A

Major ProjectOn

Car(e)Takr

(Submitted in partial fulfillment of the requirements for the award of Degree)

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

By

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CMR TECHNICAL CAMPUS

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the project entitled "**Car(e)Takr**" being submitted by **Satyam Srivastava (187R1A0515), Himanshu Kumar (187R1A0521)** in partial fulfillment of the requirements for the award of the degree of B.Tech in Computer Science and Engineering to the Jawaharlal Nehru Technological University Hyderabad, is a record of bonafide work carried out by him/her under our guidance and supervision during theyear 2021-22.

The results embodied in this thesis have not been submitted to any other Universityor Institute for the award of any degree or diploma.

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Submitted for viva voice Examination held on _____

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Satyam Srivastava (187R1A0515)

Himanshu Kumar (187R1A0521)

ABSTRACT

This project is titled as "Car(e)Takr. Car(e)Takr,is an acolyte for every wheelman looking towards an unblemished car.Car(e)Takr at first hand connects a user to a mechanic without the need of the interceder. This systemin itself is pristine and uses concomitant technologies.Car(e)Takr also provide the basic aid that is needed by the user inorder to introspect the basic faut in the vehicle which may occur. Car(e)Takr also provide the user to pay the bill online after the service is done and also provides with the e copy or the invoiceservice of the bill.Car(e)Takr also helps in connecting the user to the mechanics who are specialized in their respective domains and hence all the services which are provided are very effective andefficient.

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1. INTRODUCTION

1. INTRODUCTION

1.1 PROJECT SCOPE

The scope of this project is an android application prototype for a startup based on solving the above problem, that can be used by the garages and users alike to solve the problem of vehicle breakdown and help ease the process along the way. The application aims at providing a seamless transition between the user and the mechanics without any hassle.

This project is not aiming at owning garages nor hiring any mechanics. It is a medium to connect users with the service providers at the right place at the right time. The actual implementation of the database is not a part of this project. Issues of application security, other than login id and passwords are not in the scope of this project. The implementation of Garage side of the application is not currently in the scope of the project

1.2 PROJECT PURPOSE

Car(e)Takr creates a mediator between the car owners and mechanics (local or company-owned).It provides the ease of access to mechanics to the client anywhere in the country. Also it Creats a huge Consumer - Product relationship. .Car(e)Takr reduces the Hassle of customers to search for the mechanic, whether the vehicle breaks down or it's just a monthly servicing.

1.3 PROJECT FEATURES

The main features of this project are that the it allows the user to connect with the nearby mechanics specialized in their respective fields. It also allows the user to make the payment online and only when the service is provided. Car(e)Takr also tells the user basic solution to their just as a first aid kit.

2. SYSTEM ANALYSIS

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SYSTEM ANALYSIS

System Analysis is the important phase in the system development process. The System is studied to the minute details and analyzed. The system analyst plays an important role of an interrogator and dwells deep into the working of the present system. In analysis, a detailed study of these operations performed by the system and their relationships within and outside the system is done. A key question considered here is, "what must be done to solve the problem?" The system is viewed as a whole and the inputs to the system are identified. Once analysis is completed the analyst has a firm understanding of what is to be done.

2.1 PROBLEM DEFINITION

Today data flows all around us, be it through cables or wirelessly. And the amount of data is only increasing day by day. We as developers are responsible for maintaining all this data and creating more if needed in an organized manner. The car repair industry is mostly dependent on people's interactions and even though we are seeing the onset of Industry 4.0 tools such as AI and IoT being integrated into the system the mechanic still has to physically check a vehicle for faults as users are usually unable to do so and if the car breaks down, the user has to wait for the mechanic to arrive with the correct tools. However, if data about faults can be found from the user's end and conveyed to the nearest eligible mechanic, it speeds up the whole process. This is what we aim to achieve through this project "**Car(e)Takr**".

2.2 EXISTING SYSTEM

The car repair industry is mostly dependent on people's interactions and even thoughwe are seeing the onset of Industry 4.0 tools such as AI and IoT being integrated into the system the mechanic still has to physically check a vehicle for faults as users are usuallyunable to do so and if the car breaks down, the user has to wait for the mechanic to arrive with the correct tools.

2.2.1 LIMITATIONS OF EXISTING SYSTEM

- ➢ Due to manual system it is time consuming process.
- ➢ Need manual inspection.
- ➢ Non specialized mechanics may lead to inappropriate servicing of vehicle.
- ➢ Online mode of payment may not be available.

To avoid all these limitations and make the working more accuratelythe system needs to be implemented efficiently.

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2.3 PROPOSED SYSTEM

The aim of proposed system is to develop a system of improved facilities. The proposed system can overcome all the limitations of the existing system. The existing system has several disadvantages and many more difficulties to work well. The proposed system tries to eliminate or reduce these difficulties up to some extent. The proposed system helps the user to work user friendly and he can easily do his jobs without getting distracted as the proposed system tries to always warn when the users exceeds its daily visit limit on the certain websites.

2.3.1 ADVANTAGES OF THE PROPOSED SYSTEM

The system is very simple in design and to implement. The system requiresvery low system resources and the system will work in almost all configurations.It has got following features

- • Provide customers with direct access to the nearest available mechanic.
- • Freedom of choice to the user.
- • Gives the relevant details of the assigned mechanic.
- • Allow customers to communicate with the assigned mechanic.
- • Allow customers to request a service and cancel the request.

2.4 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study.

is to be carried out. This is to ensure that the proposed system is not a burdento the company. Three key considerations involved in the feasibility analysis are

- Economic Feasibility
- Technical Feasibility
- Social Feasibility

2.4.1 ECONOMIC FEASIBILITY

To develop the application, we don't need to pay a lot of capital. The only place you need to invest your money is when you deploy your project to the Google Play Store. Cost efficiency is one of the main advantage of application, so we can say that it is economically feasible.
The following are some of the important financial questions asked during preliminary investigation:

- The costs to conduct a full system investigation and upload in app store is 25$.

