A MINI PROJECT REPORT ON

"PARIVAHAN APPLICATION"

Submitted by

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Under The Guidance of
"Prof. Leena Patil"

Submitted to

SAVITRIBAI PHULE
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As a partial fulfillment for the award of degree of
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(Affiliated to SPPU & Approved by AICTE)
Session: 2021-2023

DECLARATION

I hereby declare that the present mini project work **"PARIVAHAN APPLICATION"** is original work carried out under the guidance of "Prof. Leena Patil", MCA Department, ASM's Institute of Business Management and Research, MCA, Chinchwad. It has not been submitted by me in part or full to any University for any examination before. This work has been carried out by me at the Savitribai Phule Pune University during the academic session 2021-2023.

Date:

Mr. BHOSALE DARSHAN BHIMRAO

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Chinchwad

CERTIFICATE

This is to certify that the mini project entitled

"PARIVAHAN APPLICATION"

is a bonafide work and it is submitted to the Savitribai Phule Pune University

By

Mr. BHOSALE DARSHAN BHIMRAO

In the partial fulfillment of the degree of Master Of Computer Application, *during the academic year 2021-2022 under my guidance.*

Prof. Leena Patil
Guide
Department of MCA
ASM's IBMR, MCA,
Chinchwad

Master of Computer Application,
ASM's Institute of Business Management and Research, MCA, Chinchwad
Session 2021-2023

EXAMINER CERTIFICATE

This is to certify that the mini project on

“PARIVAHAN APPLICATION”

is examined by the following examiners on date / / 2023

Internal Examiner *External Examiner*

ACKNOWLEDGEMENT

It is a pleasure to acknowledge the assistance of several people and institutions in this effort. Honestly speaking, this project has turned me into a debtor. First and foremost, I feel indebted to my guide, **"Prof. Leena Patil",** Department of MCA, ASM's IBMR, MCA, Chinchwad for his/her valuable guidance, continuous support and advice and constant encouragement throughout my project work.

I would like to extend my gratitude to honorable **Dr. V. P. Pawar sir**, Director, ASM's IBMR,MCA,Chinchwad, for being a constant source of inspiration Finally, I would like to extend my thanks to all those who have contributed, directly or indirectly to make this project successful.

Mr. BHOSALE DARSHAN BHIMRAO (213129)

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CHAPTER - 1
INTRODUCTION

Regional Transport Office (RTO) is an Indian government bureau which is responsible for the registration of vehicles. RTO management will be having a lot of work regarding registration of vehicles and issue of driver's license. Similarly, the vehicle owner sometimes forgets to carry the license and forgets the insurance at the time of inquiry. This paper proposed an approach to solving such problems that are by storing all the information related to vehicle and driver at database by RTO administrator.

RTO is an advanced "Parivahan Application" which is design keeping in a view to make the existing registration and easier and faster. It includes the entire registration and insurance procedure starting from the initial phase of entering till the result. It is a more reliable, accurate, time- saving and free from any misuse. The system provides information regarding the Parivahan Application.

RTO office management system project is prepared for RTO office to maintain all records like 2 wheeler registration, 3 wheeler registrations, LMV, HMV, learning license and driving license, changing of address, renewal form and much more. These are the main activities of RTO office. The administrator is a power user, he has the power to verify the data and provide appropriate solutions. By introducing the new system we have been organized some striking facilities. Registration of vehicle through online. Fancy number selection of vehicles through online. Issues of information about the license, which includes application forms and license test and other information. In the existing system of RTO office perform functions such as registration, license and fitness.Regional transport office is the organization of the Indian government responsible for maintaining a database of vehicles for various states of India. The RTO issues driving licenses organizes a collection of vehicle excise duty and sells personalized registrations. These are the main activities of RTO office; we developed this software application with a fully computerized method to manage all the data. At present all records are maintained manually.

CHAPTER - 2
OVERALL DESCRIPTION

2.1 EXISTING SYSTEM

The Existing system of RTO services has been in use for two years. The existing system is not giving accurate results while doing transactions. It doesn't provide security, anyone enters into the system and can do their own transactions. It is not flexible in generating reports. and many manual processes are made computerized.

The present system has following drawbacks:

- It is not efficient in performing office work in RTO services.
- It includes many manual processes and is time consuming.
- It is not user friendly.
- Maintains local database.
- It is not Generating Accurate Reports.

2.2 PROPOSE SYSTEM

If user wants to pass his vehicle number then also it takes time in old system but here we provide facility that user he buy new vehicle he should have to first register on our site and fill all the required and importance details of vehicle and we gives this details to RTO office directly so that this work will get complete within less time and the user get his number template easily.

The administrator is provided for authentication purposes as well as it handles all the databases of RTO and manages all the processes. pass the vehicle registration number, etc. Facilities are provided by the administrator.

2.3 MODULE DESCRIPTION

- Admin
    - Login
    - Create Admin User
    - Manage Admin Details
    - Vehicle Menu
        - New Vehicle Registration
        - Edit Vehicle
        - View Vehicle Details
        - Delete Vehicle
        - All Vehicles Record
    - Driving Licence Menu
        - New DL Registration
        - Edit DL
        - View DL Details
        - All DL Records
    - User Menu
        - New User Registration
        - Edit User
        - View User Details
        - Delete User
        - All Users Record
    - Logout
- User
    - Create User
    - Login

- My Profile
- Vehicle View Status
- DL View Status
- E-challan
  - Create Challan
  - Edit Challan
  - View Challan Details
  - All Challan Records
- Logout

2.3.1 MODULE DESCRIPTION

- The app has two UI dashboards. One for general users i.e. vehicle owners and another for admin users i.e. traffic police and vehicle registration officers.
- Admin users can view, modify, add or delete any vehicle details entry and driving license details. An admin user can also add another admin user.
- General users can only view specific vehicle details by searching via vehicle registration number.
- The app shows details like registration number, owner name, type of the vehicle, registration date, insurance status and pollution status of the vehicle

2.4 SYSTEM ANALYSIS

2.4.1 OBJECTIVE OF PROJECT

- It is very user-friendly and having added more features.
- It is fully computerized and easy to access.
- To integrate our People.
- To develop global awareness.
- Wastage of energy is avoided.
- Provide security to data.
- Wastage of time is avoided.
- Reduce manpower.
- Decrease manual mistakes.
- Easy maintenance of Import and Export documents.

2.4.2 SCOPE OF PROJECT

- This project works online which helps RTO office employees and Indian citizens.
- The System keeps track of the transactions in the RTO office.
- It maintains Renewal of Online LLR Form, Registration Form, Issue of permanent license, learner's License, Renewal of permanent license, Issue of learner's license, payment against challan and finally it produces printouts to payment of customers.
- This project prepared the RTO office to maintain all the records like issuing the LL, DL, Vehicle registration, Vehicle ownership transfer etc. This will automate the process of registration of vehicles and issuing driving license processes.
- System helps users to find their vehicle Information through online.

CHAPTER - 3
DETAIL DESCRIPTION OF TECHNOLOGY USED

3.1 Requirement Analysis
3.1.1 Minimum Hardware Requirements

Role	Software	Minimum Requirement
Development	**Processor**	M1 Chip, 2.7 GHz Intel Core i5
	Primary Memory	8 GB 1867 MHz DDR3
	Secondary Memory	50 GB
	Internet Connection	2 mb/s
	Other Hardware	SmartPhone
Deployment	**Clent Machine/Mobile**	SmartPhone
	Primary Memory	2/4 GB
	Secondary Memory	16/32/64 GB

3.1.2 Minimum Software Requirements

Role	Software	Minimum Requirement
Development	**Platform (OS)**	Apple Macbook Pro & Windows above
	Front End (Prog. Lang.)	Java
	Backend (DB)	MySQL/Firebase
	Development Tool (IDE)	Android Studio
	Testing Tool	Appium
Deployment	**Execution Environment**	Android 11
	Browser	-
	Server (Application / Database Server)	MySQL/Firebase
Design	**UML Design**	Draw.io
	DFD, ER, Flows	Draw.io

3.2 IMPLEMENTATION DETAILS
3.2.1 FRONT-END DESIGN/CODING LANGUAGE – JAVA

Features of JAVA:

1. **Object Oriented:-** In Java, everything is an Object. Java can be easily extended since it is based on the Object model.
2. **Platform Independent:-** Unlike many other programming languages including C and C++, when Java is compiled, it is not compiled into platform specific machine, rather into platform-independent byte code. Virtual Machine (JVM) on whichever platform it is being run on.
3. **Simple:-** Java is designed to be easy to learn. If you understand the basic concept of OOP Java, it would be easy to master.
4. **Secure:-** With Java's secure feature it enables to develop virus-free, tamper-free systems. Authentication techniques are based on public-key encryption.
5. **Architecture-neutral:-** Java compiler generates an architecture-neutral object file format, which makes the compiled code executable on many processors, with the presence of Java runtime system.
6. **Portable:-** Being architecture-neutral and having no implementation dependent aspects of the specification makes Java portable.

3.2.1.2 Reason for Selection of JAVA

According to general calculations, Java is currently the most popular programming language for all sorts of purposes right from developing a mobile application to exploring a wide variety of job choices. However, if we talk about Java in the context of mobile application development, Android has succeeded in keeping JAVA on the forefront in the last couple of years.

Java has not only catered to the best option for the development of mobile applications that are Android-based but also offers you to develop native apps by using native tools. In fact, with the help of java app development company, you can code in other languages. Still, you required a unique framework to convert into a native app for that API.

