A PROJECT ON

"CAR RENTAL SYSTEM"

SUBMITTED IN

PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE COURSE OF DIPLOMA IN ADVANCED COMPUTING FROM CDAC



SUNBEAM INSTITUTE OF INFORMATION TECHNOLOGY

Hinjawadi

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CERTIFICATE

This is to certify that the project work under the title 'Car Rental System' is done by Saurabh S. Shivagan, Ketki P. Bhuyar, Bharati A. Lande and Shubham G. Janokar in partial fulfillment of the requirement for award of Diploma in Advanced Computing Course.

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Date: 9.03.2023

ACKNOWLEDGEMENT

A project usually falls short of its expectation unless aided and guided by the right persons at the right time. We avail this opportunity to express our deep sense of gratitude towards Mr. Nitin Kudale (Center Coordinator, SIIT, Pune) and Mr. Yogesh Kolhe (Course Coordinator, SIIT Pune).

We are deeply indebted and grateful to them for their guidance, encouragement and deep concern for our project. Without their critical evaluation and suggestions at every stage of the project, this project could never have reached its present form.

Last but not the least we thank the entire faculty and the staff members of Sunbeam Institute of Information Technology, Pune for their support.

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ABSTRACT

The Car Rental System is being developed for customers so that they can book their cars 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 Car which he requires. The proposed system is completely integrated online systems. It automates manual procedure in an effective and efficient way. This automated system facilitates customer and provides to fill up the details according to their requirements. It includes type of car they are trying to hire and location. The purpose of this system is to develop a web site for the people who can book their Car along with requirements from any part of the world. Car rental system provide car to User in their location on short time.

This software car Rental System has a very user friendly interface. Thus the users will feel very easy to work on it. By using this system admin can manage customer confirm and cancel booking request, customer Testimonials, customer issues. The car information can be added to the system. Or existed car information can be edited or deleted too by Administrator. There is no delay in the availability of any car information, whenever needed, car information can be Captured very quickly and easily.

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1. INTRODUCTION

This project is designed so as to be used by Car Rental Company specializing in renting cars to customers. It is an online system through which customers can view available cars, register, view profile and book car. Here, User has to Login to book a car. The user can search for cars easily and book. For bookings, the user has to provide information such as Booking Dates and Text Message. All car details are provided and it also includes Car's features and Overview.

This Car Rental System project enables renting of cars through an online system. It helps the users to search for available cars view profile and book the cars for the time period. It has a user-friendly interface which helps the user to check for cars and rent them for the period specified. They could also make payment online. The rental cars shall be categorized into economy, premium etc. Based on the type of car required by the customer, the user shall be able to make bookings. The use of internet technology has made it easy for the customers to rent a car any time. This Car Rental System makes the bookings easy. It saves time and labor. The tool shall ask the user for information such as the date and time of journey, type of car etc. Also, it will need an identification number. Using these details, the tool shall help the customer to book a car for the journey

Admin can Add/Manage car brand, manage cars, bookings, testimonial, pages and many more. It's easy to operate and understand by users. This site makes customers easy for car rental. The design is pretty simple and the user won't find it difficult to understand, use and navigate.

1.1. Objective:

- To reduce the effort of booking a car in a conventional procedure.
- To ease the search process of a customer who is in need of a car.
- To provide services to the customers in order to achieve the best customer satisfaction.
- Users who cannot drive or do not have driver license can rent cars with our drivers.
- Admin can manage the car catalog by adding or removing cars based on their availability.
- Reduced errors with rental data effectively stored in database.
- Entire network works on one single platform, seamless flow of data.
- Standardization of processes and services ensure clients receive the correct rates.

1.2 Why to use our website?

- We have various types of available cars such electric, hybrid, semi and auto.
- To make safe and secure journey.
- Green cars available.
- There are some special benefits of Electric car such as free car parking, car wash and low maintenance.

1.3 Unique:

- Insurance cars
- Safe cars as we do maintenance after every ride.
- User can try new IoT technology.
- Fuel Efficient.

2. NEED OF PROJECT

- A car rental is a vehicle that may be rented for a price and utilized for a specific length of time.
- Getting a rental automobile makes it easier for people to travel around when they don't have access to their own vehicle or don't own one at all.
- A person who needs transportation must call a rental car company and sign a contract.
- This method improves client retention while also making car and Employee management more straightforward.
- To ease the search process of a customer who is in need of a car.

Specifications Of System:

- 1. **Admin**: Admin is the super user of the website who can manage everything on the website except booking.
- 2. **Users**: Anyone can register through the registration page. After a successful registration user can log in with valid username and password.

