

**DESIGN AND IMPLEMENTATION OF A MECHANIC BOOKING WEBSITE**

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**A PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF COMPUTER  
SCIENCE, FACULTY OF PHYSICAL SCIENCES, UNIVERSITY OF BENIN, BENIN  
CITY**

**IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF A  
BACHELOR OF SCIENCE (B.Sc.) DEGREE IN COMPUTER SCIENCE**

**FEBRUARY 2025**

## **CERTIFICATION**

This is to certify that this project work was carried out by **UWAIFO CLINTON OSAZEE** with Matriculation Number **PSC2106381** under my supervision. It is adequate and satisfactory, both in scope and content, for the award of Bachelor of Science (B.sc) Degree in Computer Science of the University of Benin

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**PROF. F.I. AMADIN**

Project Supervisor

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**DATE**

## **APPROVAL**

This project work is hereby approved in partial fulfilment of the requirements for the award of Bachelor of Science (B.Sc.) Degree in Computer Science from the University of Benin.

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**PROF. G.O. EKUOBASE**

Head of Department

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**DATE**

## **DEDICATION**

This project is dedicated to God Almighty for giving me the strength and wisdom to see it through to completion, and even throughout my stay in the University of Benin (UNIBEN). It is also dedicated to my parents; Mr and Late Mrs Uwaifo for their love, support and guidance throughout my academic journey.

## **ACKNOWLEDGEMENT**

My utmost acknowledgement goes to God Almighty for giving me the strength, wisdom and direction throughout my academic journey. I would like to express my gratitude to my project supervisor who is also the Head of the Department Of Computer Science, Prof. G.O. Ekuobase for his consistent guidance towards ensuring the successful completion of this project.

I would also like to specially thank my project coordinator Prof. (Mrs.) V.V.N. Akwukwuma, and other lecturers in the Department of Computer Science who I have been opportune to cross paths with, and have impacted me immensely these past few years: Dr. F.O. Oliha, Prof. K.C. Ukaoha, Prof. A.A. Imiavan, Prof. (Mrs.) F. Egbokhare, , Dr. (Mrs.) A.R. Usiobaifo , Prof. (Mrs.) S. Konyeha, Prof. (Mrs.) V.I. Osubor, Dr. (Mrs.) Aziken, Dr. F.O. Chete, Dr. (Mrs) R.O. Osaseri, Dr. J.C. Obi, Mr. P. E.B. Imiefoh, Mr. I.E. Obasohan, Mr. S.O.P. Oliomogbe, Mr. K.O. Otokiti, Mr. I.E. obayagbonna, Mrs. R.I. Izevbizua, Mr. E.C. Igodan, Miss L.O.Usiosefe, Mr J. Okhuoya, Prof. F.A.U. Imouokhome, Mrs. J.I. Adun, Dr. E. Nweli and Mr. D.N. Idehen.

Finally, I would also like to thank my family and friends for their support, words of encouragement, and consistent guidance throughout this project.

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## **ABSTRACT**

The Mechanic Booking Website is an online platform aimed at linking vehicle owners with qualified mechanics, facilitating easy appointment scheduling and service management. Conventional methods for securing mechanic services typically involve in-person visits or phone calls, resulting in inefficiencies, delays, and inconvenience. This project seeks to address that issue by offering a user-friendly digital solution that enables customers to book mechanic services through the internet, review service history, and receive emergency roadside assistance. The system is tailored for two primary users: customers and mechanics. Customers have the ability to register, search for nearby mechanics, schedule appointments, and leave feedback based on their experiences. Conversely, mechanics can handle bookings, update their service availability, and respond to customer inquiries.

The system allows users to seek out mechanics, arrange appointments, review service histories, and process payments online from the convenience of their homes. Additionally, it features a review and rating mechanism, enabling customers to evaluate the quality of services provided by various mechanics. The platform is constructed utilizing web technologies, including HTML, CSS, JavaScript, PHP, and MySQL for backend operations, thereby ensuring a responsive and accessible user experience.

In summary, this initiative plays a pivotal role in advancing the digital transformation of the automotive service sector by establishing a dependable and user-friendly online platform for vehicle repairs. Plans for future enhancements may encompass the integration of mobile applications, AI-driven service suggestions, and automated reminders for maintenance, all aimed at further refining the user experience.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Background of the Study**

The rapid advancement of technology in recent years has significantly transformed a wide array of sectors, one of the most noteworthy being the automotive service industry. In the past, vehicle owners faced considerable inconvenience when seeking repair and maintenance services for their automobiles. Generally, this process necessitated physical visits to mechanic shops, where customers would often rely on personal recommendations or word-of-mouth referrals to identify reliable service providers. This traditional approach posed several challenges, including inefficiencies related to scheduling, potential miscommunication, and the variability of service quality based on individual recommendations.

However, with the emergence and proliferation of digital platforms over the last decade, a paradigm shift has occurred within the automotive service sector, resulting in the development of online booking systems that have revolutionized the way customers and service providers interact. A mechanic booking website serves as a sophisticated and innovative platform designed to seamlessly connect vehicle owners with professional mechanics. This technological advancement allows customers to schedule necessary repair and maintenance services at their own convenience, thereby circumventing the need for physical visits or reliance on often unverified recommendations.

The primary objective of such a system is multi-faceted, aiming to streamline the appointment booking process, minimize waiting times, and ultimately enhance overall customer satisfaction. By integrating a variety of essential features—such as real-time scheduling, comprehensive customer reviews, detailed service tracking, and secure payment gateways—the mechanic booking website significantly improves the user experience while concurrently increasing operational efficiency for service providers. Furthermore, this project aspires to bridge the gap between automotive service providers and their clientele, fostering a more transparent and effective means of communication and service delivery.

The project seeks to bridge the gap between customers and mechanics by providing a seamless digital interface that facilitates easy communication and service management.

## 1.1 Problem Statement

In the contemporary automotive service landscape, the traditional approach for securing the services of a qualified mechanic typically necessitates a physical visit to a workshop or a potentially protracted engagement via telephone communication. This process, while once deemed standard, frequently proves to be cumbersome and inefficient, presenting a series of significant challenges that undermine the overall customer experience.

One of the predominant issues is the **lack of accessibility** to qualified mechanics. Many potential customers find themselves grappling with the difficulty of locating trustworthy mechanics within their vicinity. This limitation not only creates obstacles but may also inadvertently lead to the selection of subpar services due to insufficient availability of qualified options.

Additionally, customers often experience **long waiting times** when attempting to obtain mechanical services. In the absence of a prior appointment, individuals may encounter substantial delays in the receipt of services, which can be particularly inconvenient in scenarios where prompt automobile repair is essential. Such waiting periods can lead to frustration and dissatisfaction, further detracting from the service experience.

Moreover, the **limited transparency** associated with the current booking methods can significantly impact customer decision-making. There exists a notable absence of accessible information regarding the reputation or reviews of mechanics prior to their hiring. This lack of insight hampers the ability of customers to make informed choices about the mechanics they engage, potentially resulting in negative experiences.

Furthermore, the **inconvenience associated with payment methods** presents a considerable barrier for many customers. Despite advancements in digital payment solutions, numerous workshops continue to rely predominantly on cash transactions, which may not always be feasible or convenient for every customer. This reliance on cash not only complicates the payment process but may also dissuade some potential clients from seeking necessary mechanical services.

In light of these multifaceted challenges, this project aspires to develop a comprehensive mechanic booking website designed to mitigate the aforementioned issues effectively. The proposed online platform will empower customers by enabling them to book mechanics with ease, access detailed ratings and reviews of service providers, arrange their appointments with convenience, and execute payments seamlessly. By addressing

these critical pain points, the project aims to enhance the overall efficiency of the mechanic booking process and significantly improve customer satisfaction in the automotive service domain.