Parameter	Java	Kotlin
Static Members	Almost the same. Thinking of the solution is the most time consuming part	Almost the same. Thinking of the solution is the most time consuming part
Performance	Almost the same.Both compile to ByteCode	Almost the same.Both compile to ByteCode
Strabillity	Has stable versions with long term maintenance	Almost the same.Both compile to ByteCode
Documentation	Good, easy to find	Good, a little bit harder to find
Popularity	Extremely popular worldwide	Not so popular worldwide
Community	Mostly Indian very broad	Mostly Russian, Comparatively little
Talent Pool	Not in the top-list	In the list of the most popular technologies 2020 according to StackOverFlow Dev Survey
Easiness to lean	Easy to learn	Can be trick to learn if you are not a good abstract thinker

Table 3.2.1: Comparative Chart Java vs Kotlin

3.2.2 DATABASE – MySQL

3.2.2.1 Features of MySQL

1. **Open-Source:-** MySQL is open-source, which means this software can be downloaded, used and modified by anyone. It is free-to-use and easy-to-understand. The source code of MySQL can be studied, and changed based on the requirements. It uses GPL, i.e. GNU General Public license which defines rules and regulations regarding what can and can't be done using the application.
2. **Quick and Reliable:-** MySQL stores data efficiently in the memory ensuring that data is

consistent, and not redundant. Hence, data access and manipulation using MySQL is quick.

3. **Scalable:-** Scalability refers to the ability of systems to work easily with small amounts of data, large amounts of data, clusters of machines, and so on. MySQL server was developed to work with large databases.
4. **Data Types:-** It contains multiple data types such as unsigned integers, signed integers, float (FLOAT), double (DOUBLE), character (CHAR), variable character (VARCHAR), text, blob, date, time, datetime, timestamp, year, and so on.
5. **Character Sets:-** It supports different character sets, and this includes latin1 (cp1252 character encoding), German, Ujis, other Unicode character sets and so on.
6. **Secure:-** It provides a secure interface since it has a password system which is flexible, and ensures that it is verified based on the host before accessing the database. The password is encrypted while connecting to the server.
7. **Support for large databases:-** It comes with support for large databases, which could contain about 40 to 50 million records, 150,000 to 200,000 tables and up to 5,000,000,000 rows.
8. **Client and Utility Programs:-** MySQL server also comes with many client and utility programs. This includes Command line programs such as 'mysqladmin' and graphical programs such as 'MySQL Workbench'. MySQL client programs are written in a variety of languages. Client library (code encapsulated in a module) can be written in C, C++, Java and would be available for clients that have C bindings.

3.2.2.1.2 Reason for Selection MySQL

	Firebase	My SQL
Short description	App development platform from google	Open-source SQL database
Price	Free to start pay as you go thereafter	Free to download
Open source	No	Yes
Vendor lock-in	Yes	No
Managed service	Yes	Managed hosting available on oracle,AWS,digital ocean,,etc
Data handling	Firebase effectively handles large sets of data it uses wide-column,key-value, document stores,or graphs and has dynamic schemas to facilitate unstructured data	MySQL is table –based and has pre- defined schemas it is a preferred choice for handling complex data
Architecture	Firebase is a no SQL database that syncs and stores data in realtime	MySQL is an open source relational database management system that is based on SQL,the do-main-specific language include python ,C++,Ada, and so on
Language support	Far less vs my SQL	The programming languages supported by MySQL are far more than what firebase supports the
Scalability	Firebase scales horizontally	MySQL scales vertically

Table 3.2.2: Comparative Chart Firebase vs MySQL

3.3 IMPLEMENTATION TOOL (IDE) – Android Studio SDK

3.3.1 Features of Android Studio

1. It has a flexible Gradle-based build system.

2. It has a fast and feature-rich emulator for app testing.
3. Android Studio has a consolidated environment where we can develop for all Android devices.
4. Apply changes to the resource code of our running app without restarting the app.
5. Android Studio provides extensive testing tools and frameworks.
6. It supports C++ and NDK.
7. It provides build-in supports for Google Cloud Platform. It makes it easy to integrate Google Cloud Messaging and App Engine.

3.3.2 Reason for Selection of Android studio

Android Studio provides a unified environment where you can build apps for Android phones, tablets, Android Wear, Android TV, and Android Auto. Structured code modules allow you to divide your project into units of functionality that you can independently build, test, and debug. Android Studio is faster than Eclipse. There is no need to add a plugin to Android Studio but if we use Eclipse then we do need to. Eclipse needs many resources to start but Android Studio does not. Android Studio is based on IntelliJ's Idea Java IDE and Eclipse uses the ADT Plugin to develop Android applications.

Android Studio	Eclipse
Powerful tool	Efficient tool
Many useful features	More forgiving
Complicated	Simple build system
Ability to easily produce different flavored apps integrated unit testing	Fast built /deployment for debugging Establish and stable

Table 3.3 : Comparative Chart Android Studio vs Eclipse

3.4 FEASIBILITY STUDY

A short assessment of the new system will be carried out to determine whether the new system can effectively meet the specified requirements of the organization. The study will be carried out to establish whether the direction and the requirements of the project are feasible. It analyzes whether it is worth committing the resources to the computerization of any area of the school operations and whether it is worth doing operations with a computer system. The study was aimed at.

1. Measuring how beneficial or partial the development of the new system of the new information management system will be to the organization.
2. To outline the present problem and summarize it in terms of cost.
3. To allow the organization management of the school to decide whether to commit resources to the project by showing whether a fully system study appears to be justified.

During the feasibility study of the organization the following areas were looked into;

3.4.1 Technical Feasibility:

The study was to measure the predictability of the technical solution and whether the organization possessed the necessary technology to solve the problem as projected. It also measured whether there is enough technical expertise in the organization so as to develop the suggested solution. The possibility that the organization has or can procure the necessary resources will also be checked. It is found out that the existing manual system would not be used hence new hardware and relevant software is to be acquired. Man power was lacking in the organization which was also to be acquired.

3.4.2 Economic Feasibility:

This will be conducted to find how cost effective the system to be implemented will be. The following questions are expected to be addressed under Economic feasibility study.

- What benefits will the candidate system provide compared to the current system?
- How much will the candidate system cost?

The following will be considered when evaluating the candidate system.

- System development cost.
- Hardware and software cost.
- Maintenance cost after installation.
- User time for testing and training.

3.4.3 Operational Feasibility:

The feasibility is carried out to measure how well the new system will work in the organization and the willingness and desire of the users and how they feel about the system. I expect the stakeholders to be interested in the system that is easy to operate, make few or no errors, desired information and fall within the objectives of the organization.

CHAPTER - 4
SYSTEM DESIGN & DIAGRAMS

4.1 Use Case Diagram

A use case defines behavioral features of a system. Each use case is named using a verb phase expresses a goal of the system. A use case diagram shows a set of use cases and actors & their relationships. Use case diagrams address the static use case view of a system. These diagrams are especially important in organizing and modeling the behaviors of a system. It shows the graphical overview of functionality provided by the system intents actor.