3. REQUIREMENTS

3.1 FUNCTIONAL REQUIREMENTS

Requirement analysis is a software engineering approach that consists of a series of activities that establish the demands or conditions that must be satisfied for a new or updated product while taking into account the potential for competing requirements from different users. Functional requirements are those that are used to demonstrate the system's internal functioning nature, as well as the system's description and explanation of each subsystem. It comprises the task that the system should accomplish, the processes involved, the data that the system should contain, and the user interfaces.

These are statements of services the system should provide, how the system should react to particular inputs, and how the system should behave in particular situations. It specifies the application functionality that the developers must build into the product to enable users to accomplish their tasks. The system must allow the customer to register for booking a car. The system shall allow the customer to view detail description of particular car. The system must notify on selection of unavailable cars while booking. The system shall allow the employee to update feedback information. The system shall allow the employee to view bookings made by customers. The system shall presents information on protection products and their daily costs, and requests the customer to accept or decline regulation terms during booking.

3.1.1 User Requirement:

The user should be able to search for cars without signing up but while booking he/she should compulsorily need to log in. The user can sign-up if he/she doesn't have an account and then login. For payment user can pay through UPI, Card and Cash. Also for security only user/customer can access functionality of the user/customer, even if someone tries to log in with valid credentials of different role he/she should not be able to login and an error should be shown.

Following are the functions available to the users:

- Login
- Register
- Select Location
- View Catalog
- Driver Option
- Make bookings
- Make Payment
- Confirm Payment
- Return Form
- Query
- Feedback

• User Account

The customer, who will hence forth be called the 'user', will be presented with 3 choices by the rental system, as the first step in the interaction between them. A user can choose one of these and his choice would be governed by whether he is a registered user and whether he wants to check the availability of cars. The terms 'registered user' are described below.

A user who has rent the cars earlier would have been given a user id and a password. This 'personal information' would be henceforth referred to as 'profile'. Such a user with a profile in DB-user shall be called a 'registered user'. A registered user will be able to check the availability of cars as well as book a car by logging into the system.

A new user, on the other hand, would either have to

- a) Register himself with the system by providing personal information.
- b) Log into the system.

In case of 'a', the new user becomes a registered user.

'Availability of Cars' always refers to viewing the booking schedule for given days, the price of cars and any discount offers. The system shall present the user with an option to exit from the system at any time during the following processes.

• Registration and creation of user profile

The system shall require a user to register, in order to book a car. It will ask the user for the following information:

Username, full name, dob, password, adhar number, license number, email, address, gender etc.

• Making Booking of cars:

The user should be able to search for cars based on availability and should show cars which are available or not booked on the period between the pickup and drop location. After booking for those dates the cars should be booked for only those particular days and free or others to book on other dates. User can book any number of cars.

Booking details:

The user should be able to get the details of all the cars he/she has booked and for cars he is searching but not yet booked. The user should also be able to get total cost of booking before booking is done.

Canceling of cars:

The user should also have option to cancel booking.

If user cancels booking before 24 hrs of pickup time immediately then they will get 80% refund.

If users cancel before 8hrs of pickup time they will get 50% refund.

If they cancel on the day of pickup then no refund is available.

• Add/Update /remove cars and car details:

The admin adds cars. The admin can edit car details and images. Admin can update cars availability and check their requirement as per need at any time. The car admin can also remove the cars. The car admin should also receive all booking details of his/her own cars.

• View Booking History

The system shall allow a user to view all information about his previous bookings. It accesses User Booking table and retrieves the details of the trip and presents them to the user in a tabular format.

3.1.2 Admin Requirements:

The Car admin should need to first register and then login. After that, admin can add car, driver, location selected. The admin can also manage bookings, maintain car Info, Query, feedback details. Also the admin can get all the bookings. The car admin can also delete cars, drivers, users, and locations. Also for security only car admin can access functionality of the car rental system. Even if someone tries to log in with valid credentials of different role he/she should not be able to login and an error should be shown.

Following are the functions available to the Hotel Admin:

- 1. Login
- 2. Maintain Car Info
- 3. Get all customers
- 4. Get all Booking Details
- 5. Get all Cars by Availability
- 6. Maintain Location Info
- 7. Maintain Driver Details
- 8. Return form
- 9. Query /Feedback

3.2 NON FUNCTIONAL REQUIREMENTS

It describes system elements that are concerned with how the system fulfills functional requirements.