## **1.2 Objectives of the Study**

The main objective of this project is to develop an efficient and user-friendly mechanic booking website. Specifically, the system aims to:

- Develop a web-based platform that allows customers to book mechanic services easily.
- Enable users to search for mechanics based on location, expertise, and customer ratings.
- Implement an appointment scheduling system to reduce booking conflicts.
- Integrate a review and rating feature to enhance transparency and user trust.
- Incorporate secure login authentication to protect user data.
- Provide automated reminders and notifications for both customers and mechanics.
- Ensure scalability and accessibility, allowing easy expansion and mobile compatibility.

## **1.3 Significance of the Study**

This research holds substantial importance for various stakeholders, including:

**Vehicle Owners:** It provides them with a convenient and dependable method for securing mechanical services and ensures access to high-quality offerings.

**Mechanics and Workshops:** It offers a systematic platform for service management, which aids in attracting a broader customer base.

**The Automotive Industry:** It contributes to the digital evolution within the vehicle repair domain.

**Researchers and Developers:** The project acts as a reference point for future advancements and innovations in the field.

## **1.4 Scope of the Study**

This project focuses on developing a web-based mechanic booking system with the following features:

User Registration & Login (for customers and mechanics).

Mechanic Search by Location & Expertise.

Appointment Scheduling, Cancellation, and Rescheduling.

Ratings and Reviews System.

Notifications & Reminders.

The system does not cover roadside assistance, emergency breakdown services, or in-app vehicle diagnostics.

### **1.5 Limitations of the Study**

Despite its potential benefits, the project has some limitations:

**Internet Dependency:** Users must have an active internet connection to access the platform.

**Limited Geographic Coverage:** The initial implementation will cover only a specific region before further expansion.

**User Adoption:** Some users may prefer traditional booking methods and be reluctant to switch to an online system.

### **1.6 Definition of Term**

**Mechanic Booking System:** An online platform that allows users to book vehicle repair and maintenance services.

**User Authentication:** The process of verifying a user's identity before granting access to the system.

**Service Management:** The organization and scheduling of mechanical repair and maintenance tasks.

**Customer Reviews:** Feedback provided by users regarding their service experience with a mechanic.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews relevant literature on the design and implementation of mechanic booking websites, focusing on theoretical foundations, existing systems, technological components, and user experience principles. The aim is to explore existing solutions, identify gaps, and provide a basis for designing an improved system.

The emergence of online booking systems has transformed service-based industries, including healthcare, transportation, and hospitality. However, mechanic booking platforms are still evolving, with many traditional garages relying on walk-ins and phone calls. By studying related literature, this chapter highlights the necessary design principles, implementation techniques, and best practices for developing an efficient and user-friendly mechanic booking website.

#### **2.2 Theoretical Framework**

Several theories and models guide the design and implementation of the mechanic booking website. These frameworks help ensure usability, efficiency, and customer satisfaction.

##### **2.2.1 Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM) explains how users adopt new technology. It focuses on:

Perceived Usefulness (PU): Users will adopt the system if they believe it improves convenience and efficiency.

Perceived Ease of Use (PEOU): The system must be intuitive and easy to navigate to encourage adoption.

For a mechanic booking website, an easy-to-use interface, quick booking process, and transparent pricing will drive user adoption.

##### **2.2.2 Software Engineering Design Principles**

The system's design should follow key software engineering principles:

- Modularity: The system should have separate modules for user management, booking, payment, and reviews.
- Scalability: The platform should accommodate future expansion, allowing more mechanics and users to join.
- Security: Secure authentication and payment processing should be implemented to protect user data.

### **2.2.3 Online Marketplace Model**

The mechanic booking system functions as an online marketplace, connecting car owners with mechanics. Similar to platforms like Uber, Airbnb, and TaskRabbit, this model ensures:

- Mechanics can list their services and availability
- Users can search, compare, and book services
- Reviews and ratings help establish trust

By integrating this model, the mechanic booking website can efficiently match customers with the right service providers.

## **2.3 Review of Related Work**

### **2.3.1 Existing Mechanic Booking Systems**

Several platforms have implemented mechanic booking services. Their features, strengths, and weaknesses are analyzed below:

#### 1. YourMechanic

Features: On-demand mobile mechanics, home service, online price estimates.

Strengths: Convenience, clear pricing, mobile support.

Weaknesses: Limited service areas, mechanics availability constraints.

#### 2. OpenBay

Features: Users receive quotes from multiple mechanics before booking.

Strengths: Price transparency, multiple service providers.

Weaknesses: Lengthy quote comparison process, no real-time booking.

#### 3. AutoGuru

Features: Upfront pricing, verified mechanics, online payments.

Strengths: Easy booking, service reviews.

Weaknesses: Limited to specific countries.

### **2.3.2 Challenges in Existing Systems**

Limited real-time availability – Many platforms require manual quote requests instead of instant booking.

Geographical restrictions – Most platforms operate in select cities or countries.

Lack of mechanic verification – Some systems do not verify mechanics' qualifications, affecting trust.

Complex user interfaces – Some platforms have lengthy booking processes that discourage users.

## **2.4 Design Principles for Mechanic Booking Website**

### **2.4.1 User Interface (UI) and User Experience (UX)**

A successful mechanic booking website must follow UI/UX best practices:

Minimalist design – Simple navigation with a clean interface.

Mobile responsiveness – Accessible on smartphones, tablets, and desktops.

Quick booking process – Users should book a mechanic in just a few clicks.

Search and filtering options – Users should find mechanics based on location, price, and service type.

### **2.4.2 Database Design**

The system requires a structured database model to manage users, mechanics, bookings, payments, and reviews. The database tables include:

### **2.4.3 Functional Requirements**

The system should support:

- User Registration & Login – Secure authentication for users and mechanics.
- Mechanic Listing & Profiles – Mechanics should create profiles with service details and pricing.
- Booking System – Users should schedule appointments with available mechanics.
- Real-Time Availability – Mechanics can update their availability in real time.
- Ratings & Reviews – Users can leave feedback after service completion.

### **2.4.4 Security Measures**

To ensure data security, the following should be implemented:

Secure Authentication – Password hashing and multi-factor authentication.

Data Encryption – Encrypting sensitive user and payment data.

Role-Based Access Control (RBAC) – Different access levels for users, mechanics, and administrators.

## **2.5 Implementation Technologies**

### **2.5.1 Frontend Development**

The user interface will be built using modern web technologies:

HTML, CSS, JavaScript – Structure, styling, and interactive elements.

React.js -Frontend framework for dynamic user interactions.

### **2.5.2 Backend Development**

The server-side will handle business logic and database interactions using:

php – Lightweight and scalable backend framework.

### **2.5.3 Database Management**

The system requires a robust database for efficient data handling:

MySQL– Relational database for structured data, database option for flexible data storage.

## **2.6 Summary of Findings from Literature**

From the literature review, the following key insights were identified:

1. Mechanic booking websites are still evolving, with many regions lacking proper digital solutions.
2. Existing platforms face limitations such as geographical restrictions, complex booking processes, and trust issues.
3. Online marketplace models improve service efficiency, allowing real-time availability, verified service providers, and customer reviews.
4. A well-structured system design should include a user-friendly UI, a secure backend, a scalable database, and reliable payment integration.
5. Adopting best practices from other online booking platforms can enhance the mechanic booking system's success.

These findings provide the foundation for the design and implementation of a user-friendly, secure, and efficient mechanic booking website.

## **CHAPTER THREE**

### **SYSTEM ANALYSIS AND DESIGN**

This chapter provides a model of the development process while offering an overview of the system design and system analysis.

#### **3.1 System Analysis**

System analysis is a critical phase in software development that involves examining an existing system or defining the requirements for a new system. The goal is to understand, document, and specify the system's components, processes, and interactions to create an efficient and reliable solution.

