**MINI PROJECT IN CAR RENTAL SYSTEM**

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**Introduction:**

This project document provides a general introduction about the Rental Car Management system project. The introduction contains and describes the background of the organization, existing system functions and problems. This document also describes the proposed system objective including the general and specific objectives of the project.

* **Currently available Systems**:

Prime Car Rental (PRC) organization gives car rental service for both foreign and local customers. This organization carries out its daily work by providing; their service to the customers using a manual system. The organization uses a manual system for reserving, renting, registering and keeping record of all the rental activities and customer information. The detailed existing system functions are listed as follows:

1. During vehicle reservation, the customers reserve a vehicle by making a phone call to the organization; otherwise he/she is expected to go to the organization to make a reservation.
2. During renting a vehicle, the customer's personal information, payments status and rent agreements are filled in the car rent agreement form; in order to hold legal contract between the customer and organization for renting the vehicle.
3. The organization normal work time schedule is from 8:00am – 11:00pm; therefore the organization gives services for fifteen hours a day.
4. The organization makes a general report about the rented vehicles once at the end of the month and generates a report.

**Problem statement with description:**

The existence system has a number of problems in the working procedure for the organization and customers. These problems are:

1. During reservation, a customer reserved a vehicle on phone or expected to go to the organization for reserving. This has its own problem in the business sector.

* The organization phone may be busy or may not work when a customer is calling to make a reservation.
* It may be difficult for customers to get the phone number or the location of the organization. The customers may result in unnecessary extra expense and waste their time.
* There may accrue duplicated reservation of the same vehicle. The organization may not be able to serve many customers.
* The customers may not get service from the organization 24/7 ( twenty four hours a day and seven days a week).

2. During renting a vehicle, the customer information and contract made between them are filled in a form.

* The contract form made between the customer and organization may be difficult to find incase of misplacing or disappearing due to massive collection of data.

3. During generating monthly reports.

* When generating a report, it takes time and it may not be easy to manage and analyze the monthly work due to massive collection of data and the generated report may not be accurate.

**Aim/objectives of the project:**

The aim of this project depicts the Following objectives as the need of improved distributed services,

* The new system is a totally computerized system.
* A new system provides features like time efficiency to show car details, user profiles and whatever the customer will give the feedback to the admin. This system provides tourism and traveling facilities.
* An inquiry is easily done by the user in the system.
* It is the best software application for managing online car rental business.

**Functional Details:**

Functional requirements 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 software functionality that the developers must build into the product to enable users to accomplish their tasks.

* **Reservation:**

1. The system must allow the customer to register for reservation.

2. The system shall allow the customer to view a detailed description of a particular vehicle. 3. The system must notify on selection of unavailable vehicles while reservation.

4. The system shall present an option for advanced search to limit the vehicle search to specific categories of vehicles search. E.g. By Brand, Type and Model.

5. The system must view a list of available vehicles during reservation.

6. The system shall allow the customers to cancel reservations using reservation confirmation number. 7. The system shall allow the employee to update reservation information.

8. The system shall allow the employee to view reservations made by customers.

9. The system must be able to provide a unique reservation confirmation number for all successfully committed reservations.

