# Project Documentation for Online Car Service Station

## 1. Introduction

Project Title: Online Car Service Station

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Date: [Date]

Description: The Online Car Service Station is a web-based platform for scheduling car maintenance, tracking service history, and managing payments. Customers can book services for their vehicles, view service history, and get reminders, while admins can oversee appointments and manage service details.

## 2. System Requirements Specification (SRS)

### 2.1 Purpose

The purpose of this document is to define the requirements of the Online Car Service Station, outlining functional and non-functional aspects that guide the design, development, and testing of the system.

### 2.2 Scope

This document applies to the Online Car Service Station project and defines all requirements needed for the system to function effectively. It is intended for project managers, developers, testers, and stakeholders.

## 3. Requirements

### 3.1 Functional Requirements

#### User Registration and Authentication

Requirement ID: FR-1  
Description: The system shall allow users (both customers and service station admins) to register, log in, and log out securely.  
Pre-condition: Users must provide a valid email and password during registration.  
Post-condition: Users can log in with a unique username and password and are directed to their respective dashboards based on their roles.  
Priority: High

#### Service Management

Requirement ID: FR-2  
Description: The system shall allow admins to add, edit, view, and delete available car services (e.g., oil change, tire rotation).  
Pre-condition: Only admins can access service management features.  
Post-condition: Service listings are updated and available for users to book.  
Priority: High

#### Booking and Scheduling System

Requirement ID: FR-3  
Description: Users shall be able to book and schedule car maintenance services.  
Pre-condition: The selected service is available, and the user is logged in.  
Post-condition: A booking confirmation is displayed, and the service schedule is updated.  
Priority: High

#### Service History Tracking

Requirement ID: FR-4  
Description: The system shall maintain a record of past services for each user’s vehicle.  
Pre-condition: Users have a history of completed services.  
Post-condition: Users can view past service details, including service type, date, and costs.  
Priority: Medium

#### Payment System

Requirement ID: FR-5  
Description: The system shall support secure online payments for booked services.  
Pre-condition: User has booked a service.  
Post-condition: Payment confirmation is sent to the user, and a receipt is generated.  
Priority: High

#### Notifications and Reminders

Requirement ID: FR-6  
Description: The system shall send notifications and reminders (via email/SMS) for upcoming appointments and periodic maintenance.  
Pre-condition: A valid phone number or email must be provided.  
Post-condition: Users receive timely reminders and notifications.  
Priority: Medium

#### Feedback System

Requirement ID: FR-7  
Description: Users shall be able to leave feedback and rate services after each appointment.  
Pre-condition: User has completed a service appointment.  
Post-condition: Feedback is recorded and accessible to admins for quality assurance.  
Priority: Low

### 3.2 Non-Functional Requirements

#### Usability

Requirement ID: NFR-1  
Description: The system shall have an intuitive and responsive UI to ensure ease of use for customers and admins.  
Priority: High

#### Performance

Requirement ID: NFR-2  
Description: The system shall load pages within 3 seconds and handle up to 500 concurrent users.  
Priority: High

#### Security

Requirement ID: NFR-3  
Description: The system shall protect user data, support secure payment gateways, and authenticate users.  
Priority: High

#### Availability

Requirement ID: NFR-4  
Description: The system shall be available 99.9% of the time, with minimal downtime for maintenance.  
Priority: High

## 4. Assumptions

Users have internet access to use the web application.  
Payment gateway integration will support major credit cards and digital wallets.  
Users provide valid contact information (email or phone number) for notifications.

## 5. Constraints

The system should be compatible with popular web browsers.  
All data must be stored securely, and only authorized users should access sensitive information.

## 6. Dependencies

Third-party payment gateway integration (e.g., PayPal, Stripe).  
SMS/Email service provider for notifications.  
Database management system to store user, service, and booking data.

#### Real-Time Service Tracking

Requirement ID: FR-8  
Description: The system shall allow users to view the status of their vehicle service in real-time by displaying updates like 'Service Started,' 'In Progress,' and 'Completed.'  
Pre-condition: The admin or technician updates the service status at each stage.  
Post-condition: Users can check the progress of their vehicle service through the app or website.  
Priority: Medium

#### Service History Analytics and Recommendations

Requirement ID: FR-9  
Description: The system shall provide users with recommendations for future services based on their vehicle’s service history. For instance, it can suggest routine maintenance such as oil changes or tire rotations at regular intervals.  
Pre-condition: A record of previous services exists for the vehicle.  
Post-condition: Users receive maintenance suggestions displayed on their dashboard, based on past service intervals and vehicle type.  
Priority: Low

#### Loyalty Program for Frequent Users

Requirement ID: FR-10  
Description: The system shall implement a loyalty program where users earn points for each completed service, which they can redeem for discounts on future bookings.  
Pre-condition: User has completed at least one service.  
Post-condition: Loyalty points are accumulated in the user’s profile, and discounts can be applied during future bookings.  
Priority: Low

#### Enhanced Technician Details and Selection

Requirement ID: FR-11  
Description: The system shall display profiles of available technicians, including ratings, expertise, and reviews, allowing users to select a preferred technician if desired.  
Pre-condition: Multiple technicians are available for a particular service.  
Post-condition: Users can view technician profiles and make an informed selection when booking.  
Priority: Medium

#### High Data Privacy Standards

Requirement ID: NFR-6  
Description: The system shall comply with data privacy standards to ensure user data protection, including secure storage and access control.  
Priority: High

#### Offline Mode for Basic Bookings

Requirement ID: NFR-7  
Description: The system shall offer an offline mode where users can view previously accessed service listings and book appointments when internet access is unavailable. The data syncs when the connection is restored.  
Priority: Medium

**ER Diagram Documentation  
Online Car Service Platform**

A System Designed for Managing Car Services  
Including Users, Vehicles, Bookings, and Payments

**1. Introduction**

This document outlines the Entity-Relationship (ER) diagram for an online car service platform similar to GoMechanic. The diagram includes various entities and their relationships to represent the core functionality of the system.

**2. Entities and Attributes**

**Users**

- User\_ID

- Name

- Email

- Phone

- Address

**Vehicles**

- Vehicle\_ID

- User\_ID (FK)

- Make

- Model

- Year

- Registration\_Number

**Service\_Centers**

- Center\_ID

- Name

- Location

- Contact

**Services**

- Service\_ID

- Name

- Description

- Price

**Bookings**

- Booking\_ID

- User\_ID (FK)

- Center\_ID (FK)

- Service\_ID (FK)

- Booking\_Date

- Status

**Payments**

- Payment\_ID

- Booking\_ID (FK)

- Amount

- Payment\_Date

- Payment\_Status

**3. Relationships**

A User can own multiple Vehicles (One-to-Many).

A User can make multiple Bookings (One-to-Many).

Each Booking links a User, Service Center, and a specific Service.

A Service Center offers multiple Services (One-to-Many).

Each Booking may have one associated Payment (One-to-One).

**4. Use Cases**

- User registration and management.

- Vehicle management for users.

- Booking service appointments at service centers.

- Payment tracking and history.

- Displaying and managing services offered by service centers.