VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JNANA SANGAMA, BELAGAVI – 590 018

An Internship Project Report
on

Car_On_road using Flutter

Submitted in partial fulfillment of the requirements for the VIII semester for the award of degree of **Bachelor of Engineering** *in* **Information Science and Engineering**,

Visvesvaraya Technological University, Belagavi

Submitted by

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ESTD : 2001

An Institute with a Difference

Department of Information Science and Engineering
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2021 – 2022

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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

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CERTIFICATE

Certified that the Internship work entitled ***Car_On_road*** has been successfully completed by **Ronak H Rathod (1RN19IS406)** a bonafide student of **RNS Institute of Technology, Bengaluru** in partial fulfillment of the requirements of 8th semester for the award of degree in **Bachelor of Engineering in Information Science and Engineering** of **Visvesvaraya Technological University, Belagavi** during academic year **2021-2022.** The internship report has been approved as it satisfies the academic requirements in respect of internship work for the said degree.

Mr. R Rajkumar	**Dr. Suresh L**	**Dr. M K Venkatesha**
Internship Guide	Professor and HOD	Principal
Assistant Professor	Department of ISE	RNSIT
Department of ISE	RNSIT	

External Viva

Name of the Examiners	**Signature with date**
1. _____	_____
2. _____	_____

DECLARATION

I, **RONAK H RATHOD [USN: 1RN19IS406]** student of VIII Semester BE, in Information Science and Engineering, RNS Institute of Technology hereby declare that the Internship work entitled ***Car_On_road*** has been carried out by us and submitted in partial fulfillment of the requirements for the *VIII Semester degree of* ***Bachelor of Engineering in Information Science and Engineering*** *of Visvesvaraya Technological University, Belagavi* during academic year 2021-2022.

Place: Bengaluru

Date: 10/01/2022

RONAK H RATHOD

(1RN19IS406)

ABSTRACT

In recent years, it is difficult to develop applications for both iOS and Android with in less time. To overcome this, Google introduced a new framework called Flutter. It is a new reactive framework and platform for building high-performance and beautiful mobile apps. It is used extensively at Google to build business-critical apps, and by third-party developers to build popular apps. It is also used as a SDK which provides the support to build beautiful mobile apps in record time. Flutter is highly customizable, which allows it to build apps that are brand-centric, or with the look and feel of native Android and iOS apps from a single code base.

ACKNOWLEDGMENT

At the very onset I would like to place our gratefulness to all those people who helped me in making the Internship a successful one.

Coming up, this internship to be a success was not easy. Apart from the sheer effort, the enlightenment of the very experienced teachers also plays a paramount role because it is they who guided me in the right direction.

First of all, I would like to thank the **Management of RNS Institute of Technology** for providing such a healthy environment for the successful completion of internship work.

In this regard, I express sincere gratitude to our beloved Principal **Dr. M K Venkatesha,** for providing us all the facilities.

We are extremely grateful to our own and beloved Professor and Head of Department of Information science and Engineering, **Dr. Suresh L**, for having accepted to patronize me in the right direction with all her wisdom.

We place our heartfelt thanks to **Mrs. Kusuma S,** Assistant Professor , Department of Information Science and Engineering for having guided internship and all the staff members of the department of Information Science and Engineering for helping at all times.

I thank **Mr. Akshay D R, Co-Founder & CEO, Enmaz Engineering Services Pvt.Ltd** for providing the opportunity to be a part of the Internship program and having guided me to complete the same successfully.

I also thank our internship coordinator **Dr. R Rajkumar,** Associate Professor, Department of Information Science and Engineering. I would thank my friends for having supported me with all their strength and might. Last but not the least, I thank my parents for supporting and encouraging me throughout. I have made an honest effort in this assignment.

Ronak H Rathod

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UAT	User Acceptance Testing
iOS	iPhone Operating System
OTP	One Time Password
APK	Android Application Package
ADB	Android Debug Bridge

1. INTRODUCTION

1.1 Background

Car_On_road app is an application developed for renting self-driving cars and providing information about them. Self-driving vehicles are cars or trucks in which human drivers are never required to take control to safely operate the vehicle. Also known as autonomous or “driverless” cars, they combine sensors and software to control, navigate, and drive the vehicle. This app facilitates a user to rent and provide information about the self-driving cars. Each user can create an account with a username and password. This allows the users to login into their profile and have access to their account and rent cars and view information on them.

1.2 Existing System

In the existing system, the users don’t have the option to rent self driving cars. Users usually book cars which are driven by drivers manually, where the driver comes to the pick up location and drives you to your location or you can book any car for rent and go pick it up from the agency for example like zoom cars and return it once used.

1.3 Proposed System

In order to increase luxury and comfort, the proposed system has been developed. This project has been developed so that a user can easily rent a car a self driving car at the convenience of his house with a trusted company providing rental services and information.The interface is easy to understand user friendly.

2. LITERATURE REVIEW

2.1 Android Studio

Android Studio is an integrated development environment (IDE) for Google Android Operating System. It is built based on JetBrains' IntelliJ IDEA Community Edition, and it specifically designed for creating applications on Android devices. Some of the key features of Android Studio are as follows:

1. Instant Run – a feature that pushes code and resource changes to the running app. It allows changes to be made to the app without the need to restart the app, or rebuilding the APK, so that the effects can be seen instantly.

2. An Emulator – a virtual android device that can simulate variety of hardware features such as GPS location, network latency, motion sensors, and multi-touch input that can be used to run and install the app. It can then be used for testing purposes.

3. Testing Tools and Frameworks – extensive testing tools such as, JUnit 4 and functional UI test frameworks are included with Android Studio. Espresso Test Recorder can generate UI test code by recording the developer's interactions with the app on a device or emulator. The tests can be run on a device, an emulator, in Firebase Test Lab, or on a continuous integration environment.

2.2 Java Programming Language

Java is an object-oriented programming language created by James Gosling, Mike Sheridan, and Patrick Naughton in 1991. In the paper The Java Language Specification Java SE 8 Edition James Gosling states, "Java programming language is a general-purpose, concurrent, class based, object-oriented language. It is designed to be simple enough that many programmers can achieve fluency in the language. The Java programming language is related to C and C++ but is organized rather differently, with a number of aspects of C and C++ omitted and a few ideas from other languages included. It is intended to be a production language, not a research language." Java is a very flexible programming language which is used to create many different types of applications for many different operating systems. This is possible because Java can be run on any operating system, as long as the Java Runtime Environment is available. The application created for Android devices must be coded using Java programming language. This allows these apps to work on variety of different devices, no matter the company that has manufactured the device.

