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ABSTRACT

This project is designed so as to be used by Car Rental Company specializing in renting cars to customers. It is an online system through which customers can view available cars, register, view profile and book car. 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 car rental industry is not left out.

The main objective of the AUTO-XPRESS is to manage the details of car, payment, booking, and customer. The project is totally built at administrative end and thus only the administrative is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the car, payment, booking, and customer. It tracks all the details of the booking. This system helps you to keep the information of customer online. You can check your customer information any time by using this system. AUTO-XPRESS is a unique and innovative product. The user shall login to the system and check for availability of cars. The System shall check for the availability of the car and rent the car to the customer.

AUTO-X PRESS can lead to error free, secure, reliable and fast management system. No formal knowledge is needed for the user to use this system. Thus, by this all it proves it is user-friendly. AUTO-X PRESS reduces the error while entering the data. It helps the organization in better utilization of resources.

CHAPTER 1

INTRODUCTION

Information privacy or data protection prohibit the disclosure or misuse of information about private individuals. For all data collected, there should be a stated purpose. Information collected from an individual cannot be disclosed to other organizations or individuals unless specifically authorized by law or by consent of the individual. Records kept on an individual should be accurate and up to date. There should be mechanisms for individuals to review data about them, to ensure accuracy.

1.1 ORGANISATION PROFILE

Shiash Info Solutions is an IT services, Digital and Business solutions company based in Chennai (India) providing Customized Software Development, Web Application Development, Mobile Application Development and IT Consulting Services. We have earned the pride of being one of the leading desktop & web based software solution provider in India, we develop software solution that helps our customers to outperform the competition and stay ahead in today's competitive business environment.

We firmly believe that business needs can be only met when technology is in sync with business process. At Shiash Info Solutions , we provide multi-dimensional IT services that caters to high-end internet strategy, software development and design solutions for corporate clients all across the globe. We have a wide and varied range of products & services that can suit the divergent needs of our large client base.

We understand that for the success of any project Time, Quality and Support has to be top class, for this our planning & quality control team make sure that your projects are very planned & designed to be delivered on time & also the quality of the project is more than what you have expected.

1.2 ABOUT THE PROJECT

This project is designed so as to be used by Car Rental Company specializing in renting cars to customers. It is an online system through which customers can view available cars, register and book car.

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 very 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 records of cab, cabs available for booking, rental charges for cars, store records of the customer.

AUTO-X-PRESS 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. You can check your customer information any time by using this system. Online car rental management system is a unique and innovative product. Based on this information you can take decision regarding your business development.

1.3 HARDWARE REQUIREMENTS

- RAM 4/8GB
- Dual-Core 2.8 GHz Processor and Above
- HDD 80 GB Hard Disk Space and Above

1.4 SOFTWARE REQUIREMENTS

- WINDOWS OS (7 /XP) and Above
- Android Studio
- MYSQL

CHAPTER 2

SYSTEM ANALYSIS

System Analysis is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components. System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem-solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose.

2.1 PROBLEM DEFINITION

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 don't 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.

Aims & Objectives

- To produce a web-based system that allow customer to register and reserve car online and for the company to effectively manage their car rental business.
- To ease customer’s task whenever they need to rent a car.

Scope

This project traverses a lot of areas ranging from business concept to computing field, and required to perform several researches to be able to achieve the project objectives. The area covers include:

- Car rental industry: This includes study on how the car rental business is being done, process involved and opportunity that exist for improvement.
- PHP Technology used for the development of the application.
- General customers as well as the company’s staff will be able to use the system effectively.
- Web-platform means that the system will be available for access 24/7 except when there is a temporary server issue which is expected to be minimal.

2.2 SYSTEM STUDY

FEASIBILITY STUDY

The preliminary investigation examines project feasibility the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging oldest running system. All system is feasible if they are unlimited resources and infinite time.

There are aspects in the feasibility study portion of the preliminary investigation:

- Technical Feasibility
- Operational Feasibility
- Economic Feasibility

TECHNICAL FEASIBILITY

The technical issue usually raised during the feasibility stage of the investigation includes the following:

- Does the necessary technology exist to do what is suggested?
- Do the proposed equipment's have the technical capacity to hold the data required to use the new system?
- Will the proposed system provide an adequate response to inquiries, regardless of the number or location of users?
- Can the system be upgraded if developed?
- Are there technical guarantees of accuracy, reliability, ease of access and data security?

Earlier no system existed to cater to the needs of 'Secure Infrastructure Implementation System'. The current system developed is technically feasible. It is a browser-based user interface for audit workflow. Thus, it provides easy access to users.

The purpose is to create, establish and maintain a workflow among various entities in order to facilitate all concerned users in their various capacities or roles. Permission to the users would be granted based on the rules specified. Therefore, it provides the technical guarantee of accuracy, reliability and security. The software and hard requirements for the development of this project are not many and are already available or are available as free as open source.

The work for the project is done with the current equipment and existing software technology. Necessary bandwidth exists for providing fast feedback to the users irrespective of the number of users using the system.

OPERATIONAL FEASIBILITY

The analyst considers the extent the proposed system will fulfil his departments. That is, whether the proposed system covers all aspects of the working system and whether it has considerable improvements. We have found that the proposed "Secure transaction" will certainly have considerable improvements over the existing system.

ECONOMIC FEASIBILITY

The proposed system is economically feasible because the cost involved in purchasing the hardware and the software is within approachable. Working in this system need not require a highly qualified professional. The operating-environment costs are marginal. The less time involved also helped in its economic feasibility.

2.3 EXISTING SYSTEM

An existing system can provide manually paper work or excel sheet to track the booking and registered vehicles details.

The user has to go in the office where the user can get the car on rent and book their car. Most of the time user does not get a sight of the car in which he is planning to travel. Which results in compromising the travel comfort.

In the existing system, you cannot provide feedback of the user to the admin directly. The user gets fluctuation every time he/she travels problem.

DISADVANTAGE

There are certain features limiting the process of the present system.

The drawbacks of the present system are listed below.

- More human power
- More strength and strain of manual labour needed
- Repetition of same procedure.
- Low security.
- Data redundancy.
- Difficulty to handle.
- Difficulty to update data.
- Record keeping is difficult.
- Backup data can be easily generated.

2.4 PROPOSED SYSTEM

The manual system of is to be computerized in order to overcome the problems, which affect the existing manual system. Computerizing the existing system with the help of some programming language database package ease the work of the system up to a great extent. This Car Rental System project will enable the user to rent a vehicle. The user shall login to the system and check for availability of cars. The Car Rental System shall check for the availability of the car and rent the car to the customer. The tool is designed using php. All the data regarding the rental cars are stored in MySQL database. The user has to enter his name, address, phone details and check for the cars available for rent. The main advantage is that the user shall be able to choose a car depending on his budget.

ADVANTAGE

The advantages of the proposed system are listed below.

- It is very flexible and user friendly.
- The person's time and work is reduced very much which prevails in the present system.
- Easy and Helpful.
- The people are not limited to receive or provide services in working hours of the branch only; he is serviced 24 hours a day, 7 days of week and 365 days of the year.

Module Description

The most creative and challenging phase of the system development is system design. It provides the understanding and procedural details necessary for implementing the system recommended in the feasibility study. Design goes through the logical and physical stages of development.

The System have 2 modules.

- **Administration**
- **User Management**

1.Administration

Admin is basically super user. Admin can add a car, manage booking cars, and rent and view feedback and enquiry. Admin will keep track of each booking. Manage organization representatives.

Modules are

Add Car: The Admin can add the car so that the user can see the available cars and book the car.

Manage Rent: The Admin can manage the rent so that the user can see the rent and book the car.

View Feedback: The admin easily views the feedbacks and solve the query.

Approve Request: The admin can approve the rent request from the customer.

View Enquiry: The admin can easily view the enquiry and can solve.

Return: The admin can confirm the return of rented cars.

Issue: The admin can confirm the issues details of car.

Billing: The admin can manage the sales bill and payment.

View customer: The admin can view the customer information.

2.User Management

The user is end user of our service. User can view information of available car, booking a car, easily get the car on rent, and also give feedback and can enquiry. User also views the discount and other information to get best deals.

Modules are

User Registration: The user can register and login.

Booking Car: The user can view Available cars and user can book for that car.

Edit Profile: The user can edit there Personal Information.

My Booking: The user can view the Booking status.

Give Feedback: The customer will give the feedback to the admin.

CHAPTER 3

SYSTEM DESIGN

System Design is a process of planning a new business system or replacing an existing system by defining its components or modules to satisfy the specific requirements.

Before planning, you need to understand the old system thoroughly and determine how computers can best be used in order to operate efficiently. A system is "an orderly grouping of interdependent components linked together according to a plan to achieve a specific goal."

3.1 SYSTEM ARCHITECTURE

An system architecture is an representation of a system, organized in a way that supports reasoning about the structures and behaviours of the system. A system architecture can consist of system components and the sub-systems developed, that will work together to implement the overall system.

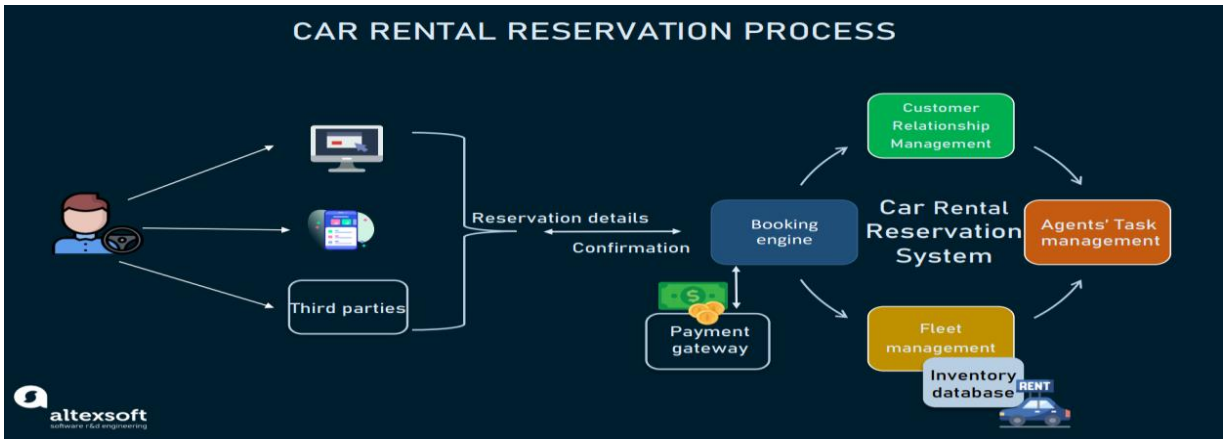


Fig 3.1 System Architecture

3.2 E-R DIAGRAM

- The relation upon the system is structured through a conceptual ER-Diagram, which not only specifics the existing entities, but also the standard relations through which the system exists and the cardinalities that are necessary for the system state to continue.
- The Entity-Relationship Diagram (ERD) depicts the relationship between the data objects. The ERD is the notation that is used to conduct, the date modelling activity the attributes of each data object noted is the ERD can be described resign a data object description.
- The set of primary components that are identified by the ERD are
- Data object
- Relationships
- Attributes
- Various types of indicators.

The primary purpose of the ERD is to represent data objects and their relationships.