10. The system must be able to display a reservation summary for successfully committed reservations.

* **Vehicle:**

1. The system should allow staff to register new vehicles.

2. The system shall allow staff to update information of the vehicle in need of modification.

3. The system shall allow staff to display all lists of vehicles.

4. The system shall allow staff to display all available vehicles.

5. The system shall allow staff to display all rented vehicles.

6. The system shall allow staff to display all off duty vehicles.

* **Rent:**

1. The system shall allow staff to register customers into the rental list.

2. The system shall allow staff to update about customer rent record details in the rental list.

3. The system shall allow staff to display customers, who rent vehicles.

4. The system must provide printable summary for successful committed rent.

**Test plan:**

* **Reservation:**

1. Customer to register for reservation.

2. View description of particular vehicle.

3. Notify on selection of unavailable vehicles while reservation.

4. Advanced search E.g. By Brand, Type and Model.

5. Select specific vehicles using different search categories while reservation.

6. List of available vehicles during reservation.

7. Customer reservations cancel.

8. Update reservation information.

9. Viewing reservations made by customers.

10. Their daily costs, and requests from customers.

11. Displaying reservation summary for successfully committed reservation.

* **Vehicle:**

1. Allow staff to register new vehicles.

2. Allow staff to select vehicles in the list.

3. Allow customers to select vehicles in the list.

4. Allow staff to Search vehicles by specific record.

5. Allow customer staff to Search vehicles by specific record.

6. Allow staff to update information of the vehicle in need of modification.

7. Allow staff to display all lists of vehicles.

8. Allow staff to display all available vehicles.

9. Allow customers to display all available vehicles. 21. Allow staff to display all rented vehicles.

10. Allow staff to display all off duty vehicles.

* **Rent:**

1. Allow staff to register customers into the rental list.

2. Allow staff to update about customer rent record details in the rental list.

3. Able to save all changes made on the customer rent list.

4. Allow staff to select customer rent records by specific search category.

5. Allow staff to search the rent record of customers using specific categories.

6. Allow staff to display customers, who rent vehicles.

7. Allow staff to display all customers' rent records.

8. Provide printable summary for successful committed rent.

**Test cases:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl.no** | **Test case name** | **Purpose** | **Precondition** | **Test steps** | **Expected results** |
| 1 | Register for reservation | Enable customer to register in the system | Customer has a valid email id. | Click the register button. Provide required information such as name, email, phone number. Verify the email by using a verification link sent to mail. | Customers will be registered in the system. |
| 2 | View vehicle description | Enable customer to view detailed description of particular vehicle | Customer is logged in the system | Click to see the vehicles of the company. Click on a particular vehicle.  Detailed description of that vehicle will be displayed. | Detailed description of all vehicles in the system are displayed upon request. |
| 3 | Notify selection of unavailable vehicle while reservation | Notify customer that selected vehicle is unavailable for reservation | Customer is logged in the system. Customer has attempted to reserve a vehicle. | Click on Reserve vehicle. Get notification that the vehicle is unavailable | Notification is displayed for all unavailable vehicles in the system upon attempt of reservation. |
| 4 | Advanced search by vehicle category | Enable customers to limit search of vehicle by brand, type and model. | Customer is logged in the system. | Select advanced search. Select category of search. Results will be displayed according to parameters set. | All available search parameters display appropriate results. |
| 5 | Display list of available vehicle for reservation | Enable customer to view the list of vehicles available for reservation | Customer is logged into the system | Click on the button available vehicles A list of vehicles available for reservation will be displayed | All vehicles available for reservation will be on the list. |
| 6 | Cancel reservation | Enable customer to cancel reservation of vehicle | Customer is logged in the system. Customer has a vehicle reserved | Select cancel reservation. Provide reservation confirmation number. Reservation confirmation number will be verified by the system. Notification of successful/  failed cancelation will be displayed. | Customers will receive a notification of successful cancelation of reservation. If failed, show an error message. |
| 7 | Update reservation information | Enable employee to update reservation information | Employee is logged in the system. Employee has clearance to update information | Select update reservation information. Make necessary changes and save them. | Updated information will be saved and displayed. |
| 8 | View list of reservations | Enable employee to view reservations made by customers | Employee is logged in the system. Employee has clearance to view reservations | Select reservations | List of reservations made will be displayed. |
| 9 | Provide unique reservation number | Enable identification of reservations | Reservation has been made | Generation reservation number and verify it’s uniqueness | Generate unique numbers for all reservations made |
| 10 | Display reservation summary | Enable customer to view a summary of a committed reservation | Customer is logged in the system Customer has  made a successful reservation | Select view summary | Summary of reservation will be displayed. |