2.3 XML

XML or Extensible Markup Language is a text language that can be used to describe the behavior of programming languages that process them. XML was developed XML working group in 1996. According to World Wide Web Consortium there are ten design goals for XML. These design goals are:

1. XML shall be straightforwardly usable over the Internet.

2. XML shall support a wide variety of applications.

3. XML shall be compatible with SGML.

4. It shall be easy to write programs which process XML documents.

5. The number of optional features in XML is to be kept to the absolute minimum, ideally zero.

6. XML documents should be human-legible and reasonably clear.

7. The XML design should be prepared quickly.

8. The design of XML shall be formal and concise.

9. XML documents shall be easy to create.

10. Terseness in XML markup is of minimal importance.

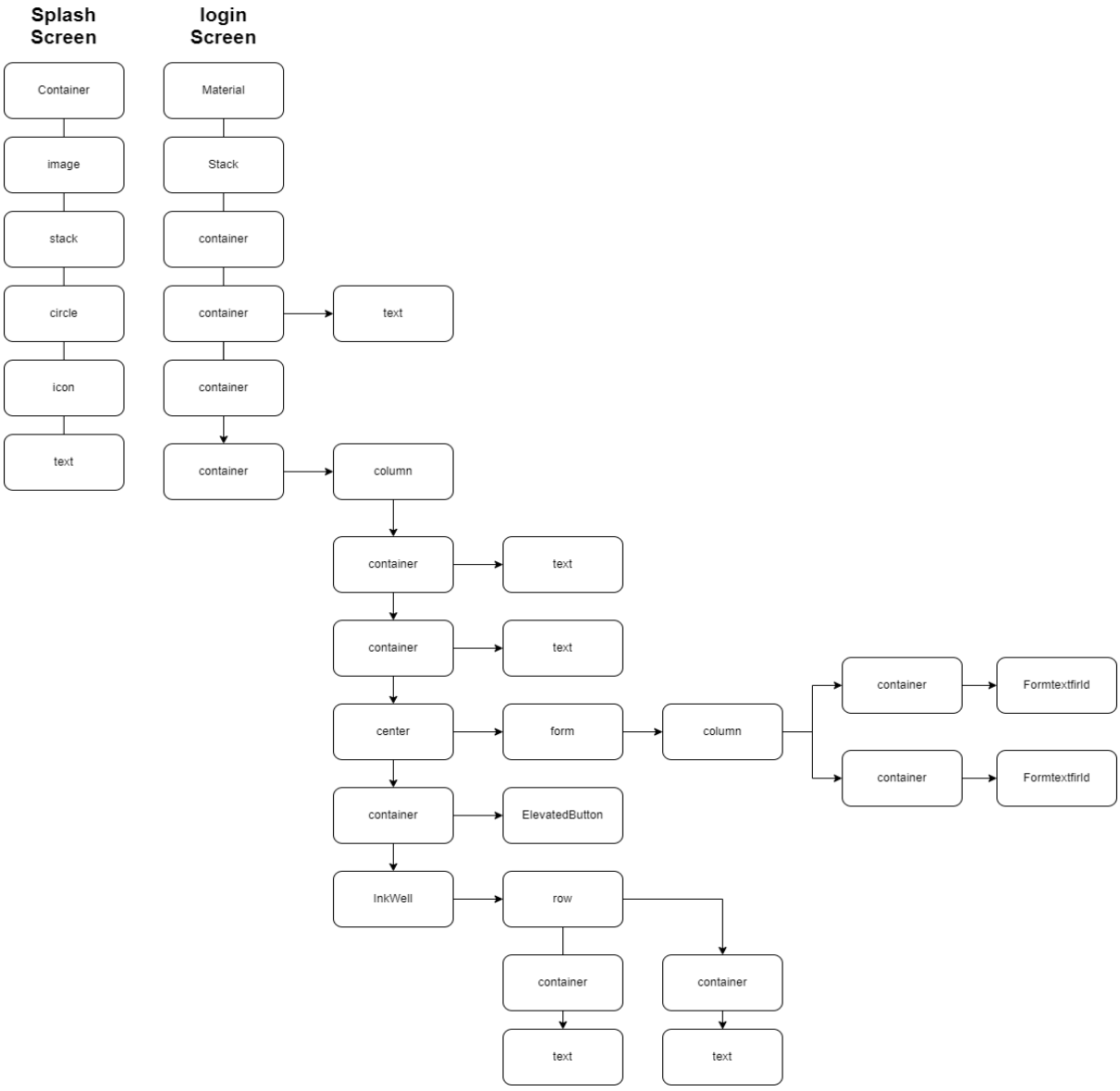
XML is used when transferring data from the database to the client, and in designing the visual aspect of Android applications. When data is sent from the database, it is sent using XML. This allows the data to be processed by any programming language the same way, since the data is always sent using XML. As mentioned, XML is also used to design the user interface of Android applications. This means that all the visual aspects such as, the layout of the page, the position of all button and text fields, as well as the color of anything on the page is specified using XML. Since XML is human-legible, it makes the process of designing a page in the app relatively easy and intuitive

3. SYSTEM DESIGN

3.1 Widget Tree

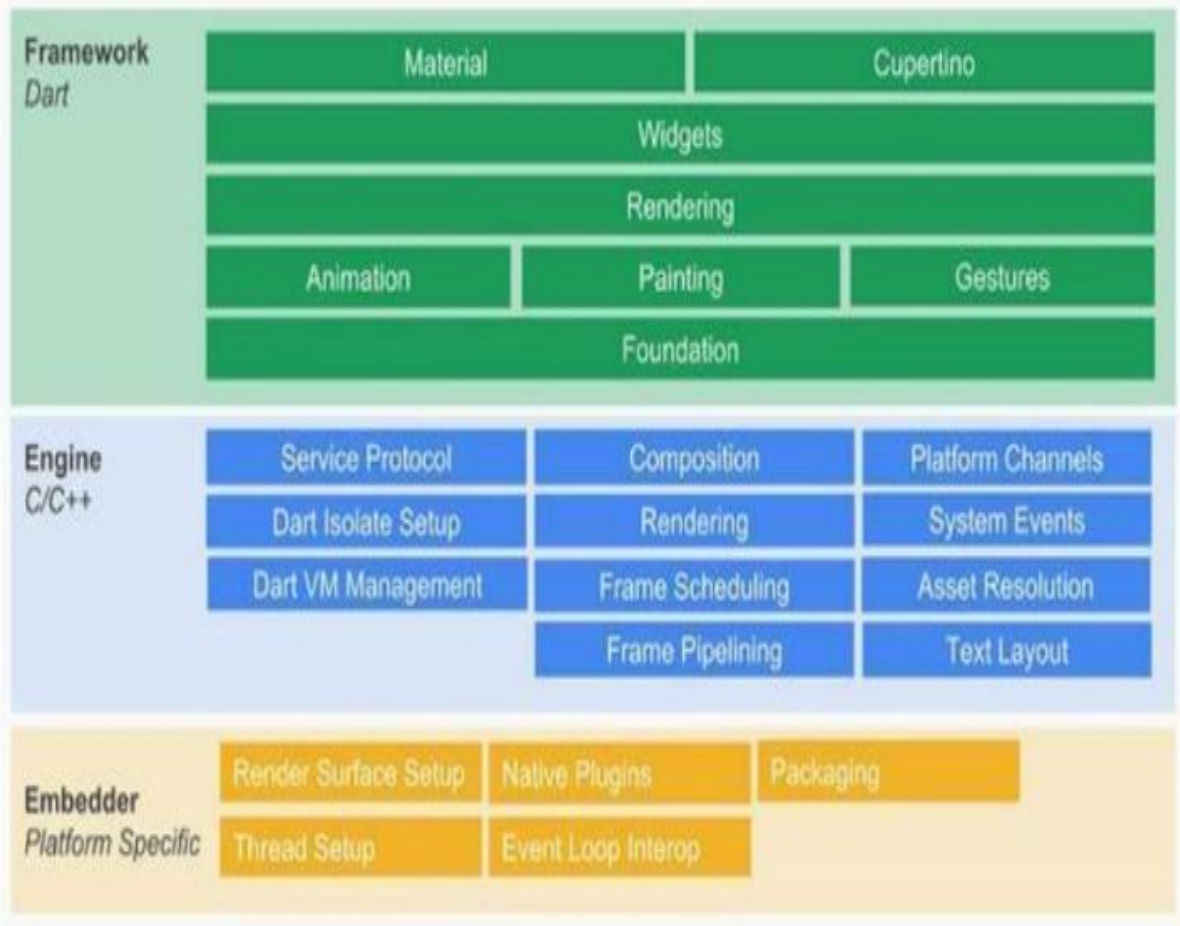
Everything in Flutter is a widget. This includes user interface elements, such as ListView, TextBox, and Image, as well as other portions of the framework, including layout, animation, gesture recognition, and themes, to name just a few. Widgets are necessary for an app's view and interface. They must have a natural look and feel regardless of screen size. They also must be fast, extensible, and customizable. Flutter takes the everything's a widget approach.