There are different methods of system analysis and design, with the two primary ones being:

1. Object-Oriented Analysis and Design (OOAD) Method
2. Structured System Analysis and Design (SSAD) Method

For this project, the Object-Oriented Analysis and Design (OOAD) Method was chosen because it ensures modularity, reusability, scalability, and maintainability of the system. OOAD focuses on understanding real-world entities and translating them into system components, making it suitable for developing a web-based mechanic booking platform.

#### **3.2 Analysis of Existing System**

The current method of booking a mechanic is mostly manual, requiring customers to visit mechanic shops or make phone calls to schedule services. Some of the key issues with the existing system include:

**Lack of centralized booking:** Customers have to search for mechanics through word-of-mouth, directories, or random online searches, making the process time-consuming.

**Inefficient appointment scheduling:** There is no automated system to track available time slots, often leading to overbookings or scheduling conflicts.

**Limited service tracking:** Customers have no record of past services, making it difficult to track repairs and maintenance history.

**Lack of transparency:** Pricing and service details are not standardized, leading to uncertainty for customers.

**No customer feedback system:** There is no efficient way for customers to leave reviews or rate mechanics, making it difficult to gauge service quality.

### **Problems of the Existing System**

1. Time-consuming and inconvenient: Customers must physically visit a workshop or make several calls to find an available mechanic.
2. Unorganized scheduling: Mechanics have no structured way of managing appointments, which leads to inefficiencies.
3. Lack of service records: Both customers and mechanics struggle to keep track of past services and repair history.
4. Poor customer experience: The manual approach does not provide a seamless and user-friendly experience.
5. Difficulty in finding reliable mechanics: Customers have no way to verify a mechanic's expertise or reliability.

### **3.3 Overview of Proposed System**

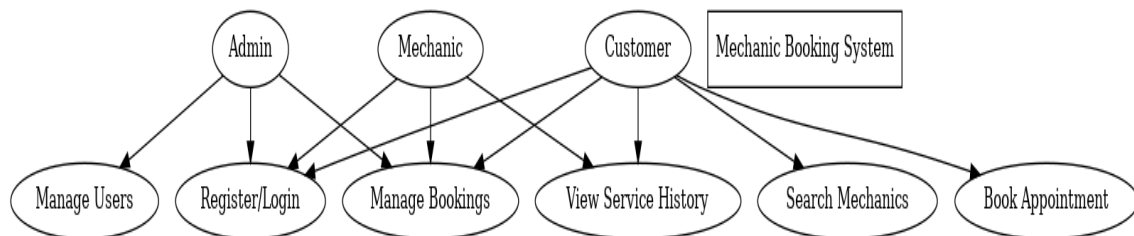
The proposed Mechanic Booking Website is an online platform designed to automate and simplify the process of booking a mechanic. The system ensures efficient appointment scheduling, service tracking, and customer feedback collection. The key functionalities include:

- **Mechanic Registration:** Mechanics can create profiles and list their services, availability, and pricing.
- **Customer Registration:** Customers can sign up to book mechanics and track their service history.
- **Online Booking System:** Customers can book a mechanic based on their location, availability, and expertise.
- **Appointment Management:** The system allows mechanics to manage their schedules and confirm or reschedule appointments.
- **Service Tracking:** Customers can view their past repair history and receive maintenance reminders.
- **Ratings and Reviews:** Customers can rate mechanics and leave feedback to ensure service transparency.
- **Admin Dashboard:** The system admin can manage user accounts, view system analytics, and oversee transactions.

### **3.4 Proposed System Architecture and Interface**

The mechanic booking system is a web-based platform composed of interconnected components, as shown in Figure 3.1 (System Architecture). The system consists of:

1. User Login/Signup: Customers and mechanics can log in or register.
2. Mechanic Dashboard: Allows mechanics to manage appointments, update service details, and view customer reviews.
3. Customer Dashboard: Enables customers to book mechanics, track appointments, and access service records.
4. Booking System: A core feature where users can select a mechanic, choose a date/time, and confirm appointments.
5. Service History: Maintains a record of past bookings and completed services.
6. Payment Gateway: Supports online payments for services rendered.
7. Admin Panel: Enables system administrators to manage users, bookings, and transactions.



**Figure 3.1 System Architecture**

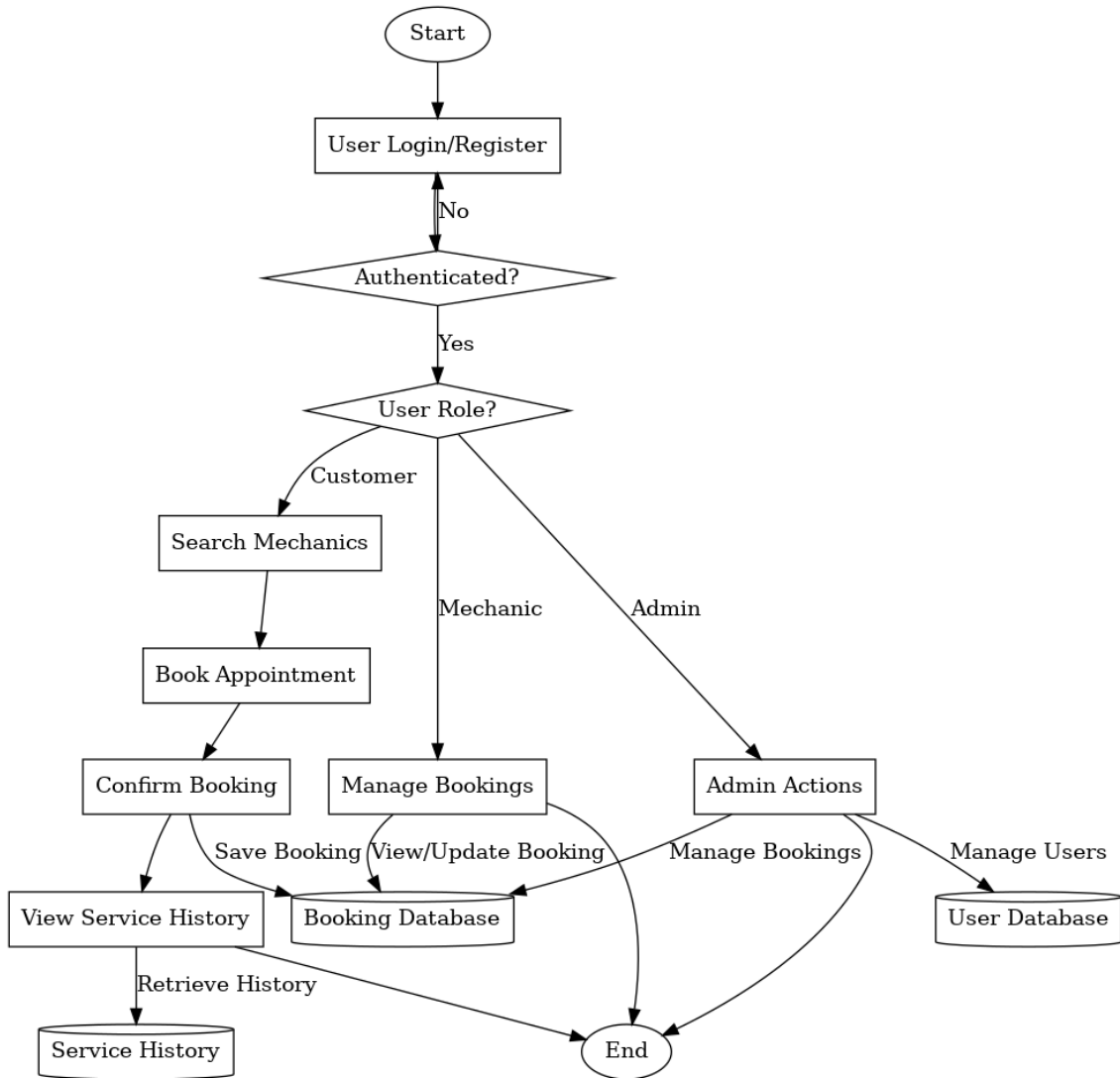


Figure 3.2 (System Interface) illustrates how the system components interact. Users can log in as either mechanics or customers. Customers can browse available mechanics, book appointments, and manage their service history. Mechanics can accept bookings, manage their schedules, and update their availability.