- All the software and hardware used in this application are available free of cost.

Since the system is developed as part of project work, there is no manual cost tospend for the proposed system. Also all the resources are already available, it give an indication of the system is economically possible for development.

2.4.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on theavailable technical resources. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

2.4.3 BEHAVIORAL FEASIBILITY

This includes the following, will the proposed system cause Harm? The project would be beneficial because it satisfies the objectives when developed and installed. All behavioral aspects are considered carefully and conclude.

2.5.1 HARDWARE REQUIREMENTS

Hardware interfaces specifies the logical characteristics of each interfacebetween the software product and the hardware components of the system. The following are some hardware requirements.

Processor	:	i3 2.30 GHz.
Hard disk	:	2 GB and above.
RAM	:	4GB and above.
GPU	:	2GB(optional)

2.5.2 SOFTWARE REQUIREMENTS

Software Requirements specifies the logical characteristics of each interface andsoftware components of the system. The following are some software requirements,

Operating system	:	Windows 7 or later.
Frontend	:	XML
Backend	:	Google Firebase(NoSql), Java, SQLite
IDE	:	Android Studio

3. ARCHITECTURE

3. ARCHITECTURE
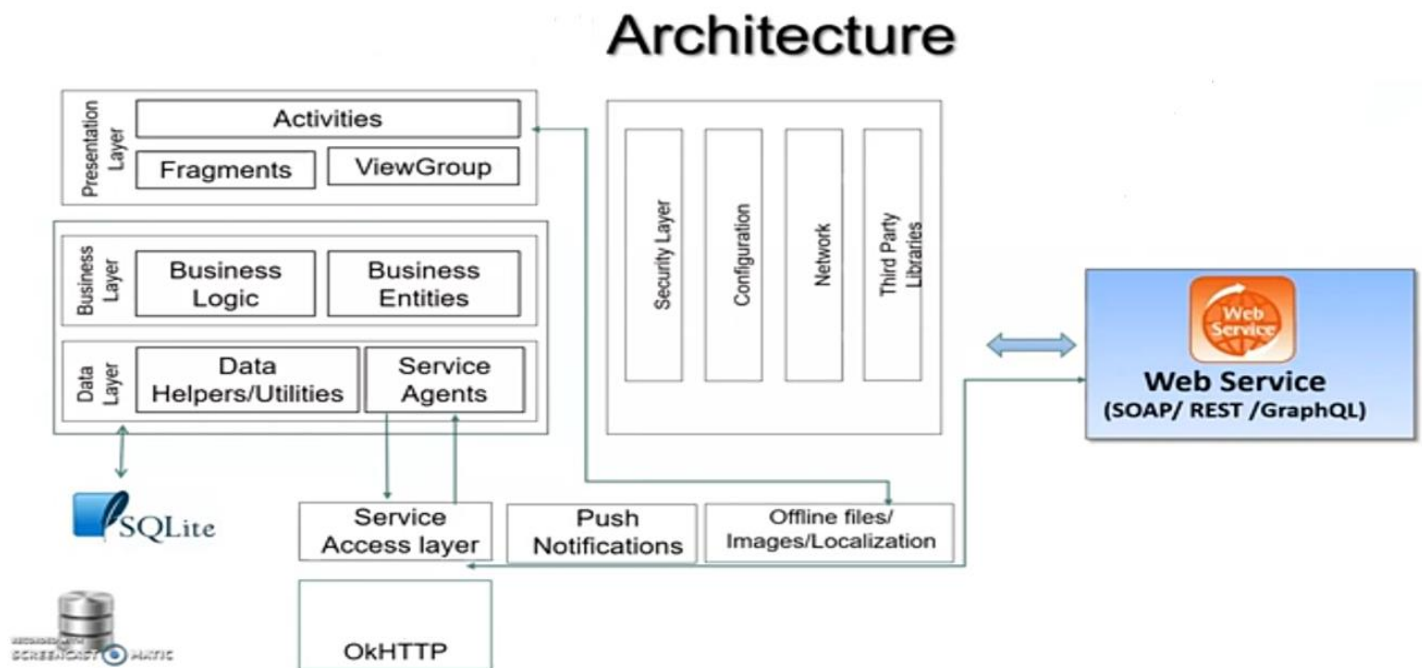
3.1 Architecture of Project

Figure 3.1: Architecture

3.2 USE CASE DIAGRAM
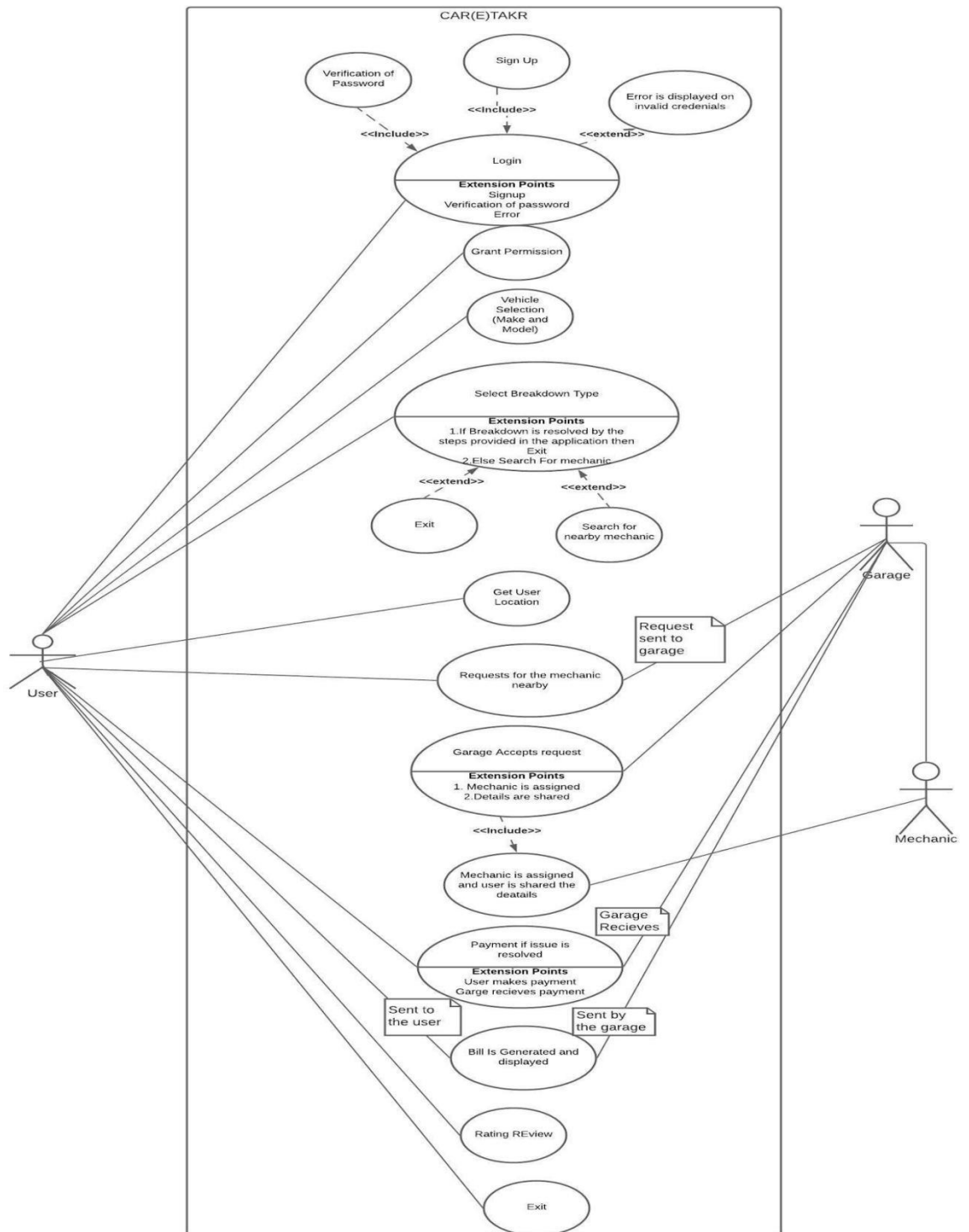
Figure 3.2: Use Case Diagram

3.3 CLASS DIAGRAM

Class diagram is a static diagram. It represents the static view of an application.Class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also forconstructing executable code of the software application.Class diagram describes the attributes and operations of a class and also the constraints imposed on the system.The class diagrams are widely used in the modelling of object oriented systems because they are the only UML diagrams, which can be mapped directly with object-oriented languages.
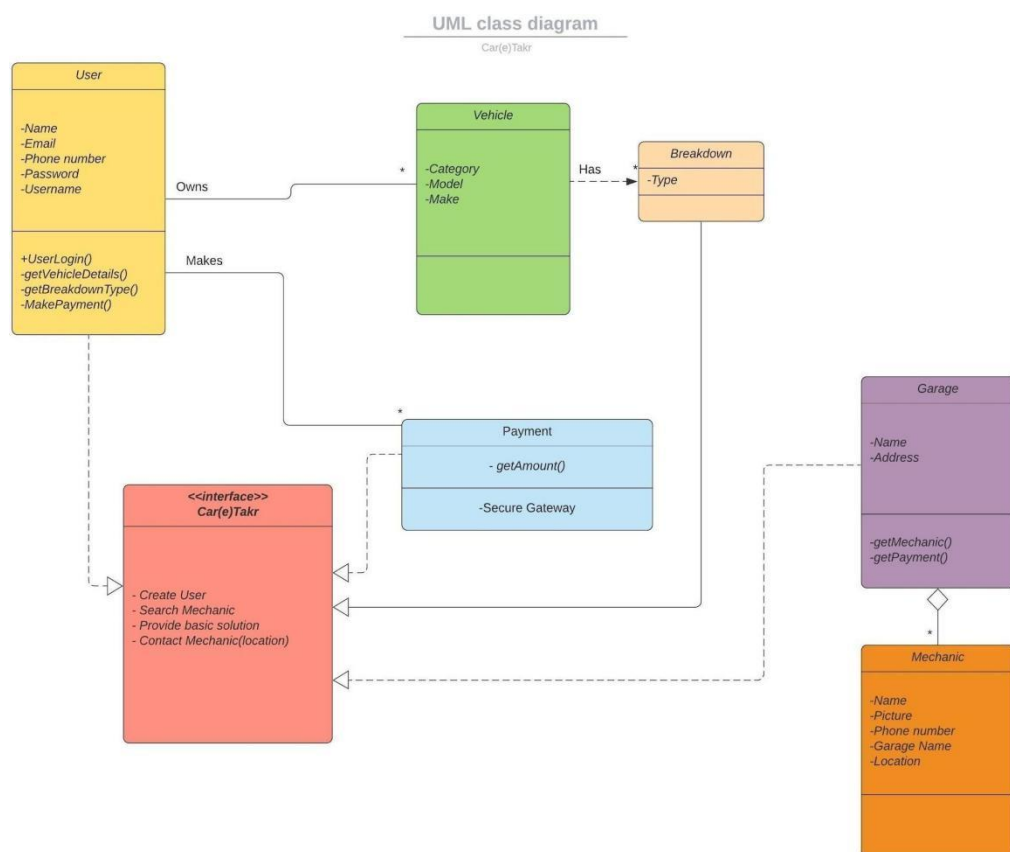
Figure 3.3: Class Diagram for Car(e)Takr

3.4 DATA FLOW DIAGRAM

A data flow diagram shows the way information flows through a process or system. It includes data inputs and outputs, data stores, and the various subprocesses the data moves through. DFDs are built using standardized symbols and notation to describe various entities and their relationships.