They are as follows:

- **Security:** Only authorized corporate workers may get access to the firm's secured page on the systems, and only users with proper passwords and usernames can log in to see the users page.
- **Performance and Response Time**: The system should have a high-performance rate while executing user input and should be able to offer feedback or a response in a short amount of time.
- Error handling: Errors should be avoided as much as possible, and a suitable error message should be supplied to help the user through the recovery process. The importance of validating user input cannot be overstated. In addition, the time it takes to recover from a mistake should be between 15 and 20 seconds.

• Availability:

- This system must be accessible at all times, 24 hours a day, seven days a week. In the event of a catastrophic system failure, the system should be backup and running within 1 to 2 business days, ensuring that the business process is not disrupted.
- **Ease of use**: Given the consumers' level of understanding, a basic yet high-quality user interface should be created to make it simple to comprehend and need minimal training.

4. DATABASE DESIGN

Table 1: Account_details

Column Name	Data Type	Allow Null	Key/Constraints	length
Adhar_no	Bigint	No	1	8
b_no	Varchar	Yes	1	255
City	Varchar	Yes	1	255
Pincode	Int	No	1	4
State	varchar	Yes	1	255
Street	Varchar	Yes	1	255
Adhar_name	Varchar	No	1	255
Dob	Date	Yes	0	6
Email	Varchar	No	2	255
Gender	Bit	No	1	1
Licsence_no	Varchar	Yes	1	255
Mob_no	Bigint	No	2	8
Password	Varchar	No	2	255
role	Varchar	Yes	1	255
username	varchar	no	2	255

Table2: Car_details

Column Name	Data Type	Allow Null	Key/Constraints	length
Car_model	Int	No	1	4
Car_average	Double	No	0	8
Car_capacity	Int	No	0	4
Car_company	Varchar	Yes	0	255
Car_fuel	Varchar	Yes	0	255
Car_gear_type	Varchar	Yes	0	255
Car_manufact_year	date	Yes	0	6
Car_rent_perday	Double	No	0	8
Car_type	Varchar	Yes	0	255
Insurance_no	Varchar	yes	0	255
Insurance_period	date	yes	0	6

Table 3: Location_details

Column Name	Data Type	Allow Null	Key/Constraints	length
Pincode	Int	No	1	4
B_no	Varchar	Yes	1	255
City	Varchar	Yes	1	255
State	Varchar	Yes	1	255
Street	varchar	yes	1	255

Table 4: Customer_pickup

Column Name	Data Type	Allow Null	Key/Constraints	length
O_id	Bigint	No	1	4
O_date	Date	Yes	1	6
O_time	Time	Yes	1	6
R_date	Date	Yes	1	6
R_time	Time	Yes	1	6
Pincode	int	yes	1	4

Table 5: Driver_detail

Column Name	Data Type	Allow Null	Key/Constraints	length
License_no	Varchar	No	1	255
B_no	Varchar	Yes	1	255
Pincode	int	No	1	4
State	Varchar	Yes	1	255
Street	Varchar	Yes	1	255
Adhar_name	Varchar	No	1	255
Adhar_no	Bigint	No	2	8
Dob	Date	Yes	0	6
Email	Varchar	No	1	255
Gender	Bit	No	1	1
Mob_no	Int	No	2	8
city	varchar	yes	1	255

Table 6: Order_details

Column Name	Data Type	Allow Null	Key/Constraints	length
O_id	Bigint	No	1	8
Car_model	Int	Yes	1	255
License_no	Varchar	Yes	1	255
Adhar_no	Bigint	yes	1	8

Table 7: Payment_details

Column Name	Data Type	Allow Null	Key/Constraints	length
O_id	Bigint	No	1	8
Card_cvv	Int	Yes	1	4
Card_expiry	Date	Yes	1	6
Card_name	Varchar	yes	1	255
Card_no	Bigint	Yes	1	8
Debit_credit	Bit	Yes	1	1
cash	Bit	Yes	1	1
razorpay	Bit	Yes	1	1
Total_amount	Double	No	1	8
upi	Bit	Yes	1	1
Upi_id	Varchar	Yes	1	255
Upi_name	varchar	yes	1	255

Table 8: After_return_form

Column Name	Data Type	Allow Null	Key/Constraints	length
O_id	Bigint	No	1	8
Comments	Varchar	Yes	0	255
Condition_after_return	varchar	yes	1	255

Table 9: Feedback_form

Column Name	Data Type	Allow Null	Key/Constraints	length
O_id	Bigint	No	1	8
Cleaning_points	Int	No	0	4
Comments	Varchar	Yes	0	255
Service_points	int	no	0	4

Table 10: Query_details

Column Name	Data Type	Allow Null	Key/Constraints	length
Q_id	Bigint	No	1	8
Query_comments	Varchar	No	1	255
Status	Bit	No	1	1
O_id	bigint	yes	1	8

5. CODING STANDARDS IMPLEMENTED

Naming and Capitalization:

Below summarizes the naming recommendations for identifiers in Pascal casing is used mainly (i.e. capitalize first letter of each word) with camel casing (capitalize each word except for the first one) being used in certain circumstances.