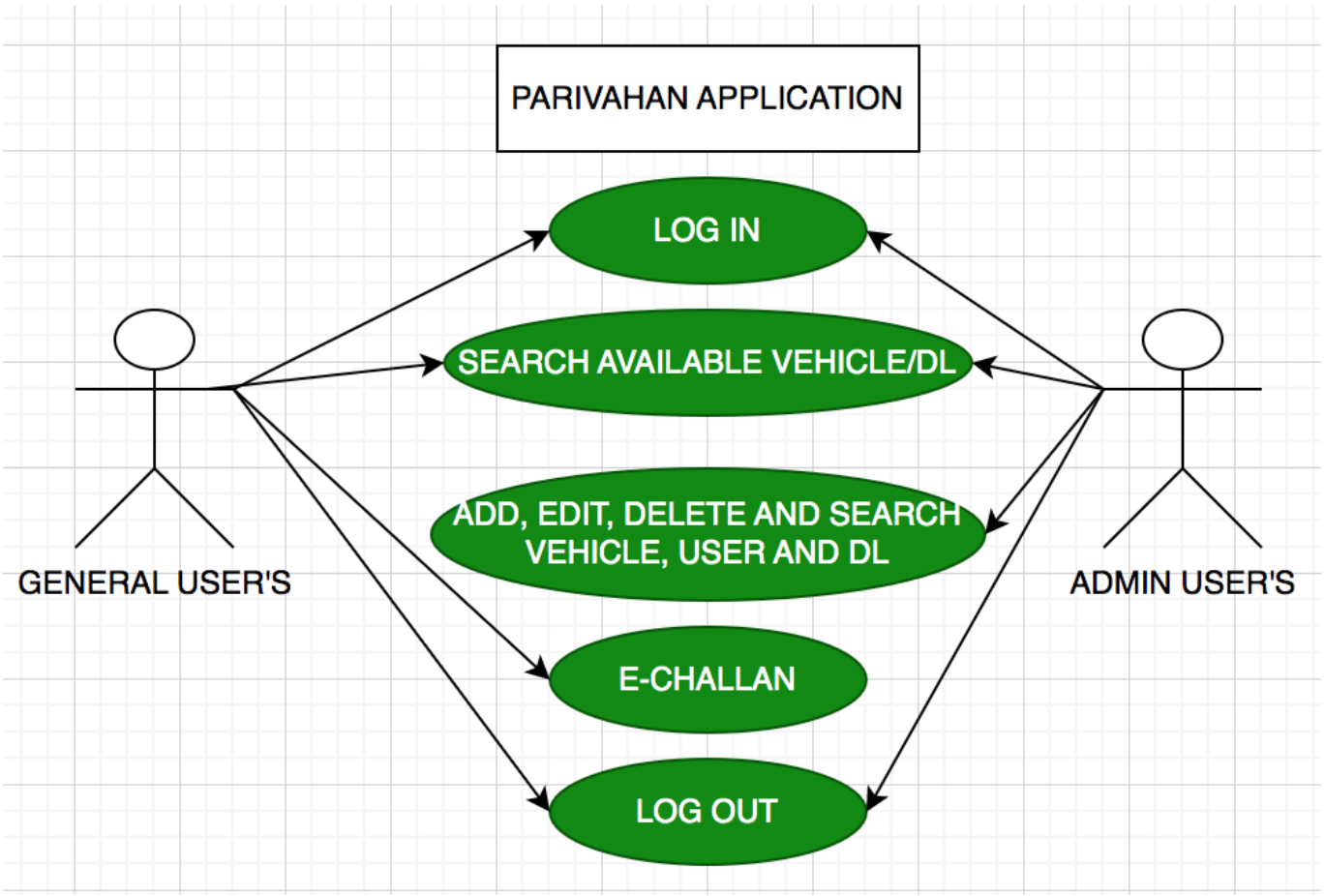
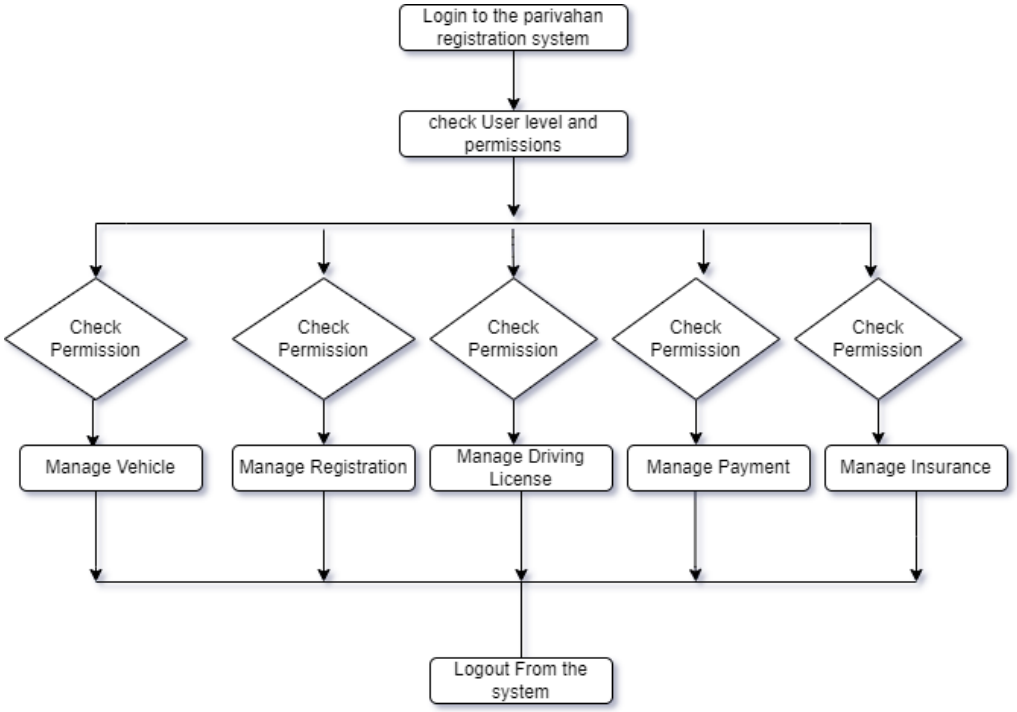


Figure 4.1: Use case Diagram For Parivahan App

4.2 Activity Diagram

An activity diagram of a special kind of a state chart diagram that shows the flow from activity within a system. An activity addresses the dynamic view of a system. The activity diagram is often seen as part of the functional view of a system because it describes logical processes, or functions. Each process describes a sequence of tasks and the decisions that govern when and they are performed. The flow in an activity diagram is



4.3 Data Modeling (Entity - Relationship Diagram)

The E-R model uses few basic concepts in producing an E-R diagram.
These concepts are: -

1. Entity:- An entity is an object or anything, which is distinguishable from objects.
2. Relationship:- A relationship is a meaningful association, a linking or connection between entities.
3. Attribute:- An attribute is any aspect quality or description of either an entity or relationship.

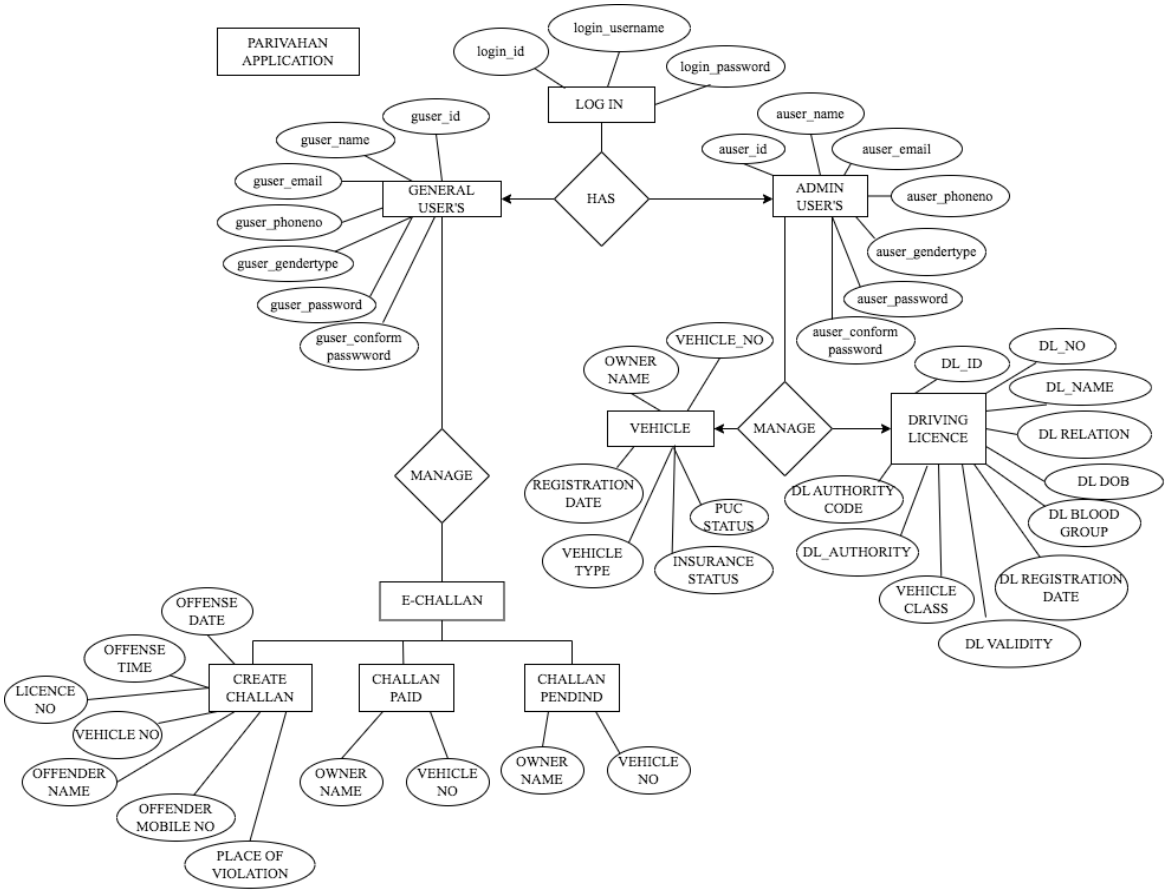


Figure 4.3: Entity-Relationship Diagram

4.4 Functional Modeling (Data Flow Diagram)

Data flow diagram is used to represent data & processes that manipulate it. The data flow diagram enables the software engineer to develop the model of information domain & functional domain at same time. As the DFD is refined into greater levels of detail, the analyst performs implicit functional decomposition of the system.

A data flow Diagram (DFD) is one of the popular graphical tools used to depict the flow of data through a system. DFD shows the processes, data stores, data flow & the source & destination entries. A few simple guidelines can aid immeasurably during the derivation of a data flow diagram.

1. The level 0 DFD should depict the system as a single bubble.
2. The primary input & output should be carefully noted.
3. Refinement should begin by isolating candidate processes, data object Stores to be represented at the next level.
4. All arrows & bubbles should be labeled with meaningful names.
5. Information flow continuity must be maintained from level to level. One bubble at a time should be refined.

