SOFTWARE REQUIREMENTS SPECIFICATION

Online Car Rental System

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Lecturer : Mr. Roopesh Kevin Sungkur

Students:

Chumbit Khilesh	**ID: 2117855**
Veerapen Chetty Sarah	**ID: 2116427**
Beerachee Deesha	**ID: 2117144**
Peeharry Geerna	**ID: 2116307**
Bholah Mohammad Yassir	**ID: 2114519**

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1.0 Introduction:

In this modern era, traveling has become a sort of necessity, be it for personal aspect or professional use. A personal car is not so affordable and quite sometimes, public transports are not convenient for specific purposes or traveling in the morning when everyone is rushing for work. Hence this is why online car rentals are a must and free of stress as the car will be at your door when you need it. One dreams about exploring places with friends, having a road trip around the island, or even thinking about going to work on a hectic day, then the latter would definitely need a certain means of transport. This is why in this software requirement specification; it will summarize a car rental system highlighting its need and constraints along with its requirements that will be followed by the system.

1.1 Brief literature survey:

It is a fact that anybody would prefer a convenient and timely service, but it’s not uncommon for car rentals to drag one's feet. Roughly speaking, vehicle pick-ups delay is quite common and considering the tight competition in this business landscape, car rental services cannot afford to fail to satisfy their customers. Thus, if one wants to remedy this problem, then the latter must adapt to current trends and accept online reservations and manage his fleet with ease through an online car rental system. If a person wants to book a car, then he can go to the car rental website, find a vehicle that meets his needs and pay for the chosen rental period through e-payment. Then on the appointed day, this client arrives at the car rental location to pick up his chosen car. An agent will make a copy of his ID, explain the terms of the lease, instructs him on any special features of the car, and finally hand him the keys to the vehicle. When the customer drops off the car, the agent checks its mileage and inspects for any possible damages.

1.2 Description of existing similar system:

When talking about online car rental, none can forget about Uber's explosive growth which made it one of the most alluring companies to emerge over the past decade across the world. This global ride-sharing application, founded in 2009, disrupted modern transportation as we know it. Uber is a carpooling company whereby you use its mobile app to submit a trip request that is spontaneously sent to an Uber driver in your surroundings, alerting the latter of your current location. The Uber driver who accepted your request will then come pick you up and drive you to your solicited destination.

The Uber app automatically figures out the best, most convenient route for the driver, calculates the distance and fare, and transfers the payment to the driver from your selected payment method, without you having to say a word or even reach for your wallet. It then corresponds you with the closest Uber driver at hand. When a driver takes on your trip, you'll see his/her name, license plate and other important details. You'll be able to follow your Uber driver on the built-in map until they reach your destination and when on a trip, you can follow your trip in real-time and share your ETA with your contacts.

1.3 Scope:

With the use of the Online Car Rental System, it will help the company in refining their current system and provide a user-friendly interface where customers can easily book a car online no matter where they may be located on the island, giving them a faster and easier method of reservation without any inconveniences. The web-based system thus allows customers to register and reserve a car online and for the company to effectively manage their car rental business through the Internet.

2.0 Description of proposed system:

Our goal is to facilitate people's life when it comes to transportation. We want to keep people away from the trouble of paying for maintenance, depreciation loss, fuel costs, insurance, property tax, and more. We want to offer the most suitable vehicle depending on what the customer is looking for in terms of use, models, and prices. And all of this online without any displacement and with just a few clicks.

Renting your vehicle:

- If the customer already used our services in the past and possesses an account, he only needs to log in by inputting his full name, identification card number, and the password they have been provided with after their registration on our site/app.
- If the customer is new, he will have to create an account on our site/app where he will be asked to input the following information: full name, identity card number, age, address, phone number, card number, email, occupation, and health issues if any. Based on the above, the admin will judge whether the person is eligible to rent/drive. Once registration is completed, the customer will receive a login password.
- After a successful login/registration, the customer will be directed to select the car model and specify the duration he would like to rent the vehicle.
- Payment Procedures: Once the model of the vehicle has been selected, the customer will be asked to enter his password to confirm his booking, and money will be debited from his account.
- Booking Confirmation: After the payment, a document/receipt will be sent to the customer which will serve as proof for his payment and inform him that the transaction has been successful.

