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Car Rental System

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Abstract:

The Car Rental System is being developed for customers so that they can book their vehicles from any part of the world. This application takes information from the customers through filling their details. A customer being registered in the website has the facility to book a vehicle which he requires. It is an online system through which customers can view available cars, register and book car. We developed this project to book a car on rent at the fare charges. In present system all booking work done manually and it takes very hard work to maintain the information of booking and cars. if you want to find which vehicle is available for booking then it takes a lot of time. It only makes the process more difficult and harder. This aim of the project is to automate the work performed in the car rental management system like records of cab, cabs available for booking, rental charges for cars, store records of the customer. Cars is a car booking software that provides a complete solution to all your day-to-day car booking office running needs. This system helps you to keep the information of customer online. You can check your customer information any time by using this system. Online car rental management system is a unique and innovative product. Based on this information you can take decision regarding your business development

Keywords: Car Rental System, booking software, rental management.

Introduction

An online car rental system built with PHP allows customers to reserve vehicles through a web interface. It streamlines the rental process and provides a convenient user experience. In the ever-evolving landscape of transportation, the convenience and flexibility of online services have become paramount. Our project, the "Online Car Rental System using PHP," seeks to revolutionize the way individuals and businesses access rental vehicles. With the power of PHP, a versatile and widely-used web development language, we aim to create a seamless platform where users can effortlessly browse, book, and manage their car rentals from the comfort of their homes or offices. This system not only benefits customers but also streamlines operations for rental companies. Through intuitive user interfaces and robust backed functionalities, our system offers a comprehensive solution for both ends of the rental spectrum. From choosing the ideal vehicle to handling payment transactions securely, every aspect is designed with user convenience and efficiency in mind. In today's fast-paced world, convenience regins supreme. This project aims to develop a user-friendly online car rental system built with PHP, catering to the growing demand for on- demand car rentals. This system will bridge the gap between traditional car rental agencies and modern user expectations. It will empower customers to browse car selections, compare features and prices, and seamlessly book their desired vehicles entirely online.

Literature Review

The paper titled "Car Rental Management System" by Shubham Malhotra, Abhinav Sharma, published in year 2016 discusses the design and implementation of a car rental management system using PHP

and MySQL. It covers features such as user registration, car listing, rental requests, and owner approval. Insights from this paper can provide valuable guidance for designing the backend system and database structure for "Rent My Ride".

• The paper titled “Design and Implementation of Online Car Rental System” by Ritesh Chavan, Vaishnavi Tawate, Akshay Thorat published in year 2018 presents the design and implementation of an online car rental system using ASP.NET and C#. It covers aspects such as user registration, car listing, booking management, and payment.

• The paper titled “An Intelligent Car Rental System based on Big Data and Cloud Computing” by Jingyu Wang, Peng Li, Huining Huang, published in year 2018 introduces an intelligent car rental system leveraging big data and cloud computing technologies. It discusses features like recommendation systems, predictive maintenance, and dynamic pricing. While advanced, understanding the concepts presented in this paper can inspire future enhancements for "Rent My Ride" in terms of recommendation algorithms and predictive analytics.

• The paper titled “Secure Authentication and Authorization Mechanisms for Vehicle Renting” by Sarah Williams, David Brown introduces secure authentication and authorization mechanisms specifically designed for vehicle renting websites. This employs two-factor authentication, and encryption techniques to protect user data.

EXISTING SYSTEM

The Existing system Focus on core functionalities like browsing vehicles, booking rentals, and managing basic user accounts. They often rely on separate web interfaces and might lack features like integrated online payments or mobile app access.Below is a detailed overview of the existing system.