DFD Level 2

Figure : 3.4 DFD Diagram

3.5 SEQUENCE DIAGRAM

SEQUENCE DIAGRAM
CAR(E)TAKR

Figure 3.5: Sequence Diagram

4. IMPLEMENTATION

4. IMPLEMENTATION

4.1 SAMPLE CODE

gradle (1).xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<project version="4">
<component name="GradleSettings">
<option name="linkedExternalProjectsSettings">
  <GradleProjectSettings>
   <compositeConfiguration>
    <compositeBuild compositeDefinitionSource="SCRIPT" />
   </compositeConfiguration>
   <option name="distributionType" value="DEFAULT_WRAPPED" />
   <option name="externalProjectPath" value="$PROJECT_DIR$" />
   <option name="resolveModulePerSourceSet" value="false" />
   <option name="testRunner" value="PLATFORM" />
   </option>
  </GradleProjectSettings>
 </option>
</component>
</project>
```
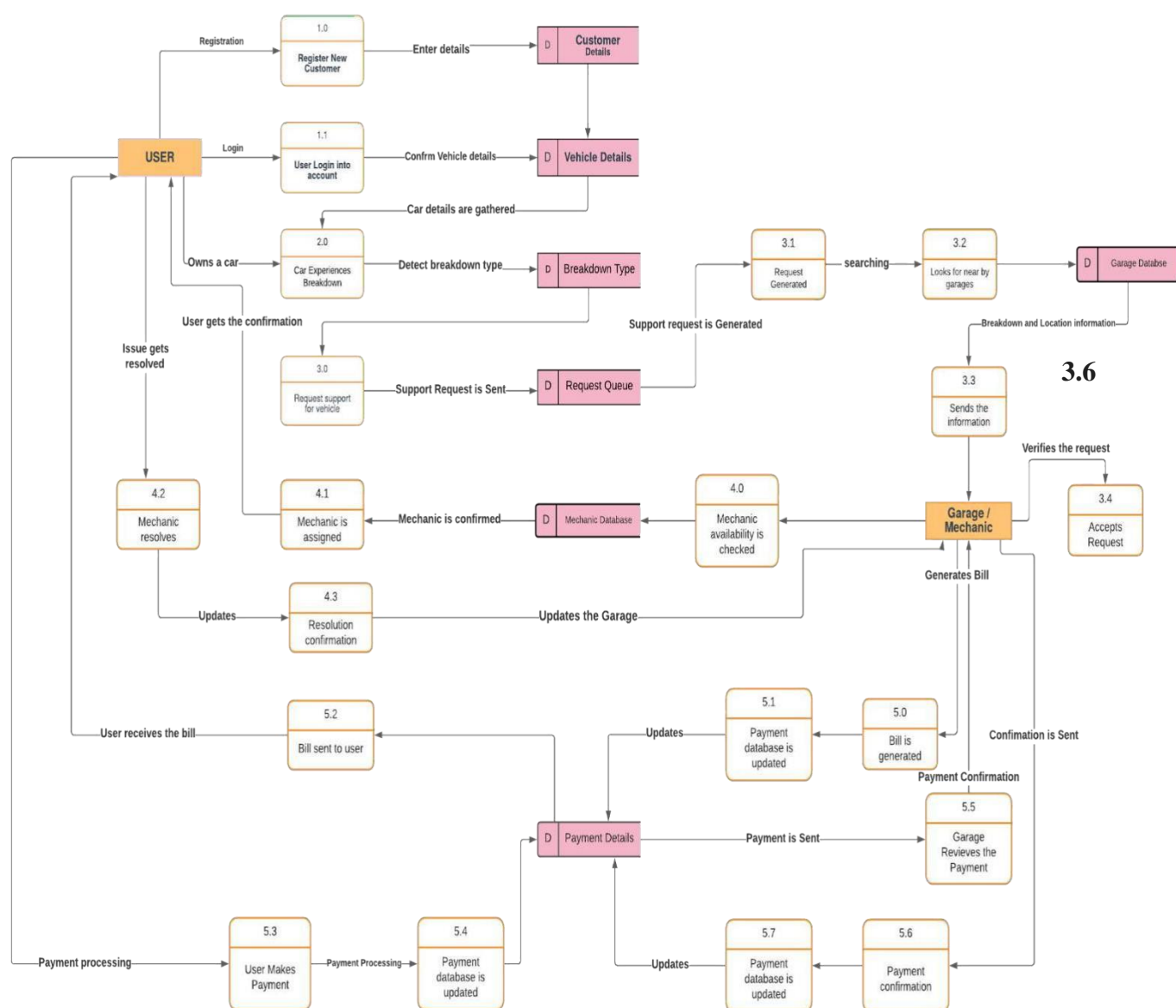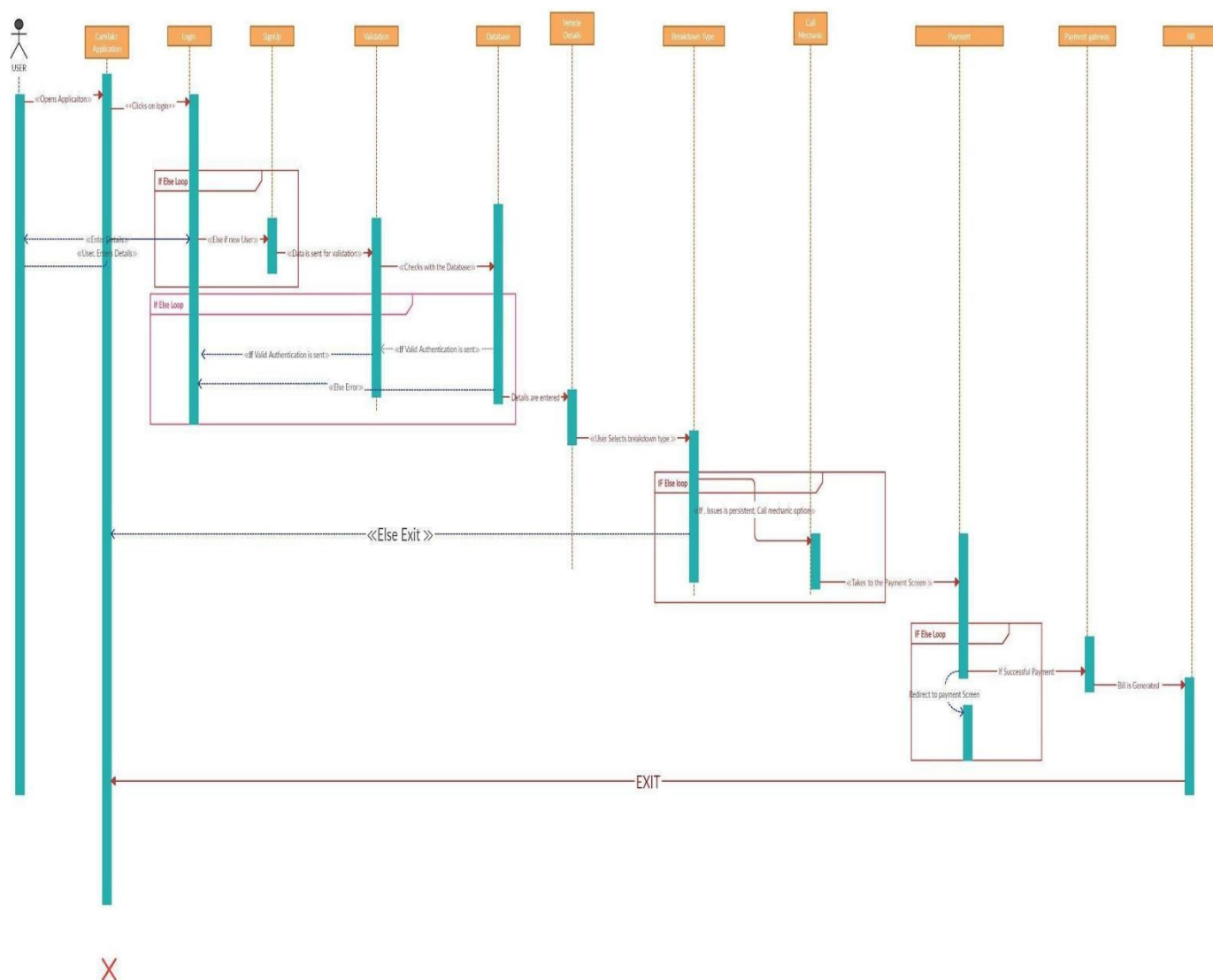
modules (1).xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
 <project version="4">
<component name="ProjectModuleManager">
 <modules>
 <module fileurl="file://$PROJECT_DIR$/MultiScreen.iml"
filepath="$PROJECT_DIR$/MultiScreen.iml" />
 <module fileurl="file://$PROJECT_DIR$/app/app.iml" filepath="$PROJECT_DIR$/app/app.iml" />
 </modules>
 </component>
 </project>
```

