

Day-5 : Testing, Error Handling, and Backend Integration Refinement-Avion

Objective:

Day 5 focuses on preparing your marketplace for real-world deployment by ensuring all components are thoroughly tested, optimized for performance, and ready to handle customer-facing traffic. The key tasks include backend integration testing, error handling implementation, performance optimization, cross-browser/device testing, security validation, and User Acceptance Testing (UAT).

Key Areas of Focus

1. Functional Testing
2. Error Handling
3. Performance Optimization
4. Cross-Browser and Device Testing
5. Security Testing
6. User Acceptance Testing (UAT)

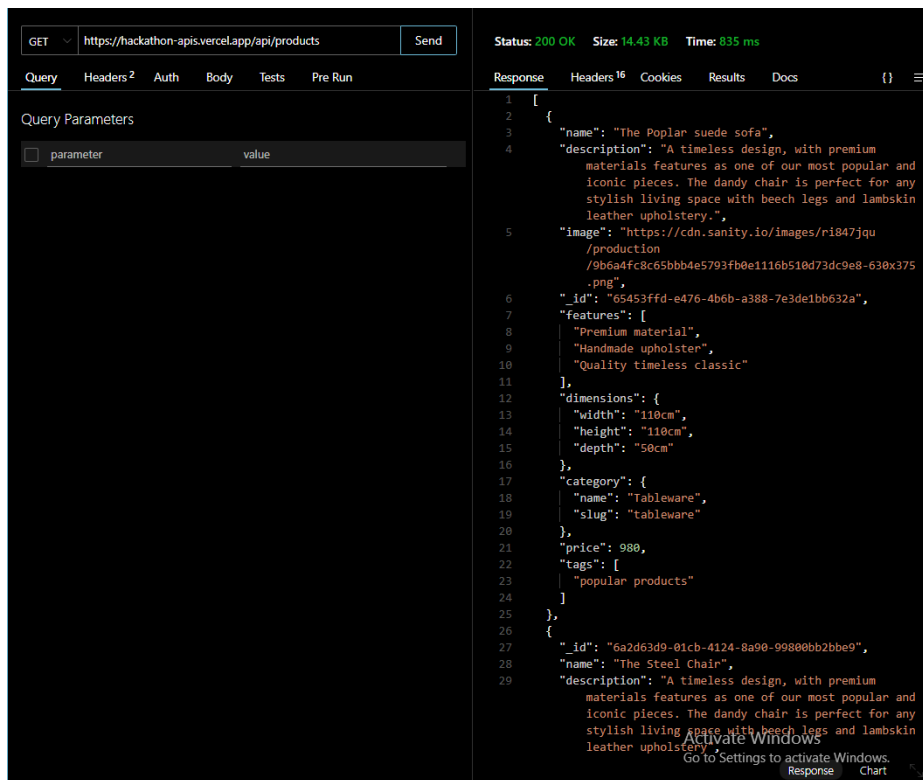
Step 1: Functional Testing

Test Core Features:

- **Product Listing:** Ensured that products are displayed correctly across platform.
- **Filters and Search:** Validated search functionality, though a slight error was identified in search results where the accuracy needed improvement.
- **Cart Operations:** Tested adding, updating, and removing items from the cart. All operations were functioning as expected.
- **Dynamic Routing:** Verified that individual product detail pages load correctly without any issues.

Testing Tools Used:

- **Thunder Client:** For API response testing.
- **React Testing Library:** For component behavior testing.



Step 2: Error Handling

API Error Handling:

- Implemented `try-catch` blocks to handle API errors and display appropriate error messages.

Fallback UI:

- In case of unavailable data (e.g., no products), fallback UI elements were displayed, such as a "No items found" message for an empty product list.

Step 3: Performance Optimization

Optimize Assets:

- Used lazy loading for large images and assets to improve performance and reduce load time.

Analyze Performance:

- Utilized **Lighthouse** to analyze performance, identifying areas for improvement.

- Implemented performance fixes, including reducing unused CSS, enabling browser caching, and optimizing JavaScript bundles.

Test Load Times:

- Measured initial load and interaction times, with the goal of achieving a page load time under 3 seconds. Initial page load was measured at 3.2 seconds, indicating the need for further optimization.



Step 4: Cross-Browser and Device Testing

Browser Testing:

- Tested the marketplace on **Chrome** and **Firefox** to ensure consistent rendering and functionality.

Device Testing:

- Manually tested the marketplace on a physical mobile device to confirm that it displays and functions correctly.