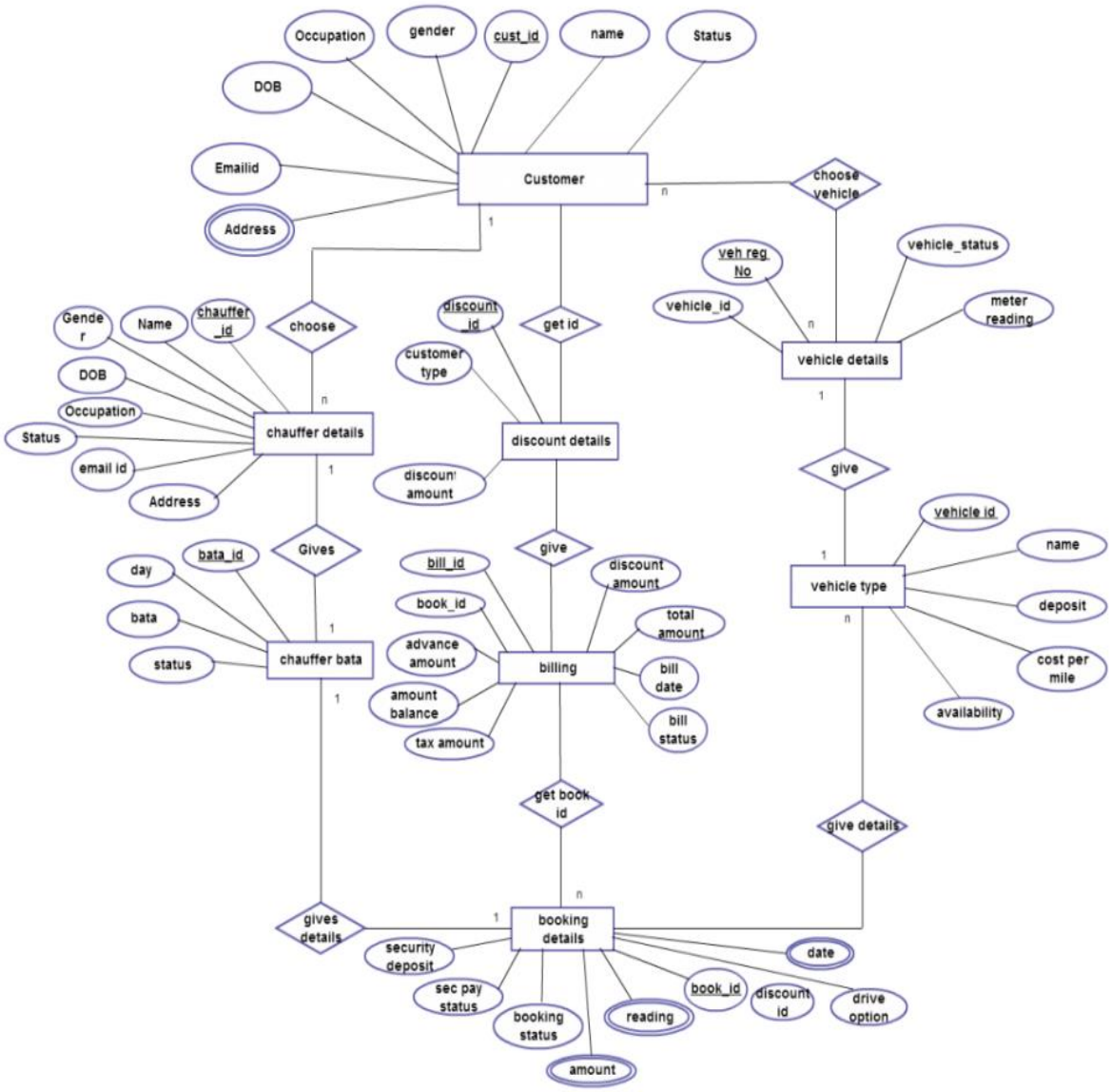
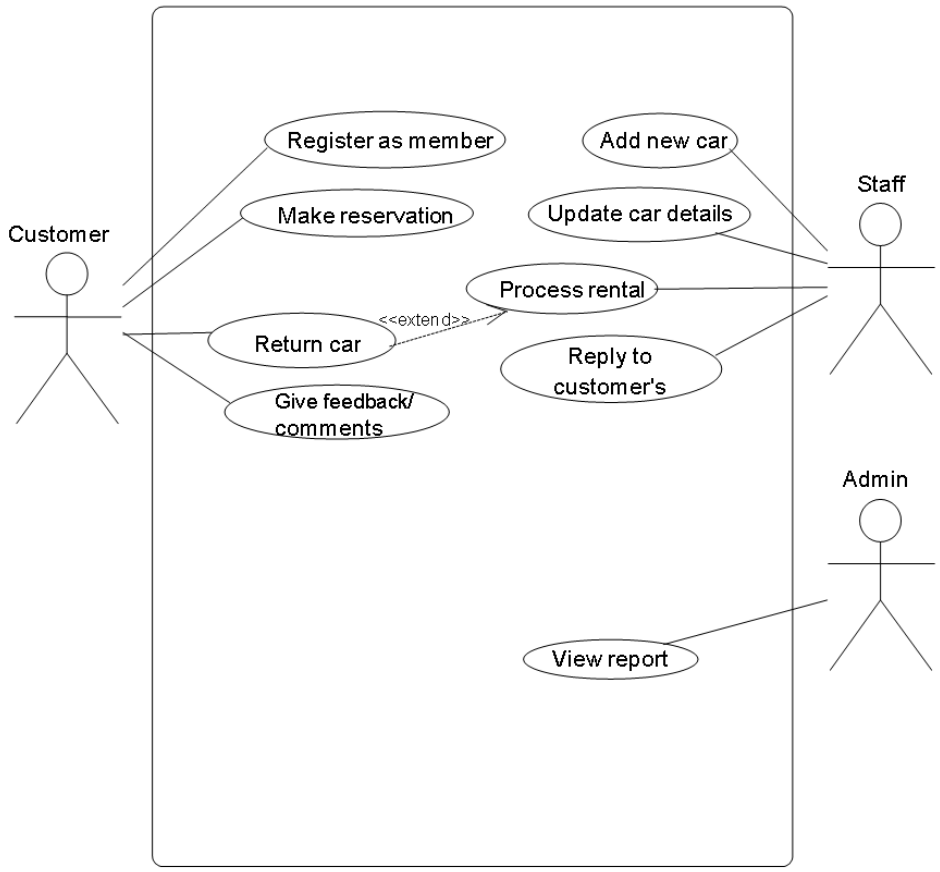


Fig 3.2 E-R Diagram

3.3 USE CASE DIAGRAM

A use case diagram at its simplest is a representation of a ledger interaction with the system and the access that are provided by the advocate and judges in which every role is making use of the different use cases which is involved.



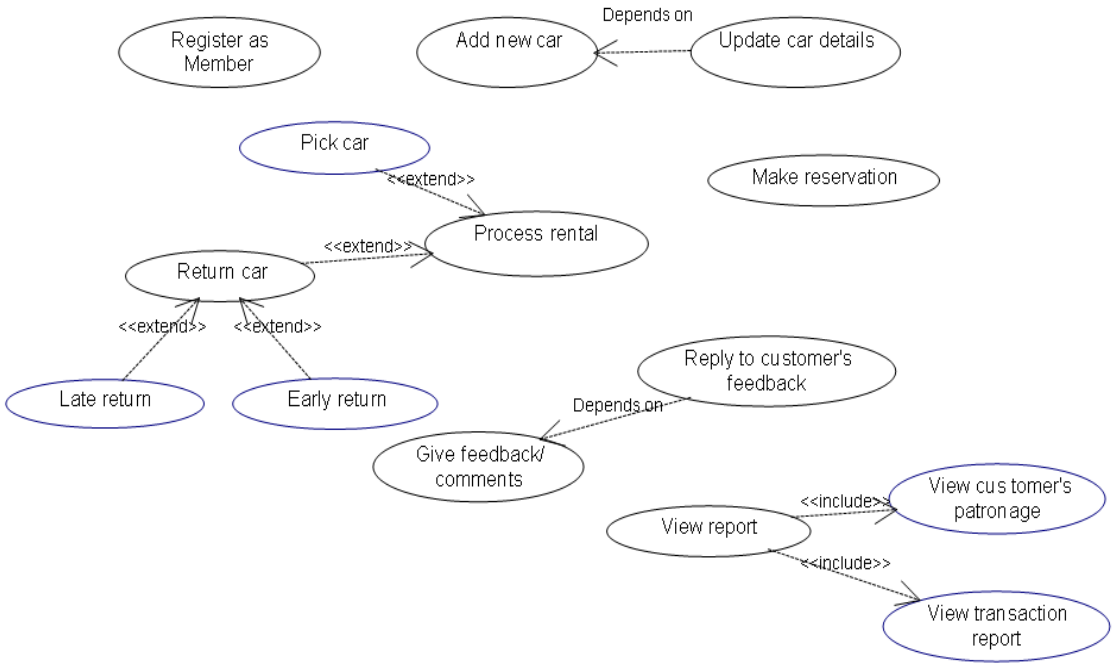
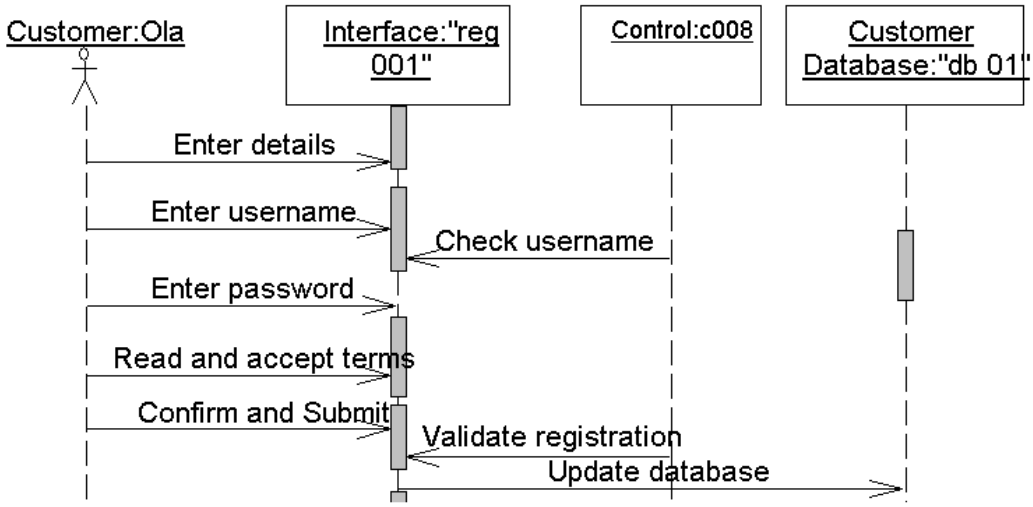
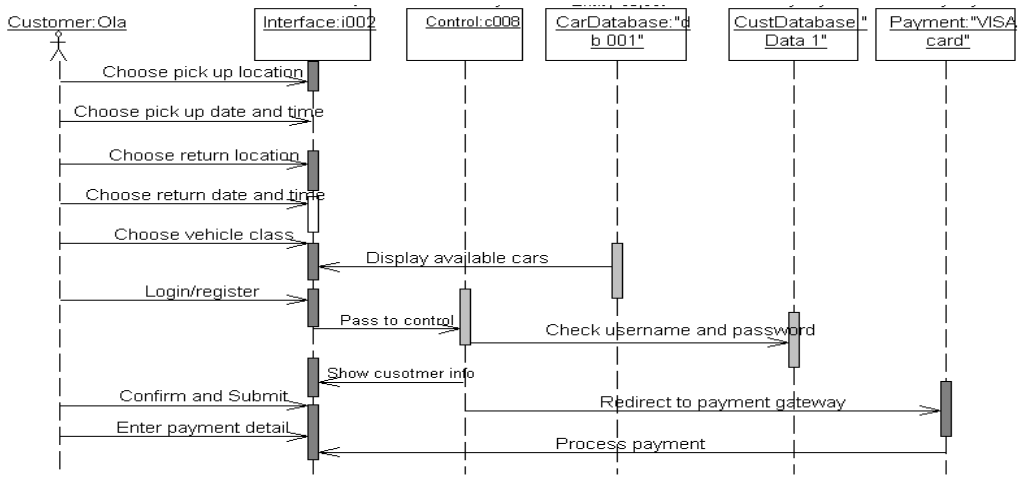


Fig. 3.3 Use Case Diagram

3.4 SEQUENCE DIAGRAM

The sequence diagram captures the interaction between modules in the context of a collaboration. Sequence Diagrams are time focus and they show the order of the interaction visually by using the vertical axis of the diagram to represent time what messages are sent and when.