3.1.1 Login Screen



3.2 Flutter Architecture

The Flutter framework is organized into a series of layers, with each layer building upon the previous layer.



1. Embedder : Operating system adaptation layer to realize rendering Surface settings, thread settings, etc.
2. Engine◦: Realize functions such as Flutter rendering engine, text layout, event processing, and Dart runtime. Including Skia graphics drawing library, Dart VM, Text, etc., among which Skia and Text provide the ability to call the underlying rendering and typesetting for the upper layer interface.
3. Framework : It is a UI SDK implemented with Dart. From top to bottom, it includes two major style component libraries, basic component libraries, graphics drawing, gesture recognition, animation and other functions.

4. IMPLEMENTATION

4.1 Requirement Specifications

4.1.1 Hardware Requirements

- CPU: Intel i5 8th gen and above
- RAM: 8 GB
- HDD: 40 GB

4.1.2 Software Requirements

- **Operating System:** Windows 10 and above
- **IDE:** Visual Studio Code | Android studio Emulator
- **Front-end Language**: Dart

4.1.3 Flutter

Flutter is an open-source UI, software development kit created by Google. It is used to develop cross platform applications for Android, iOS, Linux, Mac, Windows, Google Fuchsia, Web Platform and the web from a single codebase.

The major components of Flutter include:

- Dart Platform
- Flutter Engine
- Foundation Library
- Design-specific widgets
- Flutter Development Tools (DevTools)

4.1.3.1 Dart Platform

Flutter apps are written in the Dart language and make use of many of the language's more advanced features. On Windows, macOS, and Linux Flutter runs in the Dart virtual machine, which features a just-in-time execution engine. While writing and debugging an app, Flutter uses Just In Time compilation, allowing for "hot reload", with which modifications to source files can be injected into a running application. Flutter extends this with support for stateful, hot reload, where in most cases changes to source code are reflected immediately in the running app without requiring a restart or any loss of state

4.1.3.2 Flutter Engine

Flutter's engine, written primarily in C++, provides low-level rendering support using Google's Skia graphics library. Additionally, it interfaces with platform Specific SDKs such as those provided by Android and iOS. The Flutter Engine is a portable runtime for hosting Flutter applications. It implements Flutter's core libraries, including animation and graphics, file and network I/O, accessibility support, plugin architecture, and a Dart runtime and compile toolchain.

4.1.3.3 Foundation Library

The Foundation library, written in Dart, provides basic classes and functions that are used to construct applications using Flutter, such as APIs to communicate with the engine.

4.1.3.4 Design Specific Widgets

The Flutter framework contains two sets of widgets that conform to specific design languages: Material Design widgets implement Google's design language of the same name, and *Cupertino* widgets implement Apple's iOS Human Interface Guidelines.

4.2 Discussion of Code Segments

4.2.1 main.dart

```dart
import 'package:flutter/material.dart';
import 'package:internproj/screens/get_started.dart';
import 'package:internproj/screens/home/profile_screen.dart';
import 'package:internproj/screens/home/teslax_info.dart';
import 'package:internproj/splash_screen.dart';
import 'screens/authentication_screens/sign_up_screen.dart';
void main() {
  runApp(const MyApp());
}

class MyApp extends StatelessWidget {
  const MyApp({Key? key}) : super(key: key);

  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      initialRoute: '/',
```

```
      routes: {
        '/': (context) => (SplashScreen()),
    );
  }
}
```

4.2.2 sign_in_screen.dart

```
import 'package:flutter/material.dart';
import
'package:internproj/screens/authentication_screens/sign_up_screen.dart';
import 'package:internproj/screens/home/home_screen.dart';
import 'package:internproj/constants.dart';

class SignIn extends StatefulWidget {
  @override
  _SigninState createState() => _SigninState();
}

class _SigninState extends State<SignIn> {
  // state of text field
  String email = '';
  String password = '';
  @override
  Widget build(BuildContext context) {
    return Material(
      child: Stack(
        alignment: Alignment.center,
        children: [
          Container(
            height: double.infinity,
            width: double.infinity,
            color: primaryColor,
          ),
          Container(
            alignment: Alignment.centerLeft,
            margin: EdgeInsets.fromLTRB(0, 20, 0, 600),
            padding: EdgeInsets.fromLTRB(60, 0, 0, 0),
            height: 120,
            width: double.infinity,
            child: Text(
              'Sign In',
              style: TextStyle(
                  fontFamily: 'Montserrat',
                  fontWeight: FontWeight.w100,
                  fontSize: 60,
                  color: Colors.white),
            ),
```

```
        ),
        Container(
            margin: EdgeInsets.fromLTRB(0, 200, 0, 0),
            height: 800,
            width: double.infinity,
            decoration: BoxDecoration(
                color: Colors.white,
                border: Border.all(
                  color: Colors.white,
                ),
                borderRadius: BorderRadius.only(
                  topLeft: const Radius.circular(50.0),
                  topRight: const Radius.circular(50.0),
                ))),
        Container(
          child: Column(
            children: [
              Container(
                alignment: Alignment.topLeft,
                margin: EdgeInsets.fromLTRB(0, 280, 0, 0),
                padding: EdgeInsets.fromLTRB(60, 0, 0, 0),
                child: Text(
                  'Hello',
                  style: TextStyle(
                      fontFamily: 'Montserrat',
                      fontWeight: FontWeight.w900,
                      fontSize: 30,
                      color: textColor),
                ),
              ),
              Container(
                alignment: Alignment.topLeft,
                margin: EdgeInsets.fromLTRB(0, 0, 0, 0),
                padding: EdgeInsets.fromLTRB(60, 0, 0, 0),
                child: Text(
                  'Login with account to continue',
                  style: TextStyle(
                      fontFamily: 'Montserrat',
                      fontWeight: FontWeight.w800,
                      fontSize: 16,
                      letterSpacing: 1,
                      color: textLight),
                ),
              ),
              Center(
                child: Form(
                  child: Column(
                    children: <Widget>[
```

```
                    SizedBox(
                      height: 20.0,
                    ),
                    Padding(
                      padding: EdgeInsets.fromLTRB(60, 0, 60, 0),
                      child: TextFormField(
                        decoration: InputDecoration(
                          enabledBorder: UnderlineInputBorder(
                            borderSide: BorderSide(color: textColor),
                          ),
                          focusedBorder: UnderlineInputBorder(
                            borderSide: BorderSide(color: primaryColor),
                          ),
                          labelText: 'Email Address',
                          labelStyle: TextStyle(
                            fontFamily: 'Montserrat',
                            color: textTwo,
                            fontSize: 16,
                            fontWeight: FontWeight.bold,
                          ),
                        ),
                        validator: (val) =>
                            val!.isEmpty ? 'Enter a email' : null,
                        onChanged: (val) {
                          setState(() => email = val);
                        },
                      ),
                    ),
                    SizedBox(
                      height: 20.0,
                    ),
                    Padding(
                      padding: EdgeInsets.fromLTRB(60, 0, 60, 0),
                      child: TextFormField(
                        decoration: InputDecoration(
                          enabledBorder: UnderlineInputBorder(
                            borderSide: BorderSide(color: textColor),
                          ),
                          focusedBorder: UnderlineInputBorder(
                            borderSide: BorderSide(color: primaryColor),
                          ),
                          labelText: 'Password',
                          labelStyle: TextStyle(
                            fontFamily: 'Montserrat',
                            color: textTwo,
                            fontSize: 16,
                            fontWeight: FontWeight.bold,
                          ),
```

```
                    ),
                    validator: (val) => val!.length < 6
                        ? 'Enter a password with 6+ char'
                        : null,
                    obscureText: true,
                    onChanged: (val) {
                      setState(() => password = val);
                    },
                  ),
                ),
              ],
            ),
          ),
        ),
        Container(
          decoration: BoxDecoration(
            borderRadius: const BorderRadius.all(
              Radius.circular(25.0),
            ),
            boxShadow: [
              BoxShadow(
                color: primaryColor.withOpacity(0.2),
                spreadRadius: 6,
                blurRadius: 20,
                offset: Offset(0, 10),
              ),
            ],
          ),

          width: 300,
          height: 60,
          margin: EdgeInsets.all(50),
          padding: EdgeInsets.fromLTRB(0, 0, 0, 0),
          // height: 60,
          // width: 800,
          child: ElevatedButton(
            onPressed: () async {
              //print(email);
              //print(password);
              Navigator.push(
                context,
                MaterialPageRoute(builder: (context) => HomeScreen()),
              );
            },
            style: TextButton.styleFrom(
                primary: Colors.white,
                backgroundColor: primaryColor,
                shadowColor: Colors.black,
```

```
                    shape: RoundedRectangleBorder(
                        borderRadius: BorderRadius.circular(50),
                        side: BorderSide(color: primaryColor))),
                child: Text(
                  'LOGIN',
                  style: TextStyle(
                      fontFamily: 'Montserrat',
                      fontSize: 18,
                      fontWeight: FontWeight.w900),
                ),
              ),
            ),
            InkWell(
              onTap: () {
                Navigator.push(
                  context,
                  MaterialPageRoute(builder: (context) => SignupPage()),
                );
              },
              child: Row(
                children: [
                  Container(
                    padding: EdgeInsets.fromLTRB(60, 0, 0, 0),
                    child: Text(
                      "Don't have an account?",
                      style: TextStyle(
                          fontFamily: 'Montserrat',
                          fontWeight: FontWeight.w900,
                          fontSize: 14,
                          color: textTwo),
                    ),
                  ),
                  Container(
                    padding: EdgeInsets.fromLTRB(50, 0, 0, 0),
                    child: Text(
                      'Sign Up',
                      style: TextStyle(
                          fontFamily: 'Montserrat',
                          fontWeight: FontWeight.w900,
                          fontSize: 14,
                          color: textColor),
                    ),
                  ),
                ],
              ),
            )
          ],
        ),
```

```
          ),
        ],
      ),
    );
  }
}
```

