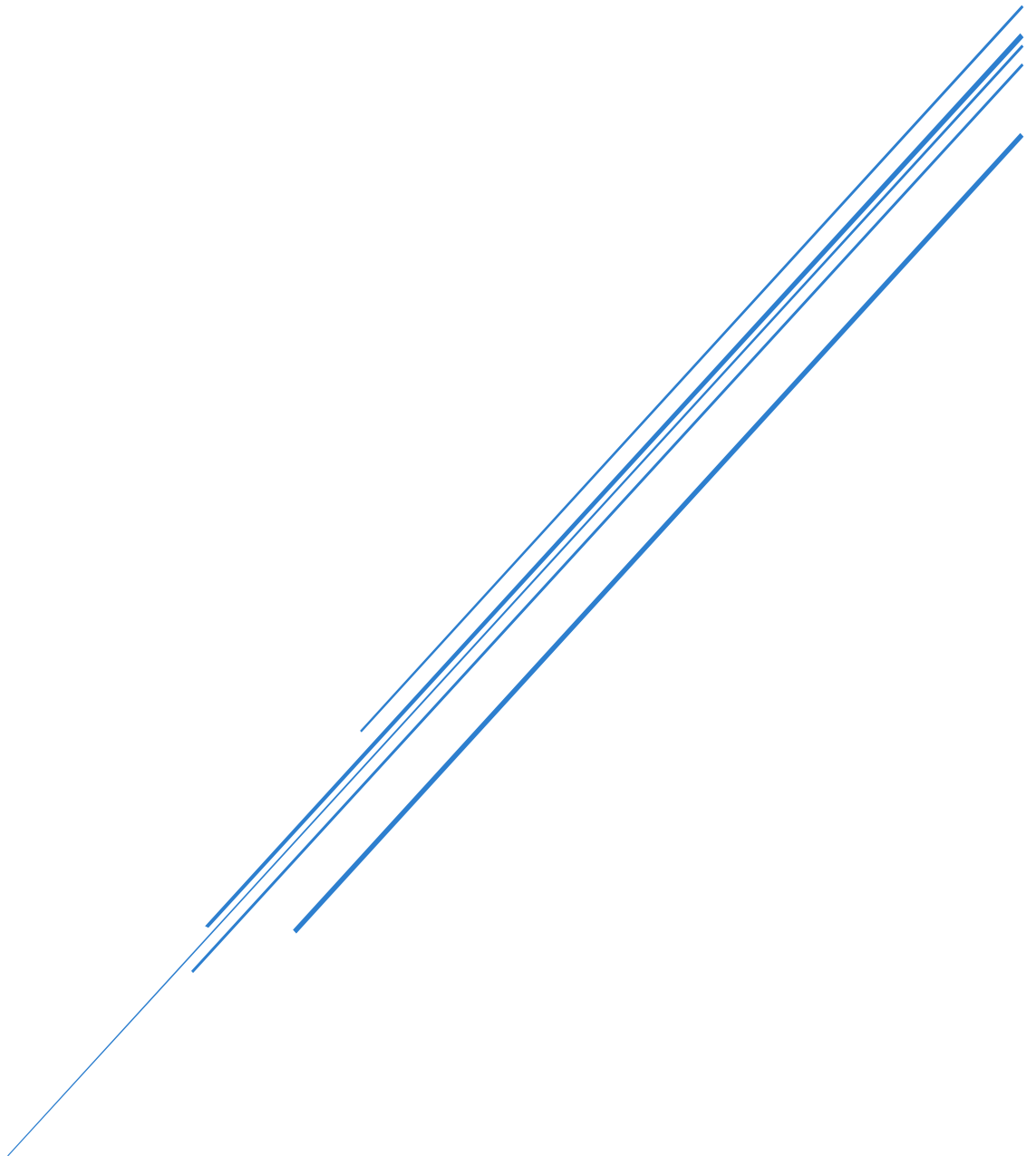


PAK WHEELS

Software Requirements Specification

Document



Prepared by Team 7
Version: (1.1)

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1. Introduction

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) document is to provide a detailed description of the requirements for developing an e-commerce platform designed for the buying, selling, renting, and servicing of vehicles, as well as for the sale of car care products. This SRS aims to ensure a comprehensive understanding of the system's capabilities, functional and nonfunctional requirements, and the expected behavior of the platform. It serves as a foundation for system design, development, and future project stages, providing clarity for both developers and stakeholders.