### **3.5 System Design**

System design defines the architecture, interfaces, and data structures of the system. It ensures that the system meets specified requirements while considering scalability, security, and usability.

### **3.6 System Design Tools**

Several tools were used to design the mechanic booking website:

1. Unified Modeling Language (UML): Used for system visualization and documentation.
2. Data Flow Diagram (DFD): Illustrates how data moves through the system.
3. System Flowchart: Provides a diagrammatic representation of system operations.
4. Entity-Relationship (ER) Diagram: Defines entities and their relationships.

**Unified Modelling Language (UML):** UML is a disregarded language that is used to specify how software systems should be visualised, built, and documented. It is an essential tool for creating object-oriented software and the software development process, and it is independent of any specific programming language or method.

### **3.7 UML – Use Case Diagram**

A Use Case Diagram models the system's functionality using actors (users) and use cases (system functions). The actors in this system include:

Customer: Registers, books mechanics, views service history, makes payments, and leaves reviews.

Mechanic: Registers, manages appointments, updates availability, and receives payments.

Admin: Manages users, oversees bookings, and handles system maintenance

### **3.8 UML – State Machine Diagram**

A State Machine Diagram represents the different states of an entity in the system. The booking process follows these states:

1. Pending – When a customer submits a booking request.
2. Confirmed – When a mechanic accepts the booking.

3. In Progress – When the mechanic starts the service.
4. Completed – When the service is finished.
5. Cancelled – When the customer or mechanic cancels the appointment.

### 3.9 UML – Class Diagram

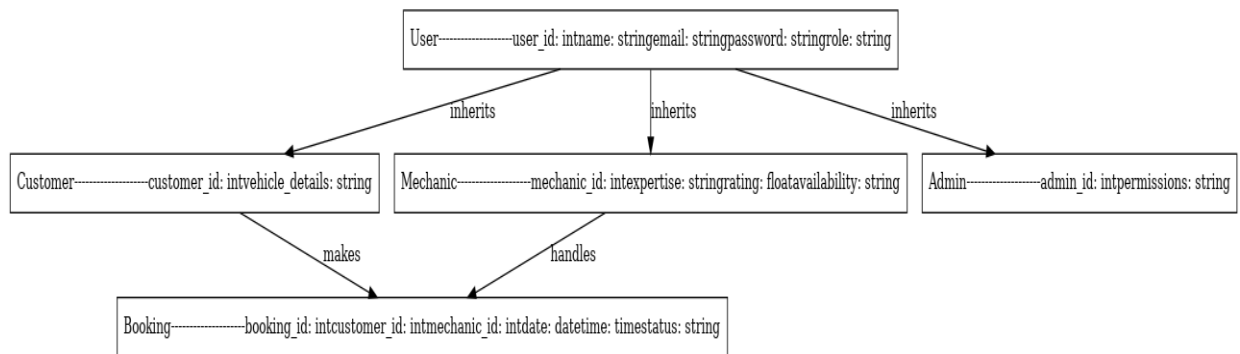
The Class Diagram outlines the system’s main classes and their relationships. Some of the core classes include:

User (Parent Class) – Attributes: userID, name, email, password, userType.

Customer (Child Class) – Attributes: customerID, serviceHistory, paymentMethod.

Mechanic (Child Class) – Attributes: mechanicID, expertise, availability, rating.

Booking – Attributes: bookingID, customerID, mechanicID, date, status.



**Figure 3.3 Class Diagram**

## CHAPTER FOUR

### SYSTEM IMPLEMENTATION

#### 4.1 Software Implementation Tools

This chapter discusses the implementation of the mechanic booking website, including the software tools, frameworks, and platforms used. It also covers system testing, usability evaluation, and screenshots of the running system.

**1. Implementation Languages:** The following are the various programming languages used for the project's implementation:

- a. Hyper Text Markup Language (HTML):** This is the markup language used in creating the content, building structure and defining the semantic of the web page.
- b. Cascading Style Sheet (CSS):** This language was used to define the visual representation and styling of the HTML elements in the web page. It was used to control the layout, colors, fonts, spacing, and overall design of a webpage.
- c. JavaScript:** This is a scripting language that is primarily used for adding interactivity and dynamic behavior to websites and web applications. It was to create interactive user interfaces, handle user input, manipulate data, and perform various actions on a web page without requiring a page reload.
- d. PHP:** A server-side scripting language used to handle user authentication, manage bookings, and connect to the database.
- e. MySQL:** The database management system used to store user data, mechanic profiles, appointments, and service history

**Implementation Framework:** Frameworks provide reusable components and a structured approach to software development. The following frameworks were utilized:

- a. ReactJs:** This is a JavaScript front-end framework focused on building dynamic and interactive user interfaces for web applications. It excelled in creating component-based architectures, managing UI state, handling user interactions, and efficiently updating the DOM.

- b. **Bootstrap:** A CSS framework used for styling and ensuring a responsive design, making the website mobile-friendly.
  - c. **Laravel:** A PHP framework used for developing the backend functionalities, handling user authentication, and managing database operations efficiently.
2. **Implementation Platforms:** Visual Studio Code (VS Code) is a widely popular, free, and open-source code Integrated Development Environment developed by Microsoft. It is an excellent choice for building web applications, regardless of the operating system you are using and integration to Version Control System like Git and Github which was the remote Version Control System.
  3. **Deployment Platforms:** For making the web application available to all users, it was deployed using vercel. Vercel is a cloud platform designed to facilitate the deployment and hosting of web applications and websites. It specializes in providing a seamless experience for developers to deploy projects, particularly those built using modern frameworks like ReactJs.
  4. **Operating System:** This project is a full web application that was built using the Windows operating system, a very user friendly and developer-friendly system.

#### 4.2 User Documentation – System Testing

System testing is a vital stage in the software development life cycle that entails thorough testing of a software application or system as a whole. System testing tries to make sure that all parts and modules of the program function properly as an integrated system and adhere to the requirements. The following aspects were tested:

1. User Authentication:
  - Can customers and mechanics successfully register and log in to their accounts?
  - Can users reset their passwords when forgotten?
2. Mechanic Profile Management:
  - Can mechanics update their availability, service details, and pricing?
  - Can customers view mechanic profiles before booking?
3. Booking Functionality:
  - Can customers select a mechanic and book an appointment based on availability?
  - Are customers receiving confirmation emails for bookings?

- Can mechanics accept, decline, or reschedule appointments?
4. Service Tracking:
    - Can customers view their past service history?
    - Can mechanics access a list of their completed and pending appointments?
  5. Admin Panel:
    - Can admins manage user accounts, delete inactive users, and monitor transactions?
    - Can admins verify and approve new mechanic registrations?
  6. Ratings & Reviews:
    - Can customers leave feedback for mechanics after service completion?
    - Are the average ratings of mechanics updated correctly?
  7. Responsive Design:
    - Is the website fully functional on desktop, tablet, and mobile devices?
    - Are all UI elements properly aligned and displayed across different screen sizes?

