Palestine Technical University – Kadoorie

College of Engineering and Technology

Department of Computer Systems Engineering

Course name: Software Engineering

Project title:

CAR RENTAL MANAGEMENT SYSTEM

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ABSTRACT

Traditional car rental processes require customers to visit multiple agencies or make numerous calls to check **vehicle availability**, making the process inefficient and **time-consuming**. Even after significant effort, customers may not find the desired vehicle, leading to frustration. Similarly, rental agencies relying on **paper-based** record-keeping face challenges in tracking customer details, **vehicle availability**, and **maintenance history**.

The proposed **Car Rental Management System (CRMS) web-based platform** that streamlines operations with **real-time fleet availability**, **online reservations**, and automated **customer management**. Customers can browse available vehicles, view promotions, **book rentals**, **manage accounts**, and **submit feedback**. On the other hand, rental agencies benefit from **centralized data storage**, **secure customer record management,** and **efficient vehicle tracking**.

By **digitizing and automating** these processes, the **CRMS** enhances operational efficiency, improves customer satisfaction, and reduces administrative overhead, making car rentals more accessible and manageable for businesses in Palestine.

1 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to provide a comprehensive description of the **Car Rental Management System (CRMS)**. It outlines the system's objectives, features, technical interfaces, operational constraints, and responses to user interactions. It also serves as a reference for stakeholders to ensure the system meets the specified requirements and objectives.

1.2 DOCUMENT CONVENTION

1.2.1 Text Styles

Style	Usage	Example
Bold	Mandatory requirements, key terms.	**real-time fleet availability**
Italics	examples, technical terms, or emphasis.	(*e.g., insurance, registration*), *API*

1.2.2 Abbreviations

Abbreviation	Meaning
CRMS	Car Rental Management System
KYC	Know Your Customer (ID verification)
API	Application Programming Interface

1.2.3 Terminology

- **Role-Based Access:** Privileged accounts (*e.g., Manager*) with restricted permissions.
- **Fleet:** Collection of vehicles owned by the rental agency

1.3 INTENDED AUDIENCE AND READING SUGGESTIONS

This document is intended for various stakeholders involved in the development and use of the **Car Rental Management System (CRMS)**. The key audiences are:

1.3.1 System Developers

- **Role:** Design, implement, and maintain the CRMS.
- **Focus:** Technical specifications, *API* integration, and security protocols.

1.3.2 Rental Agency Owners/Managers

- **Role:** Use the system to manage vehicles, customers, and financial workflows.
- **Focus:** Business features (*e.g., billing, reporting*) and user roles.

1.3.3 End Users (Customers)

- **Role:** Rent vehicles via the CRMS portal.
- **Focus:** Booking workflows, account management, and feedback submission.

1.3.4 PTUK Faculty

- **Role:** Evaluate academic compliance and SRS structure.
- **Focus:** IEEE formatting, traceability, and project scope.

1.4 PROJECT SCOPE

This section defines the boundaries of the **Car Rental Management System (CRMS)**, including its core functionalities, technical limitations, and excluded features.

1.4.1 In-Scope

- **User Management:** Secure accounts (email/password), role-based access (Admin/Customer).
- **Vehicle Management:** Real-time availability, online booking.
- **Payment & Billing:** Automated cost calculation (daily/weekly rates).
- **Business Operations:** Maintenance/insurance tracking, basic reports.
- **Technical Scope:** Web-based (mobile-responsive).

1.4.2 Out-of-Scope

- Mobile apps.
- GPS tracking.
- third-party KYC tools.

1.4.3 Constraints

- Internet required.
- Budget limits.

1.4.4 Assumptions

- **User Literacy:** Customers and staff can navigate a web interface.
- **Legal Compliance:** Both Customers and agencies upload valid documentations
- **Manual Verification:** Agencies manually verify customers' IDs and driver Licenses.

REFERENCES

[1] PTUK Software Engineering Course, "*Sw Eng Assignment - Part 1.pdf: Software Requirements Specification (SRS)*" 2025. [Online]. Available: https://lms.ptuk.edu.ps/mod/assign/view.php?id=633283

[2] IEEE Standards Association, "*IEEE Recommended Practice for Software Requirements Specifications*" IEEE Std 830-1998, 1998. [Online]. Available: https://standards.ieee.org/ieee/830/1222/