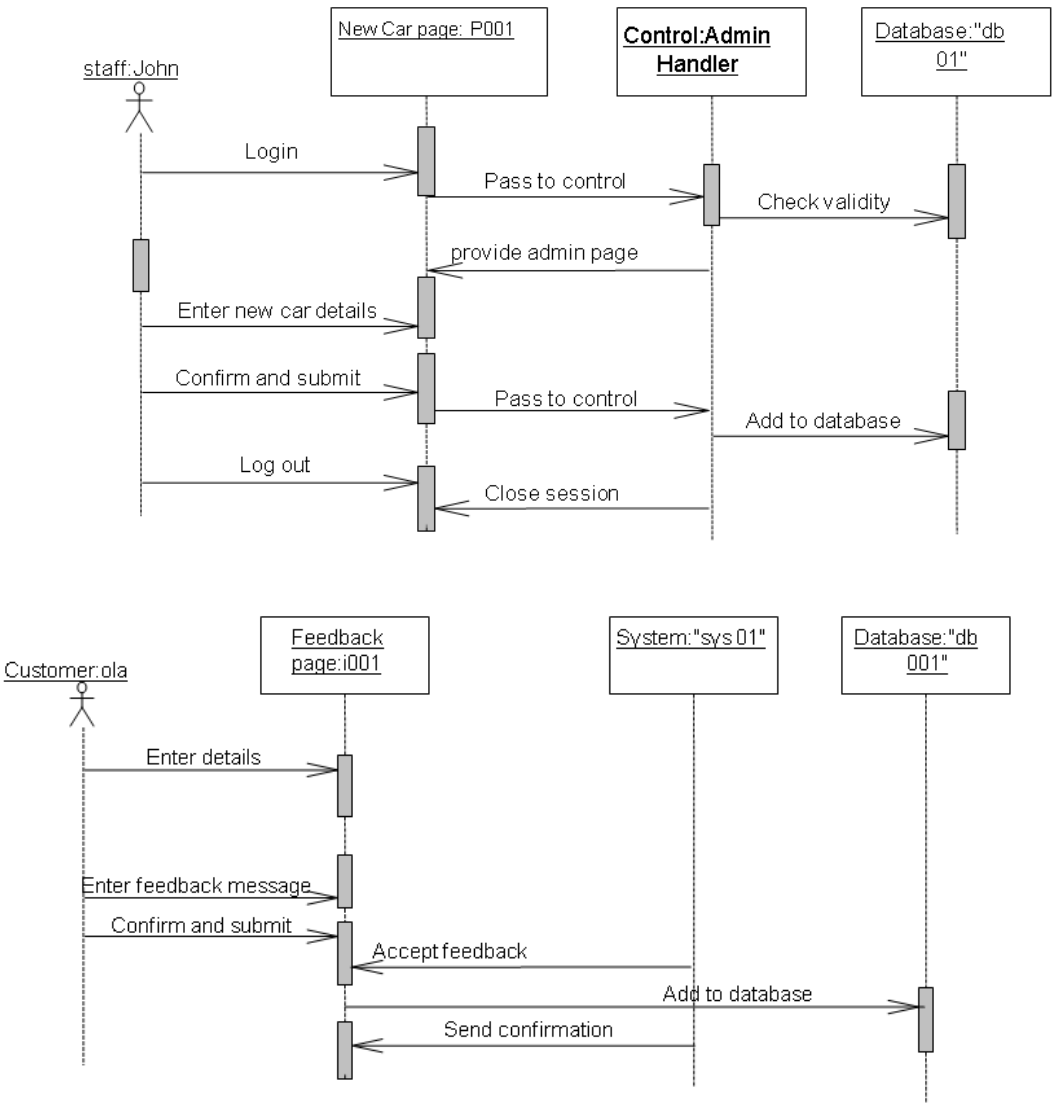


Fig. 3.4 Sequence Diagram

The sequence diagram is carried for the member, librarian and book module in which the process of accessing the data is done with the help of database that acts as an storage medium between these modules to store the login details, case details and case study details that are provided by these modules and also view the details according to that in an authorized manner.

3.5 CLASS DIAGRAM

A class diagram describes about the operations to be performed and the relationships between the ledger module, advocate module and judge module.

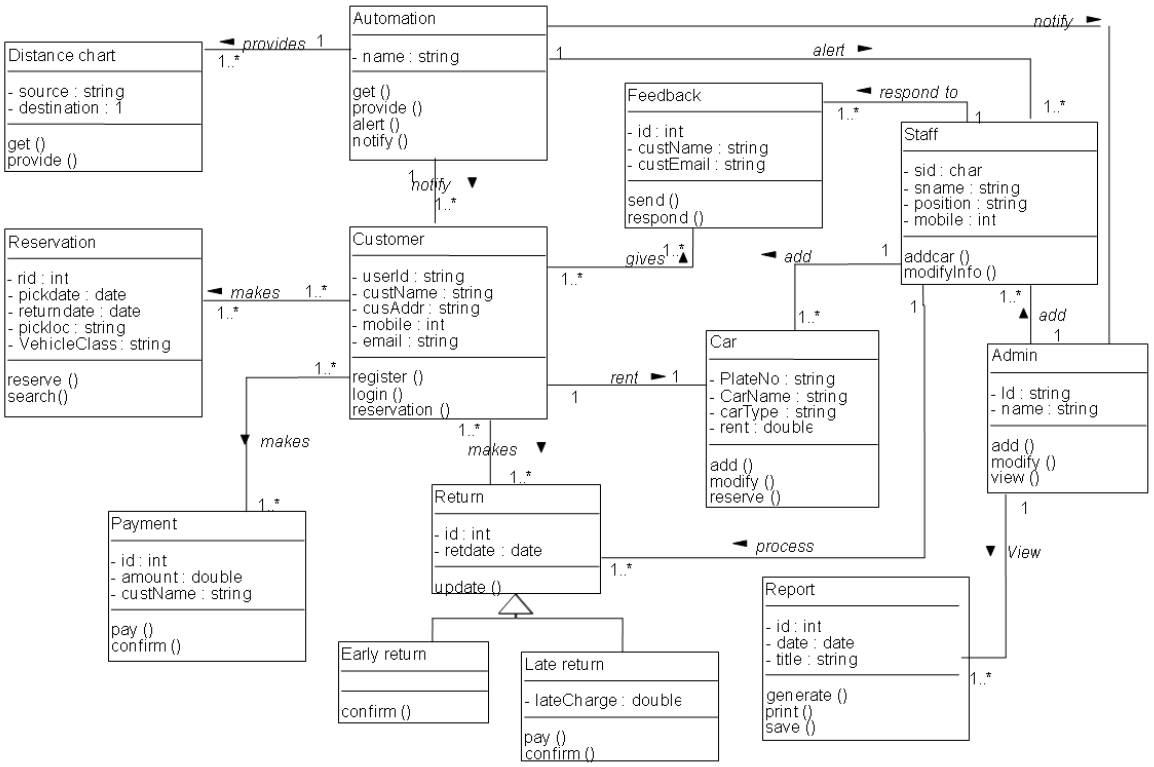
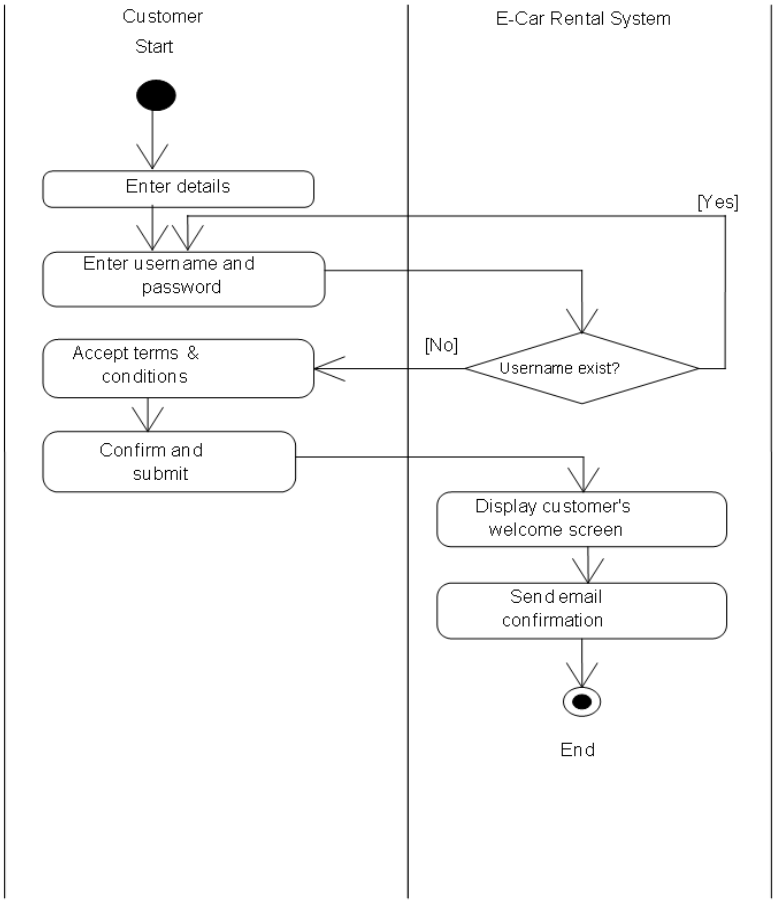
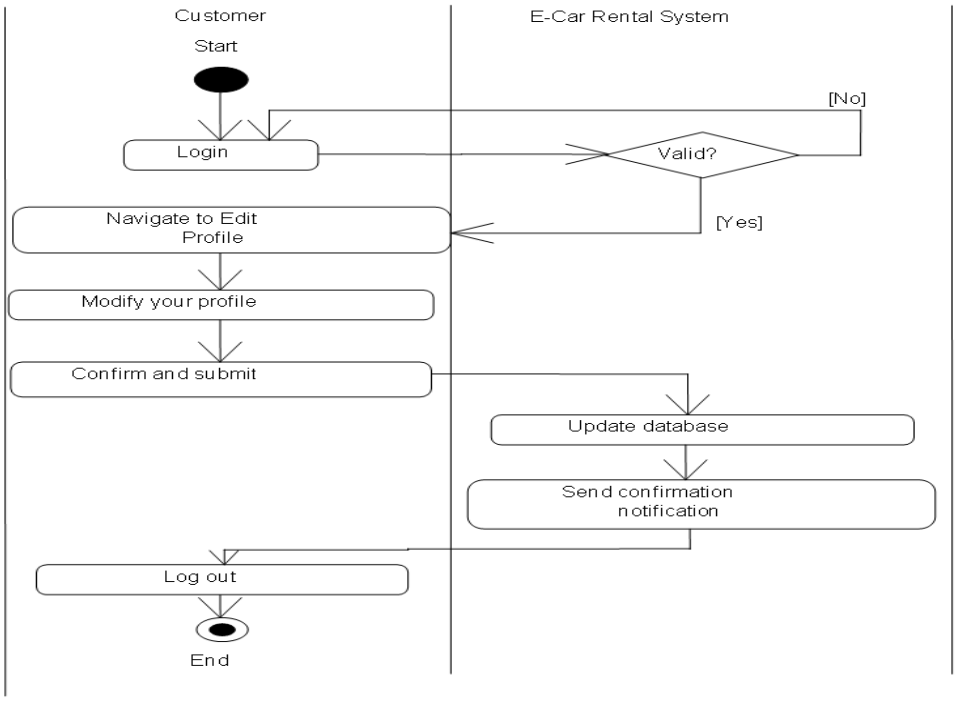


Fig 3.5 Class Diagram

3.6 ACTIVITY DIAGRAM

Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system. The activity diagram represents the flow between the ledger module, advocate module, judge module.