4.2.3 home_screen.dart

```
import 'package:flutter/material.dart';
import 'package:internproj/constants.dart';

import
'package:internproj/screens/authentication_screens/sign_up_screen.dart';
import 'package:internproj/screens/home/available_cars_list_view.dart';
import 'package:internproj/screens/home/profile_screen.dart';

import 'brands_list_view.dart';

class HomeScreen extends StatefulWidget {
  const HomeScreen({Key? key}) : super(key: key);

  @override
  _HomeScreenState createState() => _HomeScreenState();
}

class _HomeScreenState extends State<HomeScreen> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: background,
      appBar: PreferredSize(
        preferredSize: Size.fromHeight(60.0),
        child: AppBar(
          elevation: 0.0,
          backgroundColor: background,
          leading: IconButton(
            onPressed: () {
              Navigator.push(
                context,
                MaterialPageRoute(builder: (context) => SignupPage()),
              );
            },
            padding: EdgeInsets.fromLTRB(20, 0, 0, 0),
            icon: Image.asset(
              'lib/assets/images/logo.png',
              height: 40,
```

```
            width: 40,
            scale: 1.0,
          ),
        ),
        actions: [
          IconButton(
            onPressed: () {
              Navigator.push(
                context,
                MaterialPageRoute(builder: (context) => ProfilePage()),
              );
            },
            padding: EdgeInsets.fromLTRB(0, 0, 20, 0),
            icon: Icon(
              Icons.menu_open,
              color: primaryColor,
              size: 40,
            ),
          ),
        ],
      ),
    ),
    body: Column(
      mainAxisAlignment: MainAxisAlignment.start,
      children: [
        Container(
          alignment: Alignment.topLeft,
          margin: EdgeInsets.fromLTRB(20, 0, 0, 0),
          child: Text(
            'Brands',
            style: TextStyle(
                fontFamily: 'Montserrat',
                fontWeight: FontWeight.w900,
                fontSize: 28,
                color: textColor),
          ),
        ),
        Container(
          margin: const EdgeInsets.symmetric(vertical: 5.0),
          height: MediaQuery.of(context).size.height * 0.25,
          child: ListView(
            scrollDirection: Axis.horizontal,
            children: <Widget>[
              teslaCard(),
              audiCard(),
              porscheCard(),
              benzCard(),
              tataCard(),
```

```
              ],
            ),
          ),
          Container(
            alignment: Alignment.topLeft,
            margin: EdgeInsets.fromLTRB(20, 0, 0, 0),
            child: Text(
              'Available Cars',
              style: TextStyle(
                  fontFamily: 'Montserrat',
                  fontWeight: FontWeight.w900,
                  fontSize: 28,
                  color: textColor),
            ),
          ),
          Expanded(
            child: SizedBox(
              height: 400.0,
              width: MediaQuery.of(context).size.width,
              child: Container(
                // color: Colors.amber,
                margin: const EdgeInsets.symmetric(vertical: 10.0),
                height: MediaQuery.of(context).size.height * 0.47,
                child: ListView(
                  scrollDirection: Axis.vertical,
                  children: <Widget>[
                    teslaModelS(),
                    Audietron(),
                    porschetaycan(),
                    mercedesEcq(),
                    tataNexon(),
                  ],
                ),
              ),
            ),
          ),
        ],
      ),
    );
  }
}
```

4.2.4 constants.dart

```dart
import 'package:flutter/material.dart';

const primaryColor = Color.fromRGBO(75, 10, 223, 1);
const textColor = Color.fromRGBO(30, 40, 70, 1);
const textTwo = Color.fromRGBO(30, 40, 70, 0.3);
const textLight = Color.fromRGBO(30, 40, 70, 0.4);
const background = Color.fromRGBO(245, 245, 245, 1);
```

