
Institution Details

Province	Sindh	City	Karachi
Institution	National University of Computer and Emerging Sciences (FAST-NU)	Campus	Karachi
Department	Computer Science/Software Engineering	Degree Level	BS
Degree Program	Computer Science/Software Engineering	Telephone	
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Head of Department Details

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Project Details

Project Title	MyDriver - Car Rental Solution		
Group Details	Member 1 Name: Shaheer Mehmood	Member 2 Name: Ali Ahmed	Member 3 Name: Shayan Ahmed
	Member 1 Roll#:18K-0128	Member 2 Roll#:19K-1423	Member 3 Roll#:19K-1097
Project Area of Specialization	Product based App Development		
Project Start Date	Jan 2023	Project End Date	Dec 2023
Project Summary (less than 2500 characters)	<p>The car and driver rental system is a software application that simplifies the rental process of vehicles by managing inventory, tracking rentals, and generating reports. By allowing customers to book hourly drivers, the system offers a solution to those who have access to a car but cannot drive due to medical conditions or poor night vision. Implementing a centralized system for car rentals simplifies the rental process and enables customers to find the best deal with ease. The system includes a wedding package, making it more convenient to book a decorated car for wedding events. Both customers and car rental companies can access the system, with customers being able to browse available vehicles, make payments and receive booking confirmations, while car rental companies can manage their inventory and track rental status. A car rental system can help streamline operations, enhance customer experience, and increase revenue for car rental companies.</p>		
Project	<p>The main objectives of a car rental system are to provide a user-friendly and efficient way for customers to rent vehicles, while also streamlining the operational processes of the car rental company. Some specific project objectives for a car rental system may include:</p>		

<p>Objectives (less than 2500 characters)</p>	<ul style="list-style-type: none"> • User-friendly booking process: The system should have an intuitive interface that allows customers to easily search for and select the vehicle they want to rent, choose rental dates and times, and make payments. • Real-time availability tracking: The system should be able to track the availability of vehicles in real-time and prevent double bookings. • Efficient vehicle management: The system should enable car rental companies to manage their vehicle inventory, including adding and removing vehicles from the system, setting rental rates, and tracking vehicle maintenance. • Automated billing and payment processing: The system should be able to generate invoices and process payments automatically, reducing the workload for car rental company staff. • Integration with third-party systems: The system should be able to integrate with third-party APIs for email notifications, online payments, and other features that enhance the customer experience. • Robust security features: The system should have robust security features to protect sensitive customer and company data. • Analytics and reporting: The system should generate reports and analytics on rental activity, revenue, and customer feedback to help car rental companies make data-driven decisions. <p>By achieving these objectives, a car rental system can improve the efficiency and profitability of a car rental company, while also providing customers with a convenient and enjoyable rental experience.</p>
<p>Literature Review / Background Study</p>	<p>The Car rental market accounted for USD 119.28 billion in 2021, and it is expected to reach USD 223.07 billion by 2027, projecting a CAGR of more than 11% during the forecast period (2022 - 2027) [1]. Several works have been done on the car rental system. Many showrooms are offering their own online websites for the rental services but there is no single platform where all the rental services are at one place. Our objective is to bring all rental businesses to one platform.</p> <p>One study by Chaichan, M. T. and Al-Dubai, A. (2020) explored the challenges and opportunities of implementing car rental systems in developing countries. The study found that car rental systems can help to improve the efficiency and profitability of car rental companies in developing countries, while also providing customers with a convenient and affordable transportation option. However, the study identified several challenges to the adoption of car rental systems in developing countries, including limited infrastructure, lack of government support, and low levels of digital literacy among potential customers.</p>

	<p>Overall, the literature suggests that car rental systems can improve the efficiency and profitability of car rental companies while also providing customers with a convenient and enjoyable rental experience. However, car rental companies need to focus on factors such as vehicle quality, booking process, customer service, and online reputation management to improve customer satisfaction and retention. Additionally, in developing countries, car rental companies need to address the unique challenges associated with implementing car rental systems, such as infrastructure limitations and low digital literacy.</p>
<p>Project Implementation Method (less than 2500 characters)</p>	<ul style="list-style-type: none"> • Research existing car rental systems to identify common features and user needs. • Design the user interface and user experience for the system. • Develop the system on a modern app development framework. • Integrate with existing car rental management software using APIs. • Implement security measures such as encryption and user authentication. • Test the system using a combination of manual and automated testing methods.
<p>Benefits of the Project (less</p>	<ul style="list-style-type: none"> • Convenience: Customers can easily book a car and driver online, eliminating the need to physically go to a car rental location or search for a taxi. This provides a more convenient and time-saving option for customers. • Comfort: Car and driver rental services offer a higher level of comfort compared to other transportation services, as customers can choose the type of car they want and have a professional driver to take them to their destination. • Safety: With a professional driver, customers can feel safer and more secure, as they do not have to worry about navigating unfamiliar roads or dealing with traffic. • Cost-effective: Car and driver rental services can be more cost-effective for customers compared to other transportation options, especially for longer trips or large groups. • Increased revenue: Car rental companies can expand their services and generate more revenue by offering car and driver rental options. • Competitive advantage: Car and driver rental services can provide a competitive advantage for car rental companies by offering a unique and differentiated service that sets them apart from their competitors. • Improved customer satisfaction: Car and driver rental services can lead to increased customer satisfaction and loyalty, as customers are more likely to return to a car rental company that provides high-quality and convenient services