### 4.3 Screenshots of the Running System

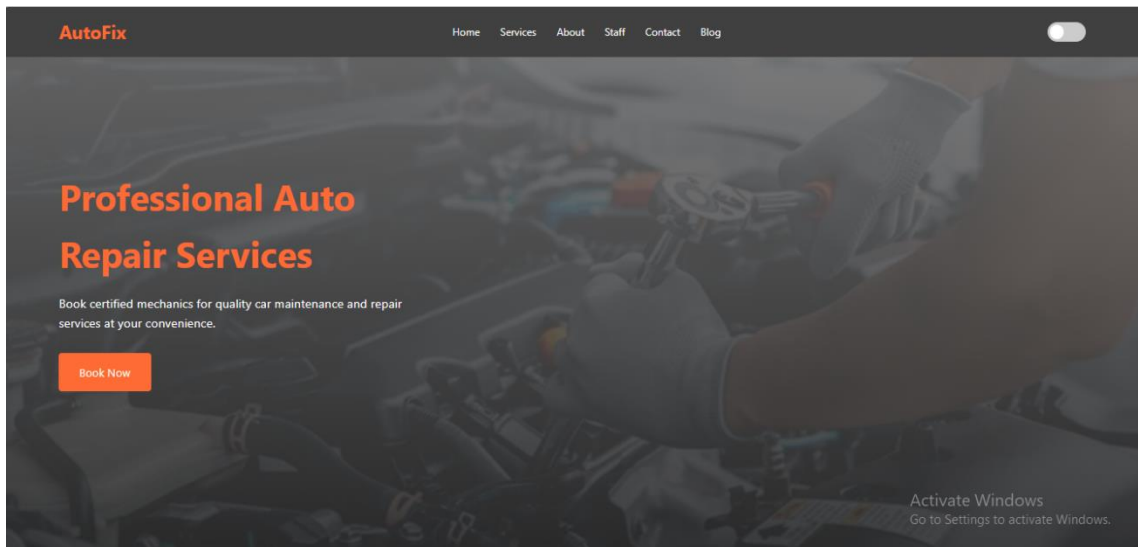


Figure 4.1: Home page

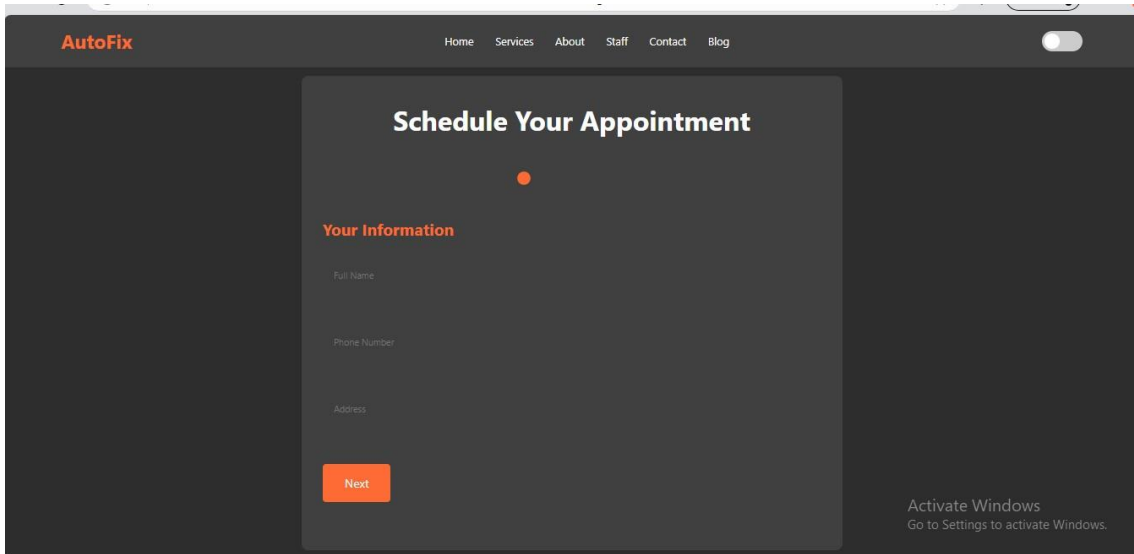


Figure 4.1 shows scheduling appointment of the customer. Customers schedule appointment using their email, address and phone number

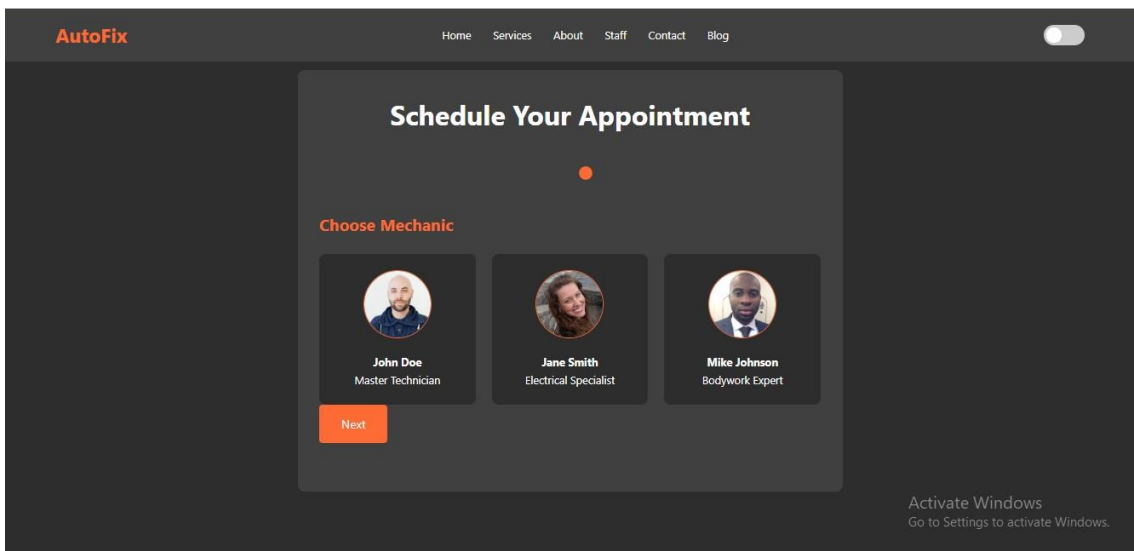


Figure 4.2 illustrates the booking interface where customers can select a mechanic.

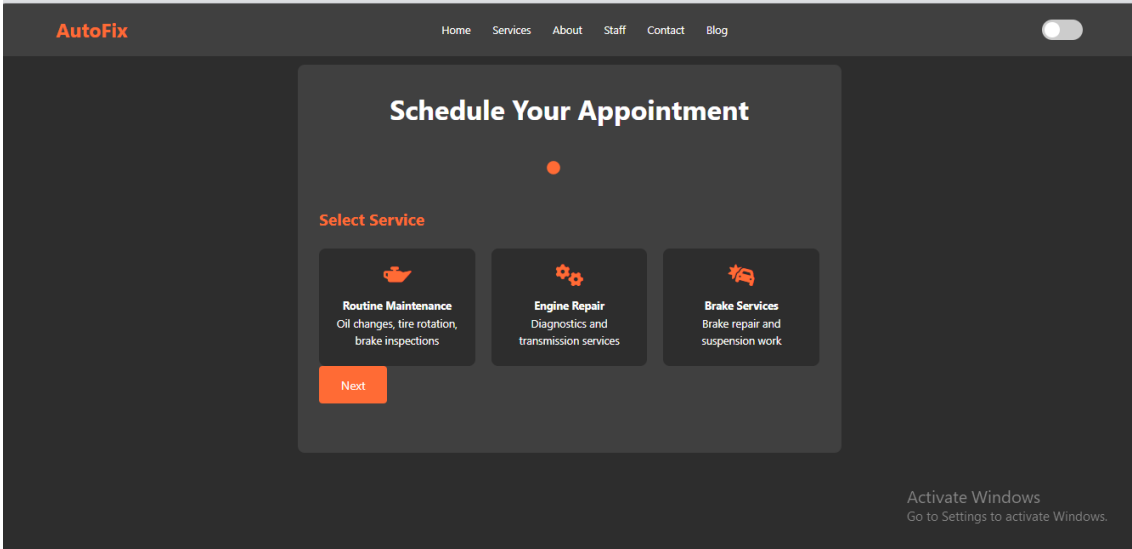
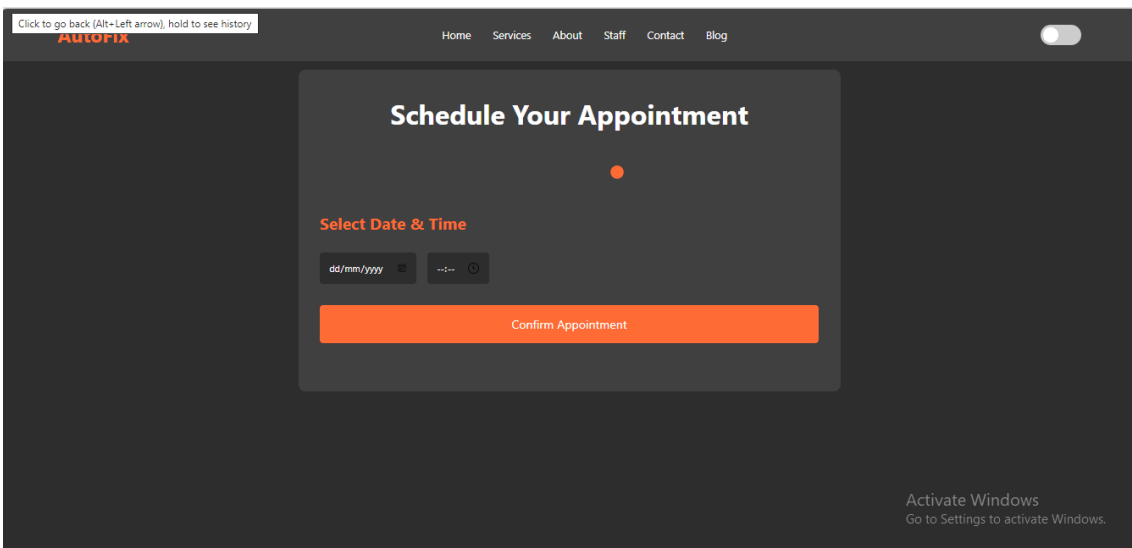


