ONLINE CAR RENTAL SYSTEM

PROBLEM STATEMENT:

A car rental is a vehicle that can be used temporarily for a fee during a specified period. Getting a rental car helps people get around despite the fact they do not have access to their own personal vehicle or do not own a vehicle at all. The individual who needs a car must contact a rental car company and contract out for a vehicle. This system increases customer retention and simplify vehicle and staff management. The Solution to the problem is, Online Car Rental System, the users will able for searching and reserving their favourite cars easily through the Internet and it can be accessed anytime. Hence, the company can improve their customer satisfaction level, increasing efficiency by provides better services to their customer.

Software Requirement Specification document:

Functional requirements:

● User Registration: Allow users to register an account with their personal information, contact details, and payment method.

● Vehicle Availability: Provide a mechanism for users to search and check the availability of vehicles based on location, date, and time.

● Vehicle Booking: Allow users to select a vehicle, specify the rental period, and make a reservation.

● Reservation Management: Enable users to view, modify, and cancel their reservations.

● Online Payment: Integrate a secure payment gateway to facilitate online payment for vehicle rentals

● Vehicle Pick-up and Return: Provide a process for users to pick up the

reserved vehicle at the designated location and return it at the end of the rental period.
● Vehicle Inspection: Include a vehicle inspection process to assess and record
the condition of the vehicle before and after the rental.
● Customer Feedback: Allow users to provide feedback and ratings for the rented
vehicles and overall experience.

Non-functional requirements:

● Performance: Response times for user actions such as searching, booking, and payment should be within an acceptable range.
● Security: Implement strong security measures to protect user information and payment transactions.
● Usability: Provide clear instructions and guidance throughout the rental process.
● Reliability: Ensure the system is available and accessible 24/7 to accommodate user bookings.
● Scalability: Design the system to handle an increasing number of vehicles, users, and transactions as the business grows. Should meet demand when time peak periods.
● Availability: Maintain high system availability with minimal planned or unplanned downtime to avoid disruptions in service.

Design Phase tool:

StarUML:

StarUML is an open-source software modelling tool that supports the UML (Unified Modelling Language) framework for system and software modelling. It is based on UML version 1.4, provides different types of diagrams and it accepts UML 2.0 notation. It

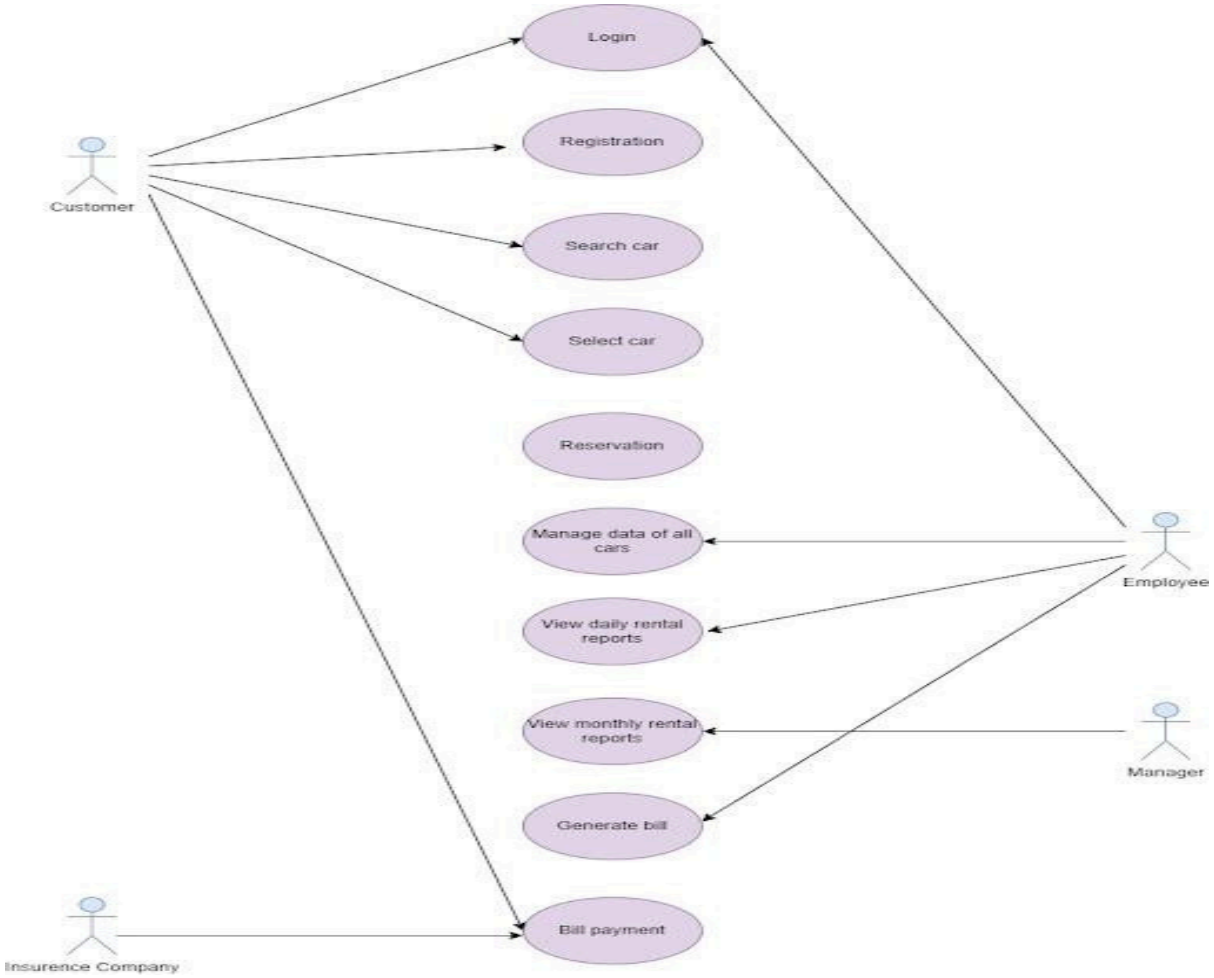
actively supports the MDA (Model Driven Architecture) approach by supporting the UML profile concept and allowing to generate code for multiple languages.
StarUML supports the following diagram types:
UML DIAGRAMS:

1. Use Case diagram
2. Class diagram
3. Sequence diagram
4. State-chart diagram
5. Activity diagram
6. Deployment diagram

1. USECASE DIAGRAM

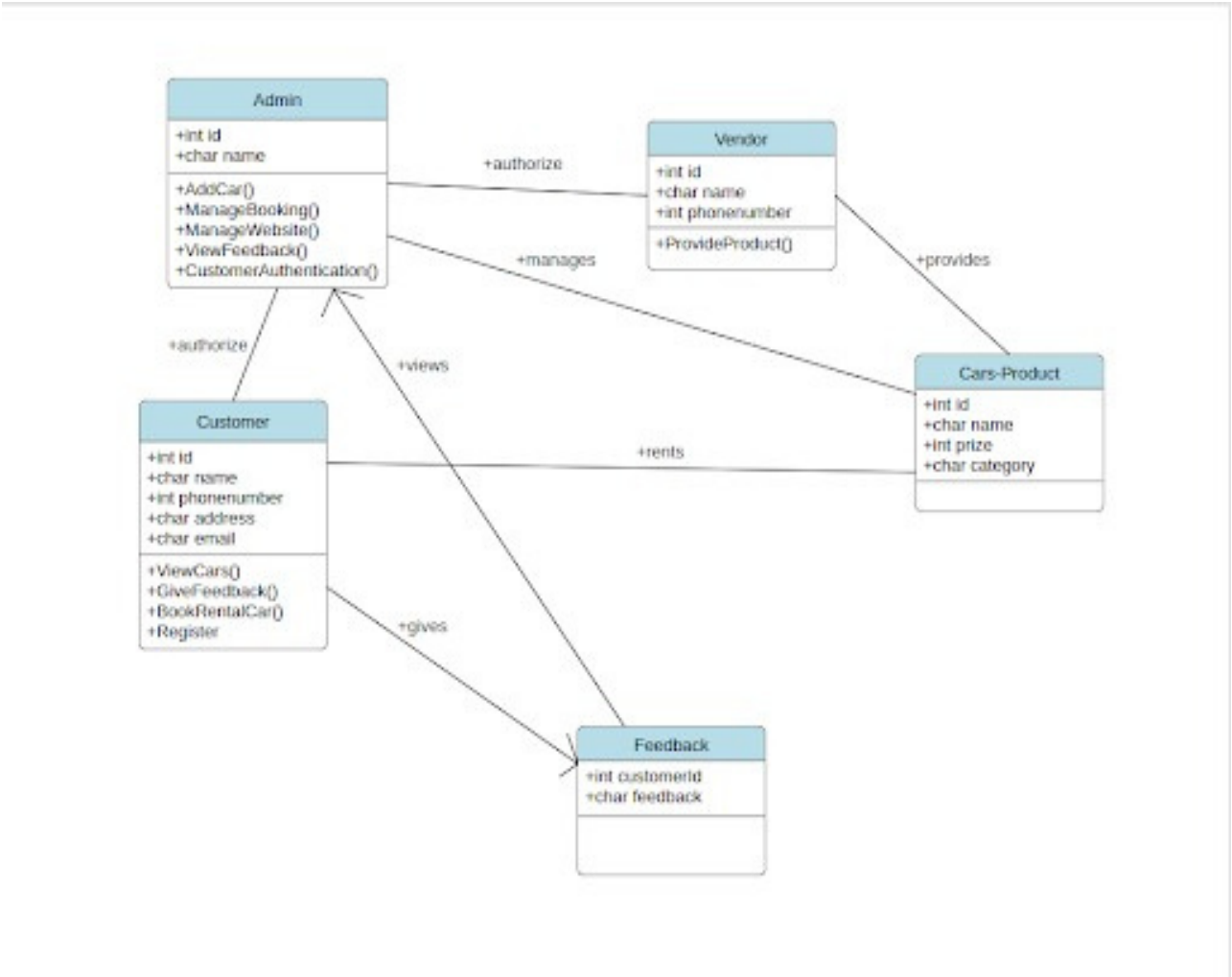
A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. The use case is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal. Actor is any external entity that makes use of the system being