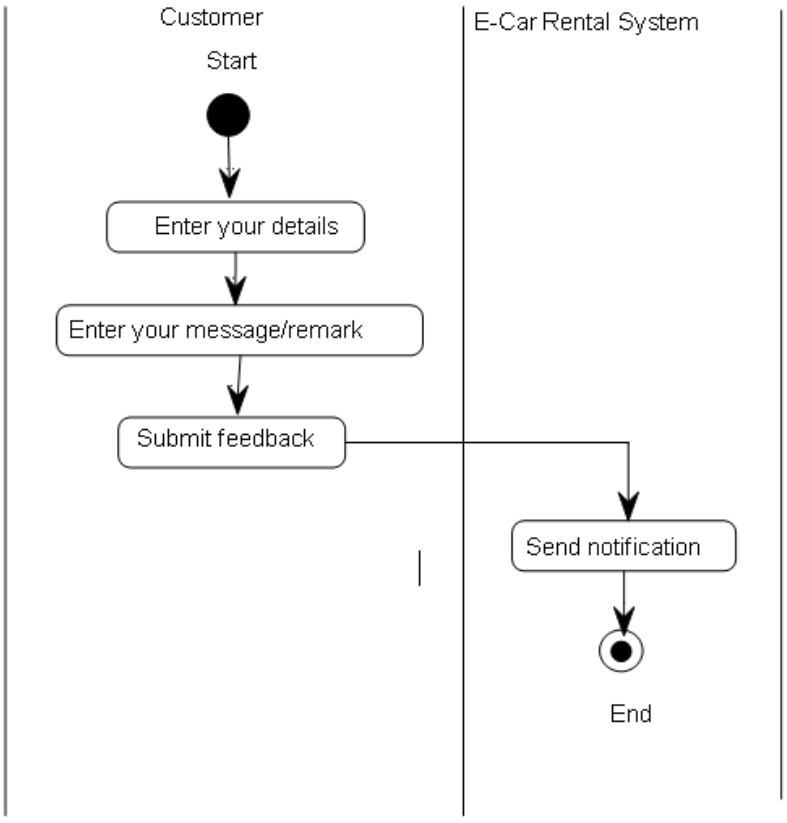
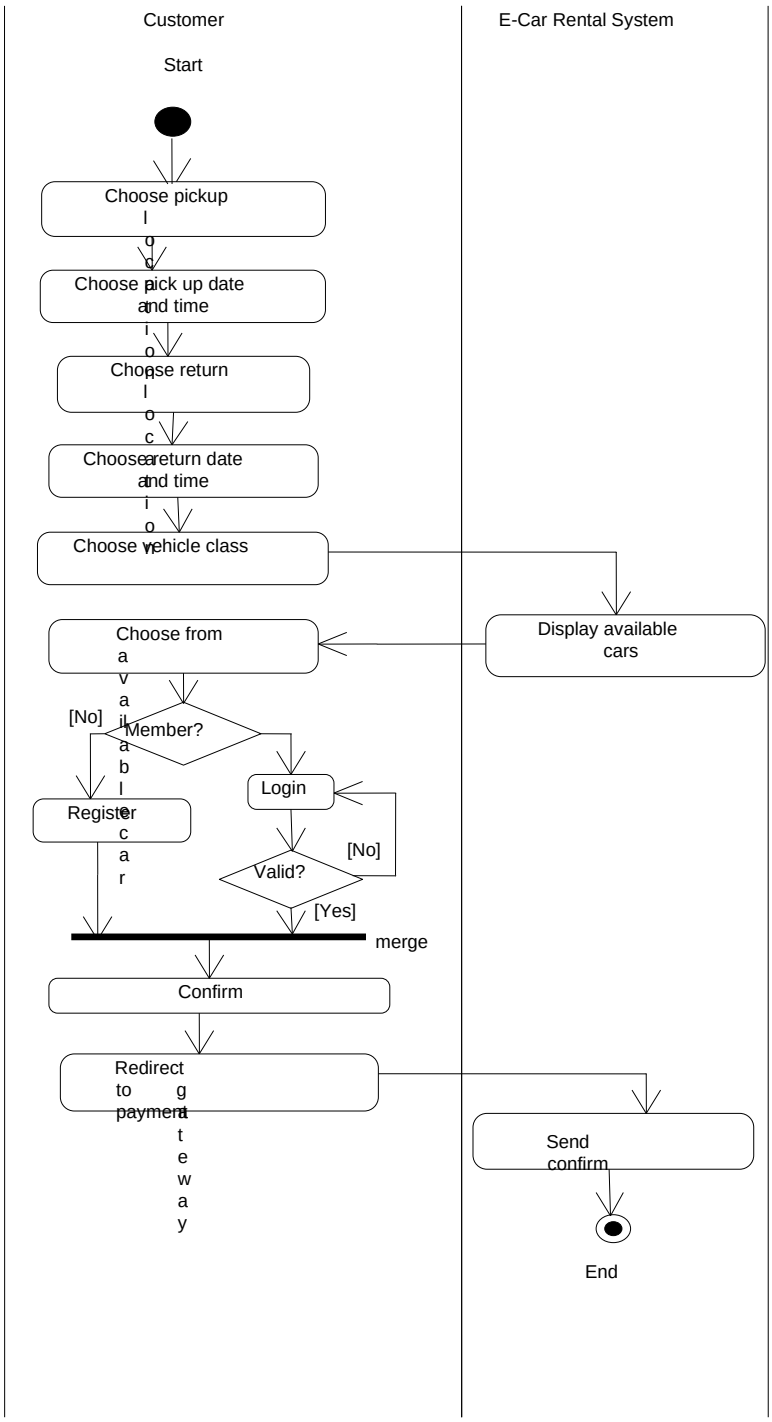


Fig 3.6 Activity Diagram


Customer
E-Car Rental System
Start
Choose pickup location
Choose pick up date and time
Choose return location
Choose return date and time
Choose vehicle class
Display available cars
Choose from available car
[No]
Member?
Register
Login
[No]
Valid?
[Yes]
merge
Confirm
Redirect to payment gateway
Send confirm
End

3.7 DEPLOYMENT DIAGRAM

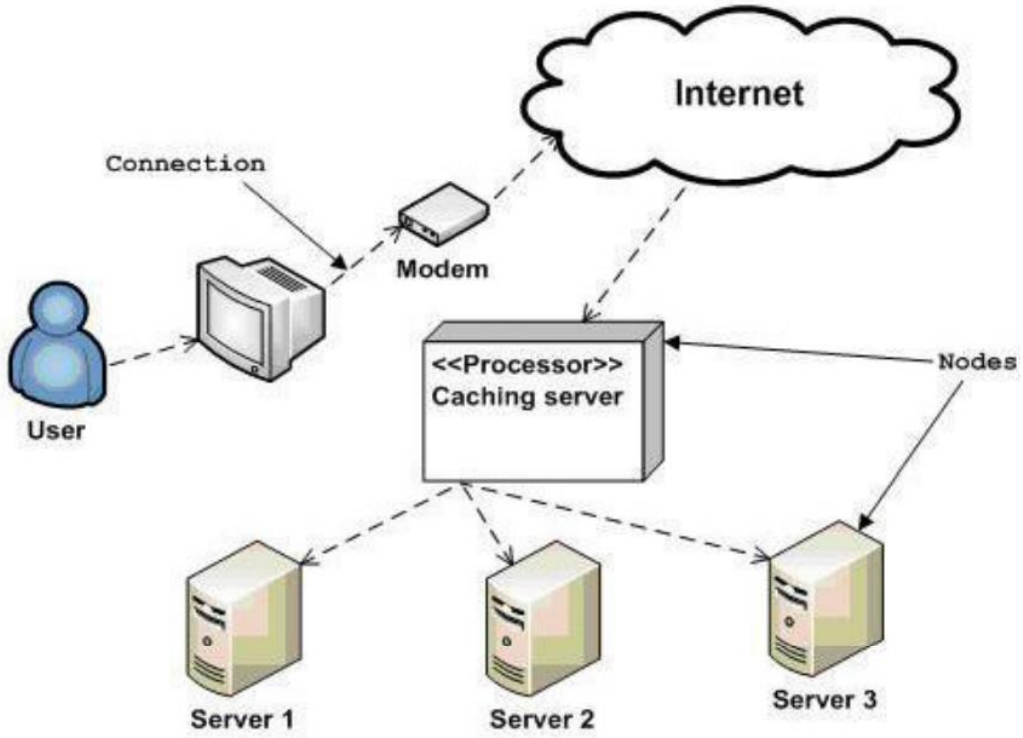


Fig 3.7 Deployment Diagram

3.8 DATA FLOW DIAGRAM

A Data Flow Diagram (DFD) is a graphical tool used to describe and analyze the movement of data through the system. It is a graphical representation of the "flow" of data through a computer system or a data or it looks at how data flows through a system. These are a central tool and basic from which the other components are developed. The transformation of data from input to output, through processed, may be described logically and independently of physical components associated with the system. The development of DFD is done at several levels. The flow diagram describes the boxes that describe computations, decisions, interactions & loops. It is important to keep in mind that the flow diagrams are not flowcharts and should not include control elements.

Characteristics

o Information and/or data flow is represented by a labelled arrow o Processes (transformations) are represented by labelled circles (bubbles) o Information sources and sinks are represented by boxes o Files and depositories are represented by a rounded rectangle or a double line.

Types

o Logical data flow diagram o Physical data flow diagram

Features o The DFD shows data, not the control loops and decisions are controlled considerations do not appear on a DFD

o The DFD does not indicate the time factor involved in any process, whether

the data flow takes place easily daily, weekly, monthly or yearly

o The sequence of events is to bring out on DFD

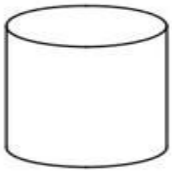
DFD Symbols

Process

A process transforms the incoming data flow into outsourcing data flow.

Data store

The data source is repositories of data in the system. They are sometimes also referred to as files.

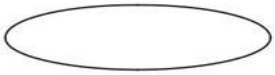


Data flow

Data flows are pipelines through which packets of information flow. Label the arrows with the name of the data that moves through it.

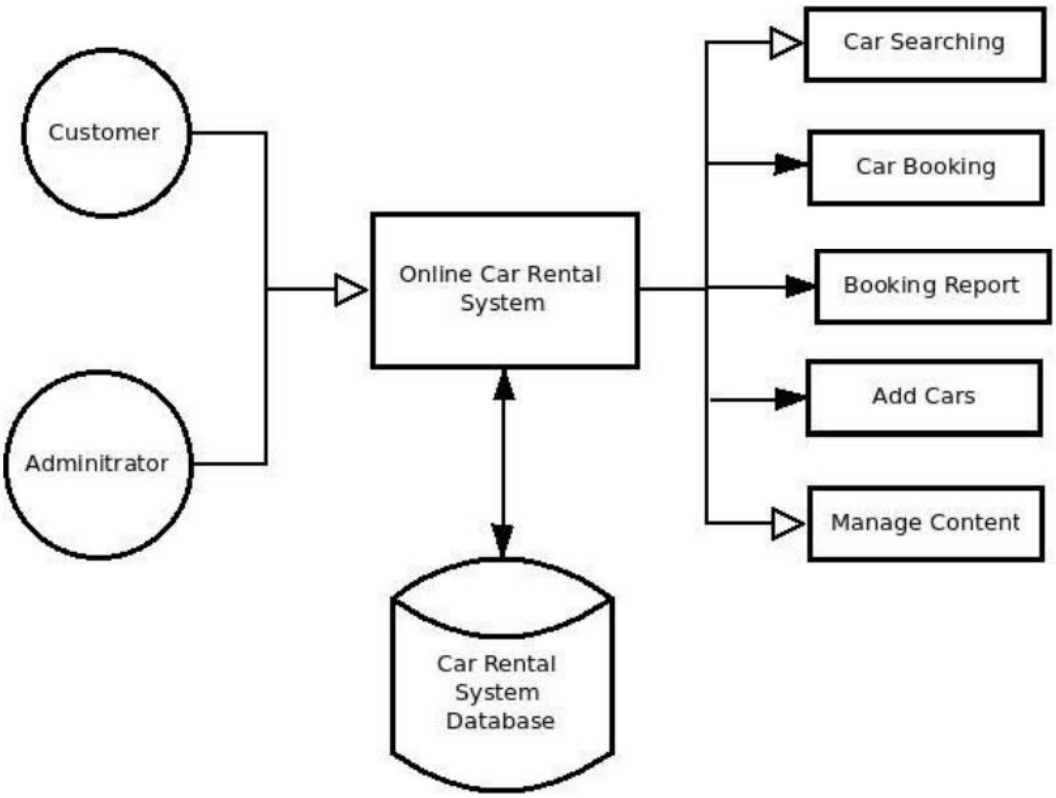
External Entity

External entities are objects outside the system, with which the system communicates.