AndroidManifest (1).xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.multiscreen">
```

```xml
<!--
   The ACCESS_COARSE/FINE_LOCATION permissions are not required to use
   Google Maps Android API v2, but you must specify either coarse or fine
   location permissions for the 'MyLocation' functionality.
-->
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
<uses-permission android:name="android.permission.INTERNET" />
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.CALL_PHONE" />

  <application
    android:allowBackup="true"
    android:icon="@mipmap/ic_launcher"
    android:label="@string/app_name"
    android:roundIcon="@mipmap/ic_launcher_round"
    android:supportsRtl="true"
    android:theme="@style/AppTheme">
    <activity android:name=".bhimscreen"></activity>
    <activity android:name=".paytmscreen" />
    <activity android:name=".gpayscreen" />
    <activity android:name=".BottomSheet" />
    <activity android:name=".BillDisplay" />
    <activity android:name=".IssueResolved" />
    <activity android:name=".Creditcard" />

    <meta-data
       android:name="com.google.android.geo.API_KEY"
       android:value="@string/google_maps_key" />

    <activity
       android:name=".MapsActivity2"
       android:label="@string/title_activity_maps2" />
    <activity android:name=".Location_pune" />
    <activity android:name=".SideMenu" />
    <activity android:name=".payment_succesful" />
    <activity
       android:name=".punelocation"
       android:label="@string/title_activity_punelocation" />
    <activity android:name=".Exitt" />
    <activity android:name=".car_no_starting" />
    <activity android:name=".smoke_hood" />
    <activity android:name=".Ytvideo" />
    <activity android:name=".Database" />
    <activity android:name=".dbref" />
    <activity android:name=".Random" />
    <activity android:name=".datafetch" />
    <activity android:name=".spinnerMake" />
```

```xml
    <activity android:name=".Ratings" />
    <activity android:name=".Mechanicdetails" />
    <activity android:name=".servicing" />
    <activity android:name=".Servicingorbreakdown" />
    <activity
```