TYPES OF DFD's:

There are two types of DFD's as follows: -

1. Physical DFD's:- Physical DFD's depict the physical elements like people, report, documents, departments etc. Physical DFD's shows an implementation dependent view of the system.
2. Logical DFD's:- Logical DFD's depict the logical elements like data process & events those are abstract than physical DFD's. Logical DFD's shows an implementation independent view of the system**.**

4.4.1 Level Zero DFD

Figure: Data Flow Diagram level-0

4.4.2 Level One DFD

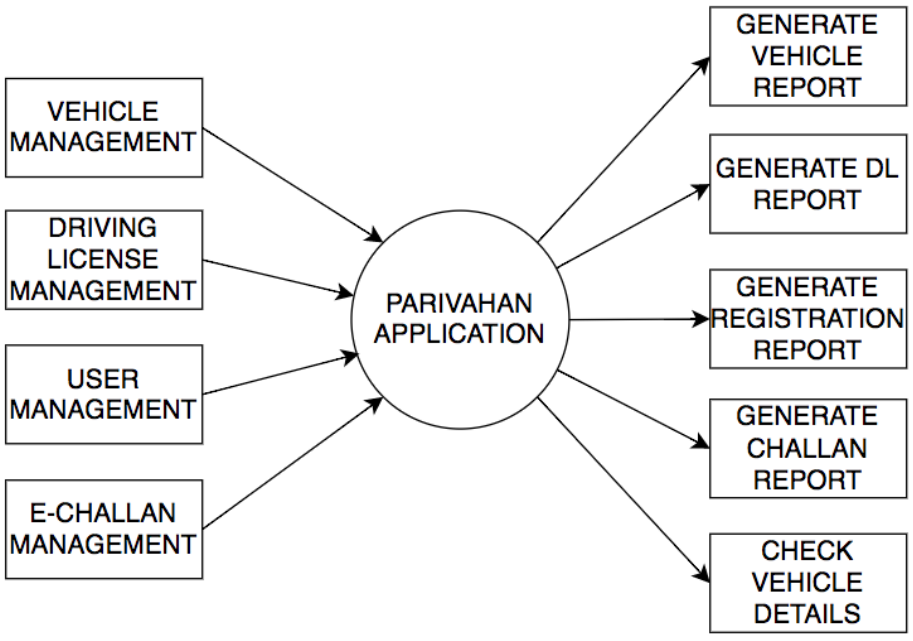


Figure: Data Flow Diagram level-1

4.4.3 Level Two DFD

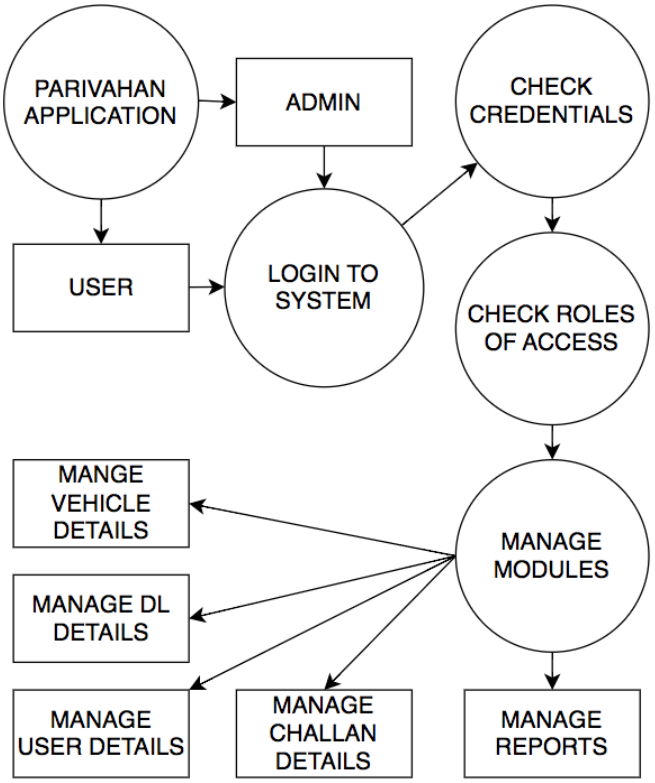
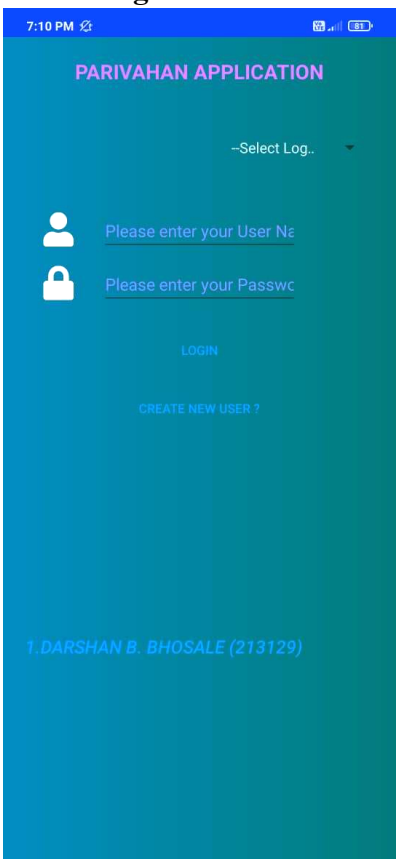


