Mini Project Report on

"CAR FIXZ"

submitted in partial fulfillment of the requirements for the award of the degree of

BACHELOR OF ENGINEERING

(Computer Engineering)

By

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UNDER THE GUIDANCE OF

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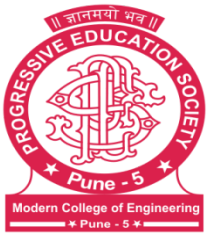
Department of Computer Engineering

PES's Modern College of Engineering, Pune-05

2020-2021



Department of Computer Engineering

Progressive Education Society's
Modern College of Engineering, Shivajinagar, Pune-05

CERTIFICATE

This is to certify that the project entitled

"CAR FIXZ"

Submitted by

Adesh Oak Roll No.: 39046

Bhavik Ransubhe Roll No.: 39055

Rithvik Poojary Roll No.: 39053

is a bonafide account of the work done by him/her under our supervision.

Project Guide/Internal Examiner **HOD**

Ms. M. C. Petare **Prof. Dr. Mrs. S.A. Itkar**

External Examiner

Acknowledgment

I take this opportunity to express my profound gratitude and deep regards to my guide Ms. Manisha Petare for her exemplary guidance, monitoring and constant encouragement throughout the course of this project. The blessing, help and guidance given by her from time to time shall carry me a long way in the journey of life on which I am about to embark.

I also take this opportunity to express a deep sense of gratitude to Prof. Dr. Mrs. S. A. Itkar (Head of Department) for her cordial support, valuable information and guidance which helped me in completing this task through various stages.

I am obliged to staff members of PES MCOE, for the valuable information provided by them in their respective fields. I am grateful for their cooperation during the period of my assignment.

Lastly, I thank almighty, my parents and my classmates for their constant encouragement without which this assignment would not have been possible.

Abstract

The real power of this Android application lies not in the direct selling of products, but in the creation of tighter relationship with the customers and delivering a satisfactory level of service and support,which in turn improves organizations sales and goodwill.A service organization is a business entity that takes care of servicing a customer's possession in the after sales domain. As the number of customers and size of operation increases,the organization divides the geographical areas and branch location,to allow Engineers to be more keen on customer needs and we, from this APP, connect you with these services centre's irrespective of your Car Brand.

Mobile Car Services is one of the features in the automobile industry that lets you find the centres from the application. End Users need to register in the application and then these customers can schedule their car servicing at their own priority times. The aim of the study is to propose an Android Based Application to bring the service centres and customers on one platform.

Table of Content

1.Introduction:

Timely maintenance is of prime concern for car owners. They spend hours finding the best garage & getting their car repaired. Car maintenance apps help to reduce this search time and identify the best garages near you.

Our project “Car Fixz” is an android application that focuses on getting together a few necessary features related to car servicing appointment booking , shopping for car accessories and seeking for roadside assistance whenever a user is stuck somewhere. The app uses various android functionalities , firebase functionalities.

App Features

- Simple and easy interface
- Instant repair cost estimates
- Providing best quality car accessories
- Emergency roadside assistance service
- No third-party ads.
- 24/7 technical support.

2.Objectives:

With increasing jobs,income and population the use of cars all over the world has increased largely in the past few years. The increased use of cars creates increased requirements for

- car maintenance ,
- car accessories and
- vehicle related assistance.

Thus, our project's main objective is to bring all these three together under one module and fulfil user needs through one android application.

3.Methodology:

Our effective app development process flow spans over five key phases. In this report, we'll take a closer look at each one in-depth .

1) Strategy

The first phase of our mobile app development process was defining the strategy for evolving our idea into a successful app. Our app's objectives have an app-specific impact to the mobility strategy to address during the development process.

In this phase, we have:

- Identified the app users - car owners
- Researched the competition - on play store
- Established the app's goals and objectives - what's missing in the system , finding loopholes etc .
- Selected a mobile platform for our app - for android users .

2)Analysis and Planning

At this stage, our app's idea started taking shape and turned into an actual project. Analysis and planning begin with defining use cases and capturing detailed functional requirements.

After we have identified the requirements for our app, we prepared a product roadmap. This included prioritizing the mobile app requirements and grouping them into delivery milestones.

Part of the planning phase includes identifying the skills needed for your app development initiative. For example, iOS and Android mobile platforms use different

development technology stacks. But in our case, we had chosen the Android platform since we had knowledge about Android development.