PROPOSED SYSTEM

The proposed system, Builds upon the existing foundation by offering a more user- friendly experience (potentially through a PHP application). It might introduce features like online booking integration, user account management for smoother transactions, and an admin panel for enhanced fleet and booking control. Additionally, the proposal might explore leveraging a framework like Laravel for faster development and better security

Non-Functional Requirements of Car Rental System

Non-functional requirements are requirements that are not directly concerned with the specific functions delivered by the system. They may relate to emergent system properties such as reliability, response time and store occupancy. Alternatively, they may define constraints on the system such as the capabilities of I/O devices and the data representations used in system interfaces. The plan for implementing functional requirements is detailed in the system design. The plan for implementing non-functional requirements is detailed in the system architecture. Non-functional requirements are often called qualities of a system. Other terms for non-functional requirements are "constraints", "quality attributes", "quality goals", "quality of service requirements" and "non-behavioral requirements". Qualities, that are non-functional requirements, can be divided into two main categories: Execution qualities, such as security and usability, which are observable at run time.

SYSTEM DESIGN

System Design process partitions the system into subsystems based on the requirements. It establishes overall system architecture and is concerned with identifying various components, specifying relationships among components, specifying software structure, maintaining a record of design decisions and providing a blue print for the implementation phase.

ER DIAGRAM

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ER Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships.ER Diagrams contain different symbols that use rectangles to represent entities, ovals to define attributes and diamond shapes to represent relationships.

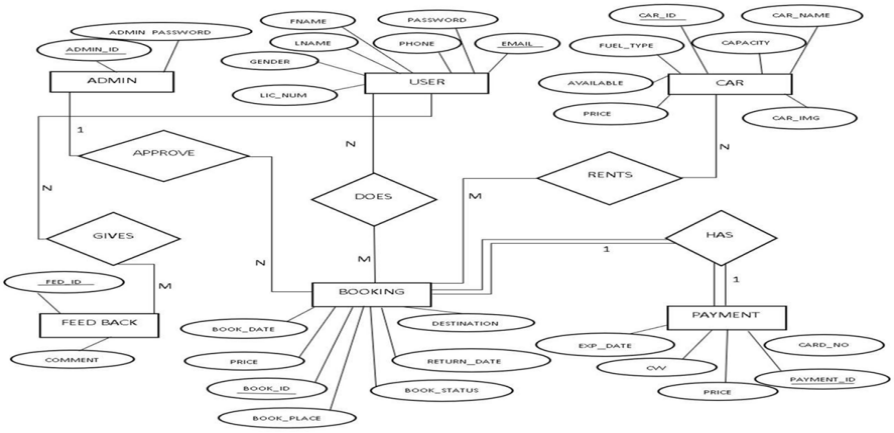

Figure: ER Diagram of Car Rental System

A relation APPROVE as a relationship between Admin and Booking entity with 1: N cardinality ratio because One admin can approve many booking. User entity has relationship DOES with Booking entity with N:M cardinality ratio since many users can does many bookings. The relation User has M:N relationship named GIVES with Feedback because Many user can give many feedbacks. Car has N:M relationship with Booking entity as RENTS. Since car can have N bookings.

IMPLEMENTATION

PHP: Hypertext Pre-processor (or simply PHP) is a server-side scripting language designed for web development, and also used as a general-purpose programming language. PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management systems, and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, withthe generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications.

This project uses HTML as front-end tool. Hypertext Mark-up Language (HTML) is the standard mark-up language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the world wide web. Web browser receive HTML documents from a web server or from local storage and render the documents into multimedia web pages.HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page.HTML provides a means to create structured documents by structural semantics for text such as headings, paragraphs, lists, links, quotes and other items.HTML elements are delineated by tags, written using angle brackets. Browsers do not display the HTML tags, but use them to interrupt the content of the page.

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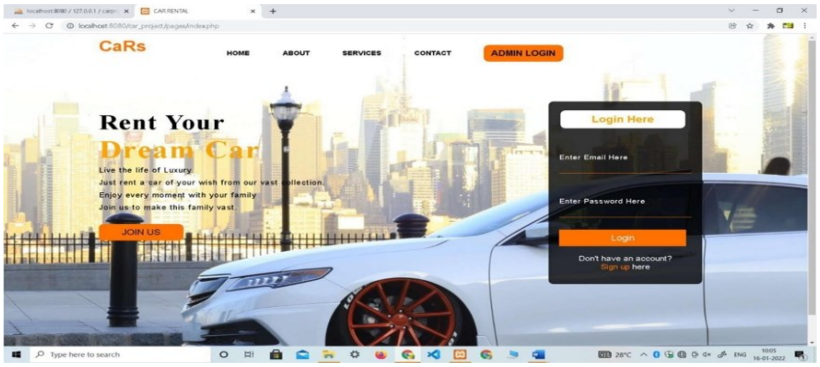

Figure: Screenshot of Home page

Figure indicates the home page of our website Cars. This contains navigation bar, through which can navigate to other pages. It also contains some details about the website at the home page.