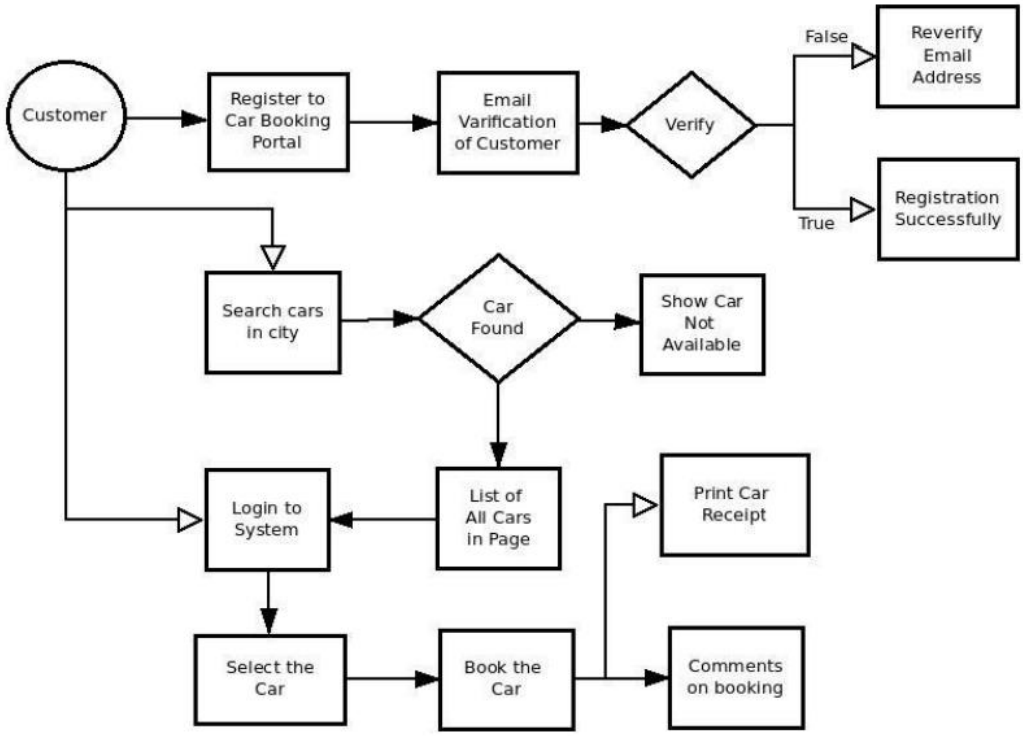


DFD:

Level 0 DFD:


Customer
Adminitrator
Online Car Rental System
Car Searching
Car Booking
Booking Report
Add Cars
Manage Content
Car Rental System Database

Level 1 DFD:


Customer
Register to Car Booking Portal
Email Varification of Customer
Verify
False
Reverify Email Address
True
Registration Successfully
Search cars in city
Car Found
Show Car Not Available
Login to System
List of All Cars in Page
Print Car Receipt
Select the Car
Book the Car
Comments on booking

Level 2 DFD:

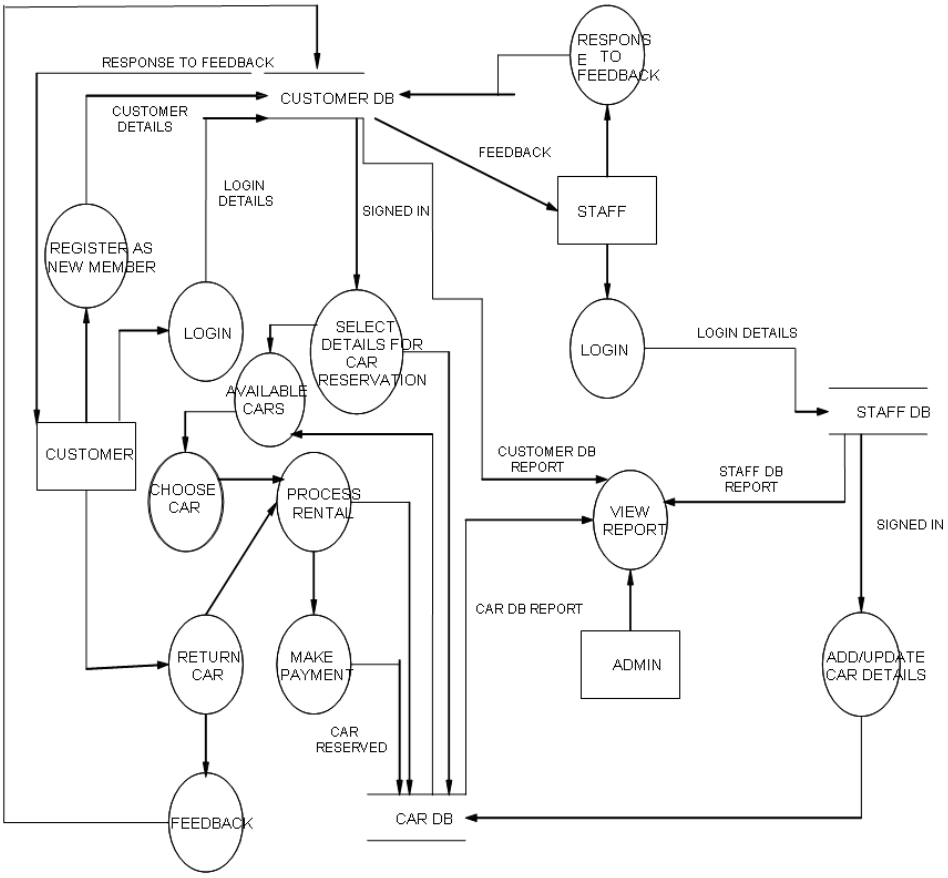


Fig 3.8 Dataflow Diagram

CHAPTER 4

IMPLEMENTATION

System Implementation is the process of defining how the information system should be built ensuring that the information system is operational and used. Implementation allows the users to take over its operation for use and evaluation. It involves training the users to handle the system and plan for a smooth conversion.

4.1 SOFTWARE DESCRIPTION

HTML5

HTML or **HyperText Markup Language** is the standard markup language used to create web pages.

HTML is written in the form of HTML elements consisting of *tags* enclosed in angle brackets (like <html>). HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent *empty elements* and so are unpaired, for example <img>. The first tag in a pair is the *start tag*, and the second tag is the *end tag* (they are also called *opening tags* and *closing tags*).

The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page. HTML describes the structure of a website semantically along with cues for presentation, making it a markup language rather than a programming language.

HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

CSS3

CSS was first developed in 1997, as a way for Web developers to define the look and feel of their Web pages. It was intended to allow developers to separate content from design so that HTML could perform more of the function that it was originally based on the markup of content, without worry about the design and layout.

CSS didn't gain in popularity until around 2000, when Web browsers began using more than the basic font and color aspects of CSS.

Web Designers that don't use CSS for their design and development of Web sites are rapidly becoming a thing of the past. And it is arguably as important to understand CSS as it is to know HTML - and some would say it was more important to know CSS.

Style sheet refers to the document itself. Style sheets have been used for document design for years. They are the technical specifications for a layout, whether print or online. Print designers use style sheets to insure that their designs are printed exactly to specifications. A style sheet for a Web page serves the same purpose, but with the added functionality of also telling the viewing engine (the Web browser) how to render the document being viewed.

PHP: Hypertext Pre-processor is a widely used, general-purpose scripting language that was originally designed for web development to produce dynamic web pages. For this purpose, PHP code is embedded into the HTML source document and interpreted by a web server with a PHP processor module, which generates the web page document.

As a general-purpose programming language, PHP code is processed by an interpreter application in command-line mode performing desired operating system operations and producing program output on its standard output channel. It may also function as a graphical application. PHP is available as a processor for most modern web servers and as standalone interpreter on most operating systems and computing platforms.

PHP was originally created by Rasmus Lerdorf in 1995 and has been in continuous development ever since. The main implementation of PHP is now produced by the PHP Group and serves as the *de facto* standard for PHP as there is no formal specification. PHP is free software released under the PHP License.

PHP is a general-purpose scripting language that is especially suited to server-side web development where PHP generally runs on a web server. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic web page content. It can also be used for command-line scripting and client-side GUI applications. PHP can be deployed on most web servers, many operating systems and platforms, and can be used with many relational database management systems. It is available free of charge, and the PHP Group provides the complete source code for users to build, customize and extend for their own use.

Originally designed to create dynamic web pages, PHP now focuses mainly on server-side scripting, and it is similar to other server-side scripting languages that provide dynamic content from a web server to a client, such as Microsoft's Active Server Pages, Sun Microsystems' Java Server Pages, and mod_perl. PHP has also attracted the development of many frameworks that provide building blocks and a design structure to promote rapid application development (RAD). Some of these include CakePHP, Symfony, CodeIgniter and Zend Framework, offering features similar to other web application frameworks.

PHP Syntax:

HTML and PHP code is written on the same page, and to distinguish PHP code from HTML, the PHP code is enclosed within <? php ?> Tags.

For example:

```
<html>
<head><title>php basics</title></head>
<body>
<h2>HELLO</h1>
<?php
 echo "hello";
?>
</body>
```

</html>

In the above example PHP code is embedded within HTML. In this way PHP and HTML coding is combined on the same page.

Since PHP is a server side scripting language, the PHP coding cannot be seen by the end user through view source option, due to this feature PHP is very secure.

PHP is a parsed language; therefore PHP environment is necessary at the server for running PHP scripts.

Working of PHP:

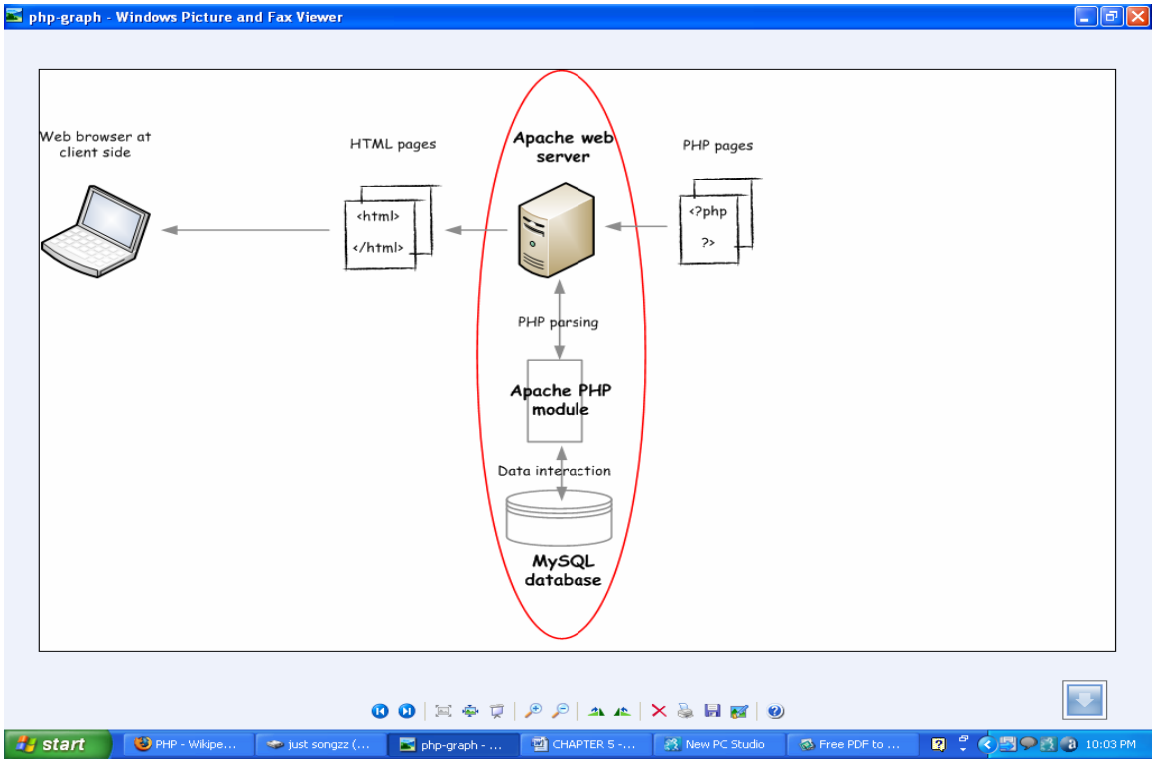


Figure 9.1 Working of PHP

When a client requests web page containing PHP code from the server, then the requested PHP pages are parsed under PHP environment and interaction with database is made if required.