Figure 4.3 illustrates the booking interface where customers can choose a service.



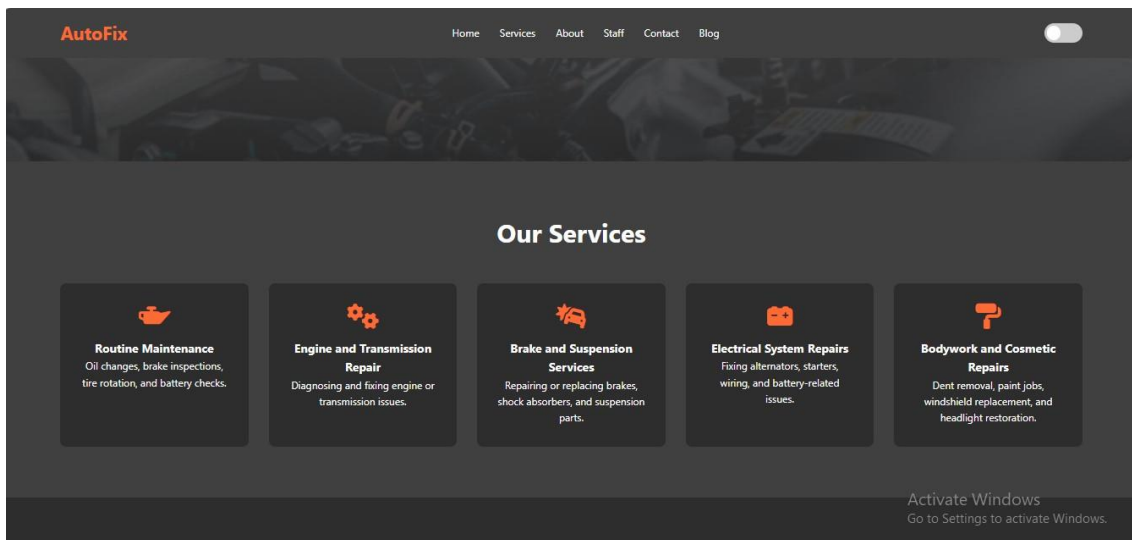


Figure 4.5 shows the services provided by the website.

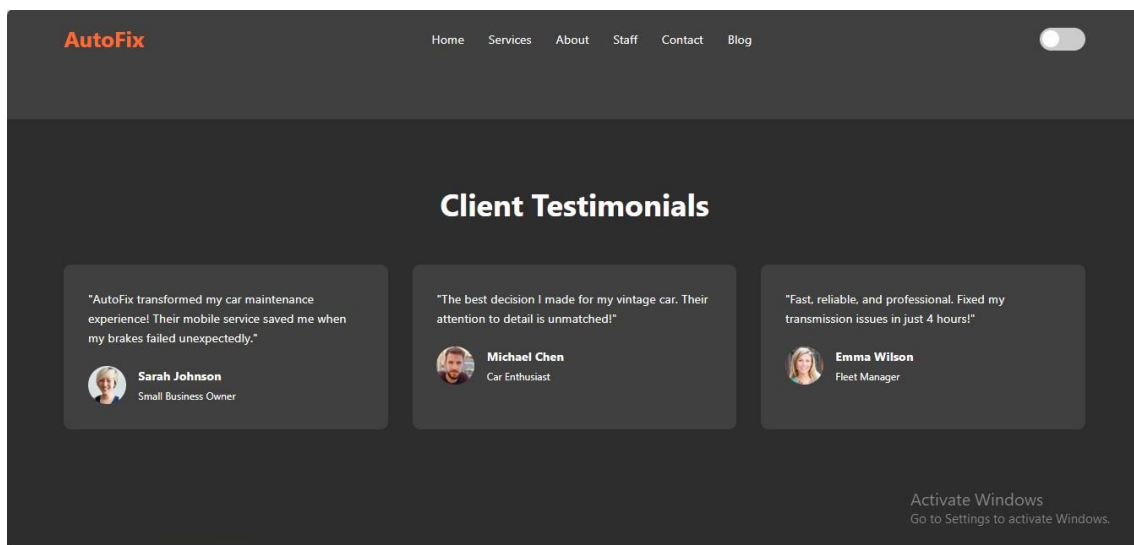
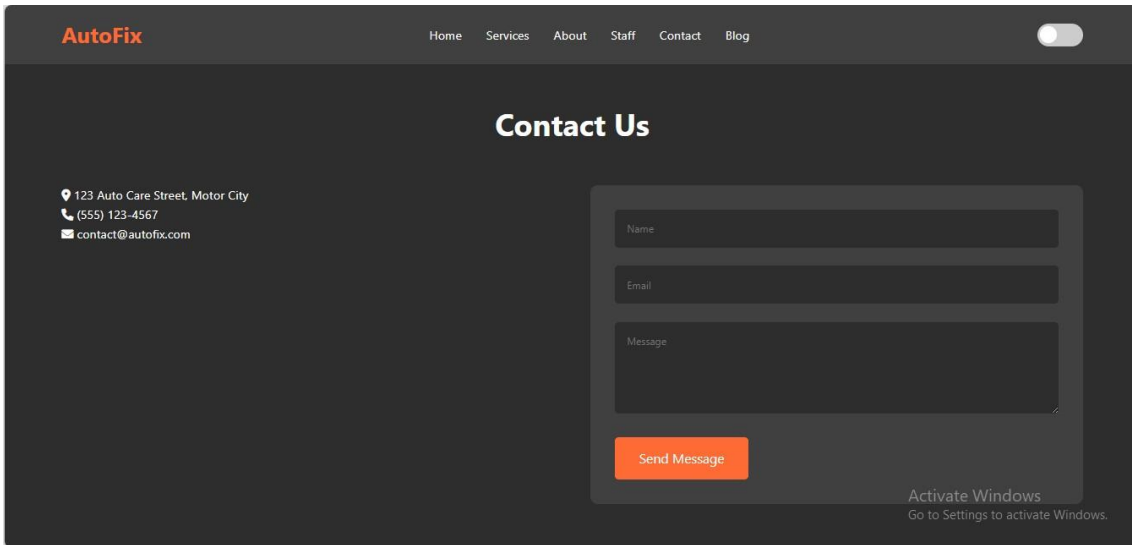


Figure 4.6 Client Testimonies



**Figure 4.2 Contact page**

#### **4.4 System Usability Evaluation**

The System usability was evaluated using the System Usability Scale (SUS), a standardized questionnaire for assessing software usability. The SUS consists of ten questions rated on a 5-point Likert scale:

1. I found the system easy to use.
2. I needed to learn a lot before I could navigate the system.
3. The system's functions are well integrated.
4. Most users would learn to use this system quickly.
5. The system was intuitive and user-friendly.
6. I needed technical support to use the system.
7. The system has too many inconsistencies.
8. I felt confident using the system.
9. I had to learn many things before I could complete tasks.
10. Overall, I am satisfied with the system's usability.