than 2500 characters)	
Technical Details of Final Deliverable (less than 2500 characters)	<p>The final technical deliverables of a car and driver rental app may vary depending on the specific requirements of the project, but here are some typical examples of what might be included:</p> <ul style="list-style-type: none"> • Mobile App: A user-friendly mobile app for the car and driver rental system compatible with both iOS and Android platforms including features such as vehicle search and booking, driver search and booking, payment processing, booking history, and real-time tracking. • Backend Server: A scalable backend server for the performance and reliability of the system including features such as user management, booking management, payment processing, and data analytics. • Database: A secure and reliable database for storing and managing the data used in the system, such as customer profiles, booking records, and vehicle and driver information. • Payment Gateway: A secure payment gateway supporting multiple payment methods, such as credit cards, debit cards, and mobile wallets, and complying with the latest security and compliance standards. • APIs: Application Programming Interfaces (APIs) for integrating the car and driver rental app with other third-party services, such as location services, messaging services, and payment gateways. • Testing and Quality Assurance: Comprehensive testing and quality assurance to ensure that the car and driver rental app is bug-free, user-friendly, and meets the required standards. This includes testing for functionality, usability, security, and performance, as well as compliance with industry standards and best practices. <p>Documentation: Documentation for the maintenance and support of the car and driver rental app. This includes technical specifications, user manuals, API documentation, and other related materials</p>
Final Deliverable of the Project	<p>The final product of our FYP will be a user-friendly and modern car rental system that provides a better user experience and allows customers to easily book cars online and view real-time availability. It will also integrate with existing car rental management software to automate tasks such as inventory management and billing. It will also have security measures in place to protect customer data.</p>

Core Industry (Optional)	Car rental market
Other Industries (Optional)	N/A
Core Technology	React Native + Node JS + MongoDB
Other Technologies (Optional)	N/A
Sustainable Development Goals (Optional)	N/A

References

1. Car rental market- Growth, trends, Covid-19 impact and forecast by motor Intelligence.
2. Car rental system by Amay Thakur (2021).

Project Key Milestones

Elapsed time in (days or weeks or month or quarter) since start of the project	Milestone	Deliverable
Month 1	<ul style="list-style-type: none"> Develop a detailed project plan that outlines the project scope, timeline and budget. Gather and document the functional and non-functional requirements for the system. 	Project Plan, Requirements Document and Work Breakdown Structure
Month 2	<ul style="list-style-type: none"> Develop a design document that describes the system architecture, database schema, user interface design, and other technical details of the system 	Software Requirement Specification (SRS)
Month 3	<ul style="list-style-type: none"> Create the user interface design and making the database system ready for development. 	UX Design, Software Design Specification (SDS), ER Diagram.
Month 4	<ul style="list-style-type: none"> Begin coding the Front End of the car and driver rental system so one can get to see the main features of the app 	Front End Source Code.
Month 5	<ul style="list-style-type: none"> Finalize the Front-End and start working on Backend. 	UI of the App containing all Mockups.
Month 6	<ul style="list-style-type: none"> Develop any necessary application programming interfaces (APIs) to integrate the system with other systems or third-party services. 	API Development, Backend Source Code.

Month 7	<ul style="list-style-type: none"> • Begin testing the system, including unit testing, integration testing, and system testing. • Deploy the system to a staging environment and begin testing in a production-like environment. 	Software Test Suite, System Documentation.
Month 8	<ul style="list-style-type: none"> • Develop a user manual that provides instructions for end-users on how to use the car and driver rental system. • Final delivery: Deliver the final product to the customer or deploy the system to a production environment. 	User Manual, Final Product.

Project Equipment Details

Item(s) Name	Type	No. of Units	Per Unit Cost (in Rs)	Total (in Rs)
			Total in (Rs)	