Identifier	Case	Examples	Additional Notes
Class	Pascal	Account, OrderDetails, LocationDetails	Class names should be based on "objects" or "real things" and should generally be nouns . No '_' signs allowed. Do not use type prefixes like 'C' for class.
Method	Camel	getOrderDetails, updatePayment	Methods should use verbs or verb phrases.
Parameter	Camel	adharName,	Use descriptive parameter names. Parameter names should be descriptive enough that the name of the parameter and its type can be used to determine its meaning in most scenarios.
Interface	Pascal with "I" prefix	JpaRepository, AccountDetails	Do not use the '_' sign
Property	Pascal	Roles, bNo	Use a noun or noun phrase to name properties.
Associated private member variable	_camelCase	_adhar_Name, _mob_No	Use underscore camel casing for the private member variables

Exception	Pascal with		
Class	"Exception"	RuntimeException,	
	suffix		

Comments:

- Comment each type, each non-public type member, and each region declaration.
- Use end-line comments only on variable declaration lines.
- Separate comments from comment delimiters (apostrophe) or // with one space.
- Begin the comment text with an uppercase letter.
- End the comment with a period.
- Explain the code; do not repeat it.

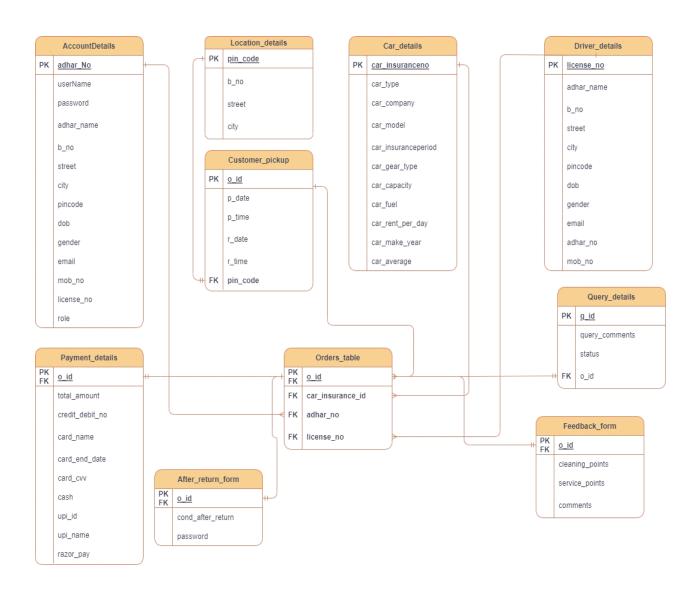
6. PROJECT MANAGEMENT RELATED STATISTICS

DATE	WORK PERFORMED	SLC Phase	Additional Notes
Oct 15,2022	Project Allotment and User Requirements Gathering	Feasibility Study	
Oct 25,2022	Initial SRS Document Validation and Team Structure Decided	Requirement Analysis (Elicitation)	The initial SRS was presented to the client to understand his requirements better
Nov 28,2022	Designing the use- cases, Class Diagram, Collaboration Diagram, E-R Diagram and User Interfaces	Requirement Analysis & Design Phase	Database Design completed
Feb20,2022	Business Logic Component design Started	Design Phase	
Feb 20, 20222	Coding Phase Started	Coding Phase	70% of Class Library implemented.
Feb21,2023	Implementation of Web Application and Window Application Started	Coding Phase	Class Library Development going on.
Feb25,2023	Implementation of Web Application and Window Application Continued	Coding Phase and Unit Testing	Class Library Modified as per the need.
Feb 26, 2023	Implementation of Web Application and Window Application Continued	Coding Phase and Unit Testing	
Feb26,2023	After Ensuring Proper Functioning the Required Validations were Implemented	Coding Phase and Unit Testing	Module Integration was done by the Project Manager
March 27,2023	The Project was Tested by the respective Team Leaders and the Project Manager	Testing Phase (Module Testing)	
March 3,2023	The Project was Submitted to Other Project Leader of Other Project Group For Testing	Testing Phase (Acceptance Testing)	The Project of Other Team was Taken up by the Team for Testing