Each participant rated the system based on these questions, and the responses were converted into a usability score.

#### **Usability Test Results**

Based on the SUS grading system, an average score of 76.6 falls within the "Good" usability category, indicating that the system is user-friendly and meets user expectations.

## **CHAPTER FIVE**

### **SUMMARY AND CONCLUSION**

#### **5.1 Summary**

With the rapid advancement of technology, traditional methods of booking mechanics, such as walk-in appointments and phone calls, have become inefficient, time-consuming, and often unreliable. These methods can lead to long waiting times, miscommunication, and scheduling conflicts. To address these challenges, a modern approach that leverages automation and online booking systems is necessary.

This project introduces an Online Mechanic Booking System, a web application designed to simplify and streamline the process of booking mechanics for vehicle repairs and maintenance. The goal of this project is to provide an alternative to the traditional methods by offering an efficient, user-friendly, and automated solution that connects vehicle owners with qualified mechanics.

The system allows customers to register, search for mechanics based on location and expertise, and book appointments at their convenience. Mechanics can also manage their profiles, update service availability, and accept or reject bookings. An admin dashboard enables administrators to manage users, monitor transactions, and ensure the smooth operation of the platform.

The key features of the system include:

**User Authentication:** Customers and mechanics can create accounts and log in securely.

**Mechanic Profile Management:** Mechanics can display their expertise, service rates, and working hours.

**Appointment Scheduling:** Customers can select mechanics, book services, and receive confirmation emails.

**Ratings & Reviews:** Customers can provide feedback on mechanics after service completion.

**Admin Dashboard:** The admin can oversee system activities, approve mechanic registrations, and manage user accounts.

This system provides a seamless and efficient solution for booking mechanics, reducing manual efforts, eliminating miscommunication, and improving customer satisfaction.

## **CONCLUSION**

This project explores the traditional methods of mechanic service booking, highlighting their inefficiencies and challenges. It then proposes a digital transformation through the development of an Online Mechanic Booking System that automates appointment scheduling, service management, and customer interactions.

The system leverages modern web technologies such as React.js, Laravel, MySQL, and Bootstrap to create a responsive and scalable platform. It ensures a better user experience by reducing waiting times, providing real-time availability updates, and enabling secure transactions.

By implementing this solution, both mechanics and customers benefit from a more organized, accessible, and reliable system for vehicle maintenance services. The project successfully demonstrates how technology can enhance service delivery, increase efficiency, and improve customer satisfaction in the automotive repair industry.

Future enhancements could include mobile app integration, AI-based mechanic recommendations, and GPS tracking for on-the-go service requests. This would further improve the convenience and accessibility of the platform, making it an essential tool for modern vehicle maintenance services.

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## APPENDIX

### SOURCE CODE

#### Frontend code

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>AutoFix - Book Appointment</title>
  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/6.0.0/css/all.min.css">
  <link rel="stylesheet" href="css/styles.css">
  <link rel="stylesheet" href="css/bookings.css">
  <link rel="stylesheet" href="css/sub_booking.css">
</head>
<body>
  <!-- Navigation (Same as landing page) -->
  <nav class="navbar">
    <div class="logo">AutoFix</div>
    <div class="nav-links">
      <a href="index.html">Home</a>
      <a href="#services">Services</a>
      <a href="#about">About</a>
      <a href="#staff">Staff</a>
      <a href="#contact">Contact</a>
      <a href="blog.html">Blog</a>
    </div>
    <label class="theme-switch">
      <input type="checkbox">
      <span class="slider"></span>
    </label>
    <div class="menu-toggle">
```

```

        <i class="fas fa-bars"></i>
    </div>
</nav>

<!-- Mobile Menu (Same as landing page) -->
<div class="mobile-menu">
    <nav>
        <a href="index.html">Home</a>
        <a href="#services">Services</a>
        <a href="#about">About</a>
        <a href="#staff">Staff</a>
        <a href="#contact">Contact</a>
        <a href="blog.html">Blog</a>
    </nav>
</div>

<!-- Booking Section -->
<section class="booking-section">
    <div class="booking-container">
        <h2 class="section-title">Schedule Your Appointment</h2>

        <!-- Styled Step Indicator -->
        <div class="step-indicator">
            <div class="step-dot active" data-step="1"></div>
            <div class="step-dot" data-step="2"></div>
            <div class="step-dot" data-step="3"></div>
            <div class="step-dot" data-step="4"></div>
        </div>

        <!-- Step 1: Personal Information -->
        <div class="booking-step active" data-step="1">
            <h3 class="step-title">Your Information</h3>

```

```

<div class="personal-info">
  <div class="form-group">
    <input type="text" class="form-input" id="full-name" placeholder="Full
Name" required>
  </div>
  <div class="form-group">
    <input type="tel" class="form-input" id="phone-number"
placeholder="Phone Number" required>
  </div>
  <div class="form-group">
    <input type="text" class="form-input" id="address"
placeholder="Address" required>
  </div>
</div>
<button class="cta-button next-step">Next</button>
</div>

```

```

<!-- Step 2: Service Selection -->
<div class="booking-step" data-step="2">
  <h3 class="step-title">Select Service</h3>
  <div class="service-options">
    <div class="service-card" data-service="routine">
      <i class="fas fa-oil-can service-icon"></i>
      <h4>Routine Maintenance</h4>
      <p>Oil changes, tire rotation, brake inspections</p>
    </div>
    <div class="service-card" data-service="engine">
      <i class="fas fa-cogs service-icon"></i>
      <h4>Engine Repair</h4>
      <p>Diagnostics and transmission services</p>
    </div>
    <div class="service-card" data-service="brake">

```

```

        <i class="fas fa-car-crash service-icon"></i>
        <h4>Brake Services</h4>
        <p>Brake repair and suspension work</p>
    </div>
</div>
<button class="cta-button next-step">Next</button>
</div>

<!-- Step 3: Mechanic Selection -->
<div class="booking-step" data-step="3">
    <h3 class="step-title">Choose Mechanic</h3>
    <div class="mechanic-options">
        <div class="mechanic-card" data-mechanic="john">
            
            <h4>John Doe</h4>
            <p>Master Technician</p>
        </div>
        <div class="mechanic-card" data-mechanic="jane">
            
            <h4>Jane Smith</h4>
            <p>Electrical Specialist</p>
        </div>
        <div class="mechanic-card" data-mechanic="mike">
            
            <h4>Mike Johnson</h4>
            <p>Bodywork Expert</p>
        </div>
    </div>
    <button class="cta-button next-step">Next</button>

```

```

</div>

<!-- Step 4: Date & Time Selection -->
<div class="booking-step" data-step="4">
  <h3 class="step-title">Select Date & Time</h3>
  <div class="datetime-picker">
    <input type="date" id="appointment-date" required>
    <input type="time" id="appointment-time" required>
  </div>
  <button class="cta-button submit-booking">Confirm Appointment</button>
</div>
</div>
</section>