1.2 Scope

This e-commerce platform will enable users to buy, sell, and rent vehicles, book on-site vehicle inspections, and purchase car care products. The main functions of the platform include:

- **Buying and Selling:** Allow users to list vehicles for sale, browse listings, and complete secure transactions.
- **Renting:** Enable short-term vehicle rentals with online booking functionality.
- **Inspection at Doorstep:** Provide users with the option to book doorstep inspection services for vehicles.
- **Car Care Products:** Facilitate a marketplace for car-related accessories and care products.

The target users include individuals looking to buy or rent vehicles, car dealers, service providers, and car care product suppliers.

1.3 Definitions, Acronyms, and Abbreviations

- **SRS:** Software Requirements Specification
- **UI:** User Interface
- **API:** Application Programming Interface, a set of tools for building software applications
- **CMS:** Content Management System, a platform for managing website content
- **SSL:** Secure Sockets Layer, a standard security protocol for data encryption

- **SEO:** Search Engine Optimization, practices to improve website visibility in search engines

1.4 Overview

This SRS document is organized to provide both high-level and detailed descriptions of the platform requirements. Section 2 covers the overall product description, including its perspective, functions, and user characteristics. Section 3 focuses on specific requirements, including functional, nonfunctional, and external interface specifications, providing the necessary detail to guide system design and development.

Certainly! Here's the Overall Description section adapted for the e-commerce platform, following the style and format in your attached document.

2. Overall Description

2.1 Product Perspective

The e-commerce platform for automotive services, inspired by PakWheels, is designed as a standalone web-based application that serves as a marketplace for vehicle transactions and related services. This system will manage several interrelated services, including buying, selling, renting, and inspecting vehicles, as well as selling car care products. The platform will interact with a backend database to store information about vehicle listings, user accounts, transaction history, and inspection bookings. The system will integrate with third-party APIs for payment processing and, where applicable, for external inspection services.

This e-commerce platform is intended to support both private individuals (for personal buying and selling) and commercial users (such as dealers and service providers), enabling seamless automotive transactions and services in one unified space.

2.2 Product Functions

The platform includes the following main functions:

- **Buying and Selling:** Allows users to list vehicles for sale, view available listings, apply filters (e.g., brand, model, price), and make secure purchases.

- **Renting:** Provides a rental management system where users can reserve vehicles for specific durations. Includes features for rental availability, booking, and rental history.
- **Inspection at Doorstep:** Enables users to schedule doorstep vehicle inspections, with options for selecting inspection packages, viewing inspection history, and receiving feedback and reports.
- **Car Care Products:** Offers an e-commerce marketplace for car accessories and care products, with categories, search functions, and secure checkout.
- **User Account Management:** Provides account creation, login, profile customization, and order history tracking for all registered users.
- **Payment Processing:** Integrates with secure payment gateways to handle transactions for vehicle purchases, rentals, inspections, and product purchases.
- **Administrative Tools:** Allows administrators to manage listings, moderate user accounts, oversee transactions, and monitor platform metrics and reports.

2.3 User Characteristics

The target users of this platform include a diverse range of individuals with varying technical skills and purposes for using the platform:

- **Individual Buyers and Sellers:** Users seeking to buy or sell a vehicle or related products with limited technical expertise.
- **Dealers and Rental Agencies:** Commercial entities with moderate to advanced understanding of e-commerce operations, listing management, and customer interactions.
- **Service Providers:** Users offering inspection services or car care products, who will interact with listings, bookings, and customer queries.
- **Administrators:** Internal staff responsible for managing listings, moderating content, and handling system maintenance.

The platform is designed to be user-friendly, with an intuitive interface to support users of all technical levels.

2.4 Assumptions and Dependencies

- **Internet Connectivity:** The system requires a stable internet connection for users to access listings, book services, and complete transactions.

