | G              | H           | I                          |
|----|--------------|-------------------------------------|--|--|--|--------|----------------|-------------|----------------------------|
| 1  | Test Case ID | Test Case Description               | Test Steps                                   | Expected Result                            | Actual Result                          | Status | Severity Level | Assigned To | Remarks                    |
| 2  | TC001        | Validate home page functionality    | Open home page > Verify displayed content    | Home page loads with all sections visible  | Home page displays as expected         | Passed | Low            | -           | No issues found            |
| 3  | TC002        | Validate product listing page       | Open product page > Verify products          | Products displayed correctly               | Products displayed correctly           | Passed | Low            | -           | No issues found            |
| 4  | TC003        | Test product detail page            | Click on a product > Verify details          | Product details displayed correctly        | Product details displayed correctly    | Passed | Medium         | -           | Works as expected          |
| 5  | TC004        | Validate cart functionality         | Add product to cart > Verify cart contents   | Cart updates with added product            | Cart updates as expected               | Passed | High           | -           | Cart works correctly       |
| 6  | TC005        | Test add to cart functionality      | Add product to cart > Verify cart count      | Cart count updates correctly               | Cart count updates correctly           | Passed | High           | -           | Works as expected          |
| 7  | TC006        | Test remove from cart functionality | Remove product from cart > Verify cart count | Cart count decreases correctly             | Cart count decreases correctly         | Passed | High           | -           | Remove functionality works |
| 8  | TC007        | Validate login functionality        | Enter credentials > Click login              | User logs in successfully                  | User logged in successfully            | Passed | High           | -           | No issues found            |
| 9  | TC008        | Validate signup functionality       | Enter details > Click signup                 | User account created successfully          | Account created successfully           | Passed | High           | -           | Signup works as expected   |
| 10 | TC009        | Validate checkout process           | Add products to cart > Proceed to checkout   | Checkout process completes successfully    | Order placed successfully              | Passed | Critical       | -           | Checkout process smooth    |
| 11 | TC010        | Validate order confirmation page    | Place an order > Verify confirmation page    | Order confirmation page displays correctly | Confirmation page displays as expected | Passed | Medium         | -           | Confirmation page works    |

Checklist for Day 5 Tasks:

- Functional Testing ✓
- Error Handling ✓
- Performance Optimization ✓
- Cross-Browser Testing ✓
- Security Testing ✓
- Documentation ✓