| 11 | User log in | Enable Users to log in to the system | User has required credentials to log in | Input username.  Input password. Select user type(customer, manager, employee). Verify username, password and type. | If verified, grant access to the system.  If not, show an error message. |
| 12 | Create new customer account | Enable new customers to use the system | Customer has valid email id | Click the sign up button. Provide required information such as, name, email, phone number.  Verify email provided by using a verification link sent to email. | Customer will be registered in the system after verification |
| 13 | Create new employee account | Enable manager to register employees in the system | Manager has required information of employee | Click the new register employee button and provide information such as name, email, phone number.  Verify email provided by using a verification link sent to email. | Employees will be registered in the system after verification. |
| 14 | User log out | Enable user to log out of the system | User is logged in | Click the logout button. | User will be logged out |
| 15 | Change password | Allow user to change password | User exists in the system | Click forgot password in log in page or change password in account settings.  If forgot password, then the recovery link will be sent to email.  After clicking link, input new password, save password. If from account settings, input current password, input new password, save password. | Login credentials will be updated with a new password. |
| 16 | Register new vehicle | Enable registration of new vehicle in the system | Employee is logged in Employee has clearance to register new vehicle | Input vehicle information. Add a picture and save it. | New vehicle information will be saved and the vehicle roster will be updated. |
| 17 | Update vehicle information | Enable employees to update vehicle information to current status | Employee is logged in Employee has clearance to update vehicle information | Select vehicle and Make necessary changes and save. | Updated information will be saved and displayed. |
| 18 | View vehicle list | Enable employees to view list of all vehicles | Employee is logged in | Select view all vehicles | List of all vehicles of the company will be displayed |
| 19 | View available vehicle list | Enable employees to view list of available vehicles | Employee is logged in | Select view available vehicles | List of vehicles available for reservation will be displayed |
| 20 | View rented vehicle list | Enable employees to view list of rented vehicles | Employee is logged in | Select view rented vehicles | List of vehicles currently rented will be displayed |
| 21 | View off duty vehicle list | Enable employees to view list of off duty vehicles | Employee is logged in | Select view off duty vehicles | List of off duty will be displayed |
| 22 | Register customer into rental list | Enable employee to register customer into rental list | Employee is logged in Employee has clearance to register customer into rental list | Open registration form. Input customer and vehicle information. Save records. | Rental list will be updated. |
| 23 | Update customer rent record details | Enable employee to rent record details in rental list | Employee is logged in Employee has clearance to update rent record details in rental list | Open rental list. Select record to update. Make necessary changes. Save records. | Updated record details will be saved in the rental list. |
| 24 | Search rent records by specific category | Enable employee to search rent records by specified parameters | Employee is logged in. Employee has clearance to view rent records | Select search by category. Input desired category. | Search result matching input categories will be displayed.  If no such records exist, then an error message will be displayed. |
| 25 | Display list of customers  who rented vehicles | Enable employee to see which  customers have rented vehicles | Employee is logged in Employee has clearance to view customer list | Open list of customers who rented vehicles. | A list of customers who rent vehicles will  be displayed. |
| 26 | Display customer rent records | Enable employee to see rent records of customers | Employee is logged in Employee has clearance to view customer rent records | Select view customer rent records. | Rent records of that specific customer will be displayed. This will be true for all customers in the system |
| 27 | Print summary of successfully committed rent | Enable user to print a summary of successfully committed rent | User is logged in. User has clearance to print summary of successfully committed rent | Open summary of successfully committed rent. Click print | System will print the summary of successfully committed rent. |

**System requirements:**

**Hardware configuration**

* Processor Pentium III 866 MHz
* RAM 128 MB Ram
* Monitor 15 inch color
* Hard disk 20 GB
* Floppy drive 1.44 MB
* CD drive LG 52X
* Key board Standard US Keyboard

## **Software configuration:**

* Operating system Windows XP Professional
* Language C Programming

**Research work:**

This Car Rental System project is designed to aid the car rental company to enable renting of cars through an online system. It helps the users to search for available cars, view profiles 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.

**Conclusion:**

This Car Rental System project will enable the user to rent a vehicle. The user shall login to the system and check for availability of cars. The user specifies a type of car and the journey date and time. The Car Rental System shall check for the availability of the car and rent the car to the customer. The user can make payment online. The tool is designed using C programming. The user has to enter his name, address, phone details and check for the cars available for rent. The UI is very simple and the connectivity to back end is robust. The main advantage is that the user shall be able to choose a car depending on his budget.

**References:**

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