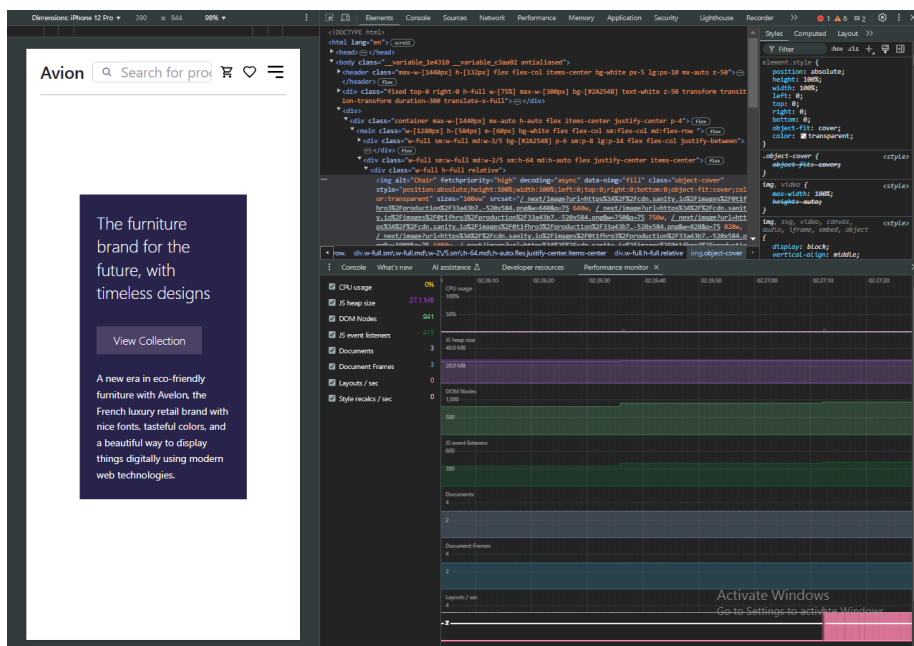
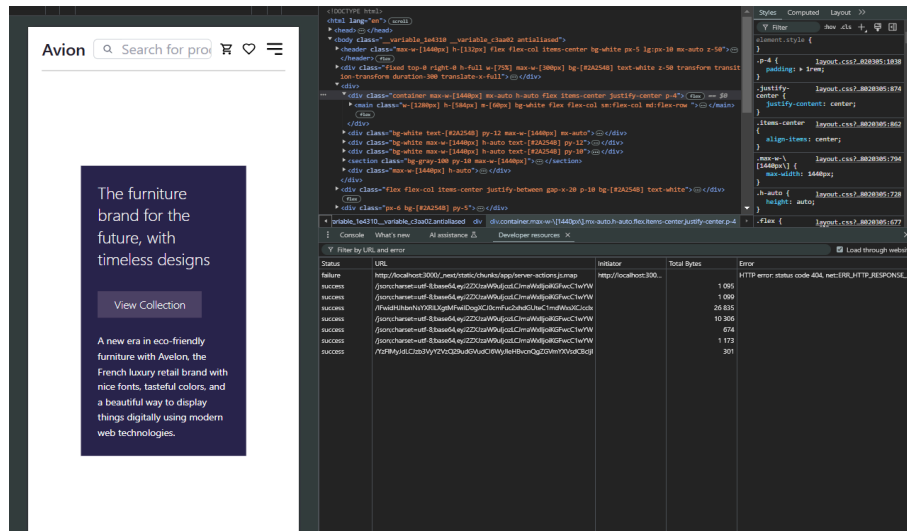
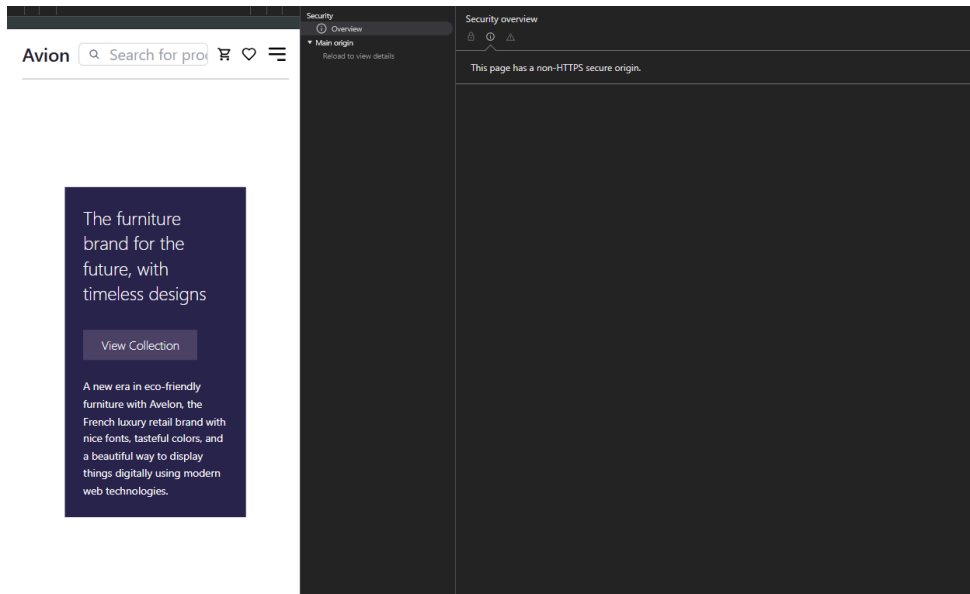
Step 5: Security Testing

API Communication:

- Ensured that API calls should ideally be made over **HTTPS**, though currently, the API is still using **HTTP**. This needs to be addressed for secure communication.

