A

STUDY ON

ONLINE CAR RENTAL SYSTEM

Submitted by

PAGADALA PRASAD

(2122-22-862-007)

Project submitted in partial fulfilment for the award of the Degree of

MASTER OF COMPUTER APPLICATIONS

By

Department of Computer Applications

Aurora's Post Graduate College (MBA)

Punjagutta , Hyderabad.

2022-2024

AURORA'S POST -GRADUATE COLLEGE (MBA)

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CERTIFICATE

This is to certify that, this project entitled **"ONLINE CAR RENTAL SYSTEM"** is submitted by

PAGADALA PRASAD H.T.No.**2122-22-862-007** as part of their curriculum in the Department

of Computer Applications in partial fulfilment for the award of **Master of Computer**

Applications. This work has been carried out under our guidance and has not been submitted to

any other University or Institution for the award of any degree/diploma/certificate.

INTERNAL GUIDE   EXTERNAL EXAMINER

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IntelliCloud Apps

10/08/2024

PROJECT COMPLETION CERTIFICATE

This is to certify that **Mr. PAGADALA PRASAD**, studying in **MCA** at **Aurora's Pg College, Punjagutta** with enrollment no **2122-22-862-007** successfully completed project work titled **"Online Car Rental System"**

He has done this project using **"Web Development"** domain using **"Java"** technology during the period from **15/04/2024** to **09/08/2024** under the guidance and supervision of **Mr. Vinod Kumar, Sr. Software Developer, IntelliCloud Apps Pvt Ltd,** Hyderabad**.**

He has completed the assigned project well within the time frame and is sincere, hardworking and his conduct during his project is commendable.

We wish all the best to his future endeavors.

For IntelliCloud Apps Private Limited
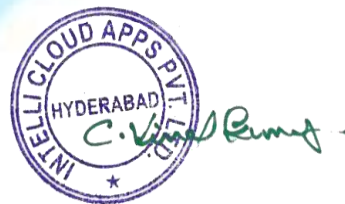
ACKNOWLEDGEMENT

The success and outcome of this project required a lot of guidance and assistance from many people and I am extremely privileged to have got this all along the completion of my project. All that I have done is only due to such supervision and assistance and I would not forget to thank them.

I consider myself lucky enough to get such a good project. This project would be added as an asset to my academic profile.

I would like to express my thankfulness to my Principal and Head of the Department for their constant motivation and valuable help through the project work.

I owe my deep gratitude to my project guide **Mr. MOHD MAHBOOB HUSSAIN,** who took keen interest in my project work and guided me all along, till the completion of my project work by providing all the necessary information for developing a good system. I would like to thank my friends who helped me in improving my project.

I am thankful to and fortunate enough to get constant encouragement, support and guidance from all Teaching staff of MCA which helped me in successfully completing our project work. Also, I would like to extend our sincere esteems to all staff in the laboratory for their timely support.

Finally, I wish to thank my parents for their love and encouragement, without whom I would never have enjoyed so many opportunities.

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PAGADALA PRASAD

2122-22-862-007

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DECLARATION

I hereby declare that this Project Report titled "**ONLINE CAR RENTAL SYSTEM"** submitted by me to the Department of Computer Applications, O.U., Hyderabad, is a bona-fide work undertaken by me and it is not submitted to any other University or Institution for the award of any degree diploma/certificate or published any time before.

Signature of the Student

ABSTRACT

We developed this project to book a car on rent at the fare charges. In present system all booking work done manually and it takes extremely hard work to maintain the information of booking and cars. If you want to find which vehicle is available for booking, then it takes a lot of time. It only makes the process more difficult and harder. This aim of the project is to automate the work performed in the car rental management system like generating daily bookings, records of car or cab available for booking, record of routes available, rental charges for cars for every rout, store record of the customer. Car rental system is a car booking software that provides a complete solution to all your day-to-day car booking office running needs. This system helps you to keep the information of Customer online.

A car rental service is wishing to have a user interface that will allow their customers to view the models, descriptions and prices of different cars available. The user has the ability to register and log in to the web site and see their rental plan. The web site will be responsive, allowing for the customer to view it on any device, from tables to mobile phones and desktop computers. The administrator will also be able to login through the same from but have the ability to add/remove new car rentals, change prices, and so on. Potential customers should be able to view all the cars available to rent even without logging in as well as rent without having an account, through the option is provided upon checkout.

INTRODUCTION:

Car rental or car hire agencies are private companies that provide short time leasing vehicles for a specified time with a fee to their customers. car rental service increasingly becomes the preferred option for most people, especially among students in campuses and universities. This occurs because not all students can afford having their own vehicle and perhaps the university bus service doesn't always help. Besides, the raising taxi fares and inconsistent bus arrivals in Malaysia continue to discourage people from taking up the public transport. Many organizations used web-based system because most people often used mobile phone that gives convenience to the users who are familiar with web technology. The technology has been implemented into the wide-range different sectors, such as education.

The project is designed to help people utilize transport effectively. In recent times cars have become most convenient modes of transportation. Our Car rental system helps in making this an easier, hassle-free and enjoyable experience to acquire and use a car as per ones needs. A person can book a car specifically for his travel time, co-travelers and the nature of travel. The rental system traverses from designing a database to understanding business concept and above all to make this an easy to adapt system for various travelling needs.

2.1 LITERATURE SURVEY:

Title: **ONLINE CAR RENTAL**

Author: Rahul Kulkarni

Summary:

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 as the customer ought to go genuinely at centre, 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 the goal that it makes the structure almost 0% paper vocations. The customer will have the alternative to select and enter his nuances and move remotely from his home, and the association will have the choice to Favor every one of his pieces of information without even truly meeting the customer.

Title: Mastering the Challenge: Crafting a Comprehensive Literature Review on Car Rental Management Systems

Authors: P. Nahnisha

Summary:

The advancement in Information Technology and internet penetration has greatly enhanced various business processes and communication between companies (services provider) and their customers of which the car rental industry is not left out. This E-Car Rental System is developed to provide the following services: Enhance Business Processes: To be able to use internet technology to project the rental company to the global world instead of limiting their services to their local domain alone, thus increase their return on investment (ROI) Online Vehicle Reservation: A tool through which customers

can reserve available cars online prior to their expected pick-up date or time. Customer's registration: A registration portal to hold customer's details, monitor their transactions and use the same to offer better and improve services to them.

Title: Development of Car Rental Management System

Authors: Michael G. Albino1, Victor Acebedo2

Summary:

Information and Communication Technology (ICT) has become and will continue to be an integral part of the day-to-day life of every Filipino across all levels of our society. The occurrence of communication technology around the world necessitates that government get on a cohesive and coordinated strategy on how to prepare its citizens to survive, live and thrive in a digital world. (The Philippine Digital Strategy Transformation 2.0: Digital Empowered Nation 2011) The main objective of the paper is to have a competitive society where everyone has a reliable, affordable and secure information access in the Philippines. As stated by Charles W. Bachman in 1960's who invented the database management system and the concept of database was put in use and also began grow in commercial. Databases are important in businesses, especially when it comes to keeping of inventory. Databases can be used for controlling inventory as well as reducing the time, cost, and effort of inventory management. Controlling your inventory is essential in order to have good and efficient business. As reported by Lee (2006) that one indisputable benefit of e-commerce is its ability to reduce transaction costs. For consumers or buyers, this is most likely to take the form of lower search costs and better information on products and services. There could be drastic savings in production and delivery costs of electronic or digital goods as well. Hossain (2009) stated that company's websites should have significant influence on sales and corporate image, and are expected to contribute to overall customer satisfaction. The easiest way to be reliable to the customer is to maintain an easy and simple image in the company's website, which created positive web experience to the customer. This can be done by having transparent interface, rich content, easily accessible information and having a design that facilitates multiple audiences. This is simply emphasizing the importance of knowing the target visitors as they have different tastes in terms of color and design as a whole. Also, a good design is not enough to make your customers stay in the website; it must be informative as well especially on the product and services. Many businesses are now engaged with the implementation of information system to expedite the transaction of their companies. In a car rental business, a need to implement such system to easily manage the transaction of the business owner and its customer. Just like an e-

commerce business, the car rental management system could also offer online advertisement. It is the most affordable way of advertising compared to some paid commercials that even small businesses can easily implement. E-Commerce allows consumers to electronically exchange goods and services with no barriers of time or distance. Electronic commerce has expanded rapidly over the past five years and is predicted to continue at this rate, or even accelerate (Franco & Regie, 2016, p. 7).

2.1 EXISTING SYSTEM

In this system user (or) client will directly interact with the car owner and owner will decide whether the car is available or not. Then if it is available he will give rent a car to the customer. The main drawback of this system is customer need to meet the car owner. this is time waste process.

DISADVANTAGES OF EXISTING SYSTEM:

- Car rental process is done manually.
- These tasks are time consuming.
- People around the world cannot book.
- Not accuracy and time-consuming process.
- We may have less choices.

2.2 PROPOSED SYSTEM

In this car rental system, we are going to introduce online booking of car rent will be available. So the Burdon of the customer will be reduced. Our Aim is to design and create a data management System for a car rental company. This enables admin can rent a vehicle that can be used by a customer. By paying the money during a Specified Period of time. This system increases customer retention and simplify vehicle and staff Management in an efficient way.

ADVANTAGES OF PROPOSED SYSTEM:

1 Its online system so that from anywhere can book the car and can take for rent

2. Friendly usage and budget friendly

3. We can cancel the booking at any time

4, We have more choices of cars

2.3 FEASIBILITY STUDY

- The possibility of the undertaking is broke down during this stage and strategic plan is advanced with an exceptionally broad arrangement for the task and a few quotes. During project examination the likelihood investigation of the proposed project is to be completed. this is often to ensure that the proposed project isn't a weight to the organization. For practicality examination, some comprehension of the many necessities for the project is prime.

- After the approval of the request to the organization and project guide, with an investigation being considered, the project request must be examined to determine precisely what the system requires.

- Not all request projects are desirable or feasible. Some organization receives so many project requests from client users that only few of them are pursued. However, those projects that are both feasible and desirable should be put into schedule. After a project request is approved, it cost, priority, completion time and personnel requirement is estimated and used to determine where to add it to any project list. Truly speaking, the approval of those above factors, development works can be launched

- An important outcome of preliminary investigation is the determination that the system request is feasible. This is possible only if it is feasible within limited resource and time. The different feasibilities that have to be analyzed are.

2.3.1 TECHNICAL FEASIBILITY :

- According to Roger S. Pressman, Technical Feasibility is the assessment of the technical resources of the organization. The system is developed for platform Independent environment. The technical feasibility has been carried out. The system is technically feasible for development and can be developed with the existing facility.

- This investigation is completed to see the technical practicality, that is, the specialized prerequisites of the framework. Any framework created must not have a popularity on the accessible specialized assets. this may prompt high requests on the accessible specialized assets. this may prompt high requests being assail the customer. The created framework must have a humble prerequisite, as just insignificant or invalid changes are required for actualizing this framework.

2.3.2 OPERATION FEASIBILITY :

User-friendly

Customer will use the forms for their various transactions i.e. for adding new routes, viewing the routes details. Also the Customer wants the reports to view the various transactions based on the constraints. These forms and reports are generated as user friendly to the Client.

Reliability

The package wills pick-up current transactions on line. Regarding the old transactions, User will enter them in to the system.

Security

The web server and database server should be protected from hacking, virus etc

Portability

The application will be developed using standard open source software (Except Oracle) like Java, tomcat web server, Internet Explorer Browser etc these software will work both on Windows and Linux o/s. Hence portability problems will not arise.

Availability

This software will be available always.

Maintainability

The system uses the 2-tier architecture. The 1st tier is the GUI, which is said to be front-end and the 2nd tier is the database, which uses My-Sql, which is the back-end. The front-end can be run on different systems (clients). The database will be running at the server. Users access these forms by using the user-ids and the passwords.

2.3.3 ECONOMICAL FEASIBILITY

The computerized system takes care of the present existing system's data flow and procedures completely and should generate all the reports of the manual system besides a host of other management reports.

It should be built as a web based application with separate web server and database server. This is required as the activities are spread throughout the organization customer wants a centralized database. Further some of the linked transactions take place in different locations.

Open source software like TOMCAT, JAVA, Mysql and Linux is used to minimize the cost for the Customer.

2.3.3 SOCIAL FEASIBILITY

The a part of study is to see the degree of acknowledgment of the framework by the client. This incorporates the way toward preparing the client to utilize the framework effectively. The client must

not feel undermined by the framework, rather should acknowledge it as a requirement . The degree of acknowledgment by the clients exclusively relies upon the techniques that are utilized to show the client about the framework and to form him familiar with it. His degree of certainty must be raised with the goal that he is likewise able to make some helpful analysis, which is invited, as he's the last client of the framework.

2.4 HARDWARE AND SOFTWARE REQUIREMENTS

2.4.1 HARDWARE REQUIREMENTS:

The hardware requirement specifies each interface of the software elements and the hardware elements of the system. These hardware requirements include configuration characteristics.

- Processor   Intel I3 Processor

- RAM   4 GB

- Monitor   15 inch color monitor or LED

- Hard disk   160 GB

- Key board   Standard 102 keys

Mouse   Optical

2.4.2 SOFTWARE REQUIREMENTS:

The software requirements specify the use of all required software products like data management system. The required software product specifies the numbers and version. Each interface specifies the purpose of the interfacing software as related to this software product.

- Operating system   Windows
- IDE   Eclipse
- Language   Java
- Framework   Jsp and JDBC
- Back End   MYSQL
- Front End   HTML,CSS,JS,Bootstrap
- Server   Apache Tomcat

3.1 SOFTWARE REQUIREMENT SPECIFICATION

INTRODUCTION:

Requirement Specification provides a high secure storage to the web server efficiently. Software requirements deal with software and hardware resources that need to be installed on a serve which provides optimal functioning for the application. These software and hardware requirements need to be installed before the packages are installed. These are the most common set of requirements defined by any operation system. These software and hardware requirements provide a compatible support to the operation system in developing an application.