4.2.5 brands_lists_view.dart

```dart
import 'package:flutter/material.dart';
import 'package:internproj/constants.dart';

class teslaCard extends StatelessWidget {
  const teslaCard({
    Key? key,
  }) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Container(
      child: Stack(
        alignment: Alignment.center,
        children: [
          Container(
            margin: EdgeInsets.fromLTRB(20, 10, 10, 10),
            width: 150.0,
            height: 150.0,
            decoration: BoxDecoration(
              color: Colors.white,
              borderRadius: BorderRadius.all(Radius.circular(20)),
              boxShadow: [
                BoxShadow(
                  color: Colors.grey.shade300.withOpacity(0.4),
                  spreadRadius: 2,
                  blurRadius: 10,
                  offset: Offset(0, 8),
                )
              ],
            ),
          ),
          Column(
            children: [
```

```
            Container(
              margin: EdgeInsets.fromLTRB(30, 40, 20, 10),
              child: Image.asset(
                'lib/assets/images/carlogos/tesla.png',
                height: 100,
                width: 100,
              ),
            ),
            Container(
              margin: EdgeInsets.fromLTRB(30, 0, 20, 0),
              child: Text(
                'Tesla',
                style: TextStyle(
                    fontFamily: 'Montserrat',
                    fontWeight: FontWeight.w700,
                    fontSize: 14,
                    color: textColor),
              ),
            ),
          ],
        )
      ],
    ),
  );
 }
}

class audiCard extends StatelessWidget {
  const audiCard({
    Key? key,
  }) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Container(
      child: Stack(
        alignment: Alignment.center,
        children: [
          Container(
            margin: EdgeInsets.fromLTRB(10, 10, 10, 10),
            width: 150.0,
            height: 150.0,
            decoration: BoxDecoration(
              color: Colors.white,
              borderRadius: BorderRadius.all(Radius.circular(20)),
              boxShadow: [
                BoxShadow(
                  color: Colors.grey.shade300.withOpacity(0.4),
```

```
                  spreadRadius: 2,
                  blurRadius: 10,
                  offset: Offset(0, 8),
                )
              ],
            ),
          ),
          Column(
            children: [
              Container(
                margin: EdgeInsets.fromLTRB(20, 40, 20, 10),
                child: Image.asset(
                  'lib/assets/images/carlogos/audi.png',
                  height: 100,
                  width: 100,
                ),
              ),
              Container(
                margin: EdgeInsets.fromLTRB(20, 0, 20, 0),
                child: Text(
                  'Audi',
                  style: TextStyle(
                      fontFamily: 'Montserrat',
                      fontWeight: FontWeight.w700,
                      fontSize: 14,
                      color: textColor),
                ),
              ),
            ],
          )
        ],
      ),
    );
  }
}

class porscheCard extends StatelessWidget {
  const porscheCard({
    Key? key,
  }) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Container(
      child: Stack(
        alignment: Alignment.center,
        children: [
          Container(
```

```
            margin: EdgeInsets.fromLTRB(10, 10, 10, 10),
            width: 150.0,
            height: 150.0,
            decoration: BoxDecoration(
              color: Colors.white,
              borderRadius: BorderRadius.all(Radius.circular(20)),
              boxShadow: [
                BoxShadow(
                  color: Colors.grey.shade300.withOpacity(0.4),
                  spreadRadius: 2,
                  blurRadius: 10,
                  offset: Offset(0, 8),
                )
              ],
            ),
          ),
          Column(
            children: [
              Container(
                margin: EdgeInsets.fromLTRB(20, 40, 20, 10),
                child: Image.asset(
                  'lib/assets/images/carlogos/porsche.png',
                  height: 100,
                  width: 100,
                ),
              ),
              Container(
                margin: EdgeInsets.fromLTRB(20, 0, 20, 0),
                child: Text(
                  'Porsche',
                  style: TextStyle(
                      fontFamily: 'Montserrat',
                      fontWeight: FontWeight.w700,
                      fontSize: 14,
                      color: textColor),
                ),
              ),
            ],
          )
        ],
      ),
    );
  }
}

class tataCard extends StatelessWidget {
  const tataCard({
    Key? key,
```

```
}) : super(key: key);

@override
Widget build(BuildContext context) {
  return Container(
    child: Stack(
      alignment: Alignment.center,
      children: [
        Container(
          margin: EdgeInsets.fromLTRB(10, 10, 10, 10),
          width: 150.0,
          height: 150.0,
          decoration: BoxDecoration(
            color: Colors.white,
            borderRadius: BorderRadius.all(Radius.circular(20)),
            boxShadow: [
              BoxShadow(
                color: Colors.grey.shade300.withOpacity(0.4),
                spreadRadius: 2,
                blurRadius: 10,
                offset: Offset(0, 8),
              )
            ],
          ),
        ),
        Column(
          children: [
            Container(
              margin: EdgeInsets.fromLTRB(20, 40, 20, 10),
              child: Image.asset(
                'lib/assets/images/carlogos/tata.png',
                height: 100,
                width: 100,
              ),
            ),
            Container(
              margin: EdgeInsets.fromLTRB(20, 0, 20, 0),
              child: Text(
                'TATA',
                style: TextStyle(
                    fontFamily: 'Montserrat',
                    fontWeight: FontWeight.w700,
                    fontSize: 14,
                    color: textColor),
              ),
            ),
          ],
        )
```

```
        ],
      ),
    );
  }
}

class benzCard extends StatelessWidget {
  const benzCard({
    Key? key,
  }) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Container(
      child: Stack(
        alignment: Alignment.center,
        children: [
          Container(
            margin: EdgeInsets.fromLTRB(10, 10, 10, 10),
            width: 150.0,
            height: 150.0,
            decoration: BoxDecoration(
              color: Colors.white,
              borderRadius: BorderRadius.all(Radius.circular(20)),
              boxShadow: [
                BoxShadow(
                  color: Colors.grey.shade300.withOpacity(0.4),
                  spreadRadius: 2,
                  blurRadius: 10,
                  offset: Offset(0, 8),
                )
              ],
            ),
          ),
          Column(
            children: [
              Container(
                margin: EdgeInsets.fromLTRB(20, 40, 10, 10),
                child: Image.asset(
                  'lib/assets/images/carlogos/benz.png',
                  height: 100,
                  width: 100,
                ),
              ),
              Container(
                margin: EdgeInsets.fromLTRB(20, 0, 10, 0),
                child: Text(
                  'Mercedes-Benz',
```

```
                  style: TextStyle(
                      fontFamily: 'Montserrat',
                      fontWeight: FontWeight.w700,
                      fontSize: 14,
                      color: textColor),
                ),
              ),
            ],
          )
        ],
      ),
    );
  }
}
```

4.2.6 available_cars_lists_view.dart

```
import 'package:flutter/material.dart';
import 'package:internproj/constants.dart';
import 'package:internproj/screens/home/etron_info.dart';
import 'package:internproj/screens/home/teslax_info.dart';

class teslaModelS extends StatelessWidget {
  const teslaModelS({
    Key? key,
  }) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Container(
      alignment: Alignment.topLeft,
      margin: EdgeInsets.all(10),
      width: double.maxFinite,
      height: 220,
      decoration: BoxDecoration(
        color: Colors.white,
        borderRadius: BorderRadius.all(Radius.circular(20)),
        boxShadow: [
          BoxShadow(
            color: Colors.grey.shade300.withOpacity(0.4),
            spreadRadius: 2,
            blurRadius: 10,
            offset: Offset(0, 8),
          )
        ],
      ),
```

```
      child: Stack(children: [
        Container(
          child: FittedBox(
            child: Image.asset('lib/assets/images/cars/teslaX.png'),
            fit: BoxFit.fitWidth,
          ),
          height: 200,
          width: 400,
        ),
        Row(
          children: [
            Container(
              alignment: Alignment.topLeft,
              margin: EdgeInsets.fromLTRB(20, 10, 0, 0),
              child: Icon(
                Icons.send,
                color: primaryColor,
                size: 20,
              ),
            ),
            Container(
              alignment: Alignment.topLeft,
              margin: EdgeInsets.fromLTRB(5, 10, 0, 0),
              child: Text(
                '470 km',
                style: TextStyle(
                    fontFamily: 'Montserrat',
                    fontWeight: FontWeight.w800,
                    fontSize: 15,
                    color: textColor),
              ),
            ),
          ],
        ),
        Row(
          children: [
            Column(
              children: [
                Container(
                  alignment: Alignment.bottomLeft,
                  margin: EdgeInsets.fromLTRB(20, 170, 0, 0),
                  height: 20,
                  width: 300,
                  child: Text(
                    'Model X',
                    style: TextStyle(
                        fontFamily: 'Montserrat',
                        fontWeight: FontWeight.w800,
```

```
                      fontSize: 20,
                      color: textColor),
                ),
              ),
              Container(
                alignment: Alignment.bottomLeft,
                margin: EdgeInsets.fromLTRB(20, 0, 0, 0),
                height: 18,
                width: 300,
                child: Text(
                  'By Tesla',
                  style: TextStyle(
                      fontFamily: 'Montserrat',
                      fontWeight: FontWeight.w600,
                      fontSize: 12,
                      color: textColor),
                ),
              ),
            ],
          ),
          GestureDetector(
            child: Container(
              margin: EdgeInsets.fromLTRB(10, 170, 0, 10),
              height: 40,
              width: 40,
              decoration: BoxDecoration(
                  color: primaryColor.withOpacity(0.1),
                  borderRadius: BorderRadius.circular(10)),
              child: Icon(
                Icons.arrow_forward_sharp,
                color: primaryColor,
              ),
            ),
            onTap: () {
              Navigator.push(
                context,
                MaterialPageRoute(builder: (context) => TeslaxInfo()),
              );
            },
          ),
        ],
      ),
    ]),
  );
 }
}
```