2.1 Constraints for our proposed system's design:

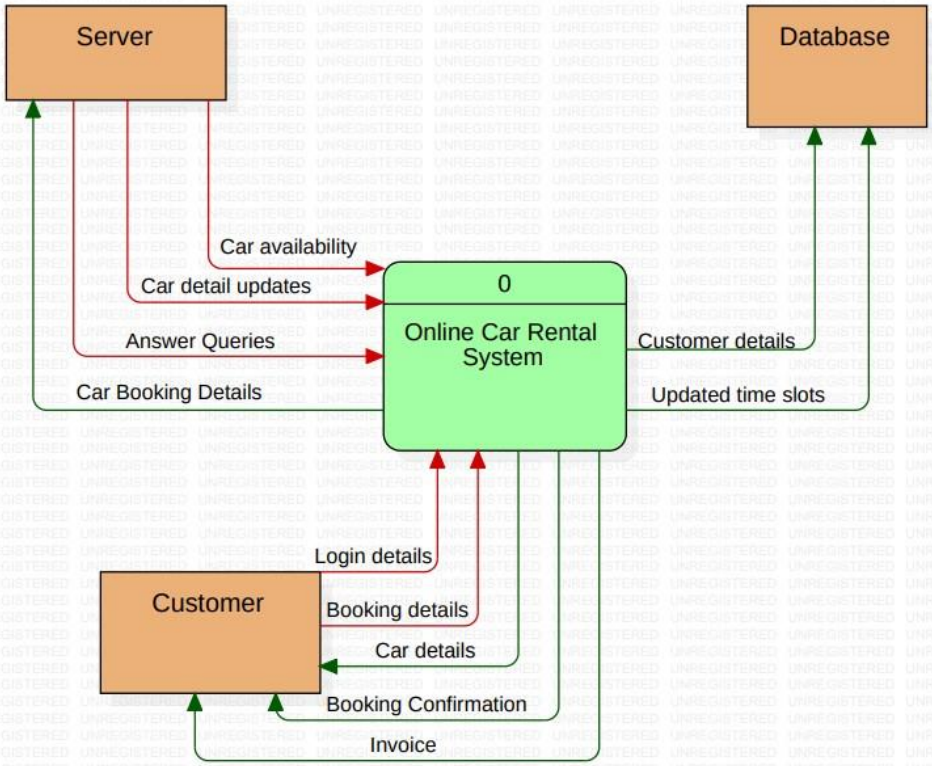
We want to be able to trust the system to process all the information, check the validity of the data, and automate the data storage, management, and responses. We want our desired system to be as user friendly as possible, secure for our customers, and wish to implement the following functionalities in the system:

- Add an endless number of products and services.
- Remove unwanted or outdated products.
- Present all the data about the car (models, prices).
- Check car's availability and if it is not available, suggest other similar products that might appeal to the customer.
- Cancellation and rescheduling options.
- Use Google calendar to keep track of bookings.
- Add customized information to notify customers about the rental services or appointment bookings we offer on our website.
- Create custom fields if we want our consumers to add additional information throughout the booking process.
- Option to close booking if the customer changed his mind