Figure: Screenshot of User Registration page

Figure indicates the user registration page. It asks the user to enter the details like first name, last name, email, license number, phone number, password, confirm password and gender.

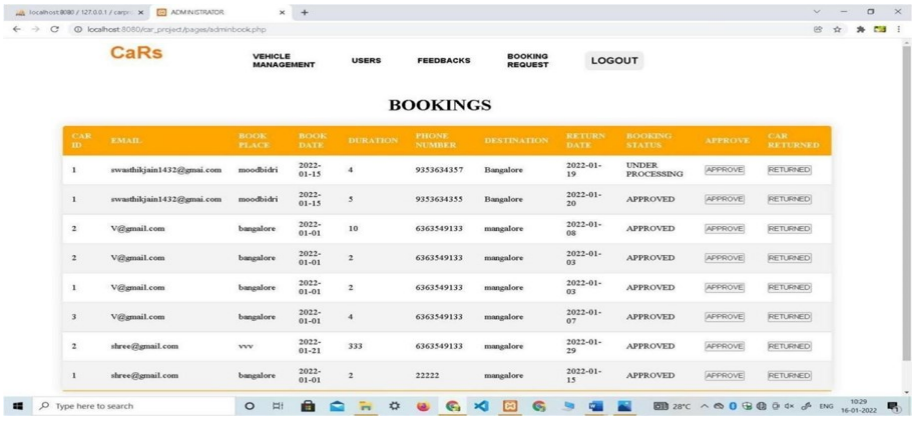

Figure: Screenshot of Bookings page

Figure indicates booking page. It includes the details like car id, email, book place, book date, phone number, destination, return date, booking status, approve, car returned where admin can give approve to the bookings done by the user and can also check the returned status of the car.

Future Work

The future of Car Rental system holds exciting possibilities, driven by advancements in technology, changing user preferences, and evolving regulatory landscapes. Here are some potential areas for future work:

Enhanced Functionality

- Integration with Payment Gateways: Directly integrate with popular payment gateways like Stripe, PayPal, or Braintree for a seamless user experience during online payments.
- Real-time Availability: Implement real-time car availability checks to provide up-to-date information and prevent overbooking. This might involve a connection to a database that's constantly updated with current car rental status.
- Vehicle Tracking (Optional): Consider integrating GPS tracking for vehicles (with proper user consent and privacy regulations in mind) to monitor car location, improve efficiency in retrieval and maintenance, and potentially offer features like real-time estimated return times.
- Advanced Search Filters: Expand car search filters to include additional criteria like fuel efficiency, seating capacity, transmission type (automatic/manual), luggage space, or specific features (sunroof, GPS navigation).
- One-Way Rentals: Allow one-way rentals where users can pick up a car at one location and return it to a different one, with appropriate pricing adjustments.
- Multilingual Support: Implement multilingual support to cater to a wider audience and improve accessibility for international users.

CONCLUSION

Developing a car rental system with a PHP framework offers a robust and versatile solution for managing your rental business. Here's a recap of the key points:

- Improved Efficiency: Streamline rental operations, automate tasks like booking management and invoicing, and reduce reliance on manual processes.
- Enhanced Customer Experience: Provide users with a convenient way to browse cars, make reservations, manage rentals online, and access past rental history.
- Scalability: The system can grow alongside your business, accommodating more cars, locations, and customers as needed.
- Data-Driven Management: Generate reports and gain insights into rental trends, customer demographics, and revenue streams, informing business decisions.
- Cost-Effectiveness: Develop a cost-efficient solution compared to custom development, leveraging the resources and functionalities offered by PHP frameworks.

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