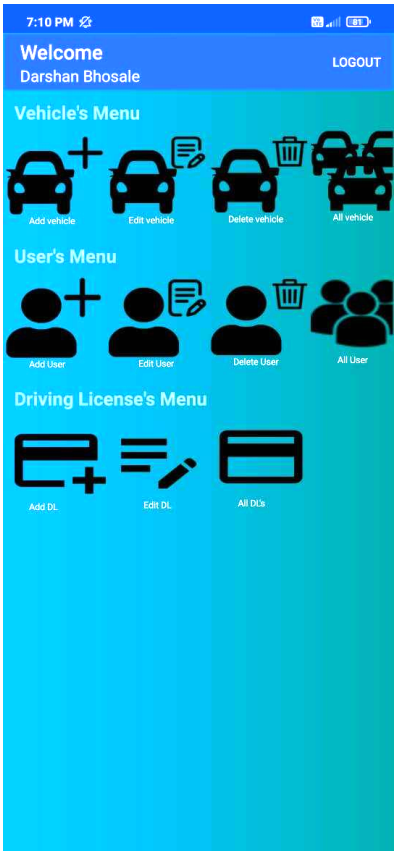
Figure: Data Flow Diagram level-2

CHAPTER - 5
SCREENSHOTS

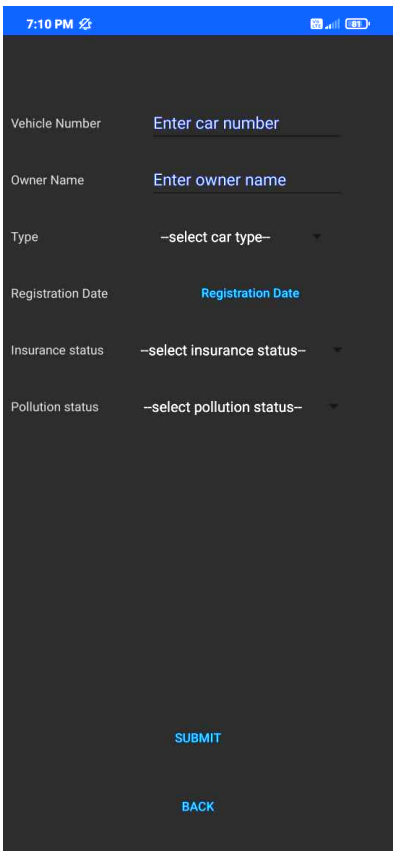
1. Login



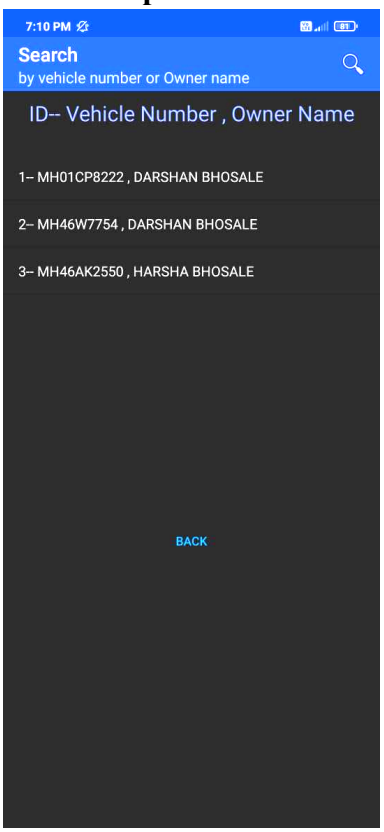
2. Admin Profile



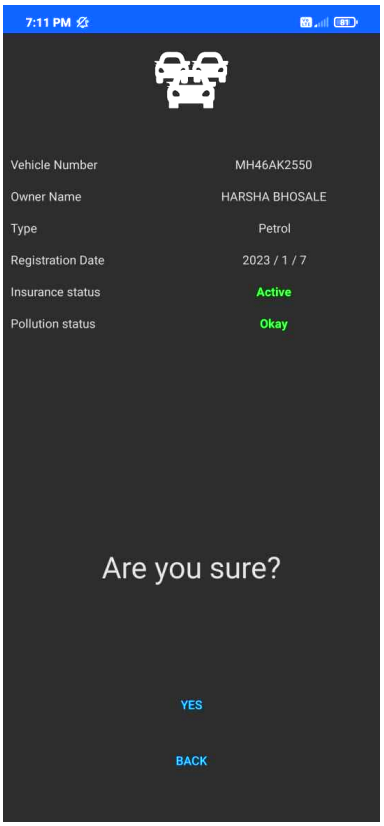
3. New Vehicle Registration



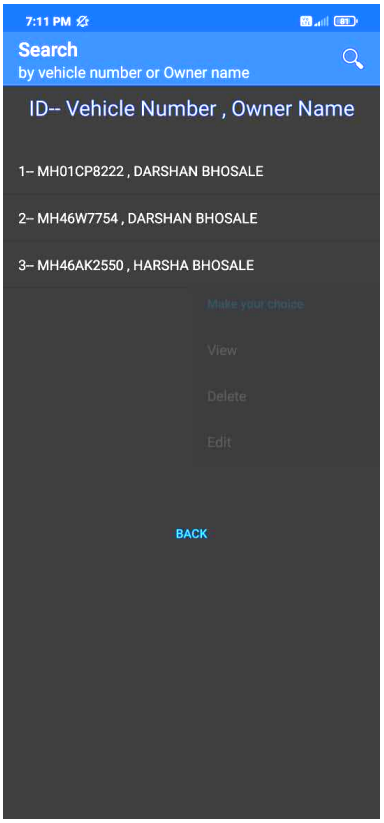
4. Select Update Vehicle



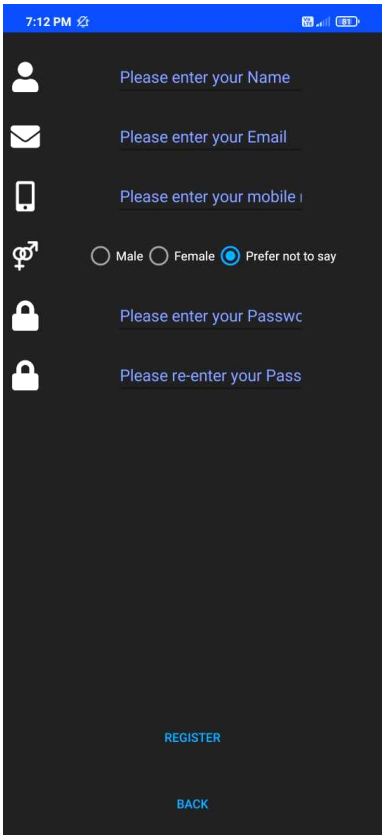
5. Delete Vehicle



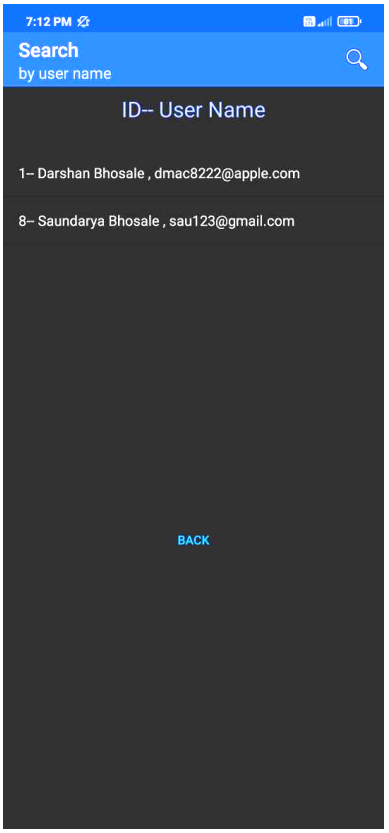
6. All Vehicle Records



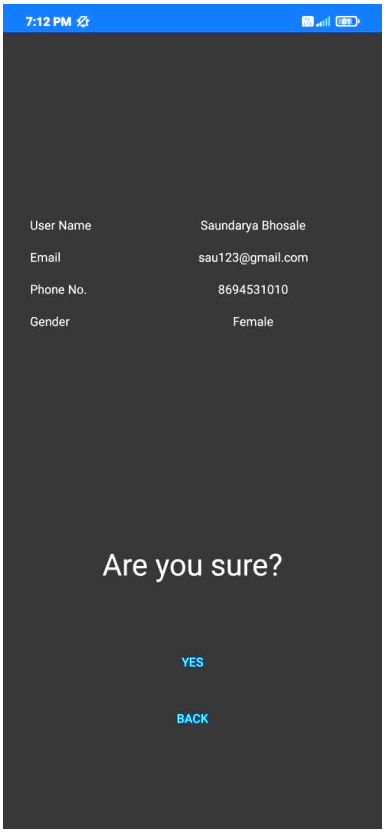
7. New User Registration



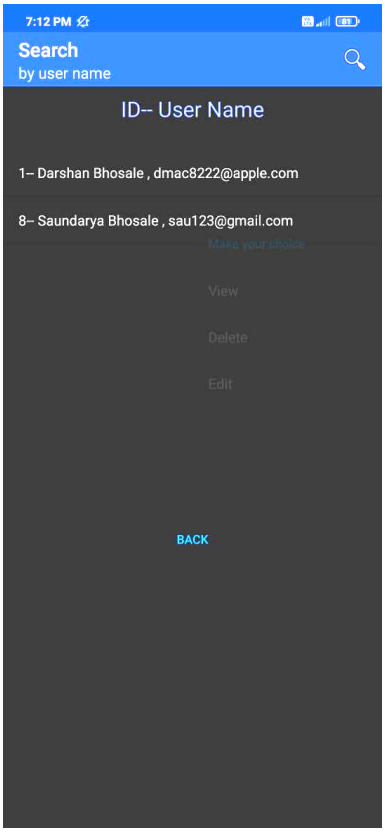
8. Select Update User



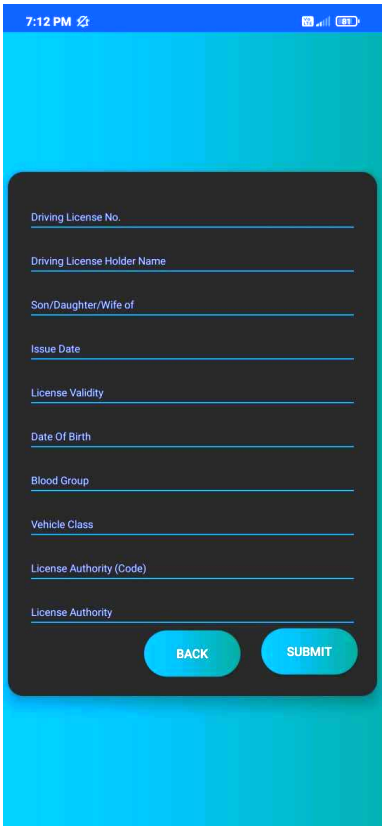
9. Delete User



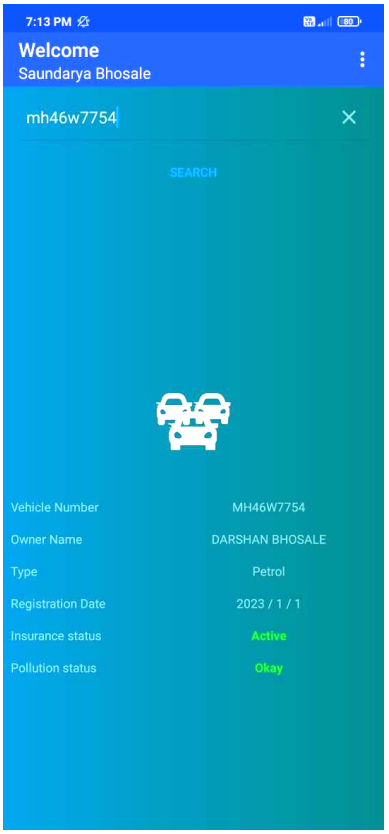
10. All User Records



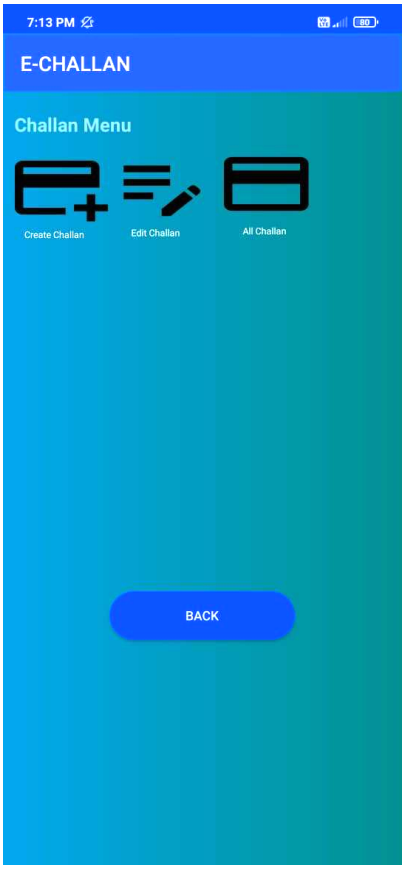
11. New DL Registration



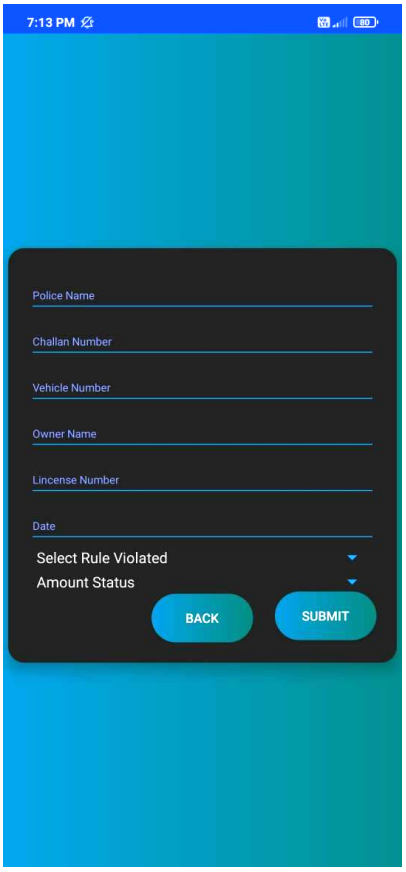
12. User Profile Search Bar



13. E-Challan Menu



14. New Challan Form



CHAPTER - 6
DATABASE SCHEMA

Databases change over time as information is inserted and deleted. The collection of information stored in the database at a particular moment is called an ***instance*** of the database. The overall design of the database is called the ***database schema***. Schemas are changed rarely, if at all.