3.1.1 FUNCTIONAL REQUIREMENTS:

Admin functionalities

- Add cars
- View cars
- View bookings
- View customers
- Change password

Customer functionalities

- View cars
- My bookings
- View customers
- Change password

3.1.2 NON FUNCTIONAL REQUIREMENTS:

Non-functional testing is a type of software testing that verifies non-functional aspects of the product, such as performance, stability, and usability. Whereas functional testing verifies whether the product does what it is supposed to, non-functional testing verifies how well the product performs

 The system should show below non-functional requirements

1. High Security

2. Multi browser and operating system compatibility

3. Mobile responsiveness

4. High quality and performance

5. Memory optimized and User Friendliness

6. Easy maintenance and scalable capability

7. It's should support good accessibility and usability

8. It should follow regulatory and compliance policies
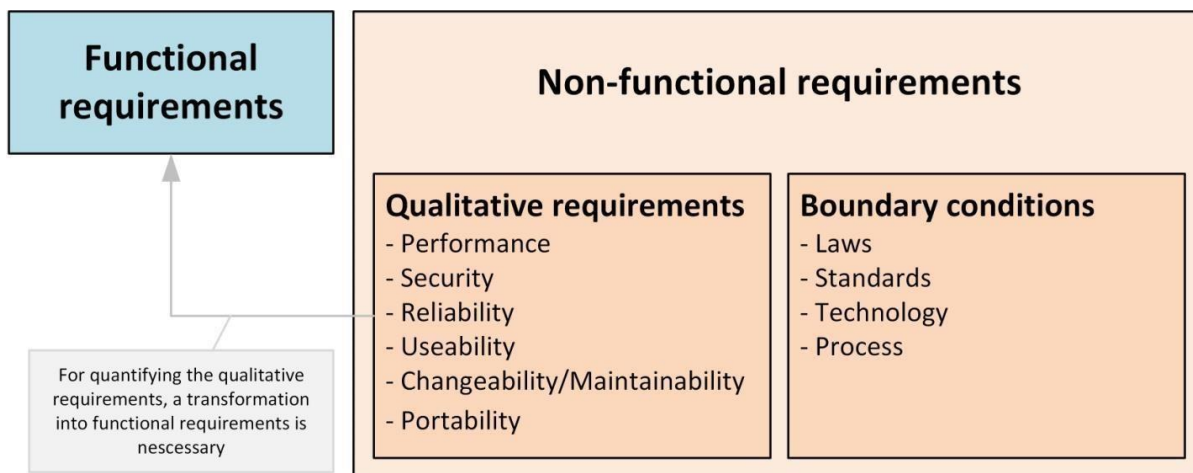
4.1 SYSTEM ARCHITECTURE:

This section consists of the UML diagrams related to the modules developed such as Activity diagram, Sequence diagram and Use case diagram.

UML stands for Unified Modeling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group.

The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artifacts of software system, as well as for business modeling and other non-software systems.

The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems.

The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

GOALS:

The Primary goals in the design of the UML are as follows:

• Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.

• Provide extendibility and specialization mechanisms to extend the core concepts.

• Be independent of particular programming languages and development process.

• Provide a formal basis for understanding the modelling language.

• Encourage the growth of OO tools market.

- Support higher level development concepts such as collaborations, frameworks, patterns and components.
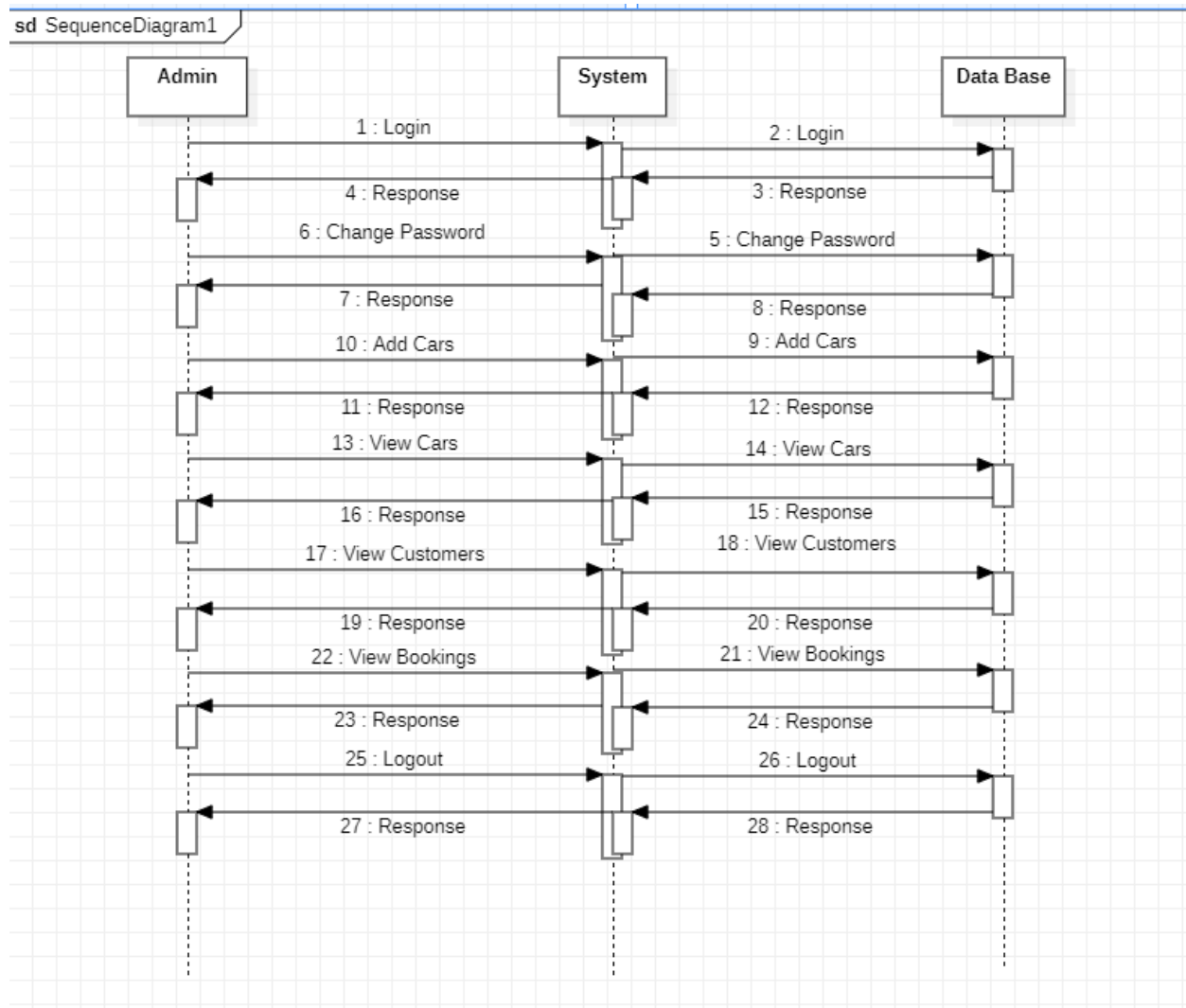- Integrate best practices.

Sequence Diagram

A grouping outline in UML is a sort of association chart that shows how procedures work with each other and in what request. "It is a build of a Message Sequence Chart. Succession outlines are now and again called occasion charts, occasion situations, and timing graphs".

Customer -Sequence Diagram:
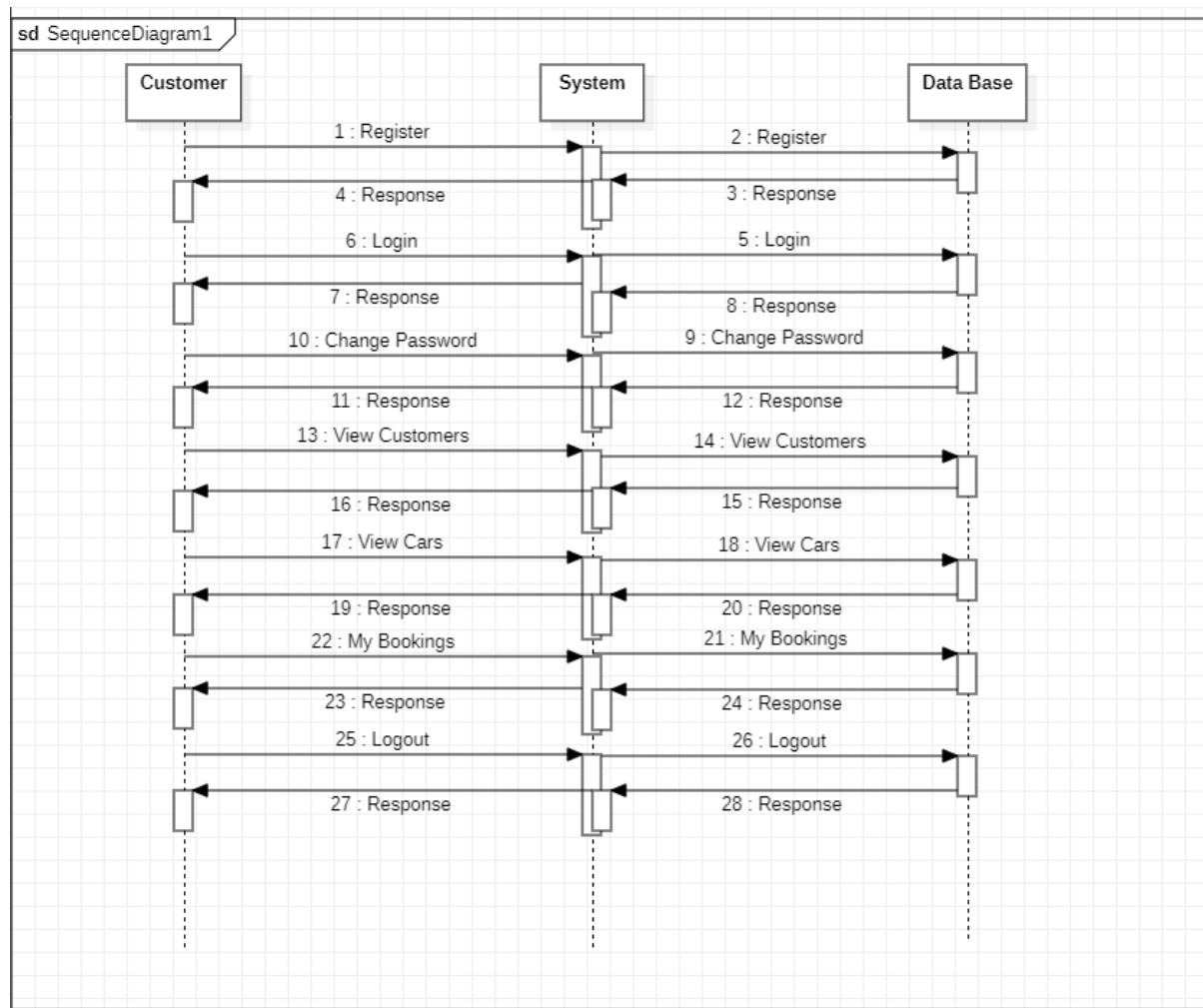
Admin-Sequence Diagram:

Use Case Diagram

An utilization case outline in the UML is a sort of conduct graph characterized by and made from a Use-case examination. Its motivation is to introduce a graphical diagram of the usefulness given by a framework regarding on-screen characters, their objectives (spoke to as use cases), and any conditions between those utilization cases. The fundamental motivation behind an utilization case outline is to indicate what framework capacities are performed for which on-screen character. Jobs of the on-screen characters in the framework can be delineated".

Admin-Use Case Diagram:

Admin

Login

Change Password

Add Cars

View Cars

View Customers

View Bookings

Logout
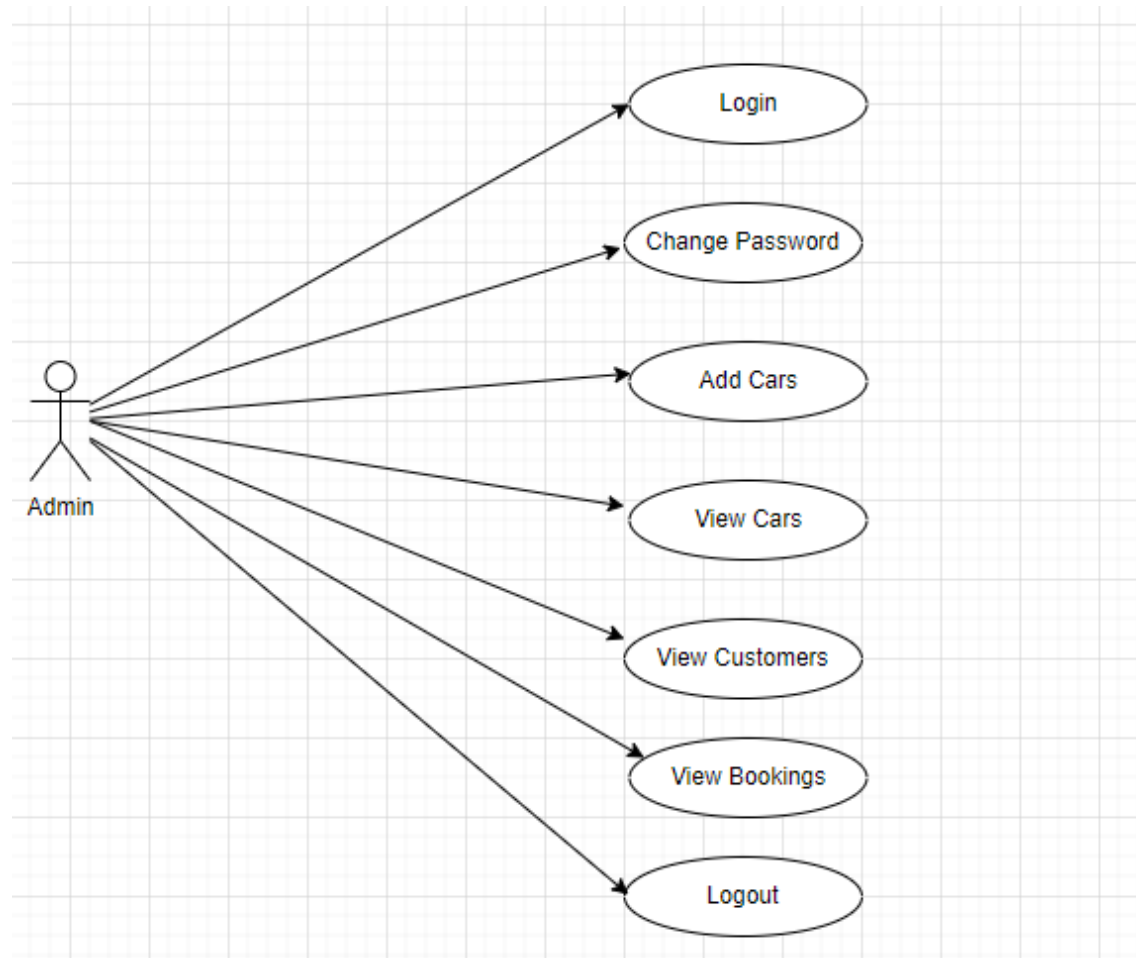
Customer-Use Case Diagram:
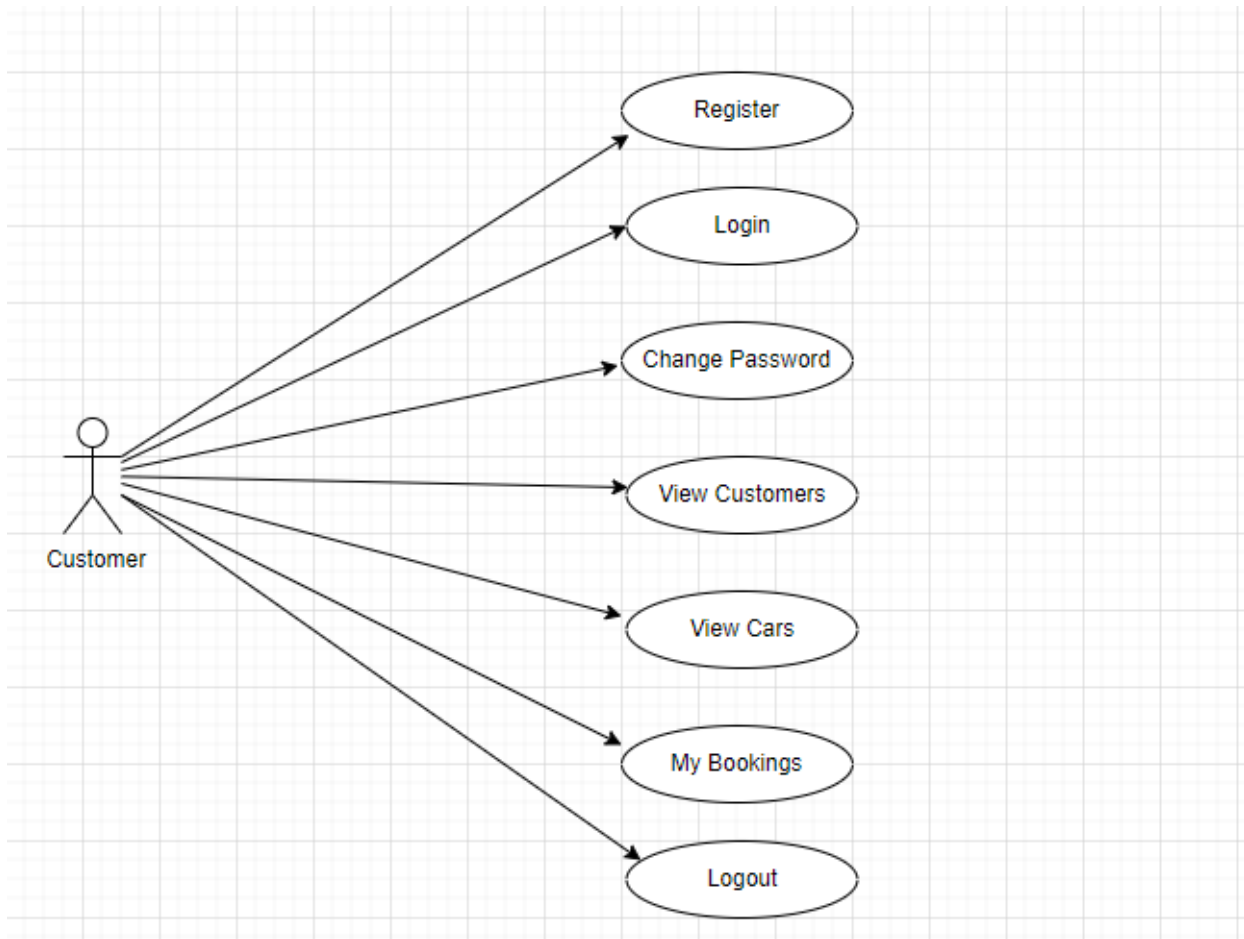
Activity Diagram

