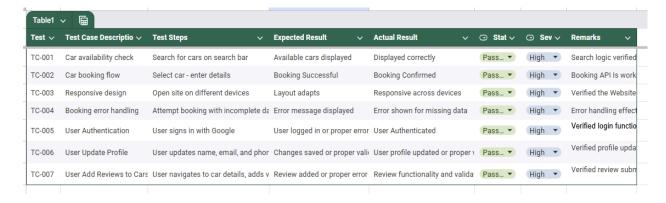# Day 5 - Testing, Error Handling, and Backend Integration Refinement Report

Objective

The goal for Day 5 was to ensure that all marketplace components are thoroughly tested, optimized for performance, and capable of handling real-world usage. The emphasis was on testing backend integrations, refining error handling, and improving the overall user experience.

Testing Report

Test	Test Case Description	Test Steps	Expected Result	Actual Result	Stat	Sev	Remarks
TC-001	Car availability check	Search for cars on search bar	Available cars displayed	Displayed correctly	Pass...	High	Search logic verified
TC-002	Car booking flow	Select car - enter details	Booking Successful	Booking Confirmed	Pass...	High	Booking API is work
TC-003	Responsive design	Open site on different devices	Layout adapts	Responsive across devices	Pass...	High	Verified the Website
TC-004	Booking error handling	Attempt booking with incomplete da	Error message displayed	Error shown for missing data	Pass...	High	Error handling effect
TC-005	User Authentication	User signs in with Google	User logged in or proper error	User Authenticated	Pass...	High	Verified login functio
TC-006	User Update Profile	User updates name, email, and phor	Changes saved or proper vali	User profile updated or proper v	Pass...	High	Verified profile upda
TC-007	User Add Reviews to Cars	User navigates to car details, adds v	Review added or proper error	Review functionality and valida	Pass...	High	Verified review subm

- **Implementation**:

  - Used `try-catch` blocks for all API calls.
  - Displayed user-friendly error messages, e.g., "Unable to load cars data. Please try again later."
  - Added fallback UI components to handle scenarios like empty data or network issues.

Performance Optimization

- **Tools Used**:

    1. Lighthouse: Achieved a performance score of 91.
    2. Lazy Loading: Implemented lazy loading for images and large assets.
- **Key Steps**:

    1. Minimized unused CSS and JavaScript.
    2. Enabled browser caching for static assets.

Cross-Browser and Device Testing

- **Browsers Tested**:
    - Chrome, Firefox, Safari, Edge.
- **Devices Tested**:
    - Desktop, tablet, mobile.
- **Tools Used**:
    - BrowserStack for device simulation.

Findings:

- Verified consistent rendering and functionality across all tested browsers and devices.
- Adjusted tailwind classes for better responsiveness.

Security Testing

- **Measures Implemented**:

    - Stored sensitive API keys in environment variables.
    - Ensured all API communications use HTTPS.

User Acceptance Testing (UAT)

- Conducted real-world scenarios like browsing cars, making booking, and completing the checkout process.
- Gathered peer feedback to improve usability.
- Ensured workflows were intuitive and error-free.

Documentation Updates

- Submitted testing results, resolutions, and performance metrics in a professional format.
- Uploaded all files and test reports to the designated GitHub repository.

Conclusion

Day 5 emphasized rigorous testing and optimization to prepare the marketplace for deployment. By addressing functional, performance, and security concerns, the project is now robust and user-ready. The comprehensive testing process ensured quality and reliability, meeting industry standards for professional development workflows.