The concept of database schemas and instances can be understood by analogy to a program written in a programming language. A **database schema** corresponds to the variable declarations (along with associated type definitions) in a program. Each variable has a particular value at a given instant. The values of the variables in a program at a point in time correspond to an instance of a database schema. Schema is the **logical structure** of the database (e.g., set of customers and accounts and the relationship between them). The schema displays the structure of each record type but not the actual instances of records.

DATABASE TABLE

6.1 Login Table :

1 Login Table :					
Sr.No	**Name**	**Type**	**Size**	**Key**	**Description**
1	login	varchar	20		Login id
2	pass	varchar	20		Password

6.2 Admin User And General User Registration Table :

Admin User And General User Registration Table					
Sr. No	**Name**	**Type**	**Size**	**Key**	**Description**
1	a_id	Int	10	Primary	
2	Name	varchar	20		Name of Admin User
3	Email	varchar	30		Email Id
4	Mobi	Int	10		Mobile No
5	Gender	varchar	20		Gender Option Button
6	pass	varchar	10		Password
7	Cnfpass	varchar	10		Confirm Password

6.3 Vehicle Registration Table :

Vehicle Registration Table					
Sr. No	**Name**	**Type**	**Size**	**Key**	**Description**
1	v_id	Int	10	Primary	
2	v_no	varchar	20		Vehicles Number
3	o_name	varchar	30		Owner Name

4	v_typei	varchar	20		Vehicle Type
5	v_rd	varchar	20		Registration Date
6	v_ins	varchar	20		Insurance Status
7	v_puc	varchar	20		Pollution Status

6.4 Driving License Registration Table :

Driving License Registration Table					
Sr. No	**Name**	**Type**	**Size**	**Key**	**Description**
1	dl_id	int	10	Primary	
2	dl_no	varchar	20		DL Number
3	dl_name	varchar	30		DL Holder Name
4	dl_rel	varchar	10		Relation
5	dl_reg	varchar	20		DL Registration Date
6	dl_val	varchar	10		DL Validity
7	dl_dob	varchar	10		DL DOB
8	dl_bg	varchar	10		DL Blood Group
9	dl-type	varchar	10		Dl Type Class
10	dl_autcode	varchar	10		DL Authority Code
11	dl_autoff	varchar	10		DL Authority

6.5 E Challan :

E-Challan Table					
Sr. No	**Name**	**Type**	**Size**	**Key**	**Description**
1	ec_id	int	10	Primary	
2	ec_pname	varchar	20		Police Name
3	ec_cno	int	30		Challan Number
4	ec_vno	varchar	10		Vehicle Number
5	ec_oname	varchar	20		Owner Name

6	ec_lno	varchar	10		License Number
7	ec_date	varchar	10		Date
8	ec_rule	varchar	10		Rule Violated
9	ec-amount	varchar	10		Amount Status

CHAPTER - 7
TEST PROCEDURE

Testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test. Software Testing also provides an objective, independent view of the software to allow the business to appreciate and understand the risks at implementation of the software. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs.

Software Testing depending on the testing method employed can be implemented at any time in the development process. However, most of the test effort occurs after the requirements have been defined and the coding process has been completed. As such, the methodology of the test is governed by the Software Development methodology adopted.

7.1 TESTING TOOL – APPIUM

Features of APPIUM:

APPIUM is a freely distributed open source mobile application UI Testing framework. Appium allows native, hybrid and web application testing and supports automation test on physical devices as well as an emulator or simulator both. It offers cross- platform application testing, i.e. single API works for both Android and iOS platform test scripts.It has **NO** dependency on Mobile device OS. Because APPIUM has framework or wrapper that translate Selenium Webdriver commands into UIAutomation (iOS) or UIAutomator (Android) commands depending on the device type, not any OS type.Appium supports all languages that have Selenium client libraries like- Java, Objective-C, JavaScript with node.js, PHP, Ruby, Python, C#, etc.

Reason for Selection of Appium:

1. It is free and open source.
2. It supports both Android and iOS.
3. Automation tests for iOS and Android can be written using the same API.
4. Appium tests can be written using any language.
5. No need to install any extra software on mobile devices to support Appium.

7.2 TESTING PLAN

- The main objective of testing is to uncover a host of errors, systematically and with minimum effort and time. Stating formally, we can say,
- Testing is a process of executing a program with the intent of finding an error.
- A successful test is one that uncovers an as yet undiscovered error.
- A good test case is one that has a high probability of finding error, if it exists.
- The tests are inadequate to detect possibly present errors.
- The software more or less confirms the quality and reliable standards.

A series of testing is done for the proposed system before the system is ready for the user acceptance testing.

7.3 TESTING CASES

1. Unit Testing:

Unit testing focuses verification efforts on the smallest unit of the software design, the module. This is also known as “Module Testing”. The modules are tested separately. This testing was carried out during the programming stage itself. In this testing each module is found to be working satisfactorily as regards to the expected output from the module.

2. Integration Testing:

Data can be grossed across an interface; one module can have adverse efforts on another. Integration testing is systematic testing for construction the program structure while at the same time conducting tests to uncover errors associated with in the interface. The objective is to take unit tested

modules and build a program structure. All the modules are combined and tested as a whole. Here correction is difficult because the isolation of cause is complicate by the vast expense of the entire program. Thus in the integration testing stop, all the errors uncovered are corrected for the text testing steps.

3. System testing:

System testing is the stage of implementation that is aimed at ensuring that the system works accurately and efficiently for live operation commences. Testing is vital to the success of the system. System testing makes a logical assumption that if all the parts of the system are correct, then goal will be successfully achieved.

4. Validation Testing:

At the conclusion of integration testing software is completely assembled as a package, interfacing errors have been uncovered and corrected and a final series of software tests begins, validation test begins. Validation test can be defined in many ways. But the simple definition is that validation succeeds when the software function in a manner that can reasonably expected by the customer. After validation test has been conducted one of two possible conditions exists.

One is the function or performance characteristics confirm to specifications and are accepted and the other is deviation from specification is uncovered and a deficiency list is created. Proposed system under consideration has been tested by using validation testing and found to be working satisfactorily.

7.4 TESTING RESULT

After performing validation testing, the next step is output testing of the proposed system since no system could be useful if it does not produce the required output in the specified format. Asking the users about the format required by them tests the outputs generated by the system under consideration. Here the output format is considered in two ways, one is on the screen and other is the printed format. The output format on the screen is found to be correct as the format was designed in the system designed phase according to the user needs. For the hard copy also the output comes as the specified requirements by the users. Hence output testing does not result any corrections in the system.

1. User Acceptance Testing:

User acceptance of a system is the key factor of the success of any system. The system under study is tested for the user acceptance by constantly keeping in touch with the prospective system users at the time of developing and making changes wherever required.

2. Test Data:

Taking various kinds of test data does the above testing. Preparation of test data plays a vital role in the system testing after preparing the test data the system under study is tested using the test data. While testing the system by using the test data errors are again uncovered and corrected by using above testing steps and corrections are also noted from the future use.

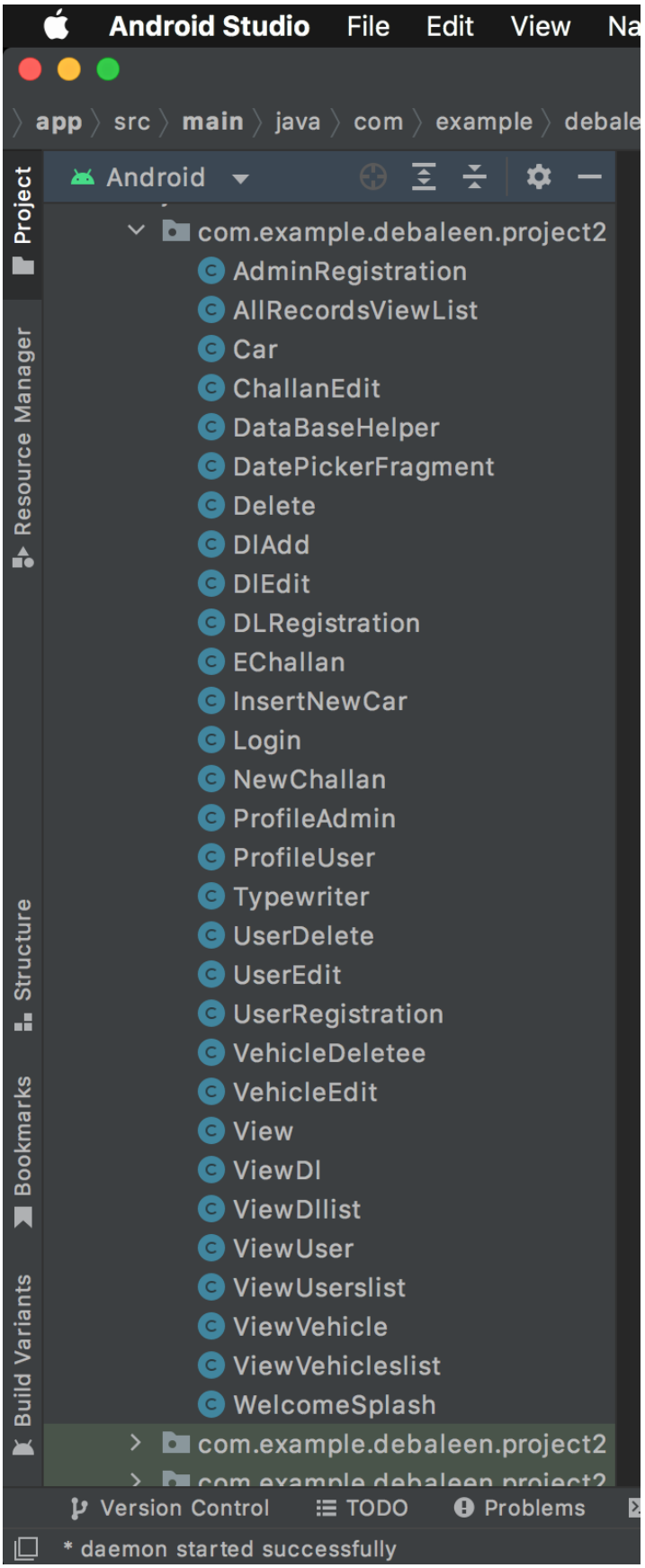
3. Testing:

The testing done here was System Testing–checking whether the user requirements were satisfied. The code for the new system has been written completely using JSP as the coding language, HTML as the interface for front-end designing and Java Script for validating the client-side applications. The new system has been tested well with the help of the users and all the applications have been verified from every nook and corner of the user.