- **Third-party Payment Gateways:** The platform depends on external payment processors for handling financial transactions. Downtime or issues with these services may impact transaction processing.
- **Inspection Service Integration:** If external inspection services are used, their availability and response times may affect the user experience.
- **Browser Compatibility:** The platform is designed for use on major web browsers (e.g., Chrome, Firefox, Safari) and requires regular updates to ensure compatibility.
- **Data Security Compliance:** Compliance with data protection standards (e.g., SSL encryption, secure user authentication) is assumed to be consistently maintained.

Thank you for sharing the outline. Here's the Specific Requirements section for the e-commerce platform, structured according to the details provided and the style from your document.

3. Specific Requirements

3.1 External Interfaces

The automotive e-commerce platform will utilize standard input/output devices typically used on personal computers and mobile devices. These include:

- **Keyboard**
- **Mouse/Touchscreen**
- **Monitor**
- **Printer**
- **Mobile Device Sensors** (e.g., camera for vehicle photos)

3.1.1 User Interfaces

The User Interface Screens are described in Table 1.

Screen Name	Description
Login	Allows users to log in as a buyer, seller, renter, or administrator.

Home Page	Displays categories for buying, selling, renting vehicles, inspection services, and car care products. Users can browse and navigate to various sections of the platform.
Vehicle Listing	Allows sellers to add or edit vehicle details, including make, model, year, mileage, price, and photos. Also displays details for potential buyers browsing the listings.
Vehicle Search	Enables users to search for vehicles by criteria such as make, model, price, year, and location.
Vehicle Details	Displays detailed information about a selected vehicle, including images, specifications, seller contact info, and options to inquire or make an offer.
Rental Listing	Allows users to add or edit vehicle rental listings, specifying rental rates and availability. Also displays details for users looking to rent vehicles.
Rent Vehicle	Provides an interface for users to reserve a vehicle for rent, select rental dates, and view total rental cost.
Inspection Booking	Allows users to schedule an inspection at their location, select inspection type, and view available time slots.
Inspection Details	Displays inspection results for the user, including any recommendations for repairs or maintenance based on the inspection.
Product Marketplace	Allows users to browse, view, and purchase car care products and accessories.
Shopping Cart	Displays items added by the user for purchase, along with total cost, taxes, and shipping details.
Checkout	Allows users to enter payment information, choose payment method, and confirm the purchase.
Order Details	Displays order information for purchased items, including status updates and tracking information.
User Profile	Allows users to view and update their profile information, such as contact details and account settings.
Manage Listings	Enables users to view, edit, or remove their active vehicle listings or rental postings.

Transaction History	Displays the user's history of purchases, rentals, and inspection orders, with details on each transaction.
Admin Dashboard	Allows administrators to manage user accounts, listings, product inventory, and resolve disputes. Also includes access to platform metrics and reports.
Reports	Allows administrators to select, view, and export reports on platform activity, such as vehicle sales, rentals, and inspection service usage.
Help and Support	Provides access to FAQs, contact forms, and customer support options for users requiring assistance.

3.1.2 Software Interfaces

The platform will integrate with various software interfaces, including:

- **Payment Gateways:** Integration with payment processing services for secure transactions.
- **Inspection API:** For booking and managing inspection services via a third-party provider (if applicable).
- **Email and SMS API:** For sending notifications and confirmations to users.
- **Database Management System:** To store user data, vehicle listings, transaction records, and product inventory.

3.1.3 Hardware Interfaces

The system is designed to operate on standard web server hardware with scalable storage and processing capabilities. Key hardware interfaces include:

- **Web Server:** Hosts the application and database.
- **Storage:** Secure and redundant storage for data, including images of listings, transaction logs, and user information.
- **Client Devices:** Users will access the platform via computers, tablets, and mobile devices.

3.1.4 Communication Interfaces

The platform requires a reliable internet connection to facilitate data exchange between users, the web server, and third-party services. Protocols include:

- **HTTPS:** Secure HTTP protocol for encrypted data transmission.
- **SMTP:** For sending emails through integrated email providers.
- **RESTful API:** Used for communication with external services such as payment gateways and inspection services.