4.2.6 profile_screen.dart

```dart
import 'package:flutter/material.dart';
import 'package:internproj/constants.dart';
import 'package:internproj/screens/get_started.dart';
import 'package:internproj/screens/home/home_screen.dart';
import 'package:internproj/screens/home/profile_screen_contents.dart';

class ProfilePage extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        elevation: 0.0,
        backgroundColor: primaryColor,
        leading: IconButton(
          onPressed: () {
            Navigator.push(
              context,
              MaterialPageRoute(builder: (context) => HomeScreen()),
            );
          },
          icon: Icon(Icons.arrow_back),
        ),
        actions: [],
      ),
      body: Column(
        children: [
          Stack(
            alignment: Alignment.topCenter,
            children: [
              Container(
                height: 100,
                width: double.infinity,
                decoration: BoxDecoration(
                    color: primaryColor,
                    boxShadow: [
                      BoxShadow(
                        color: primaryColor.withOpacity(0.2),
                        spreadRadius: 6,
                        blurRadius: 60,
                        offset: Offset(0, 30),
                      )
                    ],
                    borderRadius: BorderRadius.only(
                      bottomLeft: const Radius.circular(50.0),
```

```
                  bottomRight: const Radius.circular(50.0),
                )),
          ),
          Container(
            alignment: Alignment.center,
            height: 140,
            width: 140,
            decoration: BoxDecoration(
                color: Colors.white,
                boxShadow: [
                  BoxShadow(
                    color: Colors.grey.withOpacity(0.2),
                    spreadRadius: 6,
                    blurRadius: 20,
                    offset: Offset(0, 10),
                  )
                ],
                shape: BoxShape.circle),
            child: Image.asset(
              'lib/assets/images/dp.png',
              height: 130,
              width: 130,
            ),
          ),
        ],
      ),
      Container(
        margin: EdgeInsets.fromLTRB(0, 20, 0, 0),
        child: Text(
          'Paul Nesson',
          style: TextStyle(
              fontFamily: 'Montserrat',
              fontWeight: FontWeight.w800,
              fontSize: 22,
              color: textColor),
        ),
      ),
      Container(
        child: Text(
          'UI/UX designer | Blogger',
          style: TextStyle(
              fontFamily: 'Montserrat',
              fontWeight: FontWeight.w600,
              fontSize: 16,
              color: textColor),
        ),
      ),
      Container(
```

```
            margin: EdgeInsets.fromLTRB(50, 20, 50, 20),
            height: 1,
            width: double.infinity,
            color: textTwo,
          ),
          profile(),
          notification(),
          favorites(),
          SizedBox(
            height: 200,
          ),
          new GestureDetector(
            onTap: () {
              Navigator.push(
                context,
                MaterialPageRoute(builder: (context) => Getstarted()),
              );
            },
            child: Container(
              margin: EdgeInsets.fromLTRB(0, 30, 0, 10),
              child: Row(
                children: [
                  Container(
                      alignment: Alignment.center,
                      margin: EdgeInsets.fromLTRB(40, 0, 10, 0),
                      child: Icon(
                        Icons.power_settings_new_rounded,
                        size: 24,
                        color: Colors.red,
                      )),
                  Container(
                      child: Text(
                    'Sign out',
                    style: TextStyle(
                        fontFamily: 'Montserrat',
                        fontWeight: FontWeight.w600,
                        fontSize: 18,
                        color: Colors.red),
                  )),
                ],
              ),
            ),
          ),
        ],
      ),
    );
  }
}
```

5. Testing

5.1 Introduction

Testing is a process of executing a program with the interest of finding an error. A good test is one that has high probability of finding the yet undiscovered error. Testing should systematically uncover different classes of errors in a minimum amount of time with a minimum number of efforts. Two classes of inputs are provided to test the process

- A software configuration that includes a software requirement specification, a design specification and source code.
- A software configuration that includes a test plan and procedure, any testing tool and test cases and their expected results.

5.2 Levels of Testing

5.2.1 Unit Testing

Unit testing is a level of software testing where individual units/ components of a softwareare tested. The purpose is to validate that each unit of the software performs as designed. A unit is the smallest testable part of any software. It usually has one or a few inputs and usually a single output.

Unit testing is commonly automated, but may still be performed manually. The objective in unit testing is to isolate a unit and validate its correctness. A manual approachto unit testing may employ a step-by-step instructional document. The unit testing is the process of testing the part of the program to verify whether the program is working corrector not. In this part the main intention is to check the each and every input which we are inserting to our file. Here the validation concepts are used to check whether the program istaking the inputs in the correct format or not.

Unit testing may reduce uncertainty in the units themselves and can be used in a bottom-up testing style approach. By testing the parts of a program first and then testing the sum of its parts, integration testing becomes much easier. Unit test cases embody characteristics that are critical to the success of the unit.

5.2.2 Integration Testing

Integration testing is also taken as integration and testing this is the major testing process where the units are combined and tested. Its main objective is to verify whether the major parts of the

program is working fine or not. This testing can be done by choosing the optionsin the program and by giving suitable inputs.

5.2.3 System Testing

System testing is defined as testing of a complete and fully integrated software product. This testing falls in black-box testing wherein knowledge of the inner design of the code isnot a pre-requisite and is done by the testing team. System testing is done after integrationtesting is complete. System testing should test functional and non-functional requirements of the software.

5.2.4 Validation Testing

In this, requirements established as part of software requirements analysis are validated against the software that has been constructed. Validation testing provides final assurance that software meets all functional, behavioral and performance requirements. Validation can be defined in many ways but a simple definition is that validation succeeds when software Function in a manner that can be reasonably by the customer.

1. Validation test criteria
2. Configuration review
3. Alpha and Beta testing (conducted by end user)

5.2.5 Output Testing

After preparing test data, the system under study is tested using the test data. While testing the system using test data, errors are again uncovered and corrected by using above testing and corrections are also noted for future use.