"Movement charts are graphical portrayals of work processes of stepwise exercises and activities with help for decision, emphasis and simultaneousness. In the Unified Modeling Language, movement graphs can be utilized to depict the business and operational bit by bit work processes of parts in a framework. A movement chart demonstrates the general progression of control".

Admin-Activity Diagram:
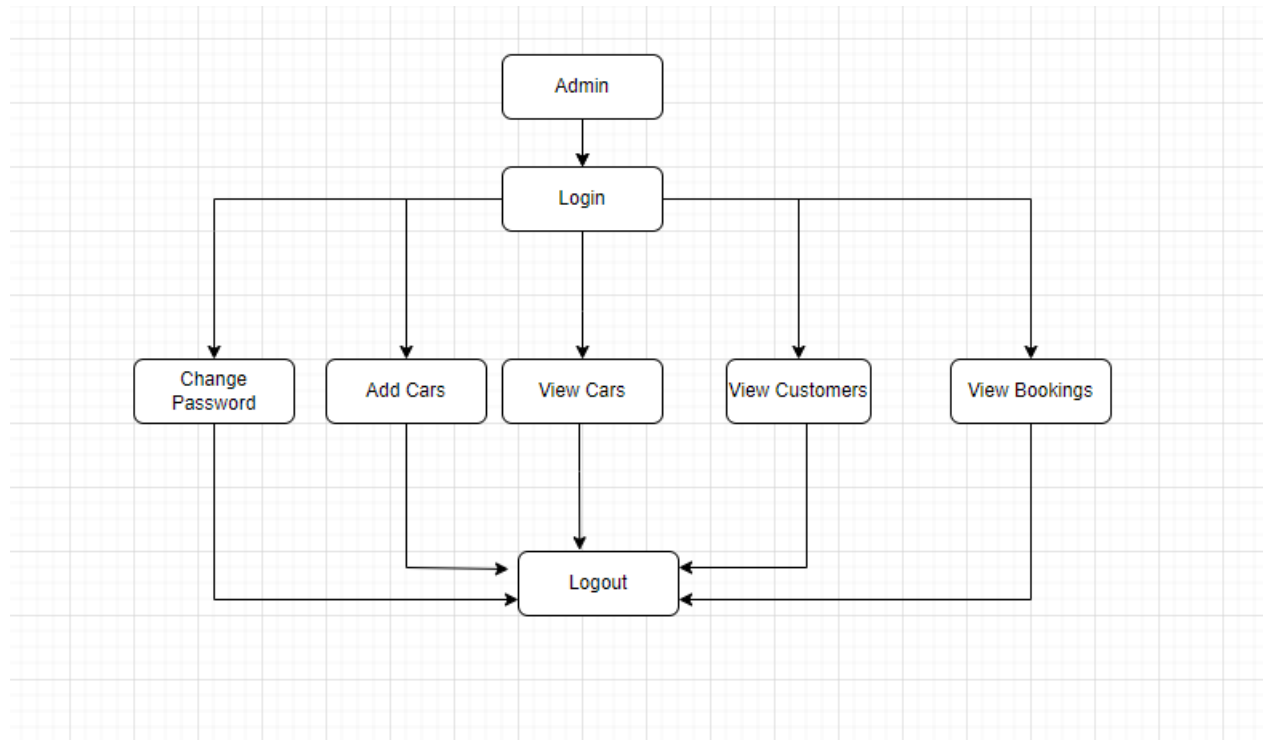
Customer-Activity Diagram:
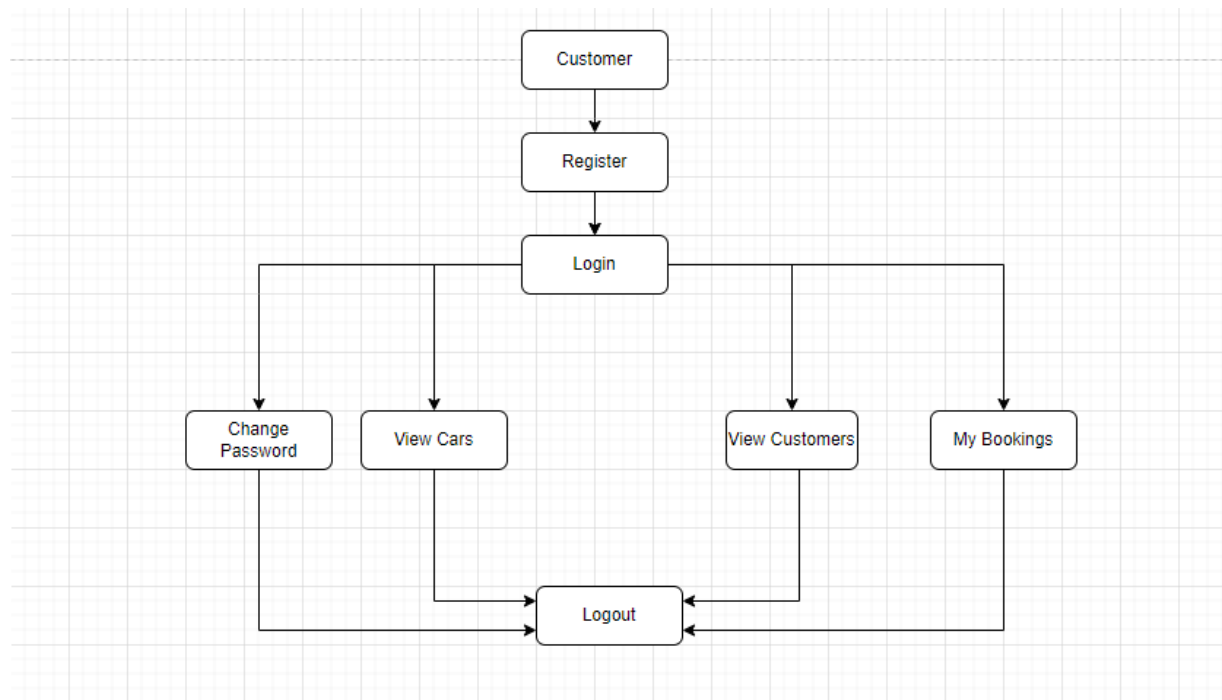
Component Diagram

The component diagram is a special purpose diagram, which is used to visualize the static implementation view of a system. It represents the physical components of a system, or we can say it portrays the organization of the components inside a system. The components, such as libraries, files,
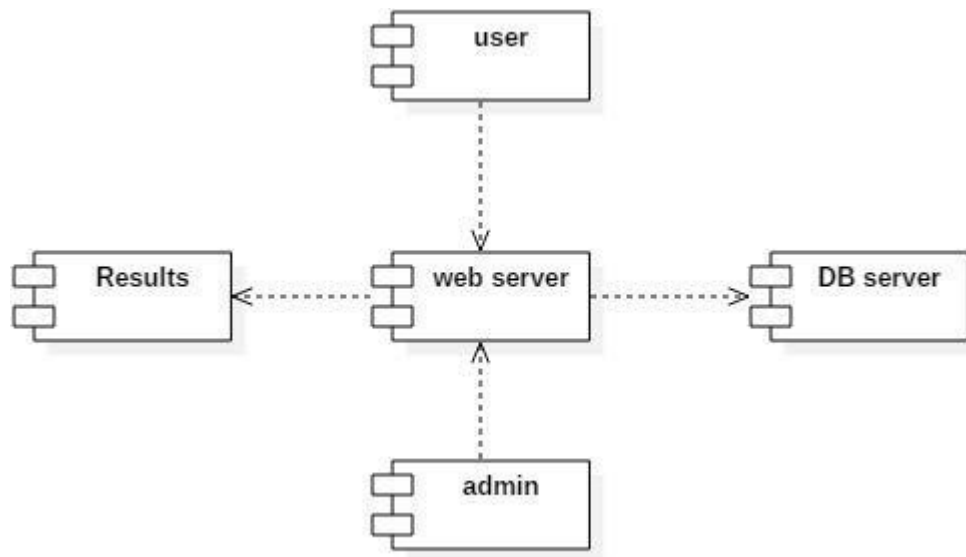
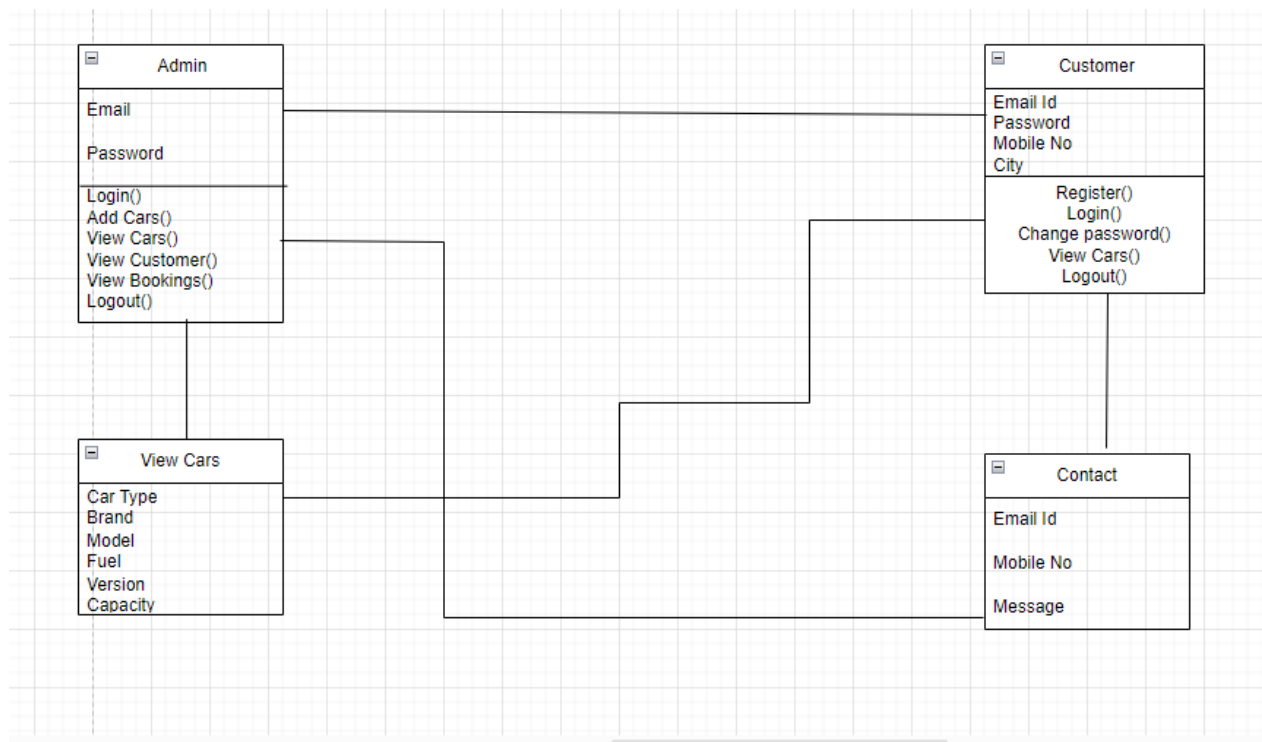

executables, etc.