3.2 Functional Requirements

Functional requirements define the essential actions that the system must perform. The functional requirements for this platform are divided into four main categories: Vehicle Transactions (Buying/Selling), Renting, Inspection Services, and Product Marketplace. For further details, refer to the use cases.

1. Vehicle Transactions (Buying/Selling)

- 1.1. The system shall allow users to list vehicles for sale, including vehicle details such as make, model, year, mileage, and condition.
- 1.2. The system shall record the seller's contact information and listing date.
- 1.3. The system shall allow users to browse and filter vehicle listings by criteria like brand, model, price, and location.
- 1.4. The system shall provide a search functionality for users to locate specific vehicles.
- 1.5. The system shall allow potential buyers to contact sellers directly through a messaging or inquiry system.
- 1.6. The system shall allow users to mark listings as "sold."
- 1.7. The system shall require users to confirm and review their listings before posting.
- 1.8. The system shall generate a unique listing ID for each vehicle posted for sale.
- 1.9. The system shall enable buyers to securely purchase vehicles directly through the platform.
- 1.10. The system shall record transaction details, including the purchase price and date.

2. Renting

- 2.1. The system shall allow users to list vehicles available for rent, including rental rates, availability dates, and terms.
- 2.2. The system shall enable users to browse and filter rental listings by location, rental price, vehicle type, and availability.
- 2.3. The system shall allow users to reserve a vehicle for rent for a specified duration.
- 2.4. The system shall generate a unique reservation ID for each rental booking.
- 2.5. The system shall notify users about the total rental amount before confirming the reservation.
- 2.6. The system shall allow users to modify their rental reservation details before the rental start date.
- 2.7. The system shall record the rental start and end dates, as well as the total rental cost.
- 2.8. The system shall allow users to cancel their reservations, subject to the rental cancellation policy.

3. Inspection Services

- 3.1. The system shall provide users with the option to schedule doorstep inspection services for vehicles.
- 3.2. The system shall allow users to select from different inspection packages based on service scope and pricing.
- 3.3. The system shall allow users to view available appointment slots and select a preferred inspection date and time.
- 3.4. The system shall generate a unique inspection order ID for each scheduled inspection.
- 3.5. The system shall record the user's contact information, vehicle details, and inspection type.
- 3.6. The system shall send confirmation and reminder notifications to users for scheduled inspections.
- 3.7. The system shall record and display inspection results for the user, including any recommended repairs or evaluations.

3.8. The system shall allow users to provide feedback or rate the inspection service.

4. Product Marketplace

4.1. The system shall allow users to browse car care products available for purchase, including accessories and maintenance supplies.

4.2. The system shall provide categories and filters for products, such as brand, price range, and type.

4.3. The system shall allow users to add products to a shopping cart for purchase.

4.4. The system shall display a detailed checkout page, showing product prices, taxes, and shipping costs.

4.5. The system shall allow users to securely complete purchases via an integrated payment gateway.

4.6. The system shall generate a unique order ID for each completed product purchase.

4.7. The system shall send an order confirmation to the user upon purchase completion.

4.8. The system shall provide order tracking information to the user.

4.9. The system shall record user feedback on products and display average ratings for each product.

5. Account Management

5.1. The system shall allow users to register an account with personal details, including name, email, and phone number.

5.2. The system shall require users to verify their email address upon registration.

5.3. The system shall allow users to log in and access their account dashboard.

5.4. The system shall enable users to manage their listings, purchases, rentals, and inspection orders through the account dashboard.

5.5. The system shall allow users to view and edit their profile information.

5.6. The system shall provide password recovery functionality.

5.7. The system shall allow users to view their transaction history, including purchases, rentals, and inspections.

6. Administrative Functions

- 6.1. The system shall allow administrators to manage user accounts, including suspending or deleting accounts for policy violations.
- 6.2. The system shall enable administrators to add, modify, and delete product listings in the car care marketplace.
- 6.3. The system shall allow administrators to monitor and manage vehicle listings for compliance with platform guidelines.
- 6.4. The system shall enable administrators to view and resolve user complaints or disputes.
- 6.5. The system shall provide reporting tools for administrators to track platform metrics such as sales, rentals, and inspection service usage.
- 6.6. The system shall allow administrators to configure inspection service packages, rates, and available appointment slots.