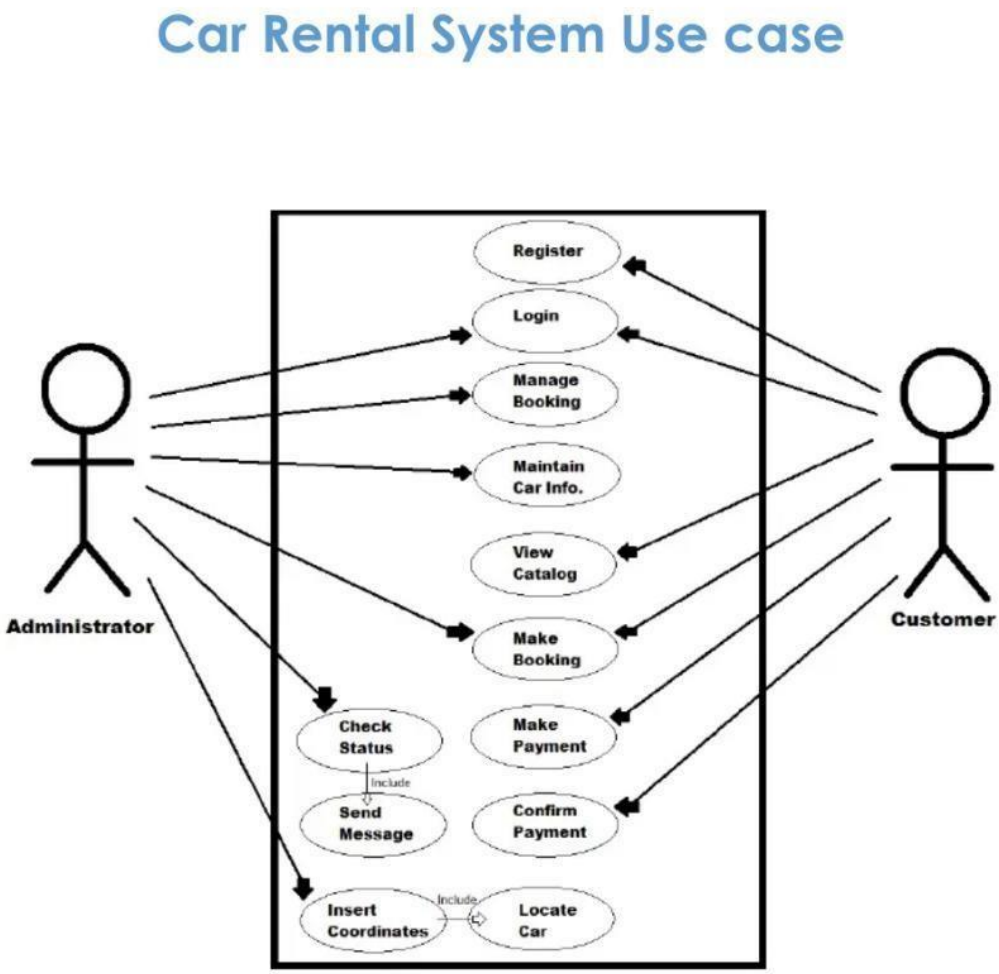
2.2 Why E-Payment?

- Faster and more efficient.
- No need for displacement.
- Better customer convenience.
- Increased sales.
- No need to spend time waiting for your turn in line.
- No direct contact considering the Covid-19 pandemic.
- Higher payment security.

2.3 Context diagram:



2.4 Use Case diagram:



3.0 User & System Requirements:

UR1: The user must be able to register to a new user account.

UR2: The user must be able to change his account details using his email address and password.

UR3: The user must be able to make payments using online banking.

UR4: The user must be able to view search results of cars and prices.

UR5: The user should be able to request a refund upon cancellation of booking if he/she has already paid.

UR6: The user must be able to choose the car that is available in the car list.

UR7: The user must be helped to fill up the form in case of unauthorized input.

UR8: The user must be able to change the car according to their preferences.

UR9: The user must be able to input the date and time when checking the available car for rent.

UR10: The system must be able to notify the user upon selection of unavailable cars while doing the reservation.

UR11: The system must be able to send a mail of confirmation to the user for the booking.

UR12: The system must be able to generate the pricing strategy.

UR13: The system must be able to handle the payment of the system.

UR14: The system must be able to keep track of the documentation and response of the customers.

UR15: The system must be able to finalize the booking of the customers.

3.1 Functional requirements:

3.1.1 Booking:

FR1: The system shall allow the customer to register for the booking of a car.

FR2: The customer shall confirm the booking in order for the system to allow him to rent the car.

FR3: After the confirmation of the booking, the customer gets a booking number and shall pay for the car he/she has rented.

FR4: The system shall let the customer cancel any booking done using the booking number.