Deployment Diagram

A deployment diagram is a UML diagram type that shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them. Deployment diagrams are typically used to visualize the physical hardware and software of a system
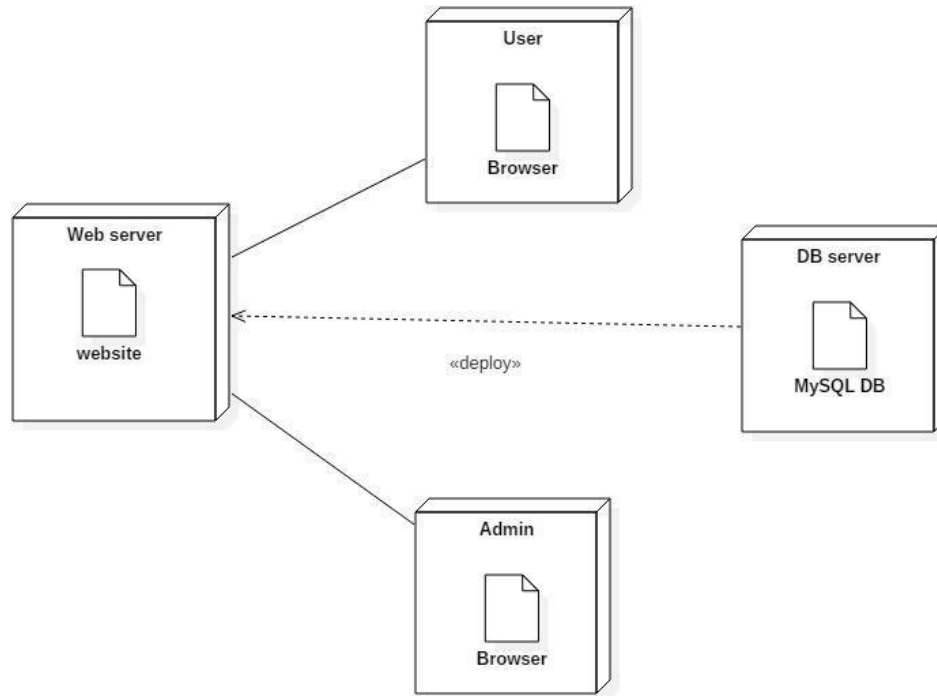

Class Diagram:

Class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application.

Class diagram describes the attributes and operations of a class and also the constraints imposed on the system. The class diagrams are widely used in the modeling of object oriented systems because they are the only UML diagrams, which can be mapped directly with object-oriented languages.

Admin

Email

Password

Login()
Add Cars()
View Cars()
View Customer()
View Bookings()
Logout()

Customer

Email Id
Password
Mobile No
City

Register()
Login()
Change password()
View Cars()
Logout()

View Cars

Car Type
Brand
Model
Fuel
Version
Capacity

Contact

Email Id

Mobile No

Message

ER Diagram

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how "entities" such as people, objects or concepts relate to each other within a system. ER Diagrams are most often used to design or debug relational databases in the fields of software engineering, business information systems, education and research. Also known as ERDs or ER Models, they use a defined set of symbols such as rectangles, diamonds, ovals and connecting lines to depict the interconnectedness of entities, relationships and their attributes. They mirror grammatical structure, with entities as nouns and relationships as verbs.
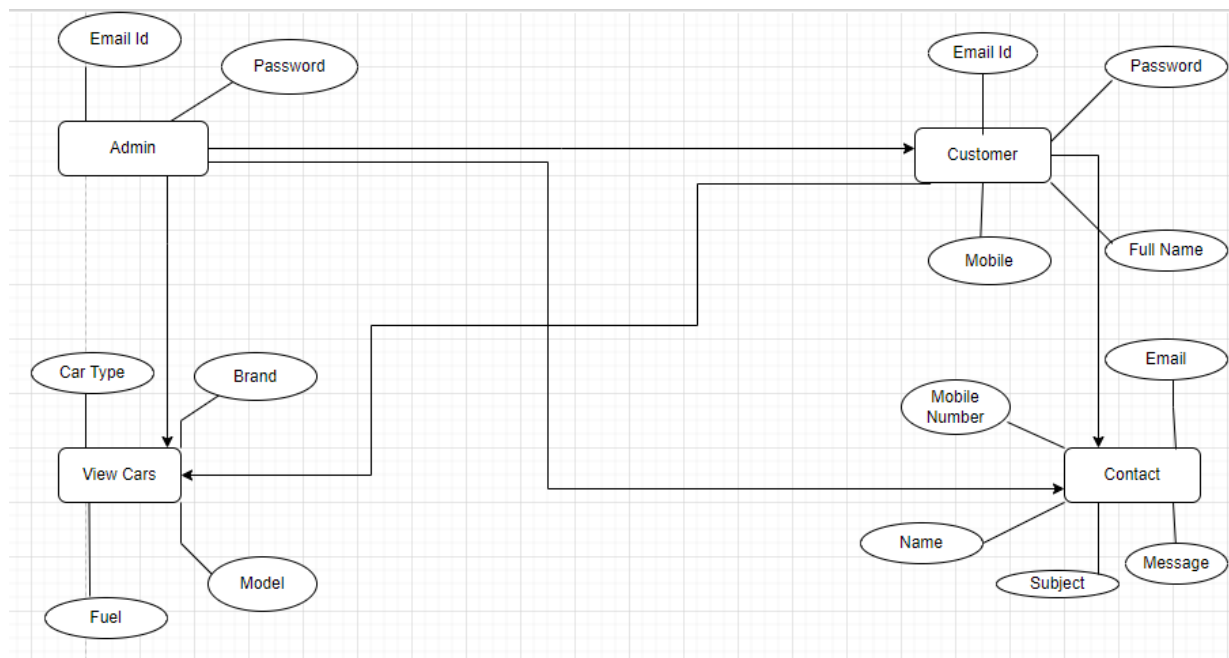
Data Flow Diagram

A data-flow diagram is a way of representing a flow of data through a process or a system. The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow — there are no decision rules and no loops. A **data flow diagram** (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows,
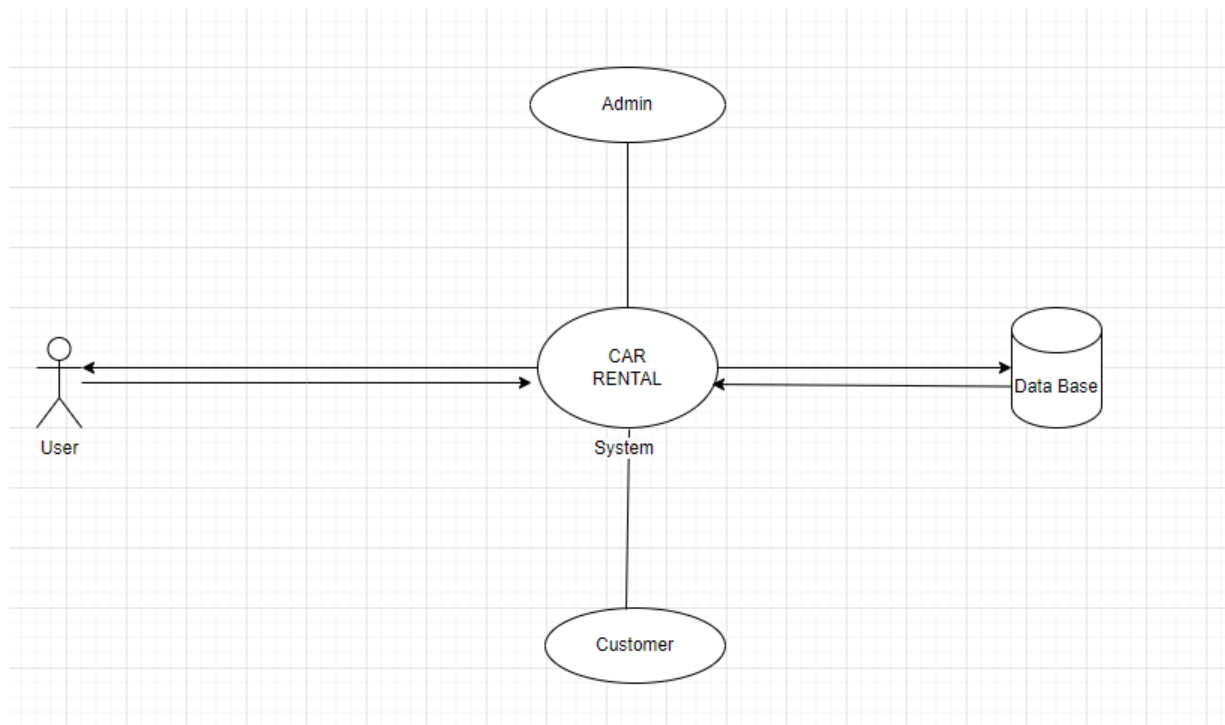
5.1 Technology

JAVA

Java is a high-level, versatile, and object-oriented programming language that was initially developed by Sun Micro systems and later acquired by Oracle Corporation. It was first released in 1995 and has since become one of the most widely used programming languages globally. Java's popularity is driven by its portability, strong community support, and its use in a wide range of applications, including web development, mobile app development, enterprise software, scientific computing, and more.Java is designed to be platform-independent, meaning that Java programs can run on various operating systems without requiring modifications. This is achieved through the use of a virtual machine called the Java Virtual Machine (JVM). When you compile a Java program, it is converted into byte code, which is a platform-neutral intermediate form of the code. This byte code is then executed by the JVM, which translates it into machine-specific instructions.

WHY CHOOSE JAVA

If you're going to write programs, there are literally dozens of commonly used languages to choose from. Why choose JAVA? Here are some of the features that make JAVA an appealing choice.

Object-Oriented:

Java is a fully object-oriented language, which means that everything in Java is an object. It promotes modular and reusable code by allowing developers to create classes and objects that encapsulate data and behavior.

Platform Independence:

Java's "Write Once, Run Anywhere" capability is made possible by compiling Java source code into byte code, which is then executed by the Java Virtual Machine (JVM).

This allows Java programs to run on any platform with a compatible JVM.

Strongly Typed:

Java is a strongly typed language, meaning that every variable and expression has a specific data type that is known at compile time. This helps catch type-related errors early in the development process.

Rich Standard Library:

Java provides a comprehensive standard library with classes and methods for a wide range of tasks, from basic input/output operations to networking, data manipulation, and more.

Multi-threading Support: Java offers built-in support for multithreading, allowing developers to create and manage multiple threads of execution within a single program.
This is essential for building concurrent and responsive applications.

Security:

Java includes security features such as the ability to run code in a sandboxed environment and control access to system resources. This helps create secure
applications and applets.

Exception Handling:

Java has a robust exception handling mechanism that allows developers to handle and recover from errorsand exceptions gracefully, improving the reliability of applications.

Versatility:

Java can be used to develop a wide range of applications, including desktop applications, web applications, mobile applications (through Android development), server-side applications, embedded systems, and more.

Open Source Implementation:

While Java itself is not fully open source, the OpenJDK project provides an opensource implementation of the Java SE platform, ensuring transparency and community involvement.

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JSP

JSP technology is used to create web application just like Servlet technology. It can be thought of as an extension to Servlet because it provides more functionality than servlet such as expression language, JSTL, etc.

A JSP page consists of HTML tags and JSP tags. The JSP pages are easier to maintain than Servlet because we can separate designing and development. It provides some additional features such as Expression Language, Custom Tags, etc.

There are many advantages of JSP over the Servlet. They are as follows:

1) Extension to Servlet

JSP technology is the extension to Servlet technology. We can use all the features of the Servlet in JSP. In addition to, we can use implicit objects, predefined tags, expression language and Custom tags in JSP, that makes JSP development easy.

2) Easy to maintain

JSP can be easily managed because we can easily separate our business logic with presentation logic. In Servlet technology, we mix our business logic with the presentation logic.

3) Fast Development: No need to recompile and redeploy

If JSP page is modified, we don't need to recompile and redeploy the project. The Servlet code needs to be updated and recompiled if we have to change the look and feel of the application.

4) Less code than Servlet

In JSP, we can use many tags such as action tags, JSTL, custom tags, etc. that reduces the code. Moreover, we can use EL, implicit objects, etc.
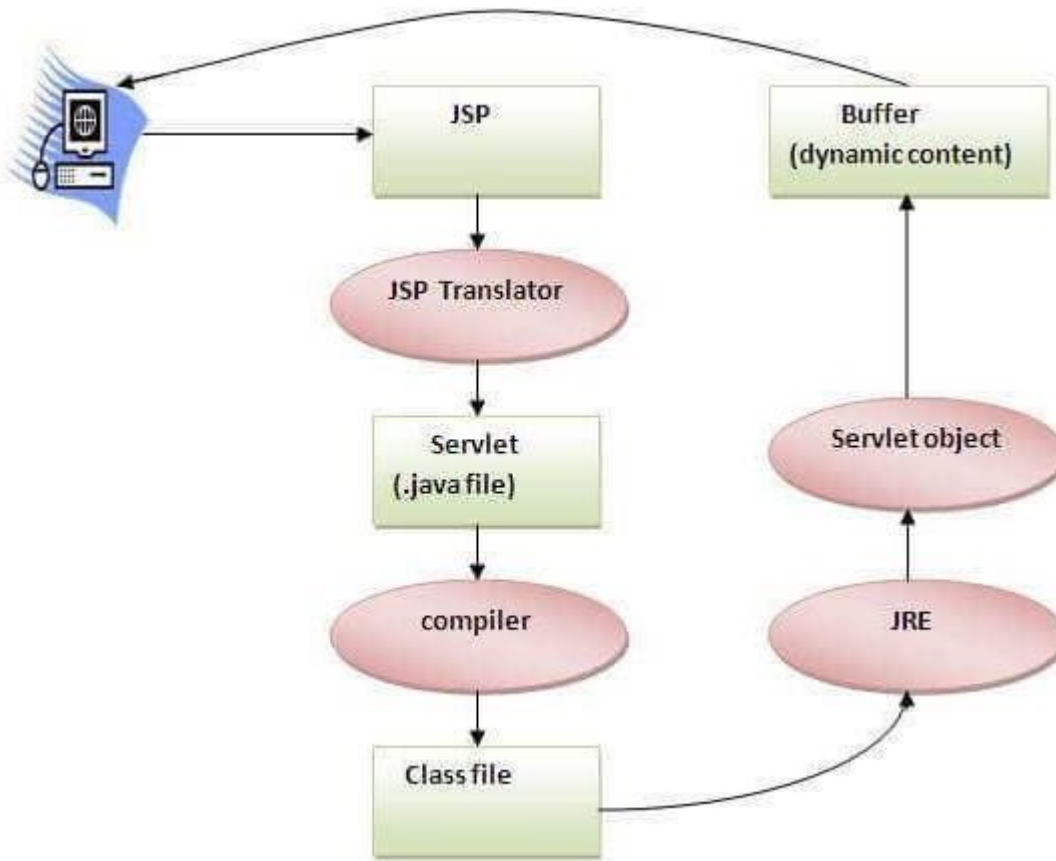
As depicted in the above diagram, JSP page is translated into Servlet by the help of JSP translator. The JSP translator is a part of the web server which is responsible for translating the JSP page into Servlet. After that, Servlet page is compiled by the compiler and gets converted into the class file. Moreover, all the processes that happen in Servlet are performed on JSP later like initialization, committing response to the browser and destroy.