```
                android:name=".MapsActivity"
                android:label="@string/title_activity_maps" />
            <activity android:name=".Calling" />
            <activity android:name=".Map" />
            <activity android:name=".Payment" />
            <activity android:name=".smoke_hodd" />
            <activity android:name=".mech_calling" />
            <activity android:name=".call_mechanic" />
            <activity android:name=".car_no_start" />
            <activity android:name=".oil_leak" />
            <activity android:name=".flat_tyre" />
            <activity android:name=".Issue2" />
            <activity android:name=".Issue1" />
            <activity android:name=".MakeandModel" />
            <activity android:name=".login" />
            <activity android:name=".newAcc" />
            <activity android:name=".Facebook" />
            <activity android:name=".Google" />
            <activity android:name=".MainActivity">
                <intent-filter>
                    <action android:name="android.intent.action.MAIN" />

                    <category android:name="android.intent.category.LAUNCHER" />
                </intent-filter>
            </activity>

            <meta-data
                android:name="com.razorpay.ApiKey"
                android:value="@integer/google_play_services_version" />
            <meta-data
                android:name="com.google.android.gms.version"
                android:value="@integer/google_play_services_version" />
            <meta-data
                android:name="preloaded_fonts"
                android:resource="@array/preloaded_fonts" />
        </application>

</manifest>
```

google-services.json

```
{
  "project_info": {
    "project_number": "285584894612",
    "firebase_url": "https://multiscreen-7a09c.firebaseio.com",
    "project_id": "multiscreen-7a09c",
    "storage_bucket": "multiscreen-7a09c.appspot.com"
  },
```

```
  "client": [
    {
      "client_info": {
        "mobilesdk_app_id": "1:285584894612:android:6eaff8a809e3c51c20e281",
        "android_client_info": {
```

```
    "package_name": "com.example.multiscreen"
   }
  },
  "oauth_client": [
   {
    "client_id": "285584894612-hj0ju2epp0gntdvegfrfj34fstvp9nfd.apps.googleusercontent.com",
    "client_type": 1,
    "android_info": {
     "package_name": "com.example.multiscreen",
     "certificate_hash": "38d8ad665abb3afa29282aae50761c1713af6b49"
    }
   },
   {
    "client_id": "285584894612-8n9keofb2r9jfrcrh8luajg1b5ua6ujv.apps.googleusercontent.com",
    "client_type": 3
   }
  ],
  "api_key": [
   {
    "current_key": "AIzaSyBzKe4LVmg7tMdPUwzT2keql18z045qSqQ"
   }
  ],
  "services": {
   "appinvite_service": {
    "other_platform_oauth_client": [
     {
      "client_id": "285584894612-8n9keofb2r9jfrcrh8luajg1b5ua6ujv.apps.googleusercontent.com",
      "client_type": 3
     }
    ]
   }
  }
 }
 ],
 "configuration_version": "1"
}
```

runConfigurations (1).xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<project version="4">
 <component name="RunConfigurationProducerService">
  <option name="ignoredProducers">
   <set>
    <option
 value="org.jetbrains.plugins.gradle.execution.test.runner.AllInPackageGradleConfigurationProducer" />
    <option
 value="org.jetbrains.plugins.gradle.execution.test.runner.TestClassGradleConfigurationProducer" />
```

```xml
    <option
 value="org.jetbrains.plugins.gradle.execution.test.runner.TestMethodGradleConfigurationProducer" />
   </set>
  </option>
 </component>
```