Mobile app names are like domain names and have to be unique within each app store. Research each app store ensuring your app's name isn't already in use! After doing research, we landed up on 'Car Fixz' which was unique and catchy.

3)UI / UX Design:

The purpose of our app's design is to deliver seamless and effortless user experiences with a polished look , your app must have intuitive user experiences to keep app users' engaged.

> Style Guide

Style guides are "living documents" where an app's design standards from your company branding rules down to the navigation icons, are documented.

Style guides include:

- We tried to keep the same font size for all titles and texts throughout the app , which makes the app look clean and neat .
- Having a decent and same color scheme throughout the app , we have chosen white and black combinations .
- We tried to create an attractive logo for our brand .

4)App Development

Planning remains an integral part of this phase in the mobile app development process. Before actual development/programming efforts start, we :

- define the technical architecture,

- pick a technology stack, and
- define the development milestones.

A typical mobile app project is made up of three integral parts: back-end/server technology, API(s) and the mobile app front-end.

We developed this app in three different phases according to the three main functionalities provided by this app:

Phase 1: Servicing Appointment Booking Module

In this phase , we designed the garage view activity , all the forms for appointment booking for each garage , a map activity for locating garages (to provide user ease for choosing a particular garage according to his/her convenience).

We also added Firebase connectivity and in turn ensured that the user credentials and appointment details were stored and updated in the realtime database in Firebase.

Phase 2: Car Accessories Shop Module

Here we designed and developed the accessories shopping module for buying the car accessories online . There are two pathways in this flow:

1. User can search for his car by selecting his car brand and the car model
2. User can view products for all the cars

For this, we used the Model View ViewModel (MVVM) architecture . The product images were stored and retrieved from Firebase storage . We made use of data binding , view binding and live data for making the app more dynamic and adding to the user experience at the same time reducing the application size and repetitive coding.

Phase 3: Roadside Assistance Module

In this module , we developed a functionality for user to select the nearest city from where he/she is stuck at and we provide them with a helpline number for required roadside assistance .

Back-End/Server Technology:

The main part in online reservation is real time updates. So the realtime database is an absolute choice. It provides the real time status of appointments booked by a user, shopping orders placed by a user . From authenticating the user to providing all necessary facilities, the back end server is required. So we used the Firebase Development tool. Firebase provides all necessary facilities such as user authentication on almost all platforms like FB and Twitter which are good social media platforms to increase market reach. So it keeps track of users ,along with verification and validation of the data entered by the user. The main part required is storage of user information right from validation (login and signup authentication) to user's booked servicing appointments , shopping orders placed by a user which became easier due to use of Firebase Database. It provides SQL and NoSQL queries and inbuilt methods to store and retrieve the data very easily.

API

An Application Programming Interface (API) is a method of communication between the app and a back-end server/database. We have made use of a "Map API" for the maps activity which we use for allowing users to locate the garages.

Mobile App Front-End:

The front-end is the native mobile app an end-user will use. In most cases, mobile apps consist of interactive user experiences that use an API and a back-end for managing data. In some cases, when an app needs to allow users to work without internet access, the app may utilize local data storage.

Android apps are primarily built using Java or Kotlin. We have used Java in Android Studio IDE

There is more than one programming language and technology stack for building mobile apps —the key is picking a technology stack that is best suited for our mobile app and we found that key.

Mobile technologies advance much faster with new versions of mobile platforms. Furthermore, new mobile devices are released every few months. With platforms and devices rapidly changing, agility is essential for building mobile apps within timelines and budgets. If time-to-market is a priority, use an agile development approach. This approach supports frequent software releases with completed functionality. Defining development milestones as part of the agile development plan supports developing your mobile application in iteration.

As each development milestone completes, it is passed on to the app testing team for validation.

5)Testing

Performing thorough quality assurance (QA) testing during the mobile app development process makes applications stable, usable, and secure. To ensure comprehensive QA testing of our app, we first prepared test cases that address all aspects of app testing.

Similar to how use cases drive the process of mobile app development, test cases drive mobile app testing. Test cases are for performing test steps, recording testing results for software quality evaluation, and tracking fixes for retesting. A best practice approach is involving your QA team in the Analysis and Design stages. The familiarity with our app's functional requirements and objectives will help produce accurate test cases.

Our app should undergo the following testing methods so that it delivers a quality mobility solution.

1) User Experience Testing
2) Functional Testing
3) Performance Testing
4) Security Testing
5) Device and platform testing.