JDBC

JDBC stands for Java Database Connectivity. JDBC is a Java API to connect and execute the query with the database. It is a part of JavaSE (Java Standard Edition). JDBC API uses JDBC drivers to connect with the database. We can use JDBC API to access tabular data stored in any relational database. By the help of JDBC API, we can save, update, delete and fetch data from the database. It is like Open Database Connectivity (ODBC) provided by Microsoft.
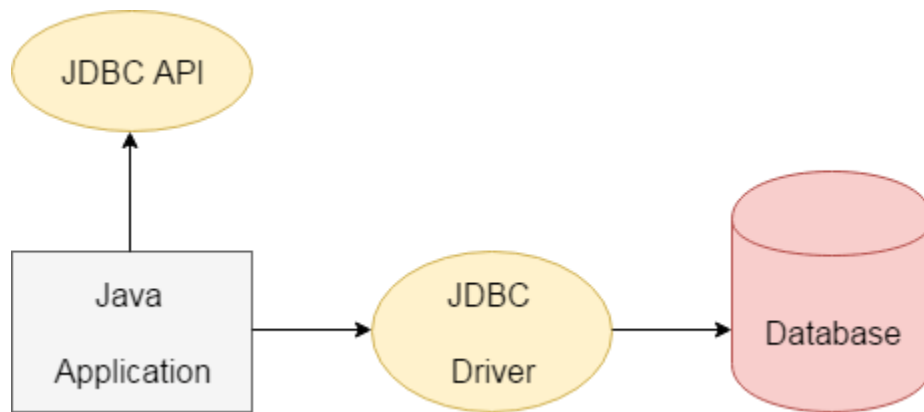
There are 5 steps to connect any java application with the database using JDBC. These steps are as follows:

o Register the Driver class

o Create   connection

o Create   statement

o Execute queries

o Close connection

HTML (Hypertext Markup Language):

- Standard markup language for creating web pages and web applications.

- Uses tags to structure content and define elements on web pages.

- Provides a basic structure for web documents, including text, images, links, and multimedia.

- Requires browsers to interpret and render web content as intended.

CSS (Cascading Style Sheets):

- A style sheet language used for controlling the presentation and layout of web documents.

- Separates content (HTML) from its visual representation (CSS).

- Allows developers to define styles, fonts, colors, and positioning for web elements.

- Enhances consistency and maintainability of web design.

JavaScript:

- A versatile scripting language used for adding interactivity and behaviour to web pages.

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- Runs in web browsers and enables dynamic client-side interactions.

- Supports event handling, DOM manipulation, and AJAX for asynchronous communication.

- Widely used for building web applications and enhancing user experiences.

5.2 SAMPLE CODE
DATA DICTIONARY(TABLES):

care rent

- **admin**
- **book**
- **car**
- **customer**
- **payment**

admin

Fields

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
id	int	(NULL)	NO	PRI	(NULL)	auto_increment	select,insert,update,references	
email	varchar(222)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
password	varchar(222)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	

Indexes

Table	Non unique	Key name	Seq in index	Column name	Collation	Cardinality	Sub part	Packed	Null	Index type	Comment	Index comment	Visible	Expression
admin	0	PRIMARY	1	id	A	1	(NULL)	(NULL)		BTREE			YES	(NULL)

Back

book

Fields

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
id	int	(NULL)	NO	PRI	(NULL)	auto_increment	select,insert,update,references	
email	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
phone	varchar(10)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
car_id	int	(NULL)	YES		(NULL)		select,insert,update,references	

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Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
Deposite_amount	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
book_date	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
pickUp_point	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
dropping_point	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
address	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
today_date	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
status	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	

Indexes

Table	Non unique	Key name	Seq in index	Column name	Collation	Cardinality	Sub part	Packed	Null	Index type	Comment	Index comment	Visible	Expression
book	0	PRIMARY	1	id	A	4	(NULL)	(NULL)		BTREE			YES	(NULL)

Back

car

Fields

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
id	int	(NULL)	NO	PRI	(NULL)	auto_increment	select,insert,update,references	
cartype	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
brand	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
model	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
fuel	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
type	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
version	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
capacity	int	(NULL)	YES		(NULL)		select,insert,update,references	
mincost	double	(NULL)	YES		(NULL)		select,insert,update,references	
maxcost	double	(NULL)	YES		(NULL)		select,insert,update,references	
excost	double	(NULL)	YES		(NULL)		select,insert,update,references	
depositcost	double	(NULL)	YES		(NULL)		select,insert,update,references	
feactures	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
image	longblob	(NULL)	YES		(NULL)		select,insert,update,references	
TypeCar	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	

Indexes

Table	Non unique	Key name	Seq in index	Column name	Collation	Cardinality	Sub part	Packed	Null	Index type	Comment	Index comment	Visible	Expression
car	0	PRIMARY	1	id	A	2	(NULL)	(NULL)		BTREE			YES	(NULL)

Back

customer

Fields

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
id	int	(NULL)	NO	PRI	(NULL)	auto_increment	select,insert,update,references	
name	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
email	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
password	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
phone	varchar(10)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
address	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
pincode	varchar(6)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
city	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
drivingLicense	longblob	(NULL)	YES		(NULL)		select,insert,update,references	

Indexes

Table	Non unique	Key name	Seq in index	Column name	Collation	Cardinality	Sub part	Packed	Null	Index type	Comment	Index comment	Visible	Expression
customer	0	PRIMARY	1	id	A	1	(NULL)	(NULL)		BTREE			YES	(NULL)

Back

payment

Fields

Field	Type	Collation	Null	Key	Default	Extra	Privileges	Comment
id	int	(NULL)	NO	PRI	(NULL)	auto_increment	select,insert,update,references	
email	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
book_id	int	(NULL)	YES		(NULL)		select,insert,update,references	
payment_date	varchar(999)	utf8mb4_0900_ai_ci	YES		(NULL)		select,insert,update,references	
car_id	int	(NULL)	YES		(NULL)		select,insert,update,references	
extra_days	int	(NULL)	YES		(NULL)		select,insert,update,references	
extra_kms	decimal(10,0)	(NULL)	YES		(NULL)		select,insert,update,references	
actual_cost	double	(NULL)	YES		(NULL)		select,insert,update,references	
actual_kms	double	(NULL)	YES		(NULL)		select,insert,update,references	
deposite_amount	double	(NULL)	YES		(NULL)		select,insert,update,references	
total_cost	double	(NULL)	YES		(NULL)		select,insert,update,references	
more_kms	int	(NULL)	YES		(NULL)		select,insert,update,references	

Indexes

Table	Non unique	Key name	Seq in index	Column name	Collation	Cardinality	Sub part	Packed	Null	Index type	Comment	Index comment	Visible	Expression
payment	0	PRIMARY	1	id	A	0	(NULL)	(NULL)		BTREE			YES	(NULL)

SAMPLE CODE:

Admin Login:
Front end code:

```html
<!doctype html>
<html lang="en">

  <head>
    <title>Car Rent &mdash; Free Website Template by Colorlib</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <link href="https://fonts.googleapis.com/css?family=DM+Sans:300,400,700&display=swap" rel="stylesheet">

    <link rel="stylesheet" href="fonts/icomoon/style.css">

    <link rel="stylesheet" href="css/bootstrap.min.css">
    <link rel="stylesheet" href="css/bootstrap-datepicker.css">
    <link rel="stylesheet" href="css/jquery.fancybox.min.css">
    <link rel="stylesheet" href="css/owl.carousel.min.css">
    <link rel="stylesheet" href="css/owl.theme.default.min.css">
    <link rel="stylesheet" href="fonts/flaticon/font/flaticon.css">
    <link rel="stylesheet" href="css/aos.css">

    <!-- MAIN CSS -->
    <link rel="stylesheet" href="css/style.css">

  </head>

  <body data-spy="scroll" data-target=".site-navbar-target" data-offset="300">


    <div class="site-wrap" id="home-section">

      <div class="site-mobile-menu site-navbar-target">
        <div class="site-mobile-menu-header">
          <div class="site-mobile-menu-close mt-3">
            <span class="icon-close2 js-menu-toggle"></span>
          </div>
        </div>
        <div class="site-mobile-menu-body"></div>
      </div>



      <%@ include file="Homeheader.jsp" %>
```

```html
    <div class="ftco-blocks-cover-1">
      <div     class="ftco-cover-1     overlay     innerpage"    style="background-image:
url('images/hero_2.jpg')">
        <div class="container">
          <div class="row align-items-center justify-content-center">
            <div class="col-lg-6 text-center">
              <h1>Admin_Login</h1>
            </div>
          </div>
        </div>
      </div>
    </div>

    <div class="site-section bg-light" id="contact-section">
      <div class="container">
        <div class=" justify-content-center text-center">
        <div class="col-9 text-center   ">
          <h2>Admin Login</h2>
         </div>
      </div>

        <div class="row justify-content-center text-center">
          <div class="col-lg-8 mb-5" >
              <form action="adlogindata.jsp" method="post">
               <div class="form-group row">
                 <div class="col-md-8 mb-6 mb-lg-0 text-center ">

                   <input type="text" class="form-control" name="email" placeholder="Email
address">
                 </div>
                 </div>
               <div class="form-group row">
                 <div class="col-md-8 mb-6 mb-lg-0">

                   <input       type="text"       class="form-control"       name="password"
placeholder="Enter Password">
                 </div>
               </div>
        <div class="form-group row">
               <div class="col-md-2 mr-auto text-center">
                 <input type="submit" class="btn btn-block btn-primary text-white py-1 px-
1" value="Login">
               </div>
             </div>


          </form>
        </div>
      </div></div></div>


   <%@ include file="footer.jsp" %>

    </div>
```

```html
    <script src="js/jquery-3.3.1.min.js"></script>
    <script src="js/popper.min.js"></script>
    <script src="js/bootstrap.min.js"></script>
    <script src="js/owl.carousel.min.js"></script>
    <script src="js/jquery.sticky.js"></script>
    <script src="js/jquery.waypoints.min.js"></script>
    <script src="js/jquery.animateNumber.min.js"></script>
    <script src="js/jquery.fancybox.min.js"></script>
    <script src="js/jquery.easing.1.3.js"></script>
    <script src="js/bootstrap-datepicker.min.js"></script>
    <script src="js/aos.js"></script>

    <script src="js/main.js"></script>

  </body>

</html>
```

Back End Code:

```jsp
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1" import="java.sql.*"%>
    <%@ include file="connect.jsp" %>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<%


 String email=request.getParameter("email");
String password=request.getParameter("password");

session.setAttribute("email", email);
try {
Statement st=con.createStatement();
ResultSet   rss=st.executeQuery("select   *   from   admin   where   email='"+email+"'   and
password='"+password+"'");


if(rss.next()) {

%>

<script>alert("LoginSucess")</script>
<jsp:include page="adminhome.jsp" />

 <%
```

```jsp
}
else  {

%>

<script>alert("LoginUnSucess")</script>");
<jsp:include page="admin.jsp" />

 <%
}




}catch(Exception e) {
e.printStackTrace();
}




%>
</body>
</html>
```