After server side processing, the resulting HTML pages are passed to client and displayed on the browser.

In this way the working of php is complete.

Connecting PHP Application to MySQL Database

1) Make a connection variable to the database:

```
$con= mysql_connect ("localhost","servername","password");
```

Here $con is a connection variable to database.

2) Select a database over that connection variable:

```
$db=mysql_select_db("databasename",$con);
```

3) Prepare a sql query to execute:

```
$qry= Select * from abc;
```

4) Run the sql query:

```
$result=mysql_query($qry);
```

5) Iterate over the result:

```
while($row = mysql_fetch_array($result))
{
        //some logic
}
```

Introduction to MySQL:

MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. MySQL is officially pronounced ("My S-Q-L"), but is often pronounced ("My Sequel"). It is named for original developer Michael Widenius's daughter My.

The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL is owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Sun Microsystems, a subsidiary of Oracle Corporation.

MySQL code uses C and C++. The SQL parser uses yacc and a home-brewed lexer, sql_lex.cc.

MySQL works on many different system platforms, including AIX, BSDi, FreeBSD, HP-UX, i5/OS, Linux, Mac OS X, NetBSD, Novell NetWare, OpenBSD, OpenSolaris, eComStation, OS/2 Warp, QNX, IRIX, Solaris, Symbian, SunOS, SCO OpenServer, SCO UnixWare, Sanos, Tru64 and Microsoft Windows. A port of MySQL to OpenVMS also exists.

All major programming languages with language-specific APIs include Libraries for accessing MySQL database. In addition, an ODBC interface called MyODBC allows additional programming languages that support the ODBC interface to communicate with a MySQL database, such as ASP or ColdFusion. The HTSQL - URL based query method also ships with MySQL adapter allowing direct interaction with MySQL database from any web client via structured URLs. The MySQL server and official libraries are mostly implemented in ANSI C/ANSI C++.

Introduction to APACHE SERVER:

In this project apache server is used to parse and execute PHP pages, before deploying websites on the server, the website should be tested at the developer side to get a feel of how the website will work on actual server.

Therefore, apache server is like a local server on the developer side, apache server should be informed about the environment on which it should work.

In our project apache server is configured to work with PHP, in this way all the PHP pages are parsed and executed by the server.

When apache is installed on the system, then its services is controlled by apache service monitor.

4.2 INPUT & OUTPUT DESIGN

INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system.

The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

Input Design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities. When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

Efficient and intelligent output design improves the system's relationship to help user decision-making. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements. Select methods for presenting information.

Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives. Convey information about past activities, current status or projections of the Future. Signal important events, opportunities, problems, or warnings. Trigger an action. Confirm an action

4.3 SECURITY

The protection of computer-based resources that includes hardware, software, data, procedures and people against unauthorized use or natural Disaster is known as System Security.

A security system can be divided into four related issues:

- Security
- Integrity
- Privacy
- Confidentiality

SYSTEM SECURITY refers to the technical innovations and procedures applied to the hardware and operation systems to protect against deliberate or accidental damage from a defined threat.

DATA SECURITY is the protection of data from loss, disclosure, modification and destruction.

SYSTEM INTEGRITY refers to the power functioning of hardware and programs, appropriate physical security and safety against external threats such as eavesdropping and wiretapping.

PRIVACY defines the rights of the user or organizations to determine what information they are willing to share with or accept from others and how the organization can be protected against unwelcome, unfair or excessive dissemination of information about it.

CONFIDENTIALITY is a special status given to sensitive information in a database to minimize the possible invasion of privacy. It is an attribute of information that characterizes its need for protection.

8.2. SECURITY IN SOFTWARE

System security refers to various validations on data in the form of checks and controls to avoid the system from failing. It is always important to ensure that only valid data is entered and only valid operations are performed on the system. The system employs two types of checks and controls:

CLIENT-SIDE VALIDATION

Various client-side validations are used to ensure on the client-side that only valid data is entered. Client-side validation saves server time and loads to handle invalid data.
Some checks are imposed:

- JavaScript is used to ensure those required fields are filled with suitable data only. Maximum lengths of the fields of the forms are appropriately defined.
- Forms cannot be submitted without filling up the mandatory data so that manual mistakes of submitting empty fields that are mandatory can be sorted out at the client-side to save the server time and load.
- Tab-indexes are set according to the need and taking into account the ease of use while working with the system.

SERVER-SIDE VALIDATION

Some checks cannot be applied on the client-side. Server-side checks are necessary to save the system from failing and intimating the user that some invalid operation has been performed or the performed operation is restricted. Some of the server-side checks imposed are:

- A server-side constraint has been imposed to check for the validity of primary key and foreign key. A primary key value cannot be duplicated. Any attempt to duplicate the primary value results in a message intimating the user about those values through the forms using the foreign key can be updated only of the existing foreign key values.
- The user is intimated through appropriate messages about the successful operations or exceptions occurring at server side.
- In the server side, the input submitted by the user is being sent to the server and validated using one of server side scripting languages such as ASP.Net. After the validation process on the server side, the feedback is sent back to the client by a new dynamically generated web page.

- It is better to validate user input on server side because the data can be protected against the malicious users, who can easily bypass the client side scripting language and submit dangerous input to the server.
- The server side validation is carried out in authentication process when the user tries to input the wrong login data in place of login id and password and then submits the server generates the error message to the user denoting invalid login and avoids the illegal authentication and keep the data in an secured manner.
- The server side validation is more secured when compared to the client side validation in terms of code efficiency because the user cannot be able to access the data without proper validation and access to the webpages.
- The input validations and error recovery process is carried out on the server side.
- Server-side validation is done on the web server. Then the server renders the data into html page and sends back to the client (browser).

CHAPTER 5

TESTING

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design, and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

A strategy for software testing integrates software test case design methods into a well-planned series of steps that result in the successful construction of software. Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply both strategic to both large and small-scale systems.

STRATEGIC APPROACH TO SOFTWARE TESTING

The software engineering process can be viewed as a spiral. Initially, system engineering defines the role of software and leads to software requirement analysis where the information domain, functions, behaviour, performance, constraints and validation criteria for software are established. Moving inward along the spiral, we come to design and finally to coding. To develop computer software we spiral in along streamlines that decrease the level of abstraction at each turn.

A strategy for software testing may also be viewed in the context of the spiral. Unit testing begins at the vertex of the spiral and concentrates on each unit of the software as implemented in the source code. Testing progress is done by moving outward along the spiral to integration testing, where the focus is on the design and the construction of the software architecture. Talking another turn on outward on the spiral we encounter validation testing where requirements established as part of software requirements analysis are validated against the software that has been constructed. Finally, we arrive at system testing, where the software and other system elements are tested as a whole.

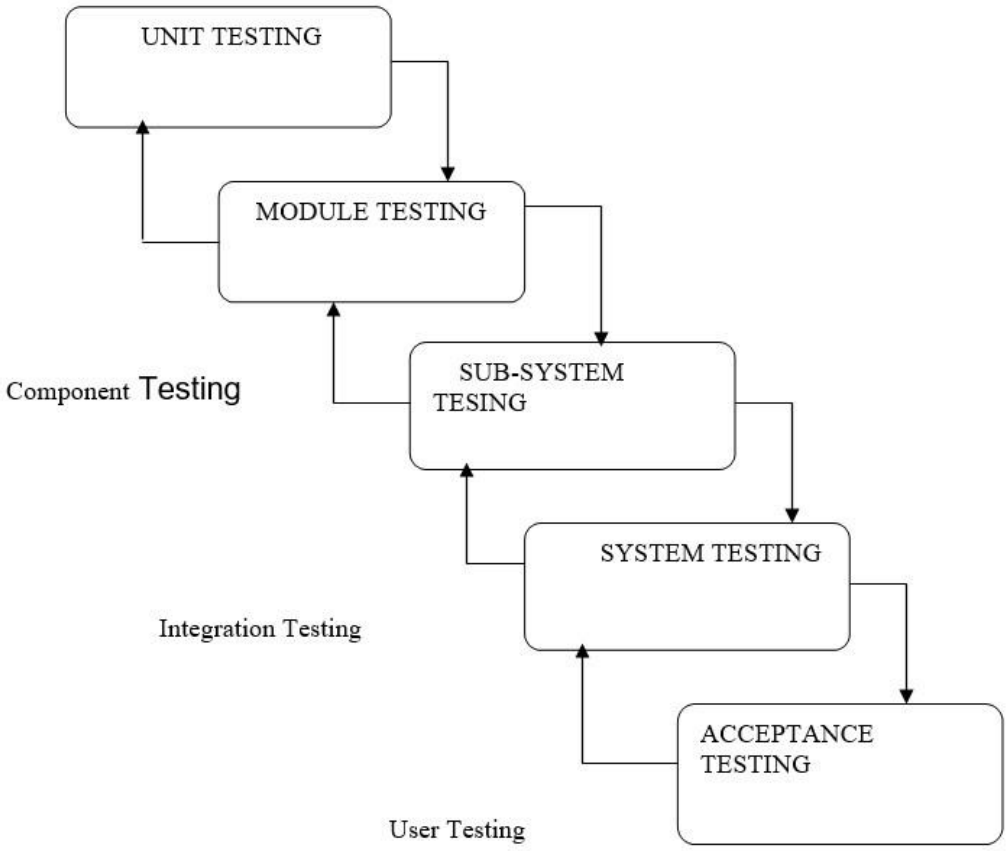


Fig. 5.1 Types of Testing

5.1 UNIT TESTING

Unit testing involves the design of test cases that validate the internal program logic is functioning properly and that program inputs produce valid outputs. Unit testing is performed on each module in this application. The modules used in this application are ledger, advocate, and judge. The unit testing is performed by using the white box testing methods were the internal structure or code is tested intensively and checked whether they are working properly or not. Each and every module is tested independently. A module is taken and each unit inside the module is stress tested using various test cases to see whether the desired output is obtained.

5.2 INTEGRATION TESTING

Integration testing is carried out to check that individual module is logically integrated and checks that it is working fine as a group without any error. The integrated testing is implemented by bing bang approach. In the ledger module the integrated testing is implemented by approving the new advocate's and judge's registration using memberid for both advocate and judges. The ledger module also authorizes the cases that has been shown to the clients when the client search for a particular case like civil or criminal and it has been checked whether the update has been changed in the database also. In the advocate module the integrated testing is implemented by updating the case details and it has been checked whether the update made as been changed in the database also. In the judge module the integrated testing is implemented by updating the case study and it has been checked whether the update made as been changed in the database also. In the client module the integrated testing is implemented by using the search option and the details are viewed according to the type of cases that are searched by the client and the ledger provides the particular type of cases that are provided by the client.