3.3 Nonfunctional Requirements

Functional requirements define the needs in terms of performance, logical database requirements, design constraints, standards compliance, reliability, availability, security, maintainability, and portability.

3.3.1 Performance Requirements

- The system should handle up to 5000 concurrent users with an average page load time of 2 seconds.

3.3.2 Logical Database Requirements

- The platform will maintain a relational database to store information on users, listings, transactions, and product details, ensuring efficient data retrieval and storage. The logical database requirements include the retention of the following data elements. This list is not exhaustive and is intended as a foundation for development.

Vehicle Transactions (Buying/Selling)

- Vehicle ID
- Seller first name
- Seller last name

- Seller contact number
- Vehicle make
- Vehicle model
- Vehicle year
- Vehicle mileage
- Vehicle condition
- Vehicle price
- Listing date
- Listing status (active/sold)
- Unique listing ID
- Transaction date
- Buyer first name
- Buyer last name
- Buyer contact number
- Payment amount
- Payment type (Credit/Debit/Bank Transfer)
- Feedback from buyer and seller (optional)

Renting

- Rental listing ID
- Vehicle ID
- Owner first name
- Owner last name
- Owner contact number
- Rental rate per day
- Rental availability dates
- Rental status (available/reserved)
- Rental reservation ID
- Renter first name

- Renter last name
- Renter contact number
- Rental start date
- Rental end date
- Total rental cost
- Payment type (Credit/Debit/Bank Transfer)
- Payment received (yes/no)
- Rental feedback (optional)

Inspection Services

- Inspection order ID
- User first name
- User last name
- User contact number
- Vehicle ID
- Inspection type (e.g., basic, premium)
- Inspection date
- Inspection time
- Inspection location
- Inspection status (scheduled/completed)
- Inspection results summary
- Inspection feedback
- Payment amount
- Payment type (Credit/Debit/Bank Transfer)
- Payment received (yes/no)

Product Marketplace

- Product ID
- Product name
- Product category (e.g., car care, accessories)

- Product price
- Product description
- Product stock quantity
- Order ID
- Buyer first name
- Buyer last name
- Buyer contact number
- Shipping address
- Order date
- Order status (pending/shipped/delivered)
- Payment type (Credit/Debit/Bank Transfer)
- Payment received (yes/no)
- Delivery tracking number
- Product feedback and rating

User Account Management

- User ID
- First name
- Last name
- Email address
- Phone number
- Address
- Account creation date
- Last login date
- User role (buyer/seller/admin)
- Account status (active/suspended)
- Password hash
- Profile photo (optional)

Administrative Data

- Admin ID
- Admin name
- Admin contact number
- User complaint ID
- Complaint type (e.g., listing issue, payment issue)
- Complaint status (open/resolved)
- Resolution notes
- Inspection package ID
- Inspection package name
- Inspection package description
- Inspection package price
- Available inspection slots

3.3.3 Design Constraints

- The system will follow a modular design to support scalability and ease of maintenance.

3.3.4 Standards Compliance

- Compliance with relevant e-commerce and data protection regulations (e.g., PCI DSS for payments, GDPR for data privacy).

3.3.5 Reliability

- The platform should maintain 99.9% uptime to ensure accessibility.

3.3.6 Availability

- Available 24/7, with minimal downtime for maintenance.

3.3.7 Security

- Implement SSL encryption for data transmission, secure user authentication, and data storage encryption.

3.3.8 Maintainability

- The platform's codebase will be structured to support easy updates, and the system will allow for routine maintenance with minimal service interruption.

3.3.9 Portability

- The platform will be compatible with major web browsers and optimized for access on various device types, including desktops, tablets, and smartphones.

4. Change Management Process

Changes to this document may only be made after approval from the project team leader and the instructor.

5. Document Approvals

5.1 Team Members Approval

Date

5.2 Instructor Approval

Date

6 Supporting Information

A system context diagram as well as use cases and use case descriptions have been developed in separate documents.