Add Cars:
```html
<!doctype html>
<html lang="en">

  <head>
    <title>Car Rent &mdash; Free Website Template by Colorlib</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <link href="https://fonts.googleapis.com/css?family=DM+Sans:300,400,700&display=swap" rel="stylesheet">

    <link rel="stylesheet" href="fonts/icomoon/style.css">

    <link rel="stylesheet" href="css/bootstrap.min.css">
    <link rel="stylesheet" href="css/bootstrap-datepicker.css">
    <link rel="stylesheet" href="css/jquery.fancybox.min.css">
    <link rel="stylesheet" href="css/owl.carousel.min.css">
    <link rel="stylesheet" href="css/owl.theme.default.min.css">
    <link rel="stylesheet" href="fonts/flaticon/font/flaticon.css">
    <link rel="stylesheet" href="css/aos.css">

    <!-- MAIN CSS -->
    <link rel="stylesheet" href="css/style.css">

  </head>

  <body data-spy="scroll" data-target=".site-navbar-target" data-offset="300">
```

```
<div class="site-wrap" id="home-section">

    <div class="site-mobile-menu site-navbar-target">
      <div class="site-mobile-menu-header">
        <div class="site-mobile-menu-close mt-3">
          <span class="icon-close2 js-menu-toggle"></span>
        </div>
      </div>
      <div class="site-mobile-menu-body"></div>
    </div>




        <%@ include file="adminheader.jsp" %>
    <div class="ftco-blocks-cover-1">
        <div     class="ftco-cover-1    overlay     innerpage"     style="background-image:
url('images/hero_2.jpg')">
        <div class="container">
          <div class="row align-items-center justify-content-center">
            <div class="col-lg-6 text-center">
              <h1>Add_Cars</h1>
            </div>
          </div>
        </div>
      </div>
    </div>

    <div class="site-section bg-light" id="contact-section">
      <div class="container">
        <div class=" justify-content-center text-center">
        <div class="col-9 text-center  ">
          <h2>Add_Cars</h2>
        </div>
      </div>

        <div class="row justify-content-center text-center">
          <div class="col-lg-8 mb-5" >
            <form action="adcardata.jsp" method="post" enctype="multipart/form-data">

              <div class="form-group row">

                  <select name="typeCar" class="col-md-7 mb-8 mb-lg-0" class="form-group
row">

                  <option value="Kia">Car</option>
                  <option value="audi">Jeep</option>
                  <option value="sukuki">Toofan</option>


                  </select>

              </div>
```

```html
            <div class="form-group row">
                <select name="cartype" class="col-md-7 mb-6 mb-lg-0" class="form-group
row">

                <option value="Kia">KIA</option>
                <option value="audi">AUDI</option>
                <option value="sukuki">SUZUKI</option>
               <option value="honda">HONDA</option>
                <option value="mahidhra">MAHINDHRA</option>


                </select>
            </div>

            <div class="form-group row">
              <div class="col-md-8 mb-6 mb-lg-0 text-center ">

                <input type="text" class="form-control"  name="brand" placeholder="Enter
Brand">
                </div>
                </div>
            <div class="form-group row">
              <div class="col-md-8 mb-6 mb-lg-0">

                <input type="text" class="form-control" name="model" placeholder="Enter
Model">
                </div>
            </div>


            <div class="form-group row">

                    <select name="fuel" class="col-md-7 mb-6 mb-lg-0" class="form-group
row">

                <option value="Petrol">Petrol</option>
                <option value="Diesel">Diesel</option>
                <option value="Diesel">Electrical</option>

                </select>
             </div>
            <div class="form-group row">
              <div class="col-md-8 mb-6 mb-lg-0">

                <input        type="text"        class="form-control"        name="version"
placeholder="Enter version">
                </div>
            </div>

             <div class="form-group row">
                <select  name="type"  class="col-md-7  mb-6  mb-lg-0"  class="form-group
row">

                <option value="Ac">AC</option>
                <option value="Non-Ac">Non-AC</option>
                </select>
```

```
                    </div>

            <div class="form-group row">
             <div class="col-md-8 mb-6 mb-lg-0">

                 <input       type="number"      class="form-control"      name="capacity"
placeholder="Enter Capacity">
                 </div>
            </div>

            <div class="form-group row">
              <div class="col-md-8 mb-6 mb-lg-0">

                 <input       type="number"      class="form-control"       name="mincost"
placeholder="Enter Cost per/day">
                 </div>
            </div>

            <div class="form-group row">
              <div class="col-md-8 mb-6 mb-lg-0">

                 <input       type="number"      class="form-control"       name="maxcost"
placeholder="Enter Max Km/day">
                 </div>
            </div>


             <div class="form-group row">
              <div class="col-md-8 mb-6 mb-lg-0">

                 <input       type="number"      class="form-control"       name="excost"
placeholder="Cost per Extra Km">
                 </div>
            </div>



             <div class="form-group row">
              <div class="col-md-8 mb-6 mb-lg-0">

                 <input       type="number"      class="form-control"       name="decost"
placeholder="Deposit for Car">
                 </div>
            </div>



             <div class="form-group row">
              <div class="col-md-8 mb-6 mb-lg-0">

                 <textarea     class="form-control" name="feactures" placeholder="Enter
feactures"></textarea>
                 </div>
            </div>
                     <div class="form-group row">
               <div class="col-md-8 mb-6 mb-lg-0">
```

```html
                    <label for="myfile">Select a file:</label>
    <input type="file" id="myfile" name="carpic"><br><br>
                    </div>
                </div>


        <div class="form-group row">
                <div class="col-md-2 mr-auto text-center">
                    <input type="submit" class="btn btn-block btn-primary text-white py-1 px--
1" value="Add Car">
                </div>
            </div>



            </form>
          </div>
        </div></div></div>


     <%@ include file="footer.jsp" %>

    </div>

    <script src="js/jquery-3.3.1.min.js"></script>
    <script src="js/popper.min.js"></script>
    <script src="js/bootstrap.min.js"></script>
    <script src="js/owl.carousel.min.js"></script>
    <script src="js/jquery.sticky.js"></script>
    <script src="js/jquery.waypoints.min.js"></script>
    <script src="js/jquery.animateNumber.min.js"></script>
    <script src="js/jquery.fancybox.min.js"></script>
    <script src="js/jquery.easing.1.3.js"></script>
    <script src="js/bootstrap-datepicker.min.js"></script>
    <script src="js/aos.js"></script>

    <script src="js/main.js"></script>

  </body>

</html>
```

Back-end code:

```java
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1" import="java.sql.*"%>
    <%@ include file="connect.jsp" %>
     <%@page
import="com.oreilly.servlet.*,java.sql.*,java.lang.*,java.text.SimpleDateFormat,java.util
.*,java.io.*,javax.servlet.*,javax.servlet.http.*" %>

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
```

```
<title>Insert title here</title>
</head>
<body>
<%


String typeCar=null;

String cartype=null;

String brand=null;
String model=null;
String fuel=null;
String type=null;
String version=null;

Integer capacity=0;

Double mincost=0.0;
Double maxcost= 0.0;
Double excost=0.0;
Double decost=0.0;

String feactures=null;


String  image=null;


ArrayList list = new ArrayList();

ServletContext context = getServletContext();
String dirName =context.getRealPath("Gallery\\");
String paramname=null;

String file=null;
 String bin = "";


FileInputStream fs=null;
File file1 = null;
try {


MultipartRequest multi = new MultipartRequest(request, dirName,  10 * 1024 * 1024); //
10MB
Enumeration params = multi.getParameterNames();


while (params.hasMoreElements())
{
     paramname = (String) params.nextElement();


     if(paramname.equalsIgnoreCase("typeCar"))
```
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```java
{
      typeCar=multi.getParameter(paramname);
}

if(paramname.equalsIgnoreCase("cartype"))
{
      cartype=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("brand"))
{
      brand=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("model"))
{
      model=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("fuel"))
{
      fuel=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("type"))
{
      type=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("version"))
{
      version=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("feactures"))
{
      feactures=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("carpic"))
{
      image=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("capacity"))
{
      capacity=Integer.parseInt(multi.getParameter(paramname));
}

if(paramname.equalsIgnoreCase("mincost"))
{
      mincost=Double.parseDouble(multi.getParameter(paramname));
}
if(paramname.equalsIgnoreCase("maxcost"))
{
      maxcost=Double.parseDouble(multi.getParameter(paramname));
}
if(paramname.equalsIgnoreCase("excost"))
{
      excost=Double.parseDouble(multi.getParameter(paramname));
}
if(paramname.equalsIgnoreCase("decost"))
{
```

```java
                decost=Double.parseDouble(multi.getParameter(paramname));
        }

}


// image upload

int f = 0;
Enumeration files = multi.getFileNames();
while (files.hasMoreElements())
{
        paramname = (String) files.nextElement();


        if(paramname != null)
        {
                f = 1;
                image = multi.getFilesystemName(paramname);

                String fPath = context.getRealPath("Gallery\\"+image);
                file1 = new File(fPath);
                fs = new FileInputStream(file1);
                list.add(fs);

                String ss=fPath;
                FileInputStream fis = new FileInputStream(ss);
                StringBuffer sb1=new StringBuffer();
                int i = 0;
                while ((i = fis.read()) != -1) {
                        if (i != -1) {
                                //System.out.println(i);
                                String hex = Integer.toHexString(i);
                                // session.put("hex",hex);
                                sb1.append(hex);
                                // sb1.append(",");

                                String binFragment = "";
                                int iHex;

                                for(int i1= 0; i1 < hex.length(); i1++){
                                        iHex = Integer.parseInt(""+hex.charAt(i1),16);
                                        binFragment = Integer.toBinaryString(iHex);

                                        while(binFragment.length() < 4){
                                                binFragment = "0" + binFragment;
                                        }
                                        bin += binFragment;
                                        //System.out.print(bin);
                                }
                        }
                }
        }
}
FileInputStream fs1 = null;
```

```
String                                query="insert                          into
car(cartype,brand,model,fuel,type,version,capacity,mincost,maxcost,excost,depositcost,fea
ctures,image,TypeCar)values(?,?,?,?,?,?,?,?,?,?,?,?,?,?)";
PreparedStatement ps=con.prepareStatement(query);
ps.setString(1, cartype);
ps.setString(2, brand);
ps.setString(3, model);
ps.setString(4, fuel);
ps.setString(5, type);
ps.setString(6, version);


ps.setInt(7, capacity);
ps.setDouble(8, mincost);
ps.setDouble(9, maxcost);

ps.setDouble(10, excost);
ps.setDouble(11, decost);

ps.setString(12, feactures);



ps.setBinaryStream(13, (InputStream)fs, (int)(file1.length())));




// image upload
if(f == 0)
ps.setObject(13,null);
else if(f == 12)
{
fs1 = (FileInputStream)list.get(0);
ps.setBinaryStream(13,fs1,fs1.available());
}
 ps.setString(14,typeCar);


int a=ps.executeUpdate();
if(a>0){
%>

     <jsp:forward page="viewcars.jsp" />

 <%
}
else{
%>

<script>alert("Add_UnSuccess")</script>");
<jsp:include page="cars.jsp" />
```

```
 <%
}}
catch(Exception e)
{
e.printStackTrace();
}

%>
</body>
</html>
```

View Cars:

```html
<!doctype html>
<html lang="en">

  <head>
    <title>Car Rent &mdash; Free Website Template by Colorlib</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <link href="https://fonts.googleapis.com/css?family=DM+Sans:300,400,700&display=swap"
rel="stylesheet">

    <link rel="stylesheet" href="fonts/icomoon/style.css">

    <link rel="stylesheet" href="css/bootstrap.min.css">
    <link rel="stylesheet" href="css/bootstrap-datepicker.css">
    <link rel="stylesheet" href="css/jquery.fancybox.min.css">
    <link rel="stylesheet" href="css/owl.carousel.min.css">
    <link rel="stylesheet" href="css/owl.theme.default.min.css">
    <link rel="stylesheet" href="fonts/flaticon/font/flaticon.css">
    <link rel="stylesheet" href="css/aos.css">

    <!-- MAIN CSS -->
    <link rel="stylesheet" href="css/style.css">

  </head>

  <body data-spy="scroll" data-target=".site-navbar-target" data-offset="300">


    <div class="site-wrap" id="home-section">

      <div class="site-mobile-menu site-navbar-target">
        <div class="site-mobile-menu-header">
          <div class="site-mobile-menu-close mt-3">
            <span class="icon-close2 js-menu-toggle"></span>
          </div>
        </div>
        <div class="site-mobile-menu-body"></div>
      </div>
```

```jsp
<%@ include file="adminheader.jsp" %>
    <%@ include file="connect.jsp" %>
    <%@ page import="java.sql.*" %>


<div class="ftco-blocks-cover-1">
  <div      class="ftco-cover-1      overlay      innerpage"      style="background-image:
url('images/hero_2.jpg')">
     <div class="container">
        <div class="row align-items-center justify-content-center">
          <div class="col-lg-6 text-center">
             <h1>ViewCars</h1>
          </div>
        </div>
     </div>
  </div>
</div>
<br><br><br>
   <div class="container">
  <div class="row">

   <%

String query="select * from car";

Statement st=con.createStatement();
ResultSet rs=st.executeQuery(query);


while(rs.next()){
int car_id=rs.getInt(1);
String carName=rs.getString(2);
String carBrand=rs.getString(3);
String carModel=rs.getString(4);
String carVersion=rs.getString(7);
double minCost=rs.getDouble(9);
double maxCost=rs.getDouble(10);
double extraCost=rs.getDouble(11);
double dptCost=rs.getDouble(12);
String feactures=rs.getString(13);

String fuelType=rs.getString(5);
String Ac_NonAc=rs.getString(6);
int capacity=rs.getInt(8);
String Type=rs.getString(15);

%>


   <div class="col-lg-4 col-md-6 mb-4">



       <div class="item-1">
```

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```html
            <img src="image.jsp?id=<%=car_id%>" style="width:500px; height:300px;" alt="Image"
class="img-fluid">


            <div class="item-1-contents">

                <div class="text-center">

                <h3><a
href="#"><%=carName%>&nbsp<%=carBrand%>&nbsp<%=carModel%>&nbsp<%=carVersion%></a></h3>


            <div class="rent-price">
            <h8>CostPerday-<span>Rs&nbsp<%=minCost %> &nbsp,

            MaxKm/day-&nbsp<%=maxCost %>  &nbsp,
              DepositCost-    Rs&nbsp<%=dptCost    %>,    ExtraCost/km-Rs&nbsp<%=extraCost
%></span></h8>
            </div>
                </div>
                <br>
                <ul class="specs">
                  <li>
                    <span>FuelType</span>
                    <span class="spec"><%=fuelType %></span>
                  </li>
                  <li>
                    <span>BlowerType</span>
                    <span class="spec"><%=Ac_NonAc %></span>
                  </li>
                  <li>
                    <span>capacity</span>
                    <span class="spec"><%=capacity %></span>
                  </li>
                   <li>
                    <span>Type</span>
                    <span class="spec"><%=Type %></span>
                  </li>
                   <li>
                    <span>Feactures</span>
                    <span class="spec"><%=feactures %></span>
                  </li>

                </ul>
                <div class="d-flex action">
                   <a    href="car_edit.jsp?car_Id=<%=car_id    %>"    class="btn    btn-
primary">Update</a> &nbsp                    <a href="car_delete.jsp?car_Id=<%=car_id %>"
class="btn btn-danger">Delete</a>


                </div>


  </div></div>
```

```
      </div>


<%
}

%>
 </div></div></div>

          <%@ include file="footer.jsp" %>


    <script src="js/jquery-3.3.1.min.js"></script>
    <script src="js/popper.min.js"></script>
    <script src="js/bootstrap.min.js"></script>
    <script src="js/owl.carousel.min.js"></script>
    <script src="js/jquery.sticky.js"></script>
    <script src="js/jquery.waypoints.min.js"></script>
    <script src="js/jquery.animateNumber.min.js"></script>
    <script src="js/jquery.fancybox.min.js"></script>
    <script src="js/jquery.easing.1.3.js"></script>
    <script src="js/bootstrap-datepicker.min.js"></script>
    <script src="js/aos.js"></script>

    <script src="js/main.js"></script>

  </body>

</html>
```

View Customers:

```
<!doctype html>
<html lang="en">

  <head>
    <title>Car Rent &mdash; Free Website Template by Colorlib</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <link href="https://fonts.googleapis.com/css?family=DM+Sans:300,400,700&display=swap"
rel="stylesheet">

    <link rel="stylesheet" href="fonts/icomoon/style.css">

    <link rel="stylesheet" href="css/bootstrap.min.css">
    <link rel="stylesheet" href="css/bootstrap-datepicker.css">
    <link rel="stylesheet" href="css/jquery.fancybox.min.css">
    <link rel="stylesheet" href="css/owl.carousel.min.css">
    <link rel="stylesheet" href="css/owl.theme.default.min.css">
    <link rel="stylesheet" href="fonts/flaticon/font/flaticon.css">
    <link rel="stylesheet" href="css/aos.css">

    <!-- MAIN CSS -->
```

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```html
        <link rel="stylesheet" href="css/style.css">

    </head>

    <body data-spy="scroll" data-target=".site-navbar-target" data-offset="300">


        <div class="site-wrap" id="home-section">

            <div class="site-mobile-menu site-navbar-target">
                <div class="site-mobile-menu-header">
                    <div class="site-mobile-menu-close mt-3">
                        <span class="icon-close2 js-menu-toggle"></span>
                    </div>
                </div>
                <div class="site-mobile-menu-body"></div>
            </div>



            <%@ include file="adminheader.jsp" %>
                <%@ include file="connect.jsp" %>
                <%@ page import="java.sql.*" %>