modelled. It is represented using stick figure.



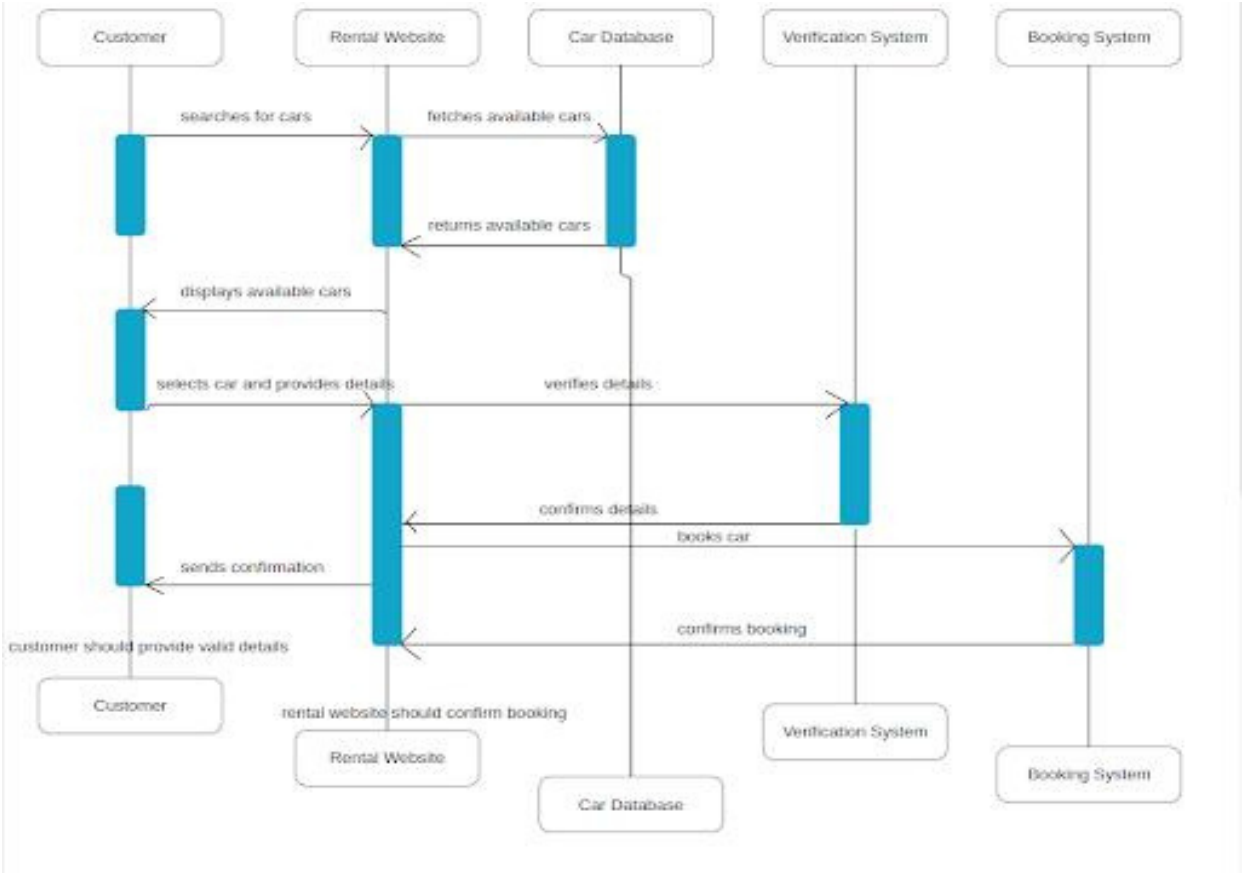
2. CLASS DIAGRAM

The class diagram is the main building block, several classes are identified and grouped together in a class diagram which helps to determine the statically relations between those objects.



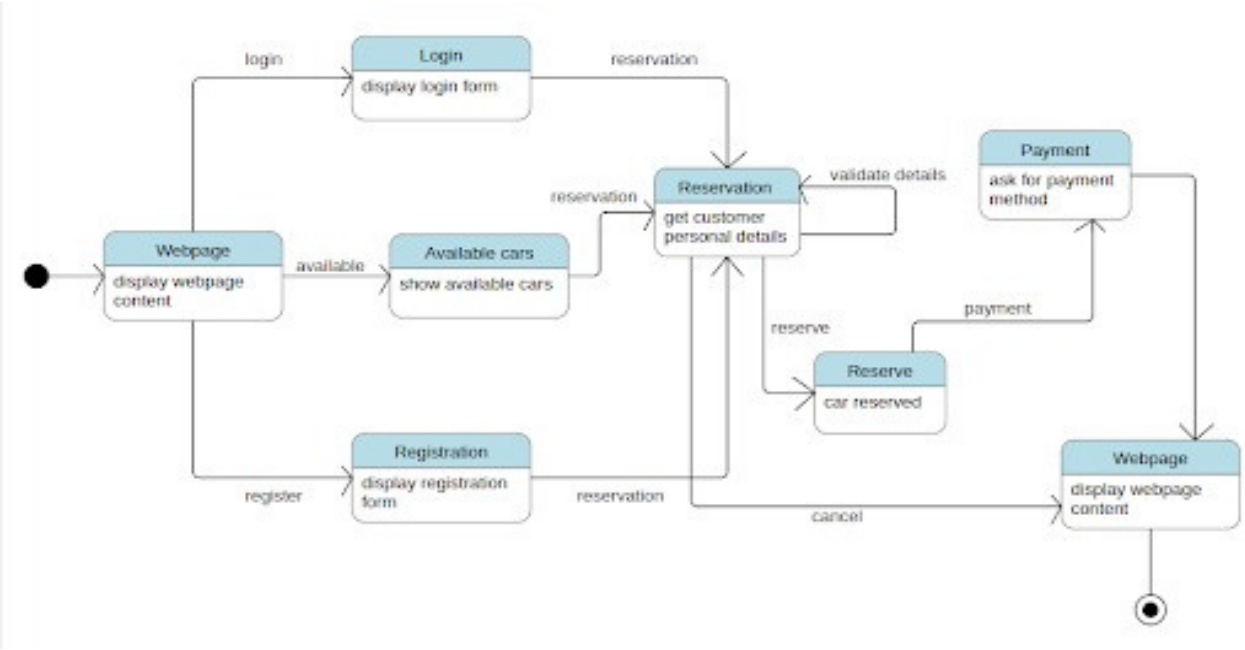
3.SEQUENCE DIAGRAM

Sequence diagrams are used to demonstrate the behaviour of objects in a use case by describing the objects and the messages they pass. It provides a graphical representation of object interactions over time. Sequence diagrams show an actor, the objects, and components they interact with in the execution of a use case. One sequence diagram represents a single Use Case 'scenario' or events. Sequence diagrams show the flow of messages from one object to another, and as such correspond to the methods and events supported by an object