UNIT TESTING

Test case		**TCT-001**
Functionali	:	Log in to the System
Expected outcome	:	The user should not login to member's area . and some error message follow

S	Data Used	Actual Outcome
1.	Click on the log in button without entering username or	An alert message came to enter username
2.	Click on the log in button after entering some username	An alert message came to enter password
3.	Click on the log in button after entering some password but leaving username field blank	An alert message came to enter username
4.	Click on the log in button after entering some wrong username but correct password	A message displayed on Log in page about this

Test case		**TCT-002**
Functionali	:	Enter valid Data for customer registration
Expected outcome	:	The user should not get register any record without filling all necessary fields and some error message follow The user should not get registered again with same

S	Data Used	Actual Outcome
1.	Click on the save button without entering valid	An alert message came to each details and focused on the
2.	Click on the submit button after entering a duplicate	A message displayed about existence of such patient

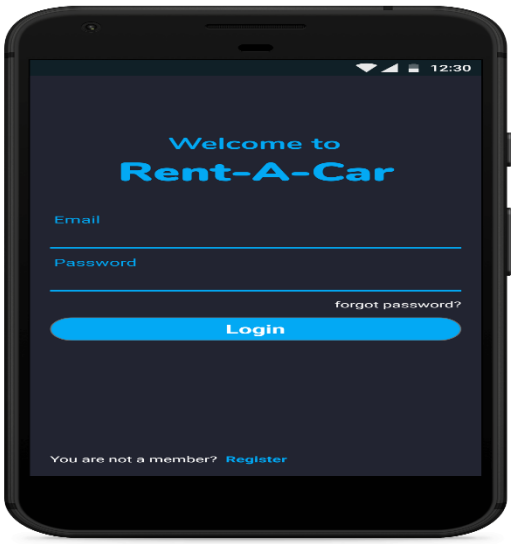
RESULT/REPORT OF TESTING

Test Case	Date	Pass /
TCT-001	11/5/2021	Pass
TCT-002	02/6/2021	Pass
TCT-003	25/6/2021	Pass

5.3 VALIDATION TESTING

In this part of the testing, each of the conditions was tested to both true and false aspects. Validation testing is made on the login page of each module. It has checked that if the details are wrong or incorrect it should not move to the home page instead it should show a message stating “invalid user and password”. And the validation testing as being tested repeatedly until the desire output is obtained. The validation testing is carried for advocate and judge module where the details are entered checks with the database and then it authorize the user with the member id that has been provided by the ledger and then the further process to update case or case study details is being processed.

VALIDATION TESTING RESULTS



CHAPTER 6

CONCLUSION & FUTURE SCOPE

Car rental business has emerged with a new goody compared to the past experience where every activity concerning car rental business is limited to a physical location only. Even though the physical location has not been totally eradicated; the nature of functions and how these functions are achieved has been reshaped by the power of internet. Nowadays, customers can reserve cars online, rent car online, and have the car brought to their door step once the customer is a registered member or go to the office to pick the car.

The web-based car rental system has offered an advantage to both customers as well as Car Rental Company to efficiently and effectively manage the business and satisfies customers' need at the click of a button.

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APPENDICES

A. SAMPLE CODE

INDEXPAGE:

```
<?php
error_reporting(0);
include('includes/config.php');
?>
<!DOCTYPE html>
<html lang="en">

<head>

  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <meta name="description" content="">
  <meta name="author" content="">

  <title>BloodBank & Donor Management System</title>
  <link href="vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
  <link href="vendor/font-awesome/css/font-awesome.min.css" rel="stylesheet" type="text/css">
  <link href="css/modern-business.css" rel="stylesheet">
  <style>
  .navbar-toggler {
    z-index: 1;
  }

  @media (max-width: 576px) {
    nav > .container {
```

```
            width: 100%;
        }
    }
    .carousel-item.active,
    .carousel-item-next,
    .carousel-item-prev {
        display: block;
    }
    </style>

</head>

<body>

    <!-- Navigation -->
<?php include('includes/header.php');?>
<?php include('includes/slider.php');?>

    <!-- Page Content -->
    <div class="container">

        <h1 class="my-4">Welcome to BloodBank & Donor Management System</h1>

        <!-- Marketing Icons Section -->
        <div class="row">
            <div class="col-lg-4 mb-4">
                <div class="card">
                    <h4 class="card-header">The need for blood</h4>
```

```
                <p class="card-text" style="padding-left:2%">Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. </p>

            </div>

        </div>

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

            <div class="card">

                <h4 class="card-header">Blood Tips</h4>


                <p class="card-text" style="padding-left:2%">Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. </p>

            </div>

        </div>

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

            <div class="card">

                <h4 class="card-header">Who you could Help</h4>


                <p class="card-text" style="padding-left:2%">Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. </p>

            </div>

        </div>

    </div>

    <!-- /.row -->


    <!-- Portfolio Section -->

    <h2>Some of the Donar</h2>


    <div class="row">

        <?php

$status=1;

$sql = "SELECT * from tblblooddonars where status=:status order by rand() limit 6";

$query = $dbh -> prepare($sql);
```

```
$query->bindParam(':status',$status,PDO::PARAM_STR);
$query->execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
$cnt=1;
if($query->rowCount() > 0)
{
foreach($results as $result)
{ ?>

        <div class="col-lg-4 col-sm-6 portfolio-item">
          <div class="card h-100">
            <a href="#"><img class="card-img-top img-fluid" src="images/blood-donor.jpg" alt="" ></a>
            <div class="card-block">
              <h4 class="card-title"><a href="#"><?php echo htmlentities($result->FullName);?></a></h4>
<p class="card-text"><b>  Gender :</b> <?php echo htmlentities($result->Gender);?></p>
<p class="card-text"><b>Blood Group :</b> <?php echo htmlentities($result->BloodGroup);?></p>

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

        <?php }} ?>

      </div>
```

```
<!-- /.row -->


<!-- Features Section -->
<div class="row">
  <div class="col-lg-6">
    <h2>BLOOD GROUPS</h2>
 <p>  blood group of any human being will mainly fall in any one of the following groups.</p>
    <ul>


<li>A positive or A negative</li>
<li>B positive or B negative</li>
<li>O positive or O negative</li>
<li>AB positive or AB negative.</li>
    </ul>
    <p>A healthy diet helps ensure a successful blood donation, and also makes you feel better! Check out the following recommended foods to eat prior to your donation.</p>
  </div>
  <div class="col-lg-6">
    <img class="img-fluid rounded" src="images/blood-donor (1).jpg" alt="">
  </div>
</div>
<!-- /.row -->


<hr>


<!-- Call to Action Section -->
<div class="row mb-4">
  <div class="col-md-8">
  <h4>UNIVERSAL DONORS AND RECIPIENTS</h4>
```

```
            <p>
The most common blood type is O, followed by type A.


Type O individuals are often called "universal donors" since their blood can be transfused into persons
with any blood type. Those with type AB blood are called "universal recipients" because they can receive
blood of any type.</p>
          </div>
          <div class="col-md-4">
             <a class="btn btn-lg btn-secondary btn-block" href="become-donar.php">Become a Donar</a>
          </div>
        </div>


    </div>
    <!-- /.container -->


    <!-- Footer -->
  <?php include('includes/footer.php');?>


    <!-- Bootstrap core JavaScript -->
    <script src="vendor/jquery/jquery.min.js"></script>
    <script src="vendor/tether/tether.min.js"></script>
    <script src="vendor/bootstrap/js/bootstrap.min.js"></script>


</body>


</html>
```

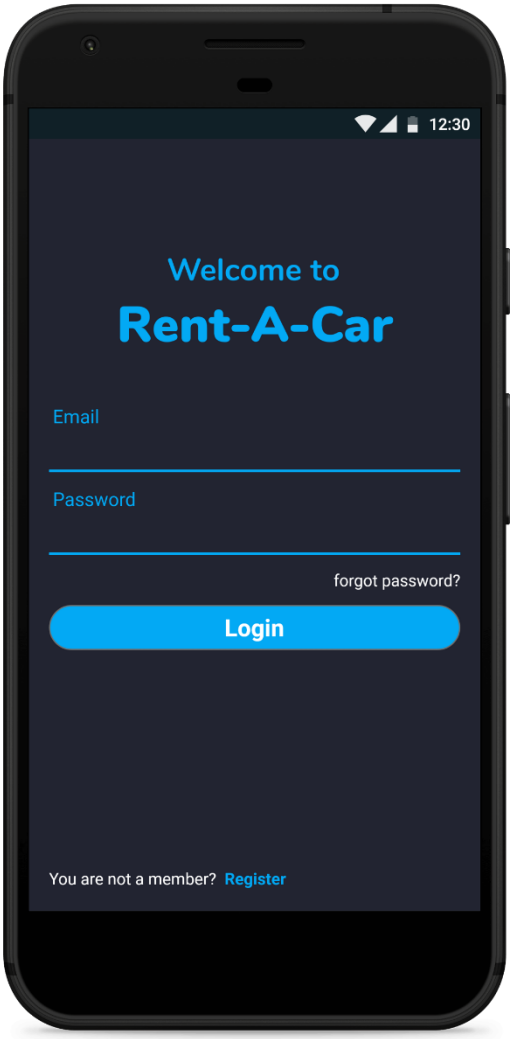
ADMINLOGIN.PHP

```
<?php
session_start();
include('includes/config.php');
if(isset($_POST['login']))
{
$email=$_POST['username'];
$password=md5($_POST['password']);
$sql ="SELECT UserName,Password FROM admin WHERE UserName=:email and
Password=:password";
$query= $dbh -> prepare($sql);
$query-> bindParam(':email', $email, PDO::PARAM_STR);
$query-> bindParam(':password', $password, PDO::PARAM_STR);
$query-> execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
if($query->rowCount() > 0)
{
$_SESSION['alogin']=$_POST['username'];
echo "<script type='text/javascript'> document.location = 'change-password.php';
</script>";
} else{

  echo "<script>alert('Invalid Details');</script>";

}

}
```

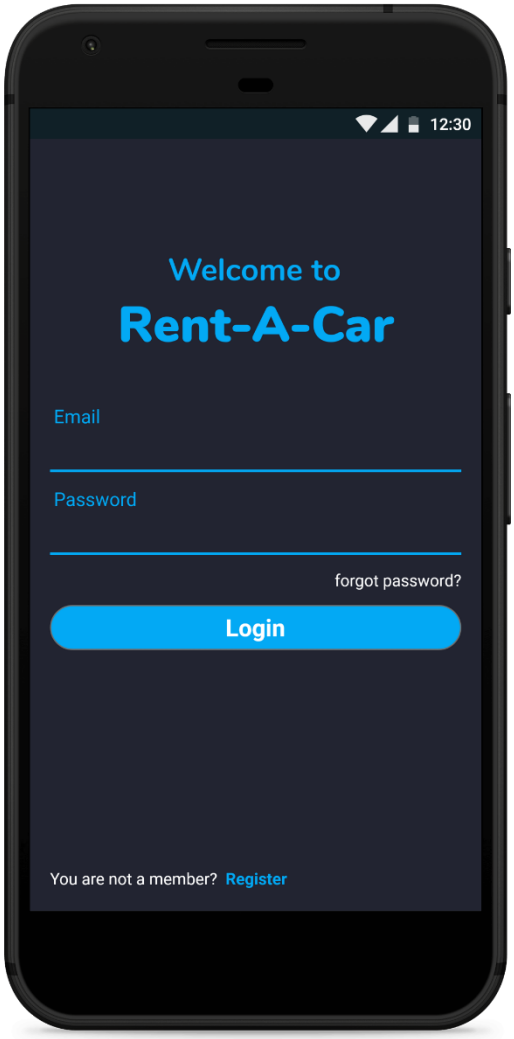
DASHBOARD.PHP

```
<?php
$sql ="SELECT id from tblbloodgroup ";
$query = $dbh -> prepare($sql);
$query->execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
$bg=$query->rowCount();
?>

$sql1 ="SELECT id from tblblooddonars ";
$query1 = $dbh -> prepare($sql1);;
$query1->execute();
$results1=$query1->fetchAll(PDO::FETCH_OBJ);
$regbd=$query1->rowCount();
?>


$sql6 ="SELECT id from tblcontactusquery ";
$query6 = $dbh -> prepare($sql6);;
$query6->execute();
$results6=$query6->fetchAll(PDO::FETCH_OBJ);
$query=$query6->rowCount();
?>
```