        <div class="ftco-blocks-cover-1">
            <div      class="ftco-cover-1      overlay      innerpage"      style="background-image:
url('images/hero_2.jpg')">
                <div class="container">
                    <div class="row align-items-center justify-content-center">
                        <div class="col-lg-6 text-center">
                            <h1>View_Customer</h1>
                        </div>
                    </div>
                </div>
            </div>
        </div>
    <br><br>


        <%
 String query="select * from customer";

Statement st=con.createStatement();
ResultSet rs=st.executeQuery(query);



try
{

int count=0;



out.println("<table class='table table-bordered'>");
```

```
out.println("<tr>"+"<th>"+"Id"+"</th>"+"<th>"+"Name"+"</th>"+"<th>"+"Email"+"</th>"+"<th>
"+"Mobile"+"</th>"+"<th>"+"Address"+"</th>"+"<th>"+"City"+"</th>"+"<th>"+"DrivingLicense"
+"</th>"+"</tr>");


while(rs.next())
{


count++;
out.println("<tr>");
out.println("<td>"+rs.getInt(1)+"</td>"+"<td>"+rs.getString(2)+"</td>"+"<td>"+
rs.getString(3)+"</td>"+"<td>"+rs.getString(5)+"</td>"+"<td>"+rs.getString(6)+"</td>"+"<t
d>"+rs.getString(7)+"</td>");

        out.println("<td>"+"<img    src='image2.jsp?id="+rs.getInt(1)+"'    style='width:200px;
height:230px' />"+"</td>");



out.println("</tr>");
}
out.println("</table>");


if(count==0) {
System.out.println("no records found");
}

st.close();
st.close();
con.close();

}
catch(Exception e)
{
e.printStackTrace();
}
%>

 </div>


 <script>

function myConfirm1() {
  var result = confirm("Are you Want to Edit?");
  if (result==true) {
   return true;
   }
else
  {
   return false;
  }
}
```

```
</script>
 <%@ include file="footer.jsp" %>
    <script src="js/jquery-3.3.1.min.js"></script>
    <script src="js/popper.min.js"></script>
    <script src="js/bootstrap.min.js"></script>
    <script src="js/owl.carousel.min.js"></script>
    <script src="js/jquery.sticky.js"></script>
    <script src="js/jquery.waypoints.min.js"></script>
    <script src="js/jquery.animateNumber.min.js"></script>
    <script src="js/jquery.fancybox.min.js"></script>
    <script src="js/jquery.easing.1.3.js"></script>
    <script src="js/bootstrap-datepicker.min.js"></script>
    <script src="js/aos.js"></script>

    <script src="js/main.js"></script>

  </body>

</html>
```
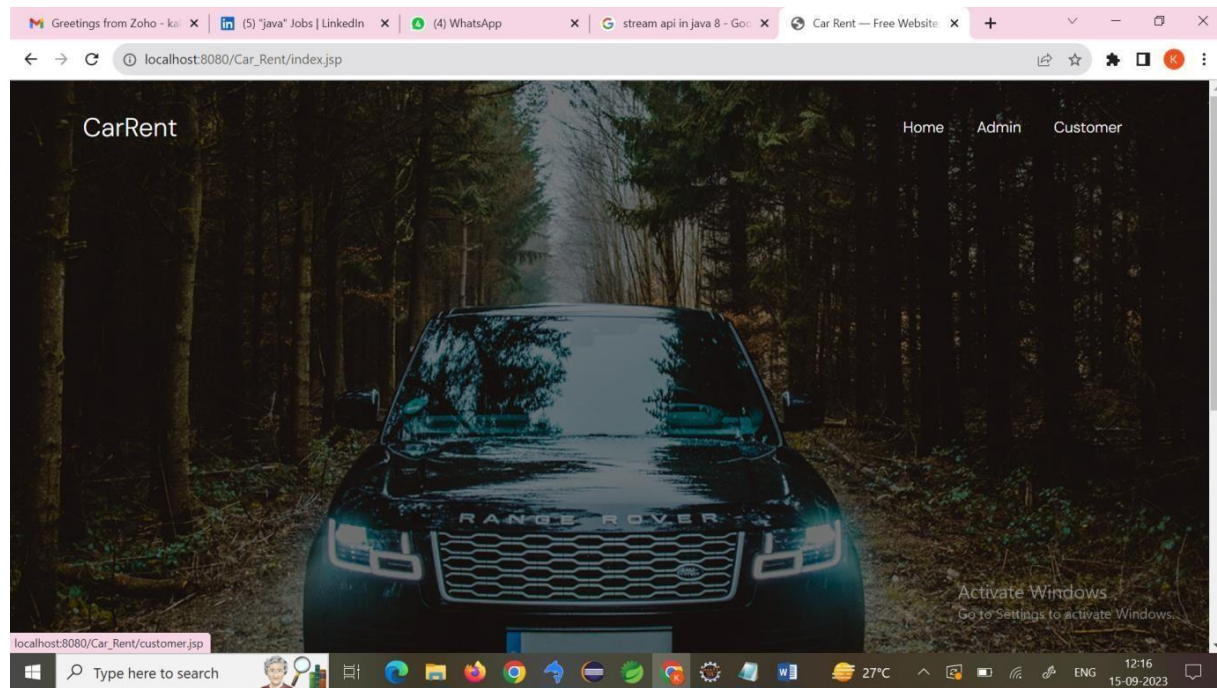
View bookings:

```
<!doctype html>
<html lang="en">

  <head>
    <title>Car Rent &mdash; Free Website Template by Colorlib</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <link href="https://fonts.googleapis.com/css?family=DM+Sans:300,400,700&display=swap"
rel="stylesheet">

    <link rel="stylesheet" href="fonts/icomoon/style.css">

    <link rel="stylesheet" href="css/bootstrap.min.css">
    <link rel="stylesheet" href="css/bootstrap-datepicker.css">
    <link rel="stylesheet" href="css/jquery.fancybox.min.css">
    <link rel="stylesheet" href="css/owl.carousel.min.css">
    <link rel="stylesheet" href="css/owl.theme.default.min.css">
    <link rel="stylesheet" href="fonts/flaticon/font/flaticon.css">
    <link rel="stylesheet" href="css/aos.css">

    <!-- MAIN CSS -->
    <link rel="stylesheet" href="css/style.css">

  </head>

  <body data-spy="scroll" data-target=".site-navbar-target" data-offset="300">


    <div class="site-wrap" id="home-section">

      <div class="site-mobile-menu site-navbar-target">
```

```html
        <div class="site-mobile-menu-header">
          <div class="site-mobile-menu-close mt-3">
            <span class="icon-close2 js-menu-toggle"></span>
          </div>
        </div>
        <div class="site-mobile-menu-body"></div>
      </div>



        <%@ include file="adminheader.jsp" %>
          <%@ include file="connect.jsp" %>
          <%@ page import="java.sql.*" %>

    <div class="ftco-blocks-cover-1">
      <div      class="ftco-cover-1      overlay      innerpage"      style="background-image:
url('images/hero_2.jpg')">
        <div class="container">
          <div class="row align-items-center justify-content-center">
            <div class="col-lg-6 text-center">
              <h1>View_Bookings</h1>
            </div>
          </div>
        </div>
      </div>
    </div>
<br><br><br>
 <div class="container">
   <div class="row">

    <%

String query="select * from book";

Statement st=con.createStatement();
ResultSet rs=st.executeQuery(query);


while(rs.next()){
int book_id=rs.getInt(1);
int car_id=rs.getInt(4);
String email=rs.getString(2);
String phone=rs.getString(3);
      String damount=rs.getString(5);
      String book_date=rs.getString(6);

String pickup=rs.getString(7);
String droppingpoint=rs.getString(8);

String address=rs.getString(9);
String today_date=rs.getString(10);
String status=rs.getString(11);


String accept="Accepted";
```
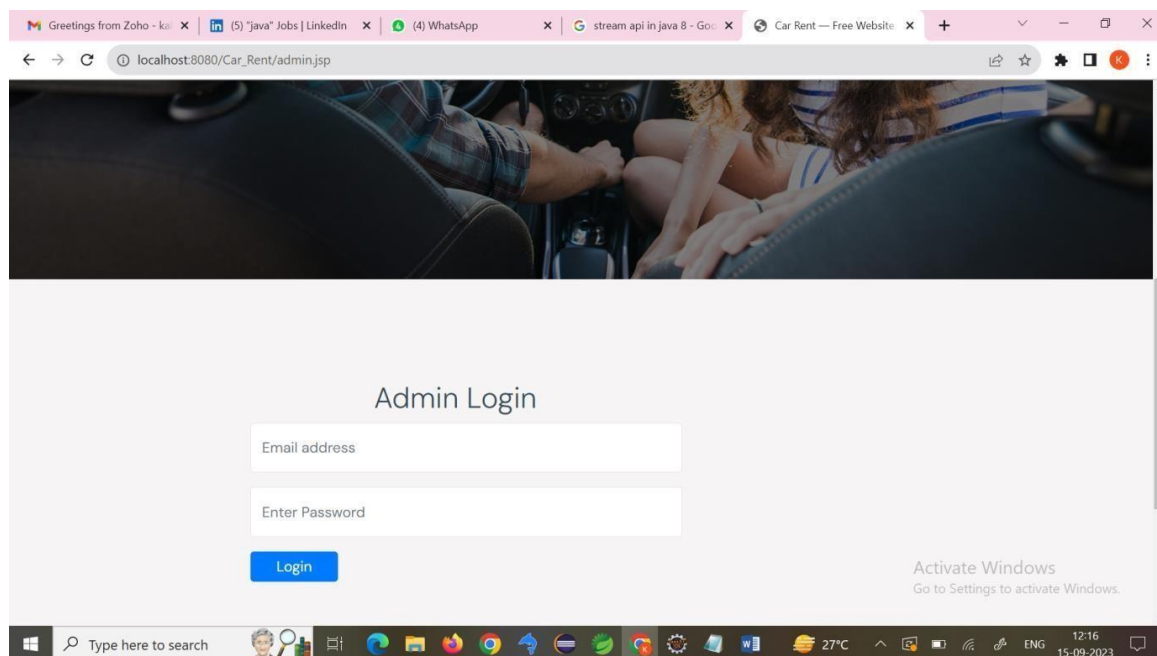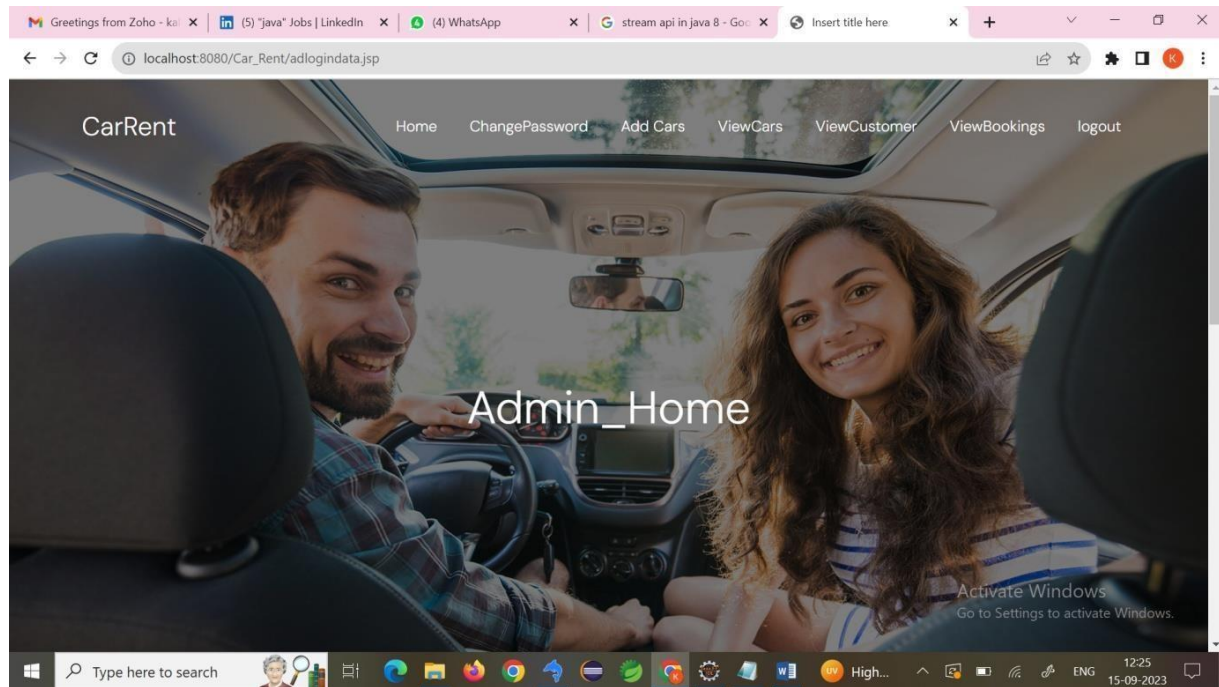
50

```jsp
String cancel="Cancel";
String New="new";
String reject="Rejected";
String onbord="Onboarded";

%>


    <div class="col-lg-4 col-md-6 mb-4">


        <div class="item-1">
        <img src="image.jsp?id=<%=car_id%>" style="width:500px; height:300px;" alt="Image"
class="img-fluid">


            <div class="item-1-contents">

                    <br>
                    <ul class="specs">
                      <li>
                        <span>Book_Id</span>
                        <span class="spec"><%=book_id %></span>
                      </li>
                      <li>
                        <span>Car_Id</span>
                        <span class="spec"><%=car_id %></span>
                      </li>
                      <li>
                        <span>Email</span>
                        <span class="spec"><%=email %></span>
                      </li>
                       <li>
                        <span>Phone</span>
                        <span class="spec"><%=phone %></span>
                      </li>

                      <li>
                        <span>Book_Date</span>
                        <span class="spec"><%=book_date %></span>
                      </li>
                      <li>
                        <span>PickUp_Point</span>
                        <span class="spec"><%=pickup %></span>
                      </li>
                      <li>
                        <span>DroppingPoint</span>
                        <span class="spec"><%=droppingpoint %></span>
                      </li>