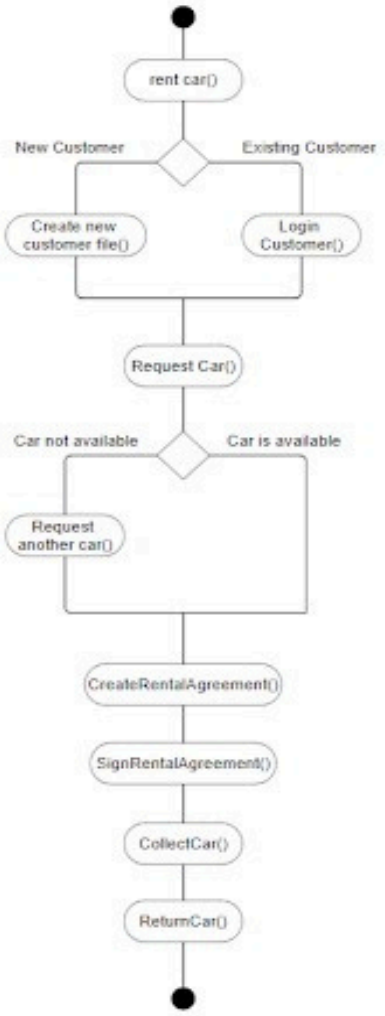
4.STATE - CHART DIAGRAM

A state chart (or state machine) diagram for a car rental system visually represents the various states that a car or rental process can be in throughout its lifecycle within the system.



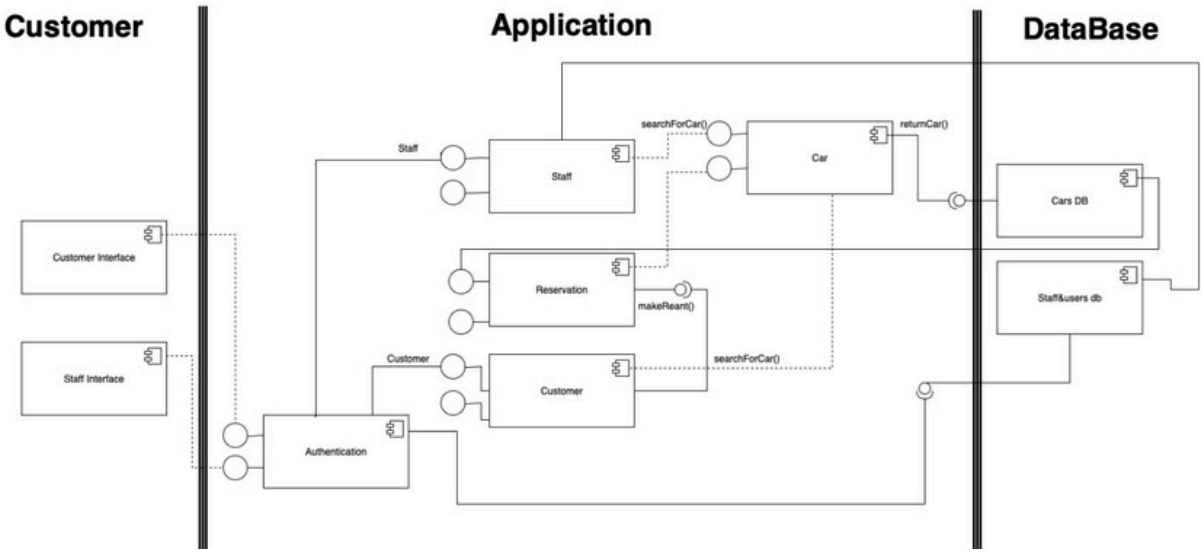
5. ACTIVITY DIAGRAM

Activity diagrams graphically represent the sequential business and operational workflows of a system. It is a dynamic diagram that shows the activity and the event that causes the object to be in the state. The workflows from activity diagram will serve as guide for system navigation in the final design phase of the system.



6.COMPONENT DIAGRAM

In a car rental system, the component diagram includes several core components that interact to provide a seamless user experience. The User Interface Component offers interfaces for customers, admins, and agents to browse, book, and manage rentals.


Customer
Application
DataBase
Staff
searchForCar()
returnCar()
Car
Staff
Cars DB
Customer Interface
Reservation
makeReant()
Staff&users db
Staff Interface
Customer
searchForCar()
Customer
Authentication