5.2.6 User Acceptance Testing

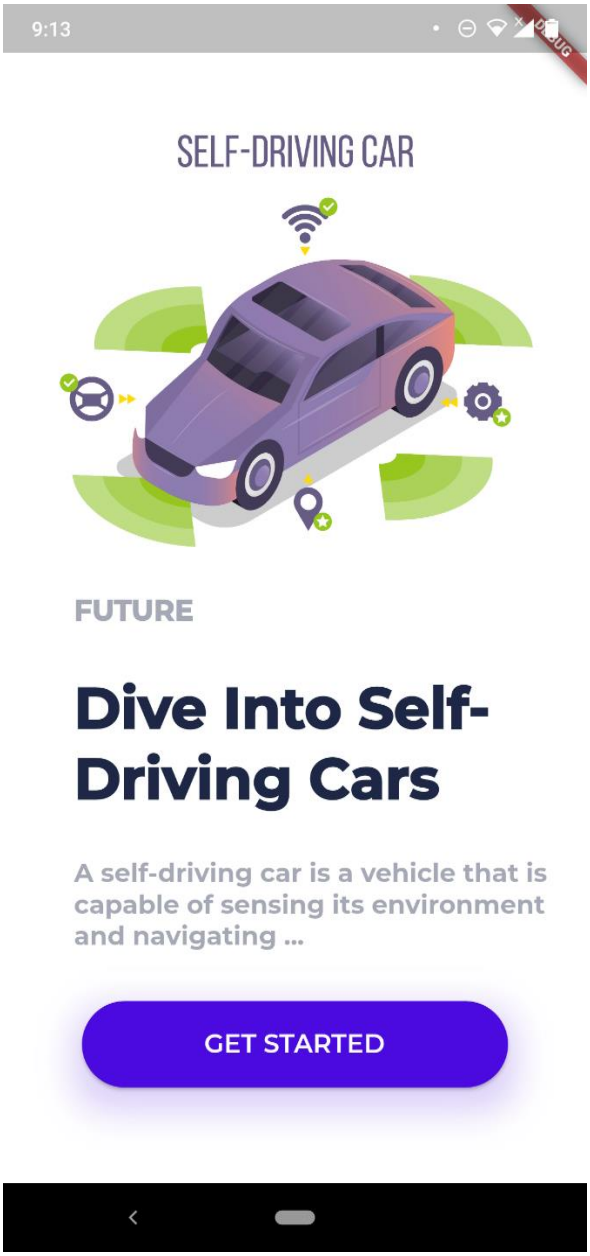
User acceptance testing is a type of testing performed by the end user or the client to verify/accept the software application to the production environment.

UAT is done in the final phase of testing.

