Next-Generation Car Rental Platform: Design and Evaluation Go-Rent

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Abstract:

Renting a car for a trip, business trip, or any kind of travel is made easier with the help of the straightforward" Go Rent" platform. "Go Rent" wants its customers to have an easy and hassle-free experience, which is why it offers a large selection of cars and facilities.

Keywords **— React js, NodeJS and MySQL**

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I. INTRODUCTION

In this project," Go Rent" is an online car rental business that was established to provide customers with a simple and quick way to rent cars for a range of purposes. Hiring a car for a trip, business trip, or other travel-related objectives is made simpler with the user-friendly" Go Rent" app." Go Rent" offers a wide range of cars and amenities in an effort to make automobile rentals easy and hassle-free for its clients. This 'Go Rent' system Project is designed to help the car rental organization to enable renting cars through an online system. it helps the clients to select for available cars view profile and book the cars for the time period .it has an easy-to-understand interface which helps the clients to select for available cars view profile and book the cars for the time period. Taxi module for free drivers and cars. Rental cars are ordered economy, premium and so on. Reservations can be made according to the type of car the customer needs. The car rental organization allows you to rent cars through an online system. it helps customers to select the available car viewing profile and book cars for a period. It has an easy-to-understand interface that helps customers to select available cars, view profile and book cars for a specific period. Taxi module for free drivers and cars. Based on the type of car the customer needs, he can make reservations.

II. LITERATURE SURVEY

As our structure relies upon the useful Car Renting System which is an authentic application we inspected the present working circumstance of the renting technique. At present renting, organizations are dependent on manual work which consolidates packages of work area work similarly as a human resource. To date we find Cab Services incredibly easy to book, pay, or drop as they have formed their structures into helpful applications similarly as locales. So there is a need to change the arrangement of the Car Renting Service. But, Car rental business, notwithstanding everything, uses the central methodology for Renting a vehicle to a customer asthe customer ought to go genuinely at center, the owner will similarly be accessible there and the owner will permit the vehicle with his/her own supported driver (which costs more). Our structure and spotlights on renting Self Drive Cars, where the customer with significant License will have the alternative to book similarly as will have the choice to drive his/her own rented vehicle. The customer selection and endorsement are outstandingly straightforward and made with

thegoal that it makes the structure almost 0without even truly meeting the customer

III.   TECHNOLOGIES

A. *React js*

React.js, sometimes known as React, is a free and open-source JavaScript library. The best technique to design user interfaces is to merge pieces of code (components) into whole websites. Meta and the open-source community presently operate the platform, which was founded by Facebook. One advantage of React is that you may use it as much or as little as you like. For example, you might use React to create your whole website or just one React component on a single page.

B. *MySQL*

MySQL is an open-source relational database management system or RDBMS (RMS) developed by Oracle. MySQL is based on SQL, which stands for "Structured Query Language." A database is a structured collection of data. A database can be a simple shopping list, an image gallery, or a place to store the vast amounts of data that exist in a company network. MySQL is an essential part of many of the world's most popular software stacks. It powers everything from robust, data-driven business-to-business (B2B) services to customer-oriented web applications. Internet giants such as Facebook (owned by Google), Flickr (owned by Microsoft), Twitter (owned by Twitter), Wikipedia (owned by Wikipedia), and YouTube (owned by Google) all use MySQL backends because of the open nature, reliability, and rich functionality of MySQL, plus Oracle's ongoing development and support.

C. *Visual Studio Code*

Microsoft produced VSCode (Visual Studio Code), a cross platform, free, open-source code editor. The versatility and support for several programming languages of VSCode are widely recognized. It has an easy-to-use interface that lets you add different extensions and themes to your coding environment to make it what you need. Version management is made simple with VSCode's integration with Git. It also enhances productivity with features like smart code completion, syntax highlighting, debugging, and more. VSCode is a preferred tool for many software developers worldwide because of its sizable and vibrant developer community, which contributes updates and enhancements on a regular basis.

IV.   HARDWARE AND SOFTWERE

A. Hardware Spefication

The selection of hardware is very important in the and proper working of an existence software. When selecting hard ware, the size and capacity requirements are also important. Below is some of hardware that is required by the system:
- Processor: Dual core processor of 2.0 GHz or more
- RAM: 4 GB DDR4
- Hard Disk Space: 2 GB free hard disk space
- Input Device: Mouse, Standard Keyboard and Webcam 2.0
- Output Device: Monitor with 1280 x 720 resolution

B. Software Specification

We require much different software to make the application which is in making to work efficiently. It is very important to select the appropriate software so that the software works properly. Below is the software that are required to make the new system.