</project>

5. SCREENSHOTS

5.1 LOGIN

Fig 5.1: Login

5.2 CREATE ACCOUNT

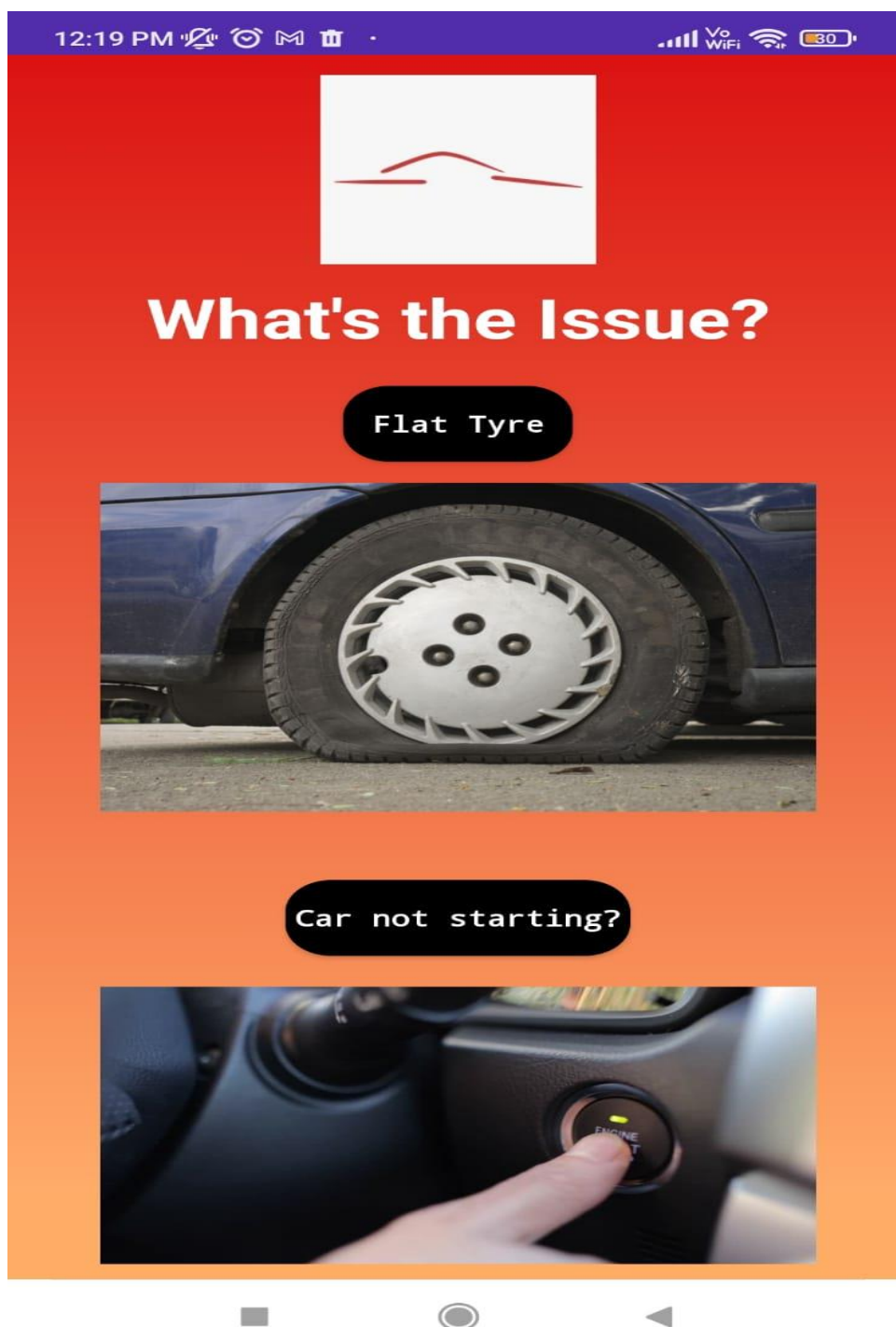Fig 5.2: Create Account

5.3 TYPE OF ISSUE

Fig 5.3 : Type of Issue

5.4 ASSIGNED MECHANIC

Fig 5.4 : Assigned Mechanic
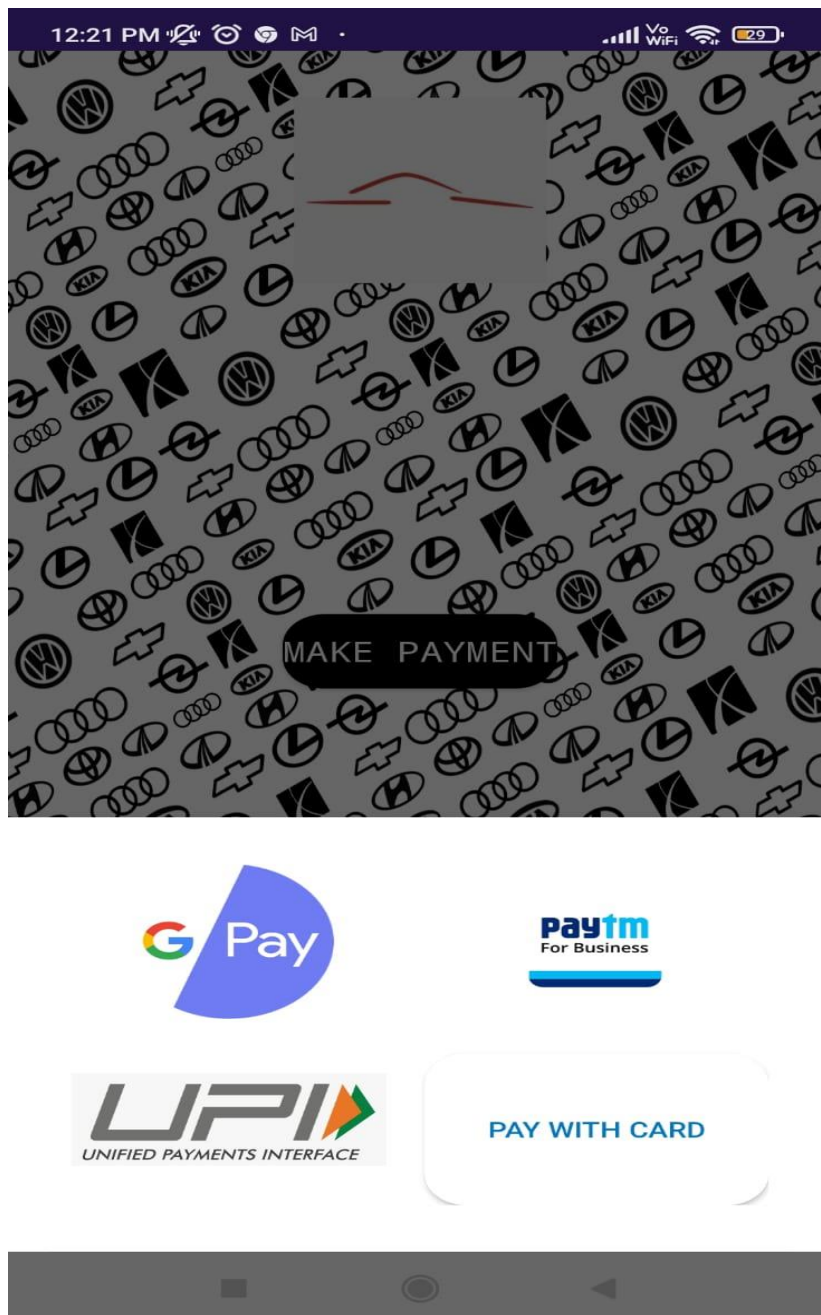
5.5 PAYMENT GATEWAY

Fig 5.5 Payment Gateway

6. TESTING

6.1 INTRODUCTION TO TESTING

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

6.2 TYPES OF TESTING

6.2.1 UNIT TESTING

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

6.2.2 INTEGRATION TESTING

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

6.2.3   FUNCTIONAL TESTING

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions   : identified functions must be exercised.
- Output   : identified classes of application outputs must be exercised.
- Systems   : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes.