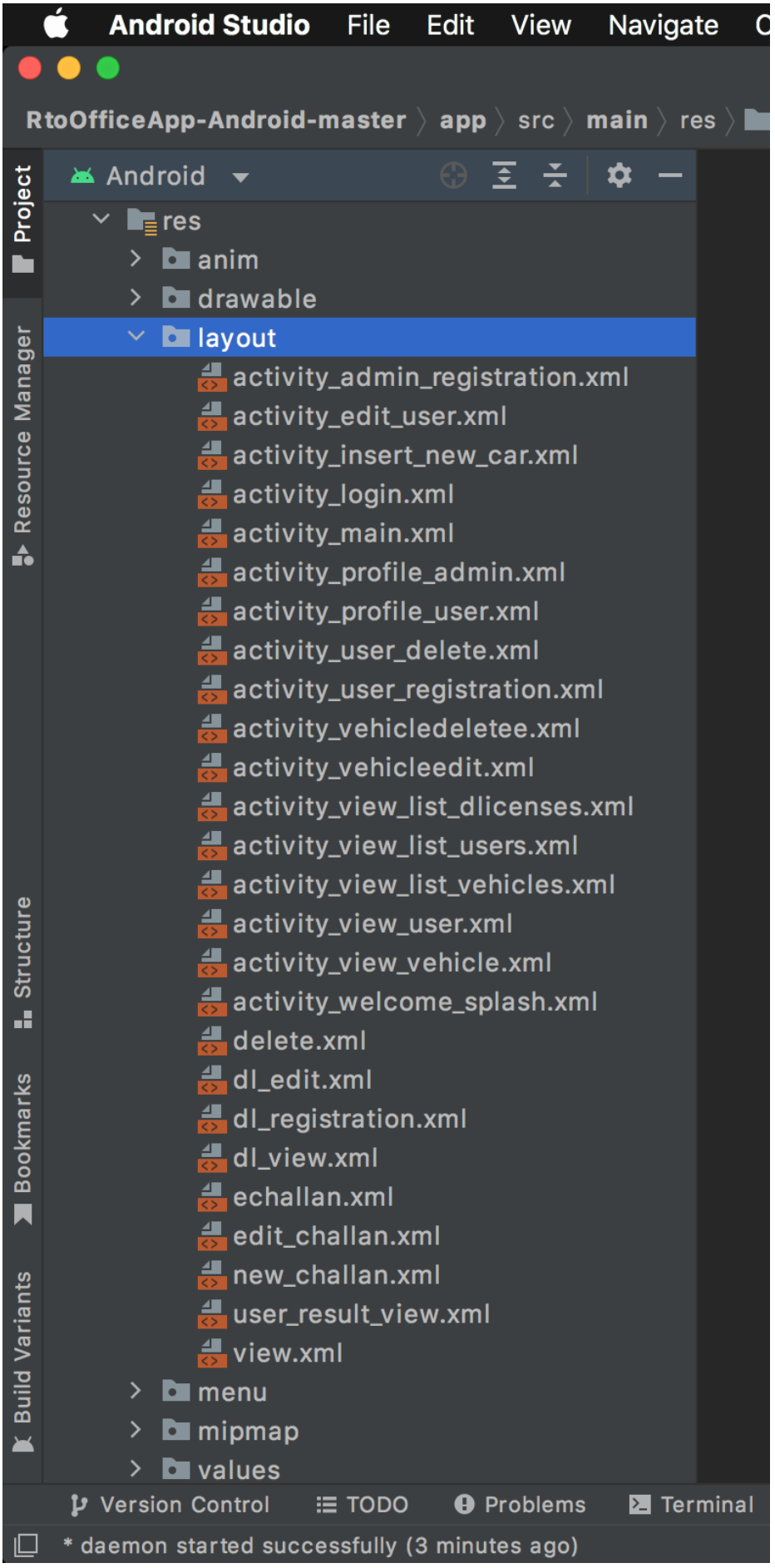
Although some applications were found to be erroneous these applications have been corrected before being implemented. The flow of the forms has been found to be very much in accordance with the actual flow of data.