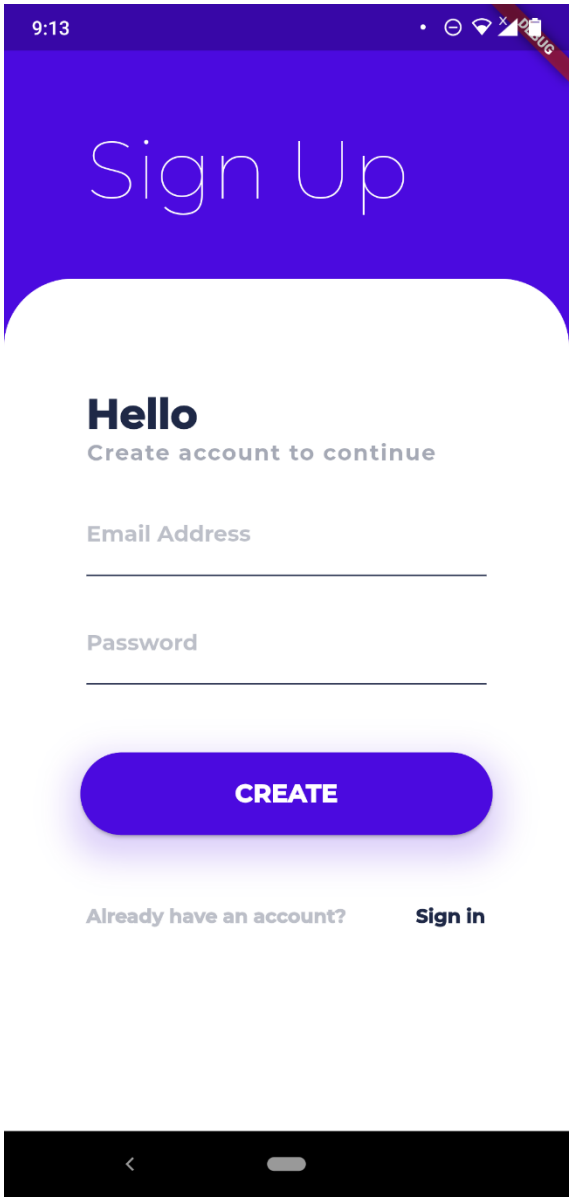
6. RESULTS

6.1 Splash Screen

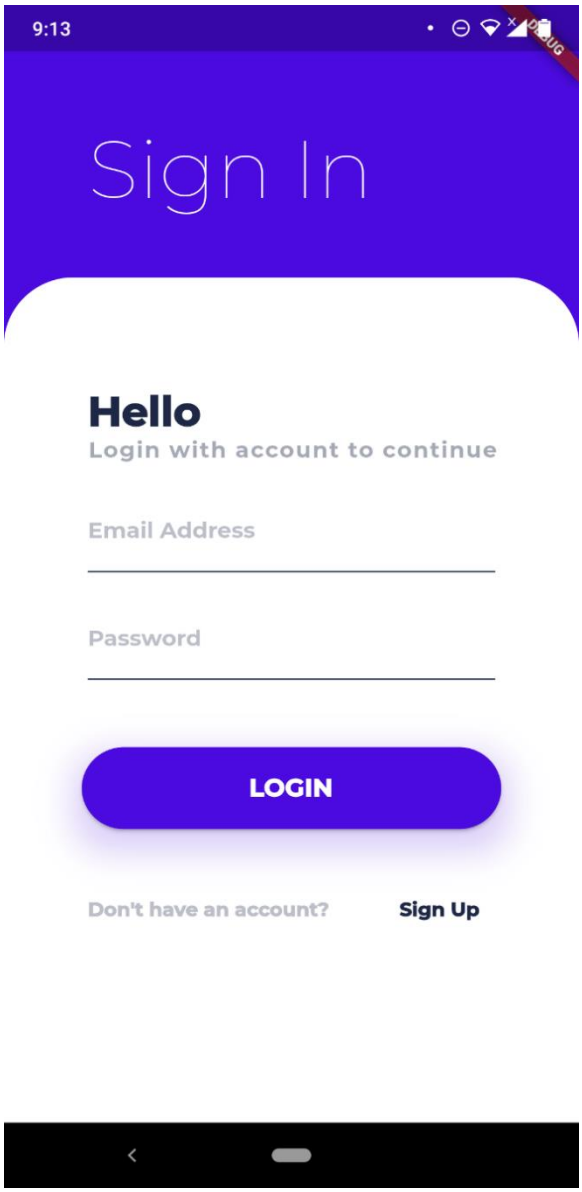
6.2 Start Screen



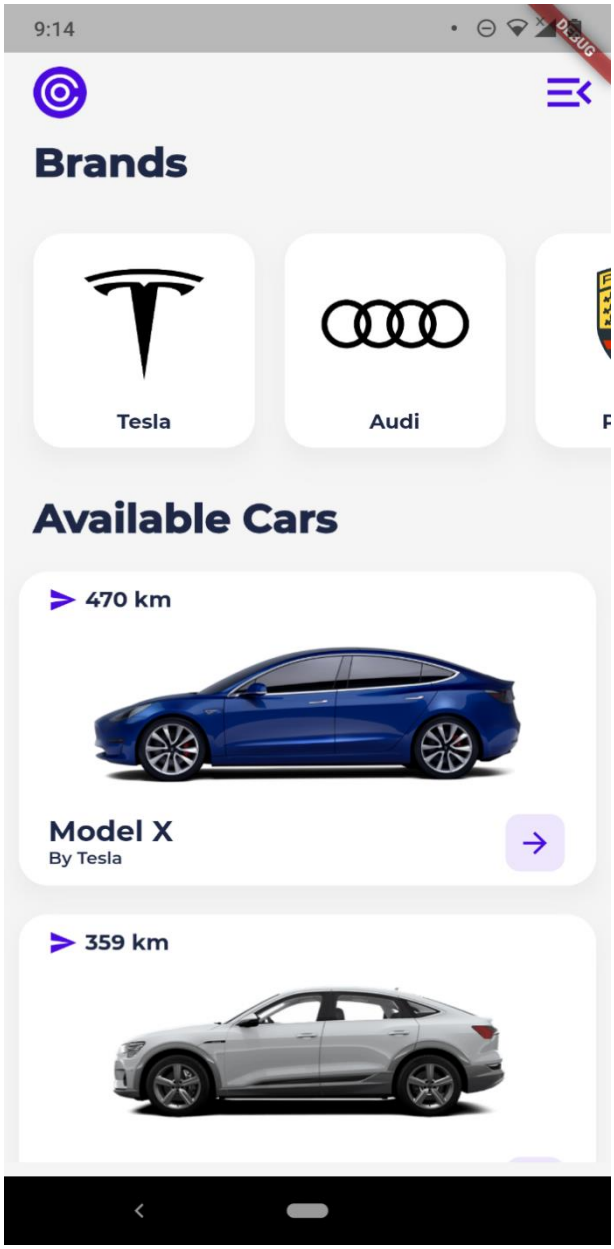
6.3 Sign Up Screen



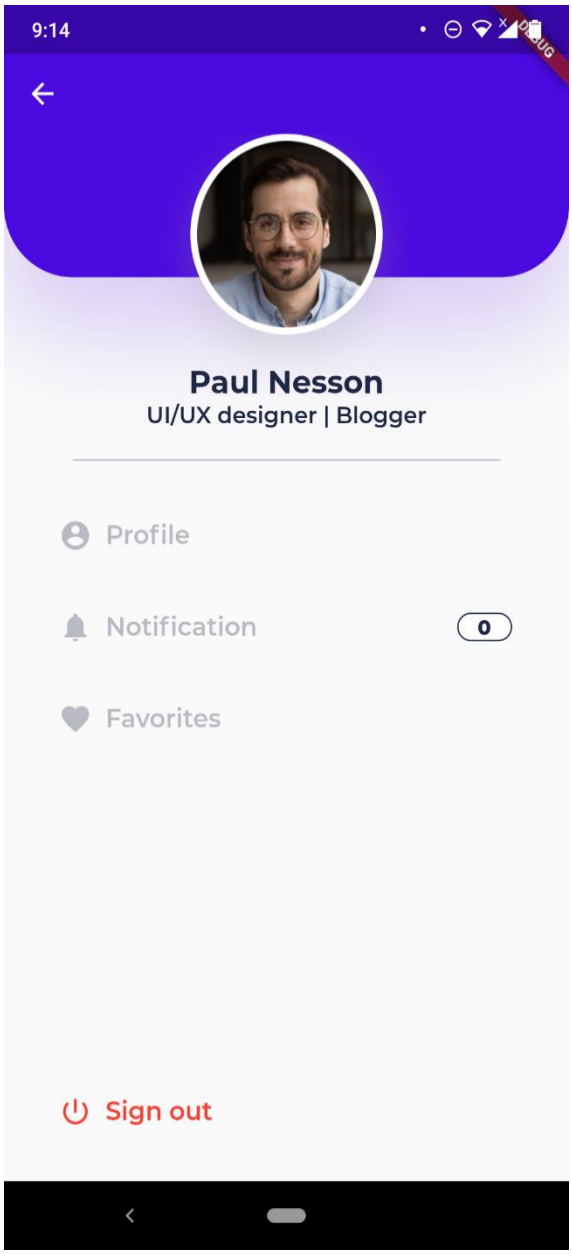
6.4 Sign In Screen



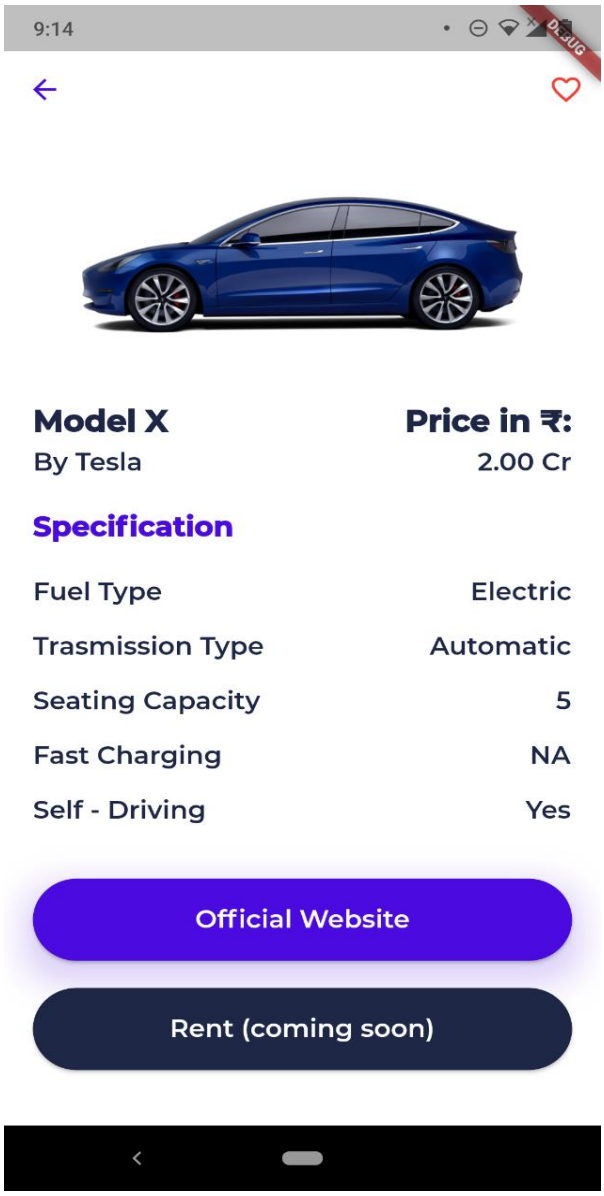
6.5 Home Screen



6.6 Profile Screen



6.7 Car Information Screen



7. CONCLUSION AND FUTURE WORK

7.1 Conclusion

This project was developed to allow users to rent a self driving car and find information on that particular car. The app allows a user to find the different types of cars available for renting such a Audi, Tesla, Mercedes, BMW etc. It also provides the link to the main website of any given car chosen. The users hence can create a profile on their own and have access to renting and travelling through these self driven car. Flutter framework will surely enable a lot of new developers to develop high performance and feature-full mobile application in the near future for applications.

7.2 Future work

- A separate set of screens can be developed for users rent the car by entering their details such as pick up location
- A detailed display of the fair of different cars can be shown.
- An option for the user to pick what type of initial payment he wants to do.
- A confirmation screen to show that the car is on the way along with the location tracker
- Security can be added by providing OTP for each ride for safer and secure transportation.

REFERENCES

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