User Acceptance Testing (UAT) Plan

Project: Car Rental Application **Date:** November 18, 2025 **Version:** 1.0

1. Introduction

This document outlines the strategy, criteria, and test cases required to validate the Car Rental Application. The objective is to ensure that the software meets business requirements and is ready for deployment.

2. Acceptance Criteria

The project will be considered successful only when the following measurable criteria are met:

- **Functional Completeness:** 100% of critical user flows (Registration, Booking, Admin Management) function without critical or major defects.
- **Usability:** The application receives a "Pass" rating on mobile responsiveness for screens down to 375px width. All forms must provide clear validation of feedback for invalid inputs.
- **Performance:** The "Home" page containing the car inventory must be rendered in under 2 seconds.
- **Reliability:** The application must handle 100% of "Mock Payment" transactions without crashing, displaying a success or failure message appropriately.

3. Coverage

This matrix maps the Test Cases to the User Requirements to ensure full coverage.

Req ID	Requirement Description	Test Case ID	Type
RQ-01	Users must be able to create an account and log in.	**TC-F01, TC-F02**	Functional
RQ-02	Users must be able to search and filter cars.	**TC-F03, TC-U01**	Functional/Usability
RQ-03	Users must be able to book a specific car.	**TC-F04**	Functional

RQ-04	Admins must be able to manage car inventory (CRUD).	TC-F05, TC-F06	Functional
RQ-05	The interface must be responsive on mobile devices.	TC-U02	Usability
RQ-06	System must handle errors gracefully (no white screens).	TC-P01	Reliability

4. Detailed Test Cases

We will use a **Manual Black-Box Testing** approach. This means testers will use the app exactly as a real customer would, without looking at the code.

The Workflow:

1. **Select a Scenario:** Pick a test case from the table below.
2. **Execute Steps:** Perform the actions listed.
3. **Verify Result:** Compare what you see on the screen with the "Expected Result."
4. **Log Status:** Mark as **PASS** or **FAIL**.
5. **Report Bugs:** If a test fails, take a screenshot and note the steps.

5. Test Scenarios

Objective: Verify the software does what it is supposed to do:

ID	Test Case	Steps to Execute	Expected Outcome
TC-F01	**User Registration**	1. Navigate to "Register". 2. Enter valid Name, Email, Password. 3. Submit.	System creates user account and redirects to Login/Home. No errors displayed.
TC-F02	**User Login**	1. Navigate to "Login". 2. Enter invalid credentials. 3. Retry with valid credentials.	Step 2 shows "Invalid credentials" error. Step 3 logs user in and updates Navbar.
TC-F03	**Inventory Search**	1. Go to Home Page. 2. Enter "Toyota" in search bar. 3. Verify results.	Only cars matching "Toyota" appear. List updates instantly.

ID	Test Case	Steps to Execute	Expected Outcome
TC-F04	**Complete Booking**	1. Select Car -> Book Now. 2. Enter dates -> Confirm. 3. Process Payment.	Booking modal closes. User redirected to Success page. Booking appears in Admin "Active Rentals".
TC-F05	**Admin: Add Car**	1. Admin Dashboard -> Stock. 2. Add Car (Price: $50/day). 3. Save.	New car appears in Stock list. Data persists after navigation.
TC-F06	**Admin: Delete Car**	1. Admin Dashboard -> Stock. 2. Delete a car. 3. Refresh page.	Car is permanently removed

Objective: Verify the software is easy to use and intuitive:

ID	Test Case	Steps to Execute	Expected Outcome
TC-U01	**Form Feedback**	1. Open "Add Car" modal. 2. Leave "Brand" empty. 3. Click Save.	Input field highlights red; message "Brand is required" appears.
TC-U02	**Mobile Navigation**	1. Resize browser to mobile width. 2. Open/Close Hamburger menu. 3. Tap "Profile".	Menu animation is smooth. Links are easily tappable (min 44px height).
TC-U03	**Navigation Flow**	1. Go to Booking page without logging in. 2. Observe behavior.	User is intuitively redirected to Login, then back to Booking after success.

Objective: Verify the software is stable and fast:

ID	Test Case	Steps to Execute	Expected Outcome

TC-P01	Load Stability	1. Quickly click "Book Now" 10 times in 5 seconds.	Application does not freeze or crash. Only one modal/action is triggered or queue is handled gracefully.
TC-P02	Render Time	1. Hard refresh Home page. 2. Measure time to see Car List.	Critical content (Car images and titles) is visible within 2 seconds.
TC-P03	Invalid Data	1. Attempt to add a car with Price = "-100".	Application prevents submission or auto-corrects; application does not crash.

6. Sign-off

Testing Conclusion: The testing phase is approved to move to "Execution" once the **Requirements Traceability Matrix** shows 100% coverage, and the **Acceptance Criteria** is acknowledged by our group members.