- Operating System: Windows 10 and Above
- Drivers/packages: React, MYSQL
- Tool: Visual Studio Code

V. SYSTEM DESIGN

A. *Data Design and Modelling*

The process of establishing a system's architecture, parts, modules, interface, and data in order to meet predetermined criteria is known as system design. In contrast to system analysis, it is a solution to a method that translates this" what is" attitude. system needs to enable them to function. The thorough execution of the system suggested in the feasibility study is the main goal of the design phase. System planning, whether to replace or enhance an already-existing system. However, planning needs to be done beforehand. It is necessary to have a full understanding of the outdated system and ascertain how computers might improve its functionality. The quality of the system design is crucial. In software development, quality is nurtured in the design process. Software design representation gives us with that can be assessed for quality. Using that, the quality may be evaluated. A system designer transfers user-oriented documents to a database administrator or programmer. It is an artistic and technologicallyinnovativeEndeavor.The following steps are included in it:
- Database Design
- Input Design
- Output Design

B. *Input Design*

One of the most costly stages of a computer system's functioning is input design, which is also frequently the main source of issues. Fault input design and procedures can be linked to a greater variety of system issues. It goes without saying that output data is a system's building component and has to be examined and taken into account during design. Input design is the process of creating a computer-based business information system from a user-oriented description toaprogrammer-oriented specification. The mistakes in the aim. an operator-prevention input structure that is simple to understand. It includes every stage of the input process, from the production of the first data to the actual data entry into the system for processing.The interface between the system and its users' world is the input design. For each program, the design of the user interface is crucial. The software's internal communication, as well as that of the system it interacts with and humans that utilize it, are all defined by the interface design. Making automation as simple and error-free as feasible is the aim of input data design. Simple data entry and selection elements are used to provide the application a suitable input design. User friendliness and other input design needs are taken into account for the project's development.

Requirements of Form Design:
- Identification and wording.
- Maximum readability and use.
- Physical factors
- Order of data items

C. *Output Design*

A high-quality output is one that clearly communicates the information and satisfies the needs of the final user. Any system's outputs are how processing results are shared with the user and other systems. The information presentation for both the hard copy output and the immediate requirement is decided upon in the output design. For the user, it is the most significant and immediate source of information. Therefore, the term" output design" often refers to the data and results produced by the system. For many end users, the primary motivation for system development and the foundation for assessing the application's value is its output.

D. *Basic Modules*

   1) Admin:
- Login, Enter the valid Login Credentials.
- Add car,delete and update.
- Vehicle Details
- View Registered user details.

• Verify documents.
2) User:
• User Registration
• User Dashboard
• Car search and listing
• Car Details and Booking
• Payment Processing
3) Taxi :
• Registration
• Dashboard taxi
• Add Taxi cars and Details
 • Add Driver Details

VI . IMPLEMENTATION AND TESTING

A. *Implementation Approaches*

The implementation is one phase of software development. Implementation is that stage in the project where theoretical design is turned into working system. Implementation involves placing the complete and tested software system into actual work environment. In the context of this project, implementation is a pivotal phase where the conceptual design transforms into a fully functional system. This crucial stage involves deploying the complete and thoroughly tested software system into the live operational environment, ensuring that users can seamlessly access and utilize the platform for their car rental needs. The primary objective of the implementation phase in "Go Rent" is to translate the design specifications into actual source code. The emphasis is placed on writing clear and straightforward source code that aligns with the specified requirements. The implementation process encompasses programming, rigorous system testing, user training, and the actual operational launch of individual subsystems that constitute the application.

B. *Testing Methods*

Testing is the process of examining the software to compare the actual behaviour with that of the excepted behaviour. The major goal of software testing is to demonstrate that faults are not present. In order to achieve this goal, the tester executes the program with the intent of finding errors. Though testing cannot show absence of errors but by not showing their presence it is considered that these are not present. System testing is the first Stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operations commences. Testing is vital to the success of the system. System testing makes a logical assumption that if all the parts of the system are correct and the goal will be successfully achieved. A series of testing are performed for the proposed system before the proposed system is ready for user acceptance testing. Software testing is an integral part of to ensure software quality, some software organizations are reluctant to include testing in their software cycle, because they are afraid of the high cost associated with the software testing. There are several factors that attribute the cost of software testing. Creating and maintaining large number of test cases is a time-consuming process.

VII. CONCLUSION

The" Go Rent" project provides a feature-rich and user friendly online platform for renting cars that meets the needs of both the car rental firm and its clients. With distinct modules for administration, user, and taxi, the system streamlines the rental car procedure and makes it both convenient and effective. Using the platform's vast inventory of cars, customers can easily select and reserve vehicles for the times they'd want, with cars categorized into premium, economy, and other categories. The project's success is due to its intuitive design,

which makes it easy for consumers to examine profiles, select from a range of available cars, and make bookings. The addition of a Taxi module enhances the platform's overall functionality by managing available drivers and cars in an efficient manner.

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