3.1.2 Log in:

FR5: The admin shall log in to the system and manage all the functionalities of the car rental system.

FR6: The customer shall have an active internet connection while using the car rental website.

FR7: The customer shall use his/her username and password to get access to the system.

FR8: If the customer has forgotten his/her password, an email shall be sent to the customer's email address to reset the password.

3.1.3 Car:

FR9: The system shall display all available cars when a customer enters the system.

FR10: The customer should be able to apply a filter to car models and prices to better suit his/her needs.

FR11: The system shall check the availability of the car model the customer has chosen.

3.1.4 Rent:

FR12: The system shall update the rental records of customers in the car rental list.

FR13: The system shall save all changes made to the rented car.

FR14: The system shall provide a printable summary of the confirmation of the rented car.

3.2 Non-functional requirements:

3.2.1.1 Performance (speed):

NFR 1: The system shall be able to mail the customer within 10 seconds in case he/she has forgotten his/her password.

NFR 2: The system should provide a response in about 5 to 15 seconds.

NFR 3: The system shall be able to load in 1 to 2 seconds while opening it to rent a car.

3.2.1.2 Availability:

NFR 4: The system shall be available 24 hours a day, 7 days a week.

NFR 5: The system shall be able to work in 1 to 2 days in case of a system crash.

3.2.1.3 Usability:

NFR 6: The system shall be able to accommodate multiple users at the time.

NFR 7: The system shall provide a user-friendly menu so that the user can be comfortable while using it.

3.2.1.4 Efficiency:

NFR 8: The system shall be able to provide continuous service to customers.

3.2.2 External Non-Functional requirements:

3.2.2.1 Security:

NFR 9: The system shall be able to check who has access to the system by demanding a password for security purposes as well as a specification of not less than 7 characters.

NFR 10: The system shall be able to secure any transaction involved between the customer and the company.

NFR 11: The system shall be able to secure the website for safety measures.

3.2.2.2 Ethicality:

NFR 12: The system shall act ethically by helping the user but not make any choice for the user.

4.0 Traceability Matrix:

4.1 Stakeholder- Functional Requirements

STAKEHOLDER-FUNCTIONAL REQUIREMENTS TRACEABILITY MATRIX														
SH / FR	FR1	FR2	FR3	FR4	FR5	FR6	FR7	FR8	FR9	FR10	FR11	FR12	FR13	FR14
Users	✖	✖	✖	✖		✖	✖	✖		✖				
Administrators					✖				✖		✖	✖	✖	✖

4.2 Functional Requirements - Functional Requirements

FUNCTIONAL-FUNCTIONAL REQUIREMENTS TRACEABILITY MATRIX														
FR / FR	FR1	FR2	FR3	FR4	FR5	FR6	FR7	FR8	FR9	FR10	FR11	FR12	FR13	FR14
FR1														
FR2			✖											
FR3		✖		✖										✖
FR4			✖											
FR5														
FR6														
FR7								✖						
FR8							✖							
FR9										✖				
FR10									✖		✖			
FR11										✖				
FR12														
FR13														
FR14			✖											

4.3 Non-Functional Requirements - Functional Requirements

NON-FUNCTIONAL - FUNCTIONAL REQUIREMENTS TRACEABILITY MATRIX												
FR / **NFR**	NFR1	NFR2	NFR3	NFR4	NFR5	NFR6	NFR7	NFR8	NFR9	NFR10	NFR11	NFR12
FR1		✖		✖		✖	✖	✖	✖			
FR2		✖	✖			✖		✖		✖	✖	
FR3		✖	✖	✖		✖	✖	✖		✖	✖	
FR4				✖		✖		✖				
FR5												
FR6			✖									
FR7	✖	✖		✖		✖	✖	✖	✖			
FR8	✖	✖		✖				✖	✖			
FR9		✖	✖	✖		✖	✖	✖				✖
FR10		✖		✖		✖	✖	✖				✖
FR11		✖	✖	✖		✖	✖	✖				✖
FR12								✖				
FR13								✖				
FR14								✖				