6.3 TEST CASES

6.3.1 LOGIN

Login Activity	A user Login to the System to Access the functionality of the system Options are 1. Gmail
	                2. Facebook
	                3. Traditional Methods

Actors	Anybody who has the application
Trigger	Selection
Pre- Condition	The system should be connected to the network
Alternate Activity	If a user is a new user then he/ she can register by clicking on the Signup activity
Post- Condition	If the user is successfully authenticated he/she can enter the application
Extension of Post- Condition	Else, if the Login Credentials are incorrect then an Error is displayed

TABLE 6.1 : Login

6.3.2 SIGNUP

SignUp Activity	A new user has to register with the application, before using the complete functionalities of the application. He/She needs to enter the following details 1. Name 2. Contact number 3. Username 4. email 5. Password
Actors	Anybody who has the application
Trigger	Selection
Pre- Condition	The system should be connected to the network
Alternate Activity	If a user is an existing user then he/ she can log in by clicking on the **Login** activity
Post- Condition	If the user is successfully authenticated he/she can enter the application
Extension of Post-Condition	Else, if the Login Credentials are incorrect then an Error is displayed

TABLE 6.2 :Sign Up

6.3.3 SELECT VEHICLE

Select Vehicle Activity	Now the user has to select the make and model of the vehicle so that his/her details will be incorporated into our database
Actors	Anybody who has the application
Trigger	Selection through a drop-down menu generated by the application
Pre- Condition	The system should be connected to the network & Successfully logged in along with granting access to all the permissions
Activity	The user Selects the Make and model of his/her vehicle
Post-Condition	The user is taken to the breakdown screen.

TABLE 6.3 : Select Vehicle

6.3.4 BREAKDOWN

Breakdown Activity_1	In this activity, the user gets a list of common vehicle breakdown types experienced in the day- to - day life. In our application User can see 4 common types of breakdown cases 1. Flat tyre 2. Engine Oil Leak 3. Car not starting 4. Smoke under the Hood The user can click on any of these methods and a step- by-+ step solution guide will be in front of them. The user may/ may not choose to follow that. If the solution is solved with the step - by - step solutions then the user can exit the application
Alternate Activity	The application provides the facility to search for nearby mechanics using the live location of the user.
Actors	Anybody who has the application
Trigger	Select one through a choice of 4 available options
Pre- Condition	The system should be connected to the network & Successfully logged in along with granting access to all the permissions.
Post Condition	Else, The application looks for the nearby mechanics and displays the list of available mechanics in the vicinity.

TABLE 6.4 : BreakDown

6.3.5 REQUEST MECHANIC

Request for mechanic nearby	This activity shows up when the user wants the application to search for the nearby mechanic & the application determines their location
Actors	Anybody who has the application
Trigger	Selection
Pre- Condition	The system should be connected to the network & Successfully logged in along with granting access to all the permission

TABLE 6.5 : Request Mechanic

6.3.6 PAYMENT

Payment Activity	Once the user is assigned a mechanic, and the issues are resolved with the vehicle. The application provides the user with the total Bill and flexibility of choosing multiple options to pay the mechanic via the application. They include
	1. Electronic payment
	    a. Bhim
	    b. GooglePe
	    c. Paytm
	2. Credit/Debit Card

Actors	Anybody who has the application
Trigger	Selection
Pre- Condition	System should be connected to the network & Successfully logged in along with granting access to all the permissions. The issue should be properly resolved.
Postcondition A. B.	The user will receive a Bill if the payment is completed successfully If the payment is unsuccessful then the user is redirected to the payment screen again.

TABLE 6.6 : Payment

7. CONCLUSION

7. CONCLUSION & FUTURESCOPE

7.1 PROJECT CONCLUSION

Car(e)Takr is the android application which helps the users to connect with their nearest mechanics depending upon their vehicle issues and also allows them to choose the payment method to the mechanic

It can be either online payment or the payment upon servicing. Users can select the mechanics depending upon their ratings. Car(e)Takr also helps the users in identifying their vehicle problems if they are unfamiliar with it.

Consider a situation where a user's car somehow ends up breaking down in the middle of nowhere! The user might try fixing the issue himself or even call the service center but still, this would take up a lot of time! . Car (e) Takr aids people in such a situation by looking for mechanics in local garages and assigning a mechanic to the user. The mechanic would know the issue before hand and that will increase the chance of the issue getting resolved on spot.

7.2 FUTURE SCOPE

Proper Integration Of Payment retrieval is not feasible without premium membership of the respective payment gateways. In future we can buy the premium membership of different payment gateways to properly integrate the payment option in our Android application.

Integration of Google Maps API also requires a Google Cloud Platform Blaze account requiring payment.

We can buy the Google Cloud Platform Blaze account to enhance our App.After these two things are done we can also upload this app on Google Play Store .

8. BIBILOGRAPHY

8.BIBILOGRAPHY

8.1 WEBSITES REFERENCES

❖ S. S. Jagtap and D. B. Hanchate, "Development of Android Based Mobile App for PrestaShop eCommerce Shopping Cart (ALC)," *International Research Journal of Engineering and Technology (IRJET),* vol. 4, no. 7, pp. 2248–2254 , Jul. 2017.

❖ Kathuria and A. Gupta, "Challenges in Android Application Development: A Case Study" *International Journal of Computer Science and Mobile Computing*, vol. 4, no. 5, pp. 294–299, May 2015.

❖ L. Ma, L. Gu, and J. Wang, "Research and Development of Mobile Application for Android Platform," *International Journal of Multimedia and Ubiquitous Engineering*, vol. 9, pp. 187–198, 2014.

❖ M. Q. Huynh and P. Ghimire, "Browser App Approach: Can It Be an Answer to the Challenges in Cross-Platform App Development?" *Journal of Information Technology Education: Innovations in Practice*, vol. 16, pp. 047–068, 2017.

❖ Android Studio Guide: https://developer.android.com/courses/advanced-training/overview

❖ Geeks For Geeks: https://www.geeksforgeeks.org/6-weeks-of-android-app-development-free-project-based-learning/

❖ Lucid Chart: https://www.lucidchart.com/pages/

❖ YouTube: https://www.youtube.com/watch?v=_TgrWBZ40cs&feature=youtu.be