                       <li>
                        <span>Address</span>
                        <span class="spec"><%=address %></span>
                      </li>
```
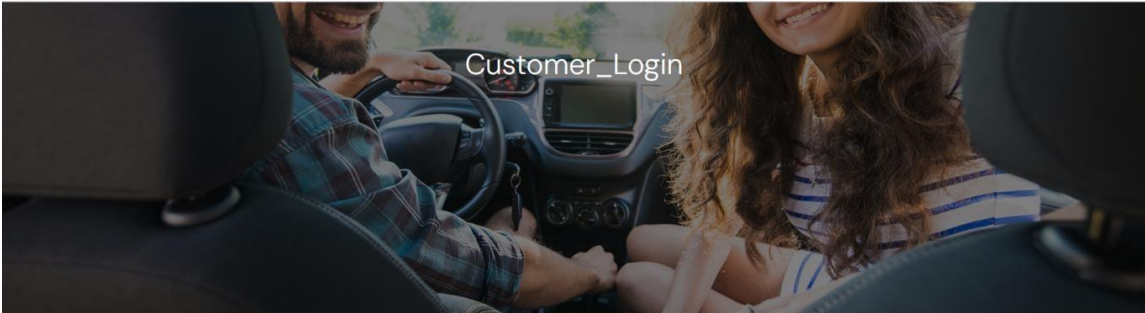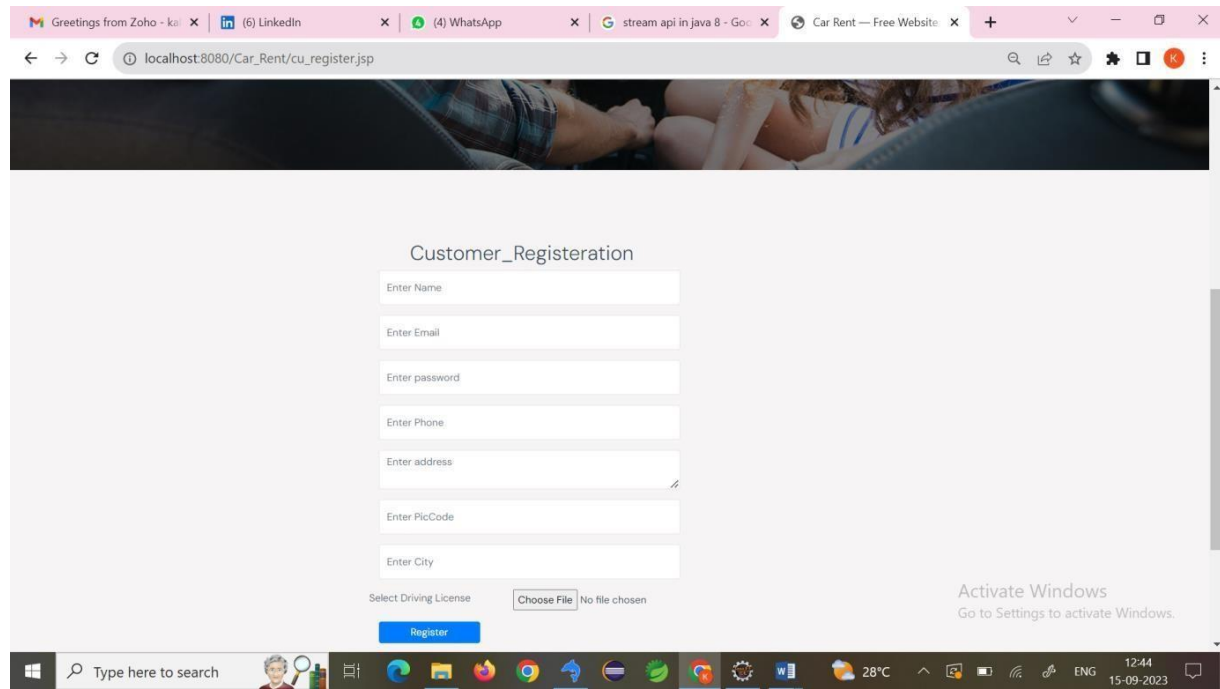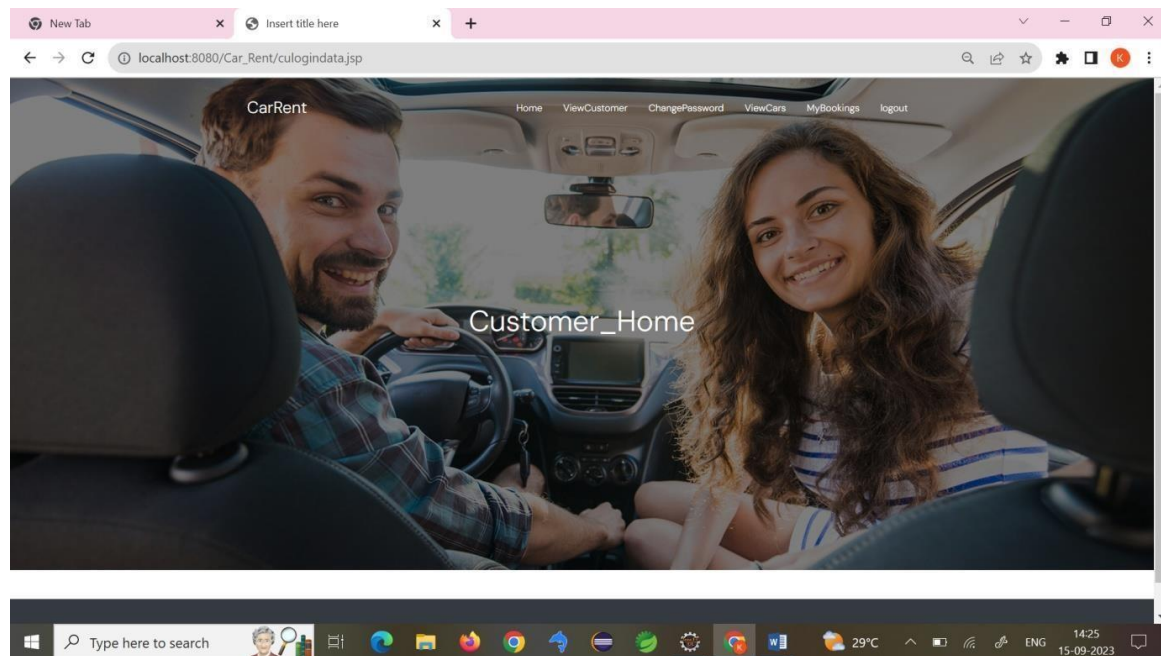
```jsp
      <br>
       <li>
        <span>Date</span> &nbsp
        <span class="spec"> <%=today_date %></span>
      </li>
        <br>



         <li>
         <span>DepositeAmount</span>
         <span class="spec"><%=damount %></span>
        </li>
           <li>
           <span>Status</span>
           <span class="spec"><%=status %></span>
        </li>
      </ul>

        <%

        if(status.equals(New)){
          %>
             <div class="d-flex action">
                <a    href="accept.jsp?book_Id=<%=book_id    %>"    class="btn    btn-
primary">Accept</a> &nbsp                     <a href="reject.jsp?book_Id=<%=book_id %>"
class="btn    btn-danger">Reject</a>   &nbsp                                         <a
href="viewLicense.jsp?book_Id=<%=book_id %>" class="btn btn-info">View License</a>


           </div>
           <%
        }


        else if(status.equals(cancel)){
          out.println("<h5>This Car Was Canceled by Customer</h5>");
        }
        else if(status.equals(reject)){

        }
        else if(status.equals(accept)){
          %>
             <div class="d-flex action">
                <a    href="onboard.jsp?book_Id=<%=book_id    %>"    class="btn    btn-
primary">OnBoard</a> &nbsp


           </div>
           <%
        }
        else if(status.equals(onbord)){
          out.println("<h5>This Car was Onboarded. ....</h5>");
```

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```
                }
                %>



    </div></div>
        </div>


<%
}

%>
 </div></div></div>

        <%@ include file="footer.jsp" %>



    <script src="js/jquery-3.3.1.min.js"></script>
    <script src="js/popper.min.js"></script>
    <script src="js/bootstrap.min.js"></script>
    <script src="js/owl.carousel.min.js"></script>
    <script src="js/jquery.sticky.js"></script>
    <script src="js/jquery.waypoints.min.js"></script>
    <script src="js/jquery.animateNumber.min.js"></script>
    <script src="js/jquery.fancybox.min.js"></script>
    <script src="js/jquery.easing.1.3.js"></script>
    <script src="js/bootstrap-datepicker.min.js"></script>
    <script src="js/aos.js"></script>

    <script src="js/main.js"></script>

  </body>

</html>
```

OUTPUT SCREENS

Admin:

Admin Home:

Add Cars:

View cars:

View Customers:

View Bookings:

Customer login:

Customer registration:

Customer home:

View Customers:

View cars:

Book cars:

My Bookings:

6.1 TESTING

Testing Process

i. Introduction

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

ii. Types of Testing

Unit Testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration Testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

System Testing

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

User Acceptance Testing (UAT)

User Acceptance Testing (UAT), or application testing, is the final stage of any software development or change request lifecycle before go-live. UAT meaning the final stage of any development process to determine that the software does what it was designed to do in real-world situations. Actual users test the software to determine if it does what it was designed to do in real-world situations, validating changes made and assessing adherence to their organization's business requirements. The main purpose of acceptance testing is to validate end-to-end business flow.

User Acceptance Testing is a testing methodology where clients/end users participate in product testing to validate the product against their requirements. It is done at the client's site on the developer's site. For industries such as medicine or aerospace, contractual and regulatory compliance testing, and operational acceptance tests are also performed as part of user acceptance tests. It can be done in two levels i.e alpha testing and beta testing.

Software Testing Life Cycle

1. Requirement Analysis
2. Test Planning
3. Test Case Development
4. Environment Setup
5. Test Execution
6. Test Cycle Closure

Functional Testing

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals. Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

Non-Functional Testing

Non functional testing is a type of software testing that verifies nonfunctional aspects of the product, such as performance, stability, and usability. Whereas functional testing verifies whether or not the product does what it is supposed to, non-functional testing verifies how well the product performs.

White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot "see" into it. The test provides inputs and responds to outputs without considering how the software works.

Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Test Results : All the test cases mentioned above passed successfully. No defects encountered.

7.1 CONCLUSION

With web-based rental management information system, hassle free renting can be provided. There is efficiency in paper procurement for charging the product. The data of all the products is stored in a centralized manner and the costs can be controlled and monitored by the operational manager and owner thus avoiding the over-budgeting. Data storage which is already computerized will ease the process for companies and the users for performing pre-processing, recognizing the buying patterns and maintaining the integrity of the data and use this information to a personal benefit. Through this application we are trying to promote renting out products used on a daily basis instead of buying and discarding them. Our application is user-friendly, open source and is Free to use. It positively impacts the environmental situation by using fewer products a greater number of times. Hiring products provides a simple way of collecting useful information to measure this service. Concentrating on customer satisfaction and the four dimensions, "Reliability", "Responsiveness", "Tangibles" and "Quality" helps us to serve the users in a better manner and thus give us a competitive edge over the others.

7.2 FUTURE SCOPE

As the technology evolves, the web development industry promises noteworthy progress. We will see the industry growing and expanding with the introduction of new tools and technologies. Here is what the future of our website development are Responsive and Adaptive Designs, Payment Gateway Integration, Email / SMS Gateway integration, Mobile OTP Integrations, and also we can enhance this web application to mobile users by developing same application into mobile technology like android, IOS. So that user can use same application features even in mobile devices also. And also we can add GPS or location based services. You can even enhance the application by providing ML features like recommendations, predictions and classifications etc. We can also upgrade the best search and filter mechanisms too for this website.

BIBLIOGRAPHY :

- **Academic Journals:**

o   Journal of Transportation Management

o   Transportation Research Part E: Logistics and Transportation Review

o   Information Systems Research

- **Industry Reports:**

o   Reports from market research firms like Gartner, Forrester, and IBM

o   Industry associations like the American Car Rental Association (ACRA)

- **Conference Proceedings:**

o   Proceedings from conferences related to transportation, information systems, and tourism

- **Books:**

o   Textbooks on tourism management, information systems, and transportation

- **Online Resources:**

o   Academic databases (Google Scholar, JSTOR, ScienceDirect)

o   Industry websites (car rental companies, technology providers)

o   Government reports and statistics

https://wsutech.edu/news/wsu-tech-launches-cloud-computing-program-designed-to-get-individuals-to-work-fast/

https://principus.si/2022/08/18/raphael-amit-cristoph-zott-business-model-innovation-strategy/

https://www.thepeninsula.org.in/2020/10/12/insurtech-in-india/

https://fagenwasanni.com/news/apples-intelligent-chatbot-set-to-revolutionize-ai-based-chat-systems/240368/

GLOSSARY :

• Online Car Rental System: A digital platform that enables customers to rent vehicles through the internet or mobile applications.

• Booking Engine: Software that facilitates the process of booking a rental car, including availability checks, pricing calculations, and payment processing.

• Rate Management: The process of determining and managing rental car prices based on factors such as demand, competition, and vehicle availability.

• Fleet Management: The oversight of a company's vehicle fleet, including maintenance, repair, and allocation.

• Customer Relationship Management (CRM): A system for managing interactions with current and potential customers.

• Geographic Information System (GIS): A system for capturing, storing, analyzing, managing, and presenting spatial or geographic data.

• Global Distribution System (GDS): A worldwide computer reservation system used to provide travel information and sell airline tickets and other travel products.

• Online Payment Gateway: A secure electronic payment system that authorizes credit card transactions between a merchant and a customer.

• Rental Agreement: A legal contract outlining the terms and conditions of a car rental.

• Insurance: Coverage that protects against financial loss due to accidents, theft, or other damages to the rental vehicle.

• Pick-up and Drop-off Locations: The designated places where customers can collect and return their rental cars.

• Vehicle Availability: The status of rental cars indicating whether they are available for booking or not.

• Rental Period: The duration of time for which a vehicle is rented.

• Additional Charges: Fees for extra services such as drivers, child seats, GPS devices, or additional insurance.

• Customer Support: Assistance provided to customers regarding bookings, cancellations, modifications, or issues encountered during the rental period.

• Additional Terms

• Mobile App: A software application designed to run on smartphones and tablets.

• User Interface (UI): The graphical layout of an application or website.

• User Experience (UX): The overall experience of a user interacting with a product.

• Database: A structured collection of data organized for easy access, management, and updating.

• Cloud Computing: The delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet ("the cloud").

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• [1. wsutech.edu](wsutech.edu)

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• Artificial Intelligence (AI): Simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.

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• [1. principus.si](principus.si)

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• Machine Learning: A subset of AI that allows systems to learn and improve from experience without being explicitly programmed.

References

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- o http://www.w3schools.com
- o http://www.stackoverflow.com
- o **https://docs.oracle.com/javase/tutorial/java/index.html**
- o **https://www.programiz.com**
- o **https://docs.python.org/3/tutorial/index.html**
- o **https://www.djangoproject.com/start/**
- o **https://www.geeksforgeeks.org/django-tutorial/**
- o **https://www.umsl.edu/~siegelj/CS4010/murach/Chapter1slides.pdf**
- o **https://github.com**