<!-- Footer -->
<footer>
  <div class="social-links">
    <a href="#"><i class="fab fa-facebook"></i></a>
    <a href="#"><i class="fab fa-twitter"></i></a>
    <a href="#"><i class="fab fa-instagram"></i></a>
  </div>
  <p>&copy; 2025 AutoFix. All rights reserved.</p>
</footer>

<script src="script.js"></script>
<script>
  // Step Navigation Logic
  const stepDots = document.querySelectorAll('.step-dot');
  const bookingSteps = document.querySelectorAll('.booking-step');
  let currentStep = 0;

  function showStep(stepIndex) {

```

```

// Hide all steps
bookingSteps.forEach(step => step.classList.remove('active'));

// Show the current step
bookingSteps[stepIndex].classList.add('active');

// Update step indicator dots
stepDots.forEach((dot, index) => {
    dot.classList.toggle('active', index === stepIndex);
});
}

// Next Step Button
document.querySelectorAll('.next-step').forEach(button => {
    button.addEventListener('click', () => {
        if (currentStep < bookingSteps.length - 1) {
            currentStep++;
            showStep(currentStep);
        }
    });
});

// Step Dot Navigation
stepDots.forEach((dot, index) => {
    dot.addEventListener('click', () => {
        currentStep = index;
        showStep(currentStep);
    });
});

// Initialize first step
showStep(0);
</script>

```

```

<script>
  // Add this JavaScript to your existing script.js file
document.addEventListener('DOMContentLoaded', () => {
  // Service Selection
  document.querySelectorAll('.service-card').forEach(card => {
    card.addEventListener('click', () => {
      document.querySelectorAll('.service-card').forEach(c =>
c.classList.remove('selected'));
      card.classList.add('selected');
    });
  });

  // Mechanic Selection
  document.querySelectorAll('.mechanic-card').forEach(card => {
    card.addEventListener('click', () => {
      document.querySelectorAll('.mechanic-card').forEach(c =>
c.classList.remove('selected'));
      card.classList.add('selected');
    });
  });

  // Form Submission
  document.querySelector('.submit-booking').addEventListener('click', (e) => {
    e.preventDefault();

    const selectedService = document.querySelector('.service-card.selected');
    const selectedMechanic = document.querySelector('.mechanic-card.selected');
    const date = document.getElementById('appointment-date').value;
    const time = document.getElementById('appointment-time').value;

```

```

    if (!selectedService || !selectedMechanic || !date || !time) {
        alert('Please complete all booking steps!');
        return;
    }

    const bookingDetails = {
        service: selectedService.dataset.service,
        mechanic: selectedMechanic.dataset.mechanic,
        date: date,
        time: time
    };

    console.log('Booking Details:', bookingDetails);
    alert('Appointment booked successfully! We will confirm via email.');
```

window.location.href = 'index.html';
 });
});

// Keep existing JavaScript from landing page
// Mobile Menu Toggle
const menuToggle = document.querySelector('.menu-toggle');
const mobileMenu = document.querySelector('.mobile-menu');
menuToggle.addEventListener('click', () => mobileMenu.classList.toggle('active'));

// Theme Toggle
const themeToggle = document.querySelector('.theme-switch input');
themeToggle.addEventListener('change', () => document.body.classList.toggle('light-theme'));
</script>
<script>
 // Theme Persistence Logic
 document.addEventListener('DOMContentLoaded', () => {

```

const themeToggle = document.querySelector('.theme-switch input');
const body = document.body;

// 1. Check for saved theme preference in localStorage
const savedTheme = localStorage.getItem('theme');

// 2. Apply the saved theme (or default to dark if no preference is saved)
if (savedTheme === 'light') {
  body.classList.add('light-theme');
  themeToggle.checked = true; // Ensure the switch reflects the light theme
} else {
  body.classList.remove('light-theme');
  themeToggle.checked = false; // Ensure the switch reflects the dark theme
}

// 3. Toggle theme and save preference
themeToggle.addEventListener('change', () => {
  if (themeToggle.checked) {
    body.classList.add('light-theme');
    localStorage.setItem('theme', 'light'); // Save light theme preference
  } else {
    body.classList.remove('light-theme');
    localStorage.setItem('theme', 'dark'); // Save dark theme preference
  }
});
});
</script>
<script src="./js/script.js"></script>
</body>
</html>

```

### Basic styling – style .css

```
.booking-section {  
  
    padding: 5rem 5%;  
  
    min-height: 100vh;  
  
    margin-top: 5%;  
  
}
```

```
.booking-container {  
  
    max-width: 800px;  
  
    margin: 0 auto;  
  
    background-color: var(--secondary-dark);  
  
    padding: 2rem;  
  
    border-radius: 10px;  
  
}
```

```
.booking-step {  
  
    margin-bottom: 2.5rem;  
  
}
```

```
.step-title {  
  
    color: var(--accent-orange);  
  
    margin-bottom: 1.5rem;
```

```
    font-size: 1.5rem;
}

.service-options, .mechanic-options {
    display: grid;
    grid-template-columns: repeat(auto-fit, minmax(200px, 1fr));
    gap: 1.5rem;
}

.service-card, .mechanic-card {
    background-color: var(--primary-dark);
    padding: 1.5rem;
    border-radius: 10px;
    cursor: pointer;
    transition: var(--transition);
    text-align: center;
}

.service-card:hover, .mechanic-card:hover {
    transform: translateY(-5px);
    box-shadow: 0 5px 15px rgba(255,107,53,0.2);
}
```

```
.service-card.selected, .mechanic-card.selected {  
    border: 2px solid var(--accent-orange);  
}
```

```
.service-icon {  
    font-size: 2rem;  
    color: var(--accent-orange);  
    margin-bottom: 1rem;  
}
```

```
.mechanic-image {  
    width: 100px;  
    height: 100px;  
    border-radius: 50%;  
    border: 2px solid var(--accent-orange);  
    margin: 0 auto 1rem;  
}
```

```
.datetime-picker {  
    display: flex;  
    gap: 1rem;
```

```

    margin-top: 1rem;
}

input[type="date"], input[type="time"] {

    padding: 0.8rem;

    border: none;

    border-radius: 5px;

    background-color: var(--primary-dark);

    color: var(--light-text);
}

.submit-booking {

    width: 100%;

    margin-top: 2rem;
}

/* Light theme adjustments */

.light-theme .booking-container {

    background-color: var(--light-secondary);
}

.light-theme .service-card,

```

```
.light-theme .mechanic-card {  
  
    background-color: var(--light-primary);  
  
}
```

```
.light-theme input[type="date"],  
  
.light-theme input[type="time"] {  
  
    background-color: var(--light-primary);  
  
    color: var(--primary-dark);  
  
}
```

## Contact Php

```
<?php  
  
// 1. Database Configuration  
$servername = "localhost";  
$username = "root"; // Default XAMPP username  
$password = ""; // Default XAMPP password  
$dbname = "mechanic_db"; // database name  
  
// 2. Create Connection  
$conn = new mysqli($servername, $username, $password, $dbname);  
  
// 3. Check Connection  
if ($conn->connect_error) {  
    die("Connection failed: " . $conn->connect_error);  
}  
  
// 4. Sanitize Inputs  
$name = htmlspecialchars($_POST['name']);  
$email = filter_var($_POST['email'], FILTER_SANITIZE_EMAIL);
```

```

$message = htmlspecialchars($_POST['message']);

// 5. Validate Email
if (!filter_var($email, FILTER_VALIDATE_EMAIL)) {
    die("Invalid email format");
}

// 6. Prepare SQL Query
$sql = "INSERT INTO contacts (name, email, message) VALUES (?, ?, ?)";
$stmt = $conn->prepare($sql);
$stmt->bind_param("sss", $name, $email, $message);

// 7. Execute Query
if ($stmt->execute()) {
    // Redirect to success page
    header("Location: contact-success.html");
} else {
    // Redirect to error page
    header("Location: contact-error.html");
}

// 8. Close Connections
$stmt->close();
$conn->close();
?>

```