

**Foundation University Islamabad Rawalpindi Campus**

**SCD Lab Project Proposal**

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# **Car Nexa - Car Service Management System**

# **Introduction**

# In today's fast-paced world, the need for efficient vehicle maintenance and appointment scheduling is essential. To address this need, we propose the development of a comprehensive "Car Nexa - Car Service Management System." This system will offer users the ability to maintain a complete record of their vehicles' historical maintenance, automate appointment scheduling for service and repair, and provide a seamless experience for both customers and administrators.

# **Problem Statement**

# The current process of vehicle maintenance and appointment scheduling is often cumbersome, leading to inefficiencies, missed appointments, and incomplete maintenance histories. There is a clear need for a user-friendly solution that streamlines these processes, ensuring that customers have easy access to their vehicle's service history and can book appointments hassle-free.

# **Business Objectives and Preliminary Requirements**

# Our primary objectives are as follows:

# Efficient Vehicle Maintenance: Create a system that allows users to maintain a comprehensive history of their vehicle's maintenance and repairs.

# Automated Appointment Scheduling: Implement a feature that automates the scheduling of service appointments, meetings, and calls.

# User-Friendly Interface: Develop a user-friendly interface for customers to book appointments and for administrators to manage them.

# Unique IDs and Tokens: Assign unique IDs to customers for appointment tracking and issue tokens for quick access to appointment details.

# **Current Situation and Opportunity Statement**

# Currently, there is no streamlined system for vehicle maintenance and appointment scheduling in place. This creates a significant opportunity to provide a solution that enhances user convenience, reduces administrative workload, and improves overall customer satisfaction.

# **Options and Recommendation**

# After careful consideration, we recommend developing a web-based Car Service Management System named "Car Nexa." This system will allow users to register, book mechanic appointments, maintain vehicle service histories, and streamline appointment scheduling for both customers and administrators.

# **Schedule Estimate**

# The development of the Car Nexa - Car Service Management System is estimated to take approximately 6-8 months, including design, development, testing, and deployment phases. The timeline may be adjusted based on additional features and complexity.

# **Potential Risks and Mitigation Plan**

# Technical Challenges: We will conduct thorough research and feasibility studies before development to mitigate technical challenges.

# Security Concerns: We will implement robust security measures to protect user data and privacy.

# User Adoption: To ensure user adoption, we will provide user-friendly training materials and customer support.

# Scalability: We will design the system with scalability in mind to accommodate future growth.

# Data Loss: Regular data backups and redundancy measures will be in place to prevent data loss.

# In conclusion, the Car Nexa - Car Service Management System aims to simplify vehicle maintenance and appointment scheduling, enhancing the overall experience for both customers and administrators. This proposal outlines the objectives, features, timeline, and risk mitigation plan for the successful development and deployment of the system.

**Features:**

* Separate login for Admin and customer.
* User can book a mechanic appointment.
* A complete car maintenance history will be maintained.
* Admin can manage appoints of cars.
* A single user can book multiple appointment for different cars.
* A unique ID will be assignment to the customer on every appointment, so that customer can see details of their appointment.
* A token will also be given to the customer on every appointment, so that user can access basic info e.g. appointment time of their car and delivery date.

**Contribution:**

**Suffian:**

Expert in backend. He will leader of backend developer and will also help to develop frontend based on requirements of backends to mitigate any backend limitation by utilization frontend. He will work on passing data from backend to frontend and also data utilization on frontend. He will work on Debugging

**Farzam:**

He is expert in project management and also have good frontend knowledge. He is overall Project manager. He will work on data storage and retrieval in backend and also make bear bone structures/Foundation of Frontend. He will work on making code efficient in terms on number of lines as well as in terms of time of execution.

**Yasir:**

He have excellent Front end and Api’s knowledge. He will work on Front end and Data structures on backend. He will work on API’s if any required and also work on utilizing data on Front end and he will work on increasing readability.

**Pathway/General Plan to develop Project:**

1. **Frontend Developer:**

The frontend developer will focus on creating the user interface and ensuring a seamless and visually appealing user experience. Their contributions will include:

1. **User Interface Design:**

Designing the user interface (UI) of the Car Nexa application, including layout, navigation, and overall aesthetics.

1. **User Experience (UX) Design:**

Ensuring that the UI is user-friendly, intuitive, and optimized for ease of use.

1. **Frontend Development:**

Implementing the frontend of the application using web technologies such as HTML, CSS, and JavaScript. This includes creating forms for user registration, appointment booking, and displaying vehicle maintenance history.

1. **Integration with Backend:**

Collaborating closely with the backend developers to integrate frontend components with the backend services via API calls.

1. **User Testing:**

Conducting user testing to gather feedback on the UI/UX and making necessary improvements based on user input.

**Backend Developers (Two Members):**

The backend developers will work on the server-side logic, database management, and overall system functionality. Their contributions will include:

1. **Server Development:**

Setting up the server infrastructure using a suitable backend technology stack such as Node.js, Python, or Ruby on Rails.

1. **Database Design:**

Designing the database schema to store user registration data, appointment information, and vehicle maintenance records.

1. **Backend Logic:**

Implementing the logic for user registration, appointment scheduling, and maintenance history management.

1. **API Development:**

Creating RESTful or GraphQL APIs to facilitate communication between the frontend and backend components.

1. **Security Implementation:**

Ensuring data security through techniques such as encryption, authentication, and authorization.

1. **Data Validation:**

Implementing data validation and error handling to maintain data integrity.

1. **Testing and Debugging:**

Thoroughly testing the backend code for functionality, performance, and security, and addressing any bugs or issues.

1. **Documentation:**

Creating comprehensive documentation for API endpoints and backend architecture to facilitate future maintenance and updates.