CHAPTER - 8
SAMPLE CODE

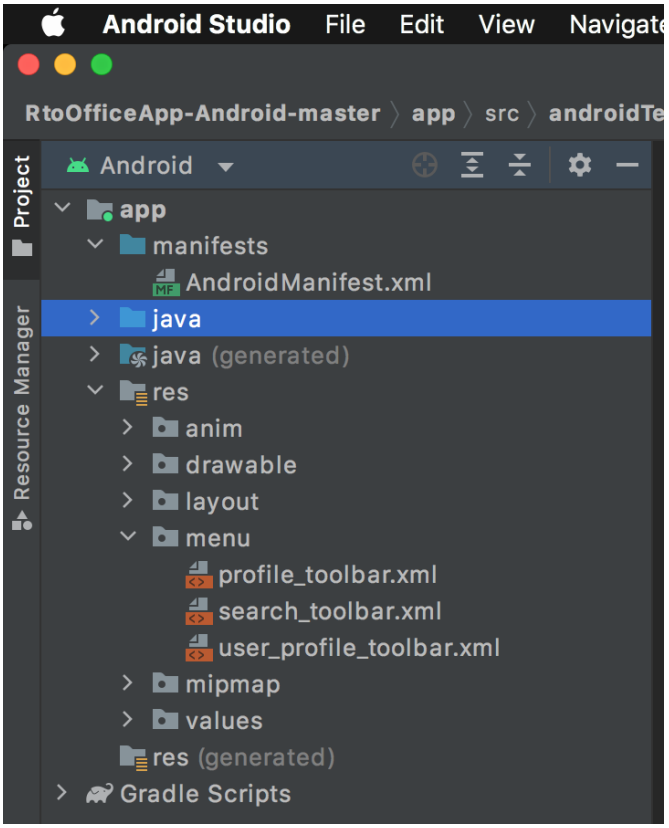
8.1 JAVA FILE DIRECTORY



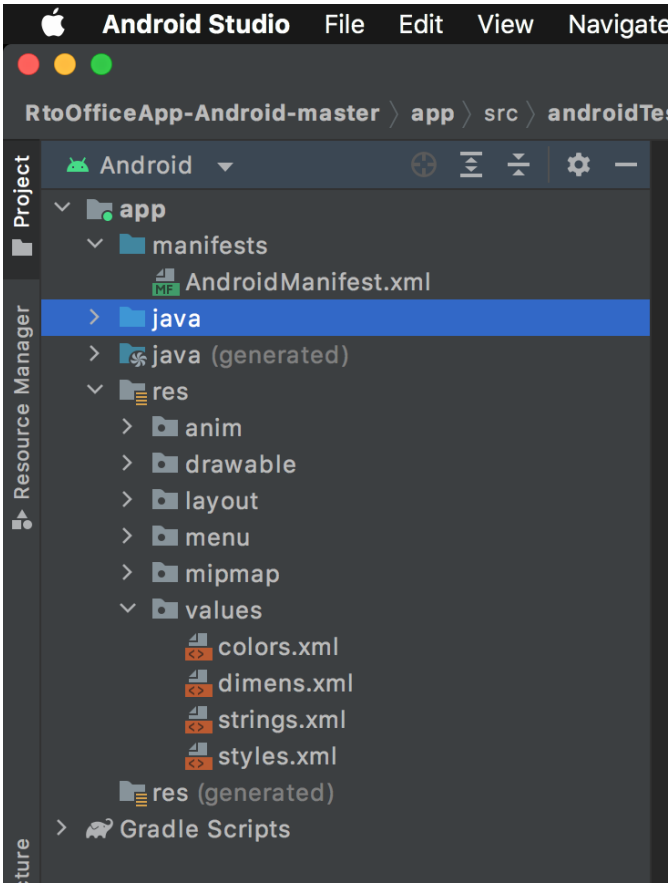
8.2 XML LAYOUT DIRECTORY



8.3 MENU DIRECTORY



8.4 VALUES DIRECTORY



1. **Login.Java**

```
package com.darshan.parivahan;
import android.content.Intent;
import android.database.Cursor;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import com.shashank.sony.fancytoastlib.FancyToast;
import java.util.regex.Matcher;
import java.util.regex.Pattern;
import id.pahlevikun.droidcrypt.DroidCrypt;
import id.pahlevikun.droidcrypt.model.Data;
import id.pahlevikun.droidcrypt.type.Algorithm;

public class Login extends AppCompatActivity {

  EditText userNameField, passwordField;
  Button loginButton, newUserButton;
  Spinner userTypeSpinner;
  DataBaseHelper dataBaseHelper;

  private static final String key ="2";

  String username = "", password = "";
  int usertypePosition = 0;

  String[] userType = {"--Select Login Type--", "User", "Admin"};

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_login);
    userNameField = (EditText) findViewById(R.id.userNameField);
    passwordField = (EditText) findViewById(R.id.passwordField);
    userTypeSpinner = (Spinner) findViewById(R.id.userTypeSpinner);
    loginButton = (Button) findViewById(R.id.loginButton);
    newUserButton = (Button) findViewById(R.id.newUserButton);


                        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
android.R.layout.simple_spinner_item, userType);
    userTypeSpinner.setAdapter(adapter);

    userTypeSpinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
      @Override
      public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {
        usertypePosition = position;
```

```
        }

        @Override
        public void onNothingSelected(AdapterView<?> parent) {

        }
    });

    dataBaseHelper = new DataBaseHelper(this);

    loginButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            boolean flag = true;
            username = userNameField.getText().toString();
            password = passwordField.getText().toString();
            String usertypeName = userTypeSpinner.getItemAtPosition(usertypePosition).toString();
            String id = "";

            if (username.trim().isEmpty() || password.trim().isEmpty()) {
                        FancyToast.makeText(getApplicationContext(), "Please fill both fields.",
FancyToast.LENGTH_SHORT, FancyToast.WARNING, false).show();
                flag = false;
            }

            String emailRegex = "^[\\w!#$%&'*+/=?`{|}~^-]+(?:\\.[\\w!#$%&'*+/=?`{|}~^-]+)*@(?:" +
                    "[a-zA-Z0-9-]+\\.)+[a-zA-Z]{2,6}$";
                                                                    String passwordRegex =
"^(?=.*[0-9])(?=.*[a-z])(?=.*[A-Z])(?=.*[@#$%^&+=])(?=\\S+$).{8,}$";

            Pattern patternEmail = Pattern.compile(emailRegex);
            Pattern patternPassword = Pattern.compile(passwordRegex);

            Matcher matcherEmail = patternEmail.matcher(username);
            Matcher matcherPassword = patternPassword.matcher(password);

            if (!matcherEmail.matches()) {
                    FancyToast.makeText(getApplicationContext(), "Please enter a valid username.",
FancyToast.LENGTH_SHORT, FancyToast.WARNING, false).show();
                flag = false;
            }
            if (!matcherPassword.matches()) {
                    FancyToast.makeText(getApplicationContext(), "Please enter a valid password.",
FancyToast.LENGTH_SHORT, FancyToast.WARNING, false).show();
                flag = false;
            }

            if (usertypePosition == 0) {
                        FancyToast.makeText(getApplicationContext(), "Please select user type",
FancyToast.LENGTH_SHORT, FancyToast.WARNING, false).show();
                flag = false;
            }
```

```
                    if(flag && username.compareTo("dmac8222@apple.com")==0 &&
password.compareTo("12345678a@A")==0)
        {
            flag = false;
            Intent i = new Intent(getApplicationContext(), AdminRegistration.class);
            startActivity(i);
            finish();
        }

        if (flag) {
                Cursor res = dataBaseHelper.displayByEmailPasswordType(username, password,
userType[usertypePosition].trim());
            if (!res.moveToNext()) {
                FancyToast.makeText(getApplicationContext(), "Invalid username & password.",
FancyToast.LENGTH_SHORT, FancyToast.ERROR, false).show();
                flag = false;
            }
            else
            {
                id = res.getString(0);
            }
        }
        if (flag && !id.isEmpty()) {
                        //all check ok. goto profile of username. id should be string. use
database.displayByIdFromT1

            //encryption start

            try {
                DroidCrypt droidCrypt = new DroidCrypt(getApplicationContext());
                Data encryptedId = droidCrypt.startEncryptWithBase64(key, Algorithm.MD5.getType(),
id);

                droidCrypt.saveEncryptedToPreferences(encryptedId);
            }
            catch(Exception e)
            {
                                FancyToast.makeText(getApplicationContext(), String.valueOf(e),
FancyToast.LENGTH_SHORT, FancyToast.ERROR, false).show();
            }
            //encryption end

            if(usertypeName.compareTo("Admin")==0)
            {
                Intent i = new Intent(getApplicationContext(), ProfileAdmin.class);
                i.putExtra("ID", id);
                startActivity(i);
                finish();
            }
            else if(usertypeName.compareTo("User")==0)
            {
                Intent i = new Intent(getApplicationContext(), ProfileUser.class);
                i.putExtra("ID", id);
```

```
                startActivity(i);
                finish();
            }
            else
            {
                                        FancyToast.makeText(getApplicationContext(),  "ERROR!!",
FancyToast.LENGTH_SHORT, FancyToast.ERROR,false).show();
            }
        }

      }
    });

    newUserButton.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
        Intent i = new Intent(getApplicationContext(), UserRegistration.class);
        startActivity(i);
        finish();
      }
    });
  }
}
```

2. activity_login.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:orientation="vertical"
  android:background="@drawable/centre_background"
  android:padding="10dp"
  tools:context=".Login">

  <TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="PARIVAHAN APPLICATION"
    android:textColor="#60f"
    android:textSize="22sp"
    android:textStyle="bold"
    android:layout_gravity="center"
    />
  <Spinner
    android:id="@+id/userTypeSpinner"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="210dp"
    android:layout_marginTop="50dp"
    />
```

```
<ImageView
    android:id="@+id/imageView"
    android:layout_width="30dp"
    android:layout_height="40dp"
    android:layout_marginTop="50dp"
    app:srcCompat="@drawable/user"
    android:layout_marginStart="30dp"/>
<EditText
    android:id="@+id/userNameField"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_marginTop="-40dp"
    android:ems="10"
    android:hint="@string/userNameFieldHint"
    android:inputType="textEmailAddress" />
<ImageView
    android:id="@+id/imageView2"
    android:layout_width="30dp"
    android:layout_height="40dp"
    android:layout_marginTop="10dp"
    android:layout_marginStart="30dp"
    app:srcCompat="@drawable/lock" />
<EditText
    android:id="@+id/passwordField"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:layout_marginTop="-40dp"
    android:layout_gravity="center"
    android:hint="@string/passwordFieldHint"
    android:inputType="textPassword"
    />
<Button
    android:id="@+id/loginButton"
    style="@style/Widget.AppCompat.Button.Borderless.Colored"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/loginButtonText"
    android:layout_marginTop="20dp"
    android:layout_gravity="center"
    />
<Button
    android:id="@+id/newUserButton"
    style="@style/Widget.AppCompat.Button.Borderless.Colored"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:layout_gravity="center"
    android:text="@string/newUserQ"
    android:textColorLink="@color/newUser"
    />
<TextView
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="right"
    android:layout_marginTop="190dp"
    android:text="@string/groupname"
    android:textAlignment="textStart"
    android:textSize="18dp"
    android:textStyle="italic"
    style="@style/Widget.AppCompat.Button.Borderless.Colored"
    />
</LinearLayout>
```

3. **AdminRegistration.Java**

…..

CHAPTER - 9
ADVANTAGES DISADVANTAGES AND APPLICATION

9.1 ADVANTAGES

- Helps create digital DL (Driving License) and RC (Registration Certificate).
- The app is easy to use, with services and information neatly segregated.
- The Parivahan works on both Android and Apple devices.
- You can check challan using the app. To check challan, you can either enter the RC or DL numbers.

9.2 DISADVANTAGES

- It is Safe to use Parivahan App
- These documents can be shown to traffic personnel at the time of checking.
- Zero charges: This application is available to all the citizens free of cost.

9.3 APPLICATIONS

- The app helps access your vehicle details like vehicle registration certificate, driving license, vehicle insurance and others.
- You can also use the app to get RTO information across states.
- The app also allows you to check traffic eChallan dues and enables you to pay them online.
- As the app digitalizes vehicle information, you aren't required to carry a hard copy of your vehicle documents. If any concerned authority stops you for document checking, you can show the digitized document format to them. Concerned authorities like the police accept these digital documents. All you need to do is download the app, sign in, and present the digital document.

CHAPTER - 10
CONCLUSION AND FUTURE SCOPE

10.1 CONCLUSION

Apps like Parivahan and Park+ offer many benefits to vehicle owners. While the Parivahan app allows you to digitize vehicle documents, the Park+ app is the one-stop solution for car-related problems. Having both apps on your phone will certainly benefit you.

10.2 FUTURE SCOPE

- You can book a driving test using the Parivahan app.
- Helps in finding out the nearest RTO office in your region.
- You can book a fancy number plate.
- The app contains emergency numbers that can be dialed in case of an accident or mishap.
- The app also gives information regarding the nearest pollution checking center.

CHAPTER - 11
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6. Android User Interfaces: http://developer.android.com/guide/topics/ui/index.html
7. Layout: http://developer.android.com/guide/topics/ui/declaring-layout.html
8. Common Tasks: http://developer.android.com/guide/appendix/faq/commontasks.html
9. Google Maps: http://code.google.com/android/add-ons/google-apis/maps-overview.html
10. Iconography: http://developer.android.com/guide/practices/ui_guidelines/icon_design.html
11. Sample Source Code: http://developer.android.com/resources/samples/get.html
12. Android Training: http://developer.android.com/training/index.html.
13. Android Developer's Blog: http://android-developers.blogspot.com/
14. Developer FAQ: http://developer.android.com/resources/faq/
15. Developer Forums: http://developer.android.com/resources/community-groups.html
16. Android Developer's Group: http://groups.google.com/group/android-developers?lnk=
17. XDA-Developers Forums: http://forum.xda-developers.com/
18. https://parivahan.gov.in/
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20. https://sarathi.parivahan.gov.in/