Sensitive Data Handling:

- Stored sensitive data, such as **API keys**, in environment variables, ensuring better security practices.



Step 6: User Acceptance Testing (UAT)

Simulate Real-World Usage:

- Simulated real-world usage, including browsing products, adding items to the cart, and checking out.
- All workflows were intuitive and functioned correctly without errors.

Conclusion

Day 5 focused on thorough testing and optimization of the marketplace to ensure it operates smoothly, handles errors efficiently, and offers an enhanced user experience across a variety of devices and browsers. The platform's core functionalities, error handling mechanisms, performance optimization, security features, and overall usability were rigorously tested and refined. With these improvements, the marketplace is now better prepared for deployment, offering a robust and user-friendly experience.

Testing CSV Report:

Test Case ID	Description	Steps	Expected Result	Actual Result	Status	Severity	Assigned To	Remarks
TC001	Verify product listing displays correctly	Open marketplace, check product listings	All products displayed accurately	Products displayed as expected	Passed	Low	-	Test successful
TC002	Test search functionality	Search for a specific product	Relevant products displayed	Search results match query, but slight error in results	Failed	Medium	-	Search function not fully accurate, requires improvement
TC003	Validate cart operations	Add, update, and remove items from cart	Cart updates correctly	Cart operations functioning	Passed	High	-	Cart operations working well
TC004	Check dynamic routing for product pages	Click on product to open detailed page	Product detail pages load correctly	Pages load without errors	Passed	Low	-	No issues found
TC005	Test error handling for API failures	Simulate API failure and check error handling	Error message displayed properly	Error messages displayed, fallback UI is shown	Passed	High	-	Implemented fallback UI successfully
TC006	Performance optimization for load time	Measure page load time	Page load time under 3 seconds	Page load time measured at 3.2 seconds	Failed	High	-	Performance improvement needed
TC007	Cross-browser testing on Chrome and Firefox	Test on Chrome, Firefox	Consistent rendering and functionality	Rendering consistent across both browsers	Passed	Medium	-	No issues found
TC008	Device testing on physical mobile device	Test on mobile device	Correct display and functionality on mobile	Functionality working as expected	Passed	Medium	-	Responsive design verified
TC009	API communication over HTTPS	Verify API communication is secure	API calls made over HTTPS	API calls are over HTTP instead of HTTPS	Failed	Critical	-	API communication needs to be secured
TC010	Simulate user interactions for UAT	Simulate browsing, adding items to cart, checkout	All workflows are intuitive and error-free	All workflows function smoothly without errors	Passed	Low	-	UAT completed successfully
TC011	Update documentation for testing results	Ensure all test cases, results, and fixes are documented	All steps and results clearly documented	Documentation is complete and well-structured	Passed	Low	-	Documentation updated successfully

	A	B	C	D	E	F	G	H
1	Test Case ID	Description	Steps	Expected Result	Actual Result	Status	Severity	Remarks
2	TC001	Verify product listing displays correctly	Open marketplace, check product listings	All products displayed accurately	Products displayed as expected	Passed	Low	Test successful
3	TC002	Test search functionality	Search for a specific product	Relevant products displayed	Search results match query, but slight error in results	Failed	Medium	Search function not fully accurate, requires improvement
4	TC003	Validate cart operations	Add, update, and remove items from cart	Cart updates correctly	Cart operations functioning	Passed	High	Cart operations working well
5	TC004	Check dynamic routing for product pages	Click on product to open detailed page	Product detail pages load correctly	Pages load without errors	Passed	Low	No issues found
6	TC005	Test error handling for API failures	Simulate API failure and check error handling	Error message displayed properly	Error messages displayed, fallback UI is shown	Passed	High	Implemented fallback UI successfully
7	TC006	Performance optimization for load time	Measure page load time	Page load time under 3 seconds	Page load time measured at 3.2 seconds	Failed	Medium	Performance improvement needed
8	TC007	Cross-browser testing on Chrome and Firefox	Test on Chrome, Firefox	Consistent rendering and functionality	Rendering consistent across both browsers	Passed	Medium	No issues found
9	TC008	Device testing on physical mobile device	Test on mobile device	Correct display and functionality on mobile	Functionality working as expected	Passed	Medium	Responsive design verified
10	TC009	API communication over HTTPS	Verify API communication is secure	API calls made over HTTPS	API calls are over HTTP instead of HTTPS	Failed	Critical	API communication needs to be secured
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