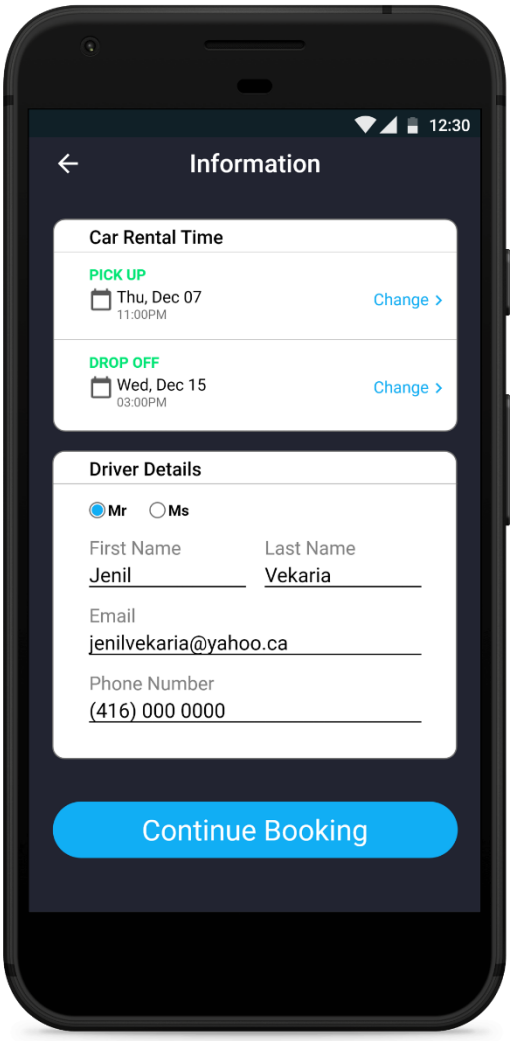
B. OUTPUT SCREENSHOTS
INDEX



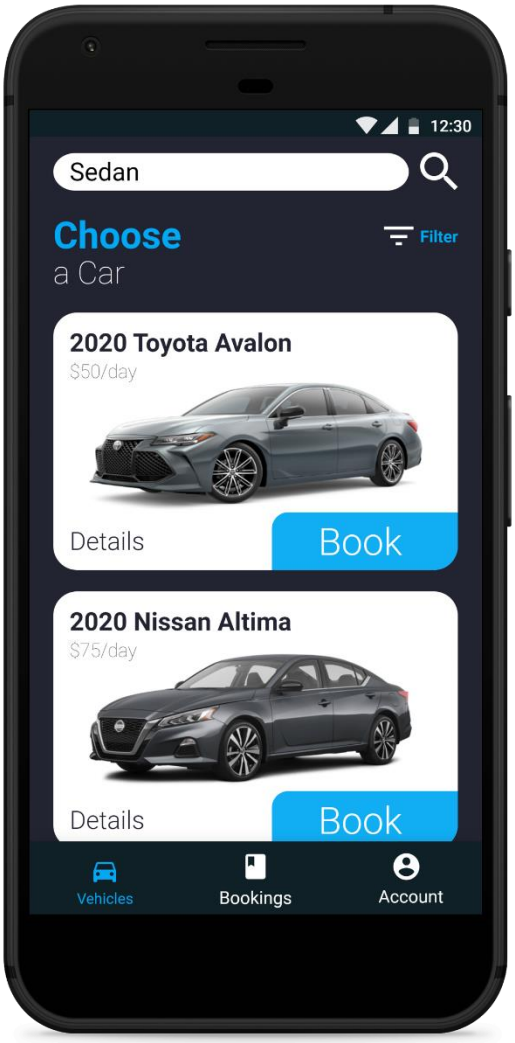
LOGIN


12:30
Welcome to
Rent-A-Car
Email
Password
forgot password?
Login
You are not a member? Register

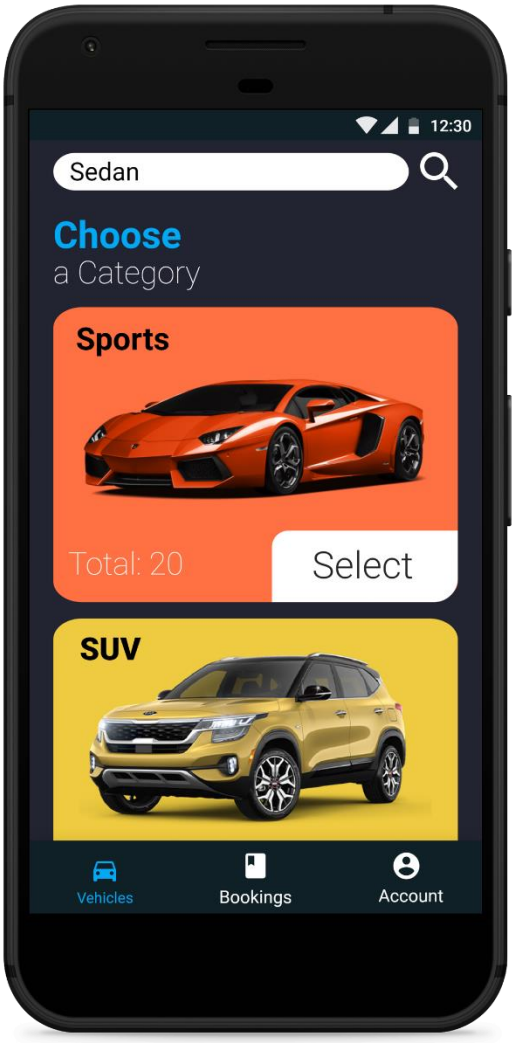
USER BOOKING



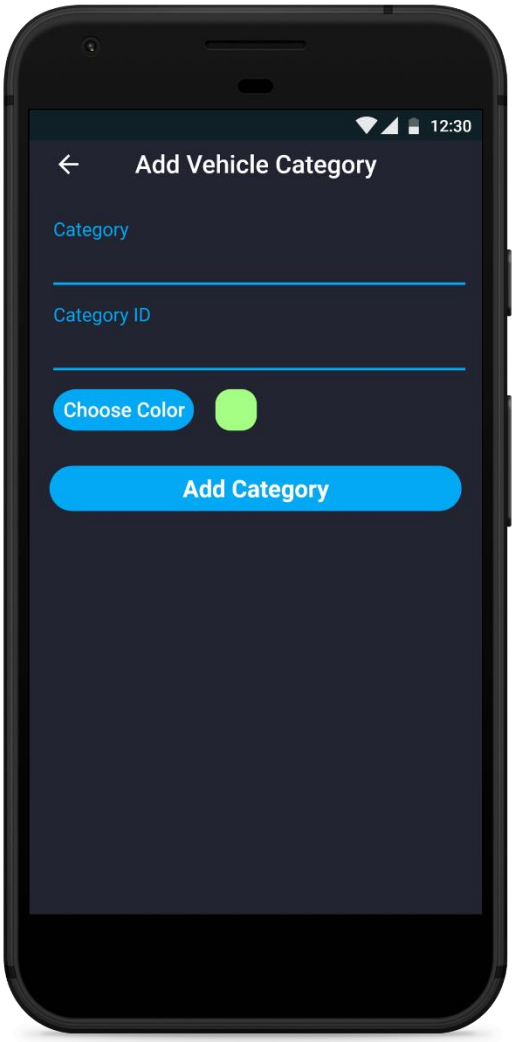
VEHICLE PAGE



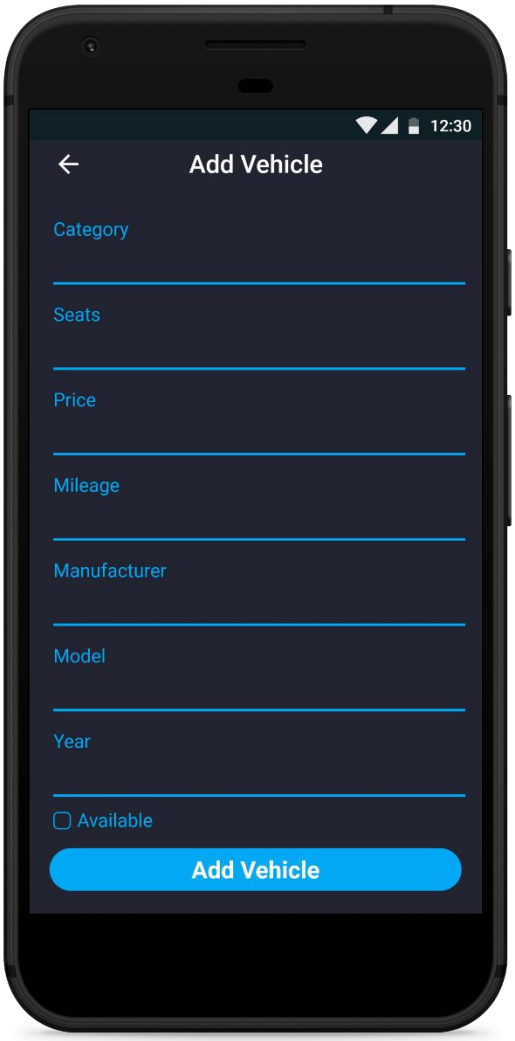
CATEGORY PAGE



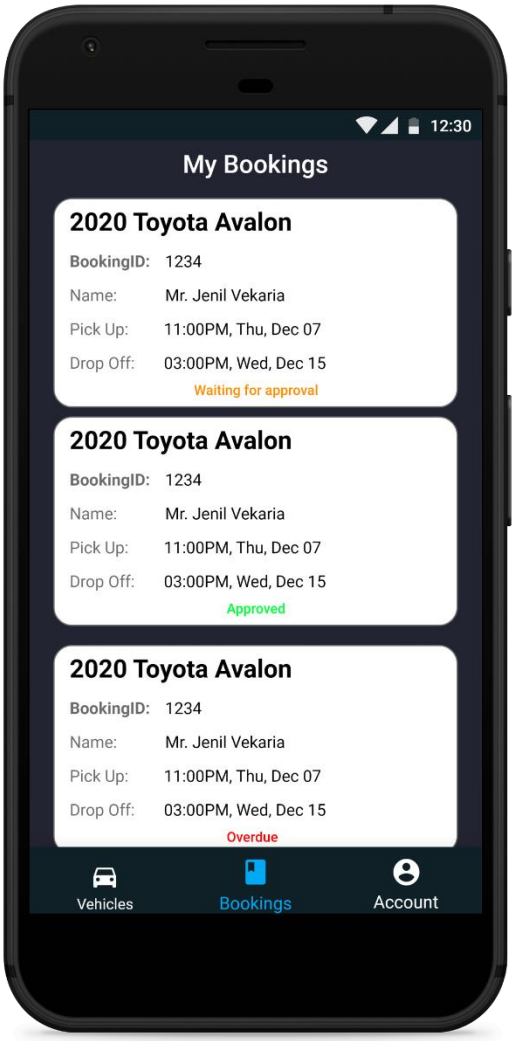
ADD CATEGORY



ADD VEHICLE


12:30
Add Vehicle
Category
Seats
Price
Mileage
Manufacturer
Model
Year
Available
Add Vehicle

BOOKING


12:30
My Bookings
2020 Toyota Avalon
BookingID: 1234
Name: Mr. Jenil Vekaria
Pick Up: 11:00PM, Thu, Dec 07
Drop Off: 03:00PM, Wed, Dec 15
Waiting for approval
2020 Toyota Avalon
BookingID: 1234
Name: Mr. Jenil Vekaria
Pick Up: 11:00PM, Thu, Dec 07
Drop Off: 03:00PM, Wed, Dec 15
Approved
2020 Toyota Avalon
BookingID: 1234
Name: Mr. Jenil Vekaria
Pick Up: 11:00PM, Thu, Dec 07
Drop Off: 03:00PM, Wed, Dec 15
Overdue
Vehicles
Bookings
Account