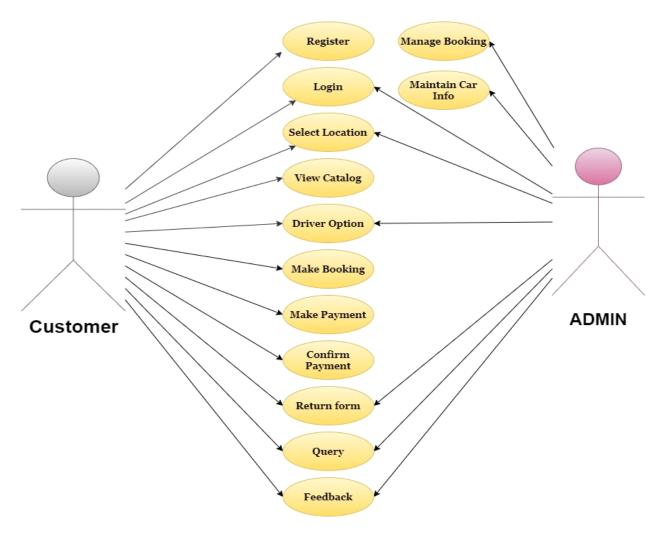
March 4,2023	The Errors Found were Removed	Debugging	The Project was complete for submission
March 9,2023	Final Submission of Project		

Appendix A

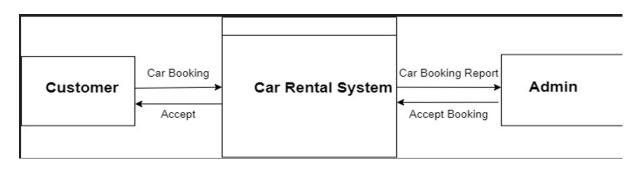
1:Entity Relationship Diagram



2: Use case Diagram



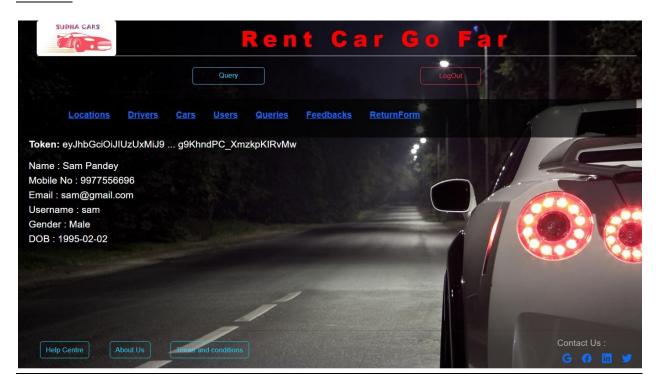
3: Dataflow Diagram



Appendix B

Admin Pages:

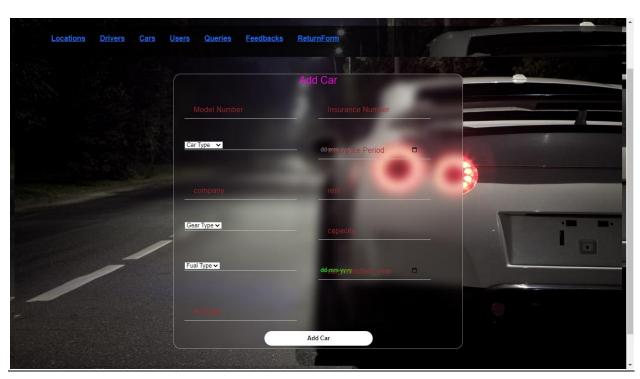
Profile:



Car:



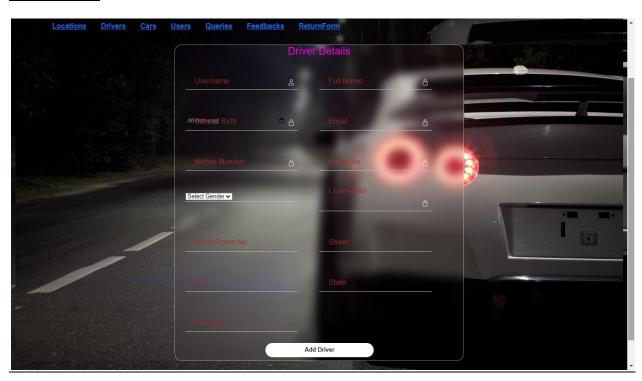
Car Add:



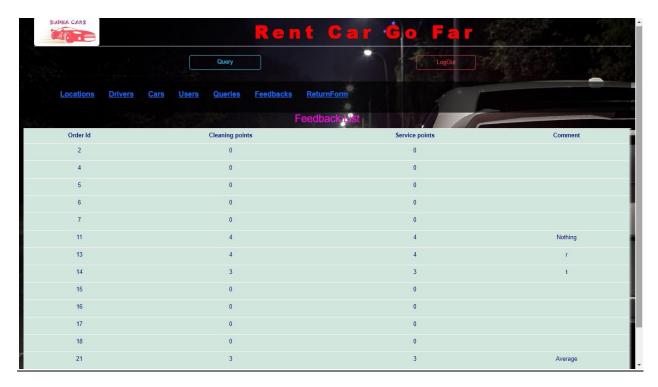
Driver List:



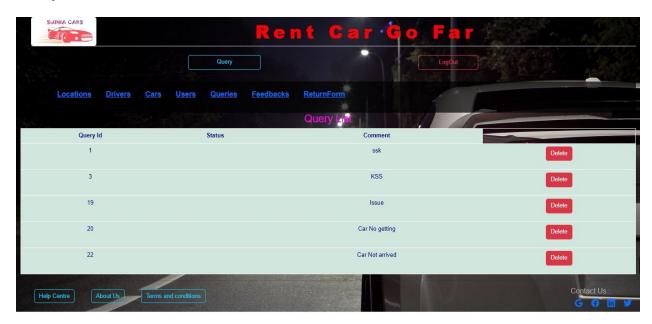
Driver Add:



Feedback List:



Query:



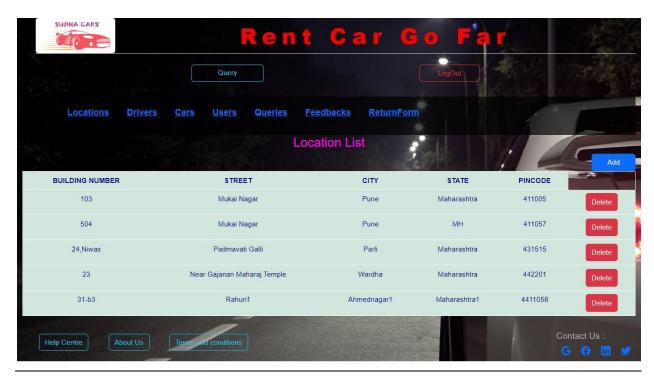
Return Form:



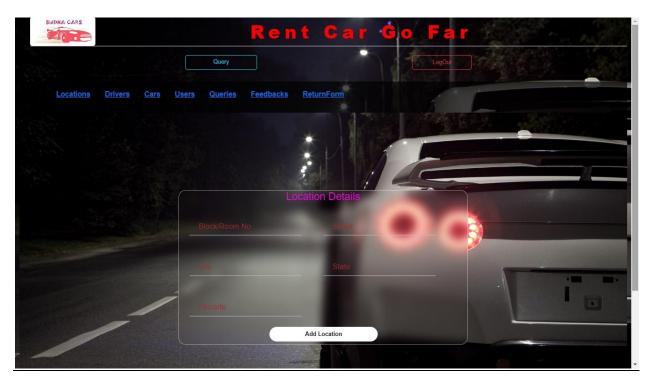
User List:



Locations:

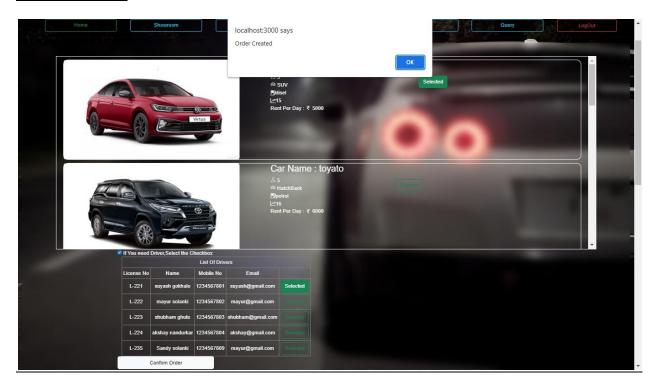


Location Add:



User Pages:

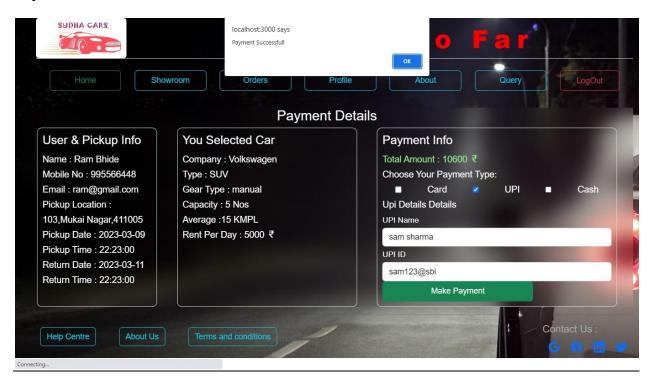
Order Created:



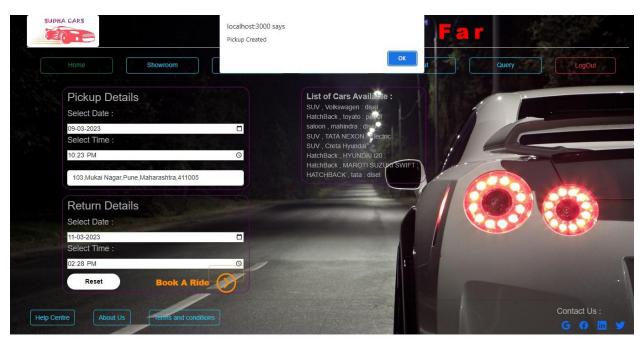
Payment Page:



Payment Success:



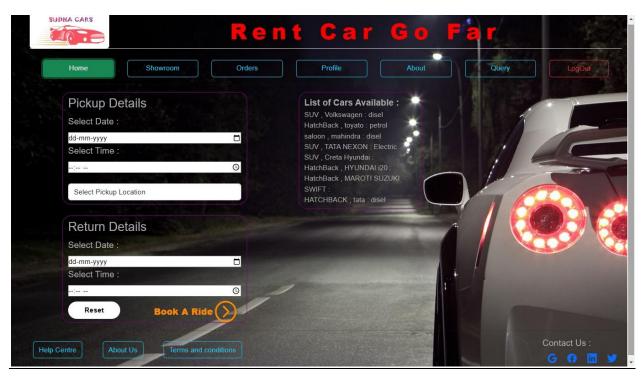
Pickup Created:



Car Page:



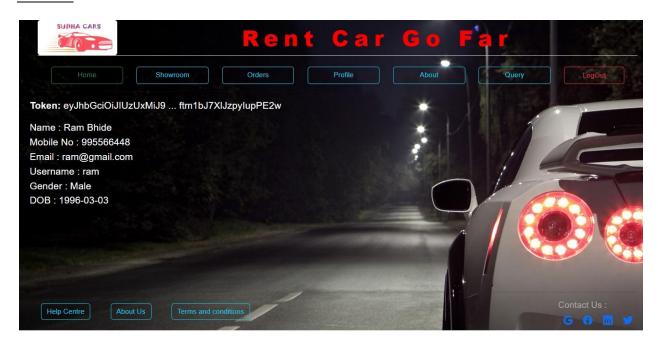
Home Page:



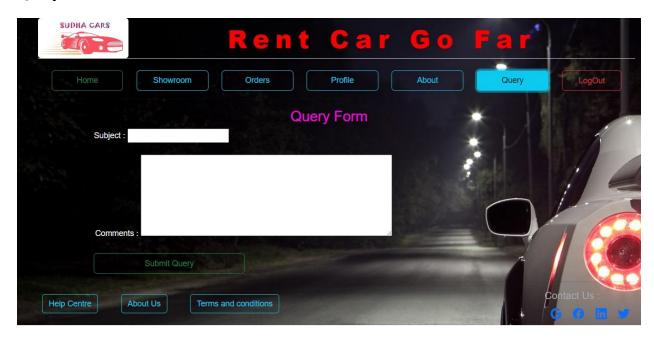
Orders:



Profile:

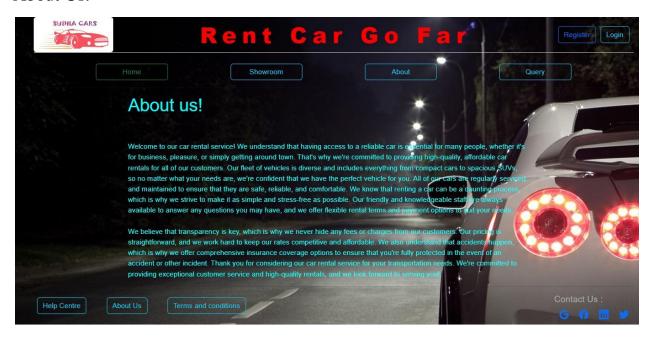


Query:

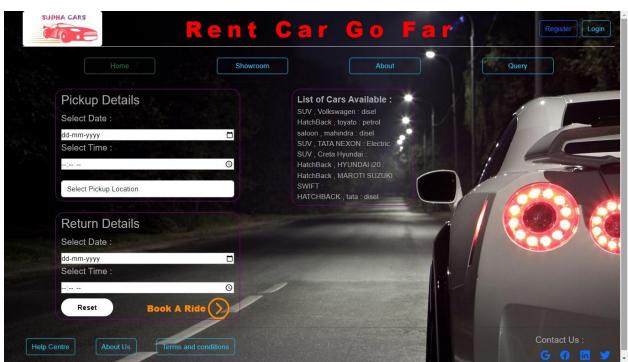


Public Pages:

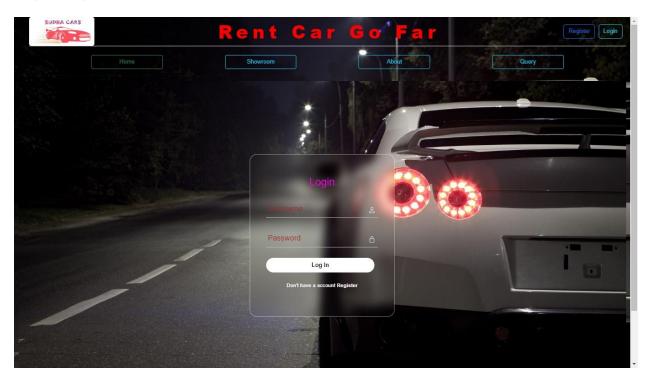
About Us:



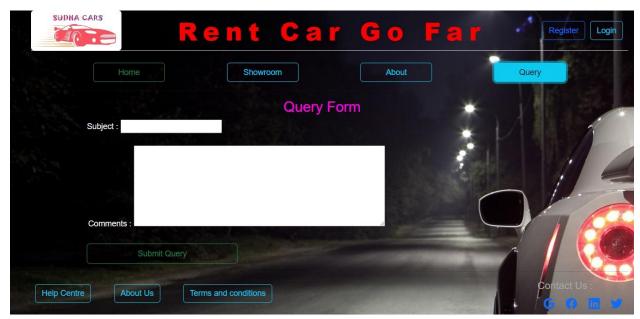
Home Page:



Login Page:



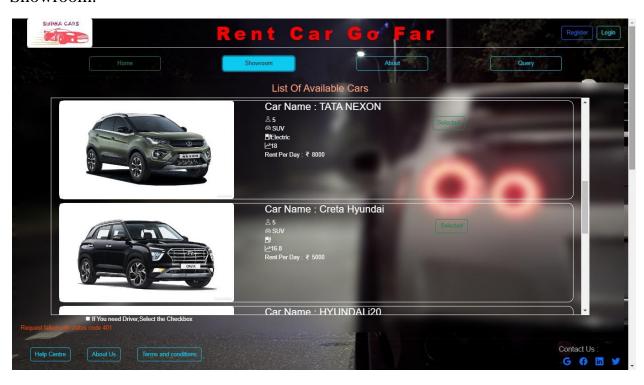
Query Form:



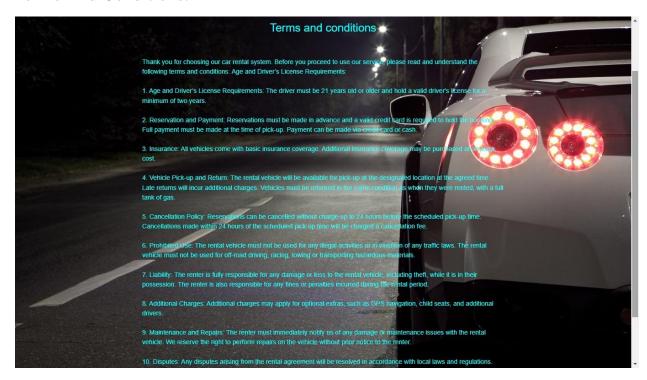
Register:



Showroom:



Terms And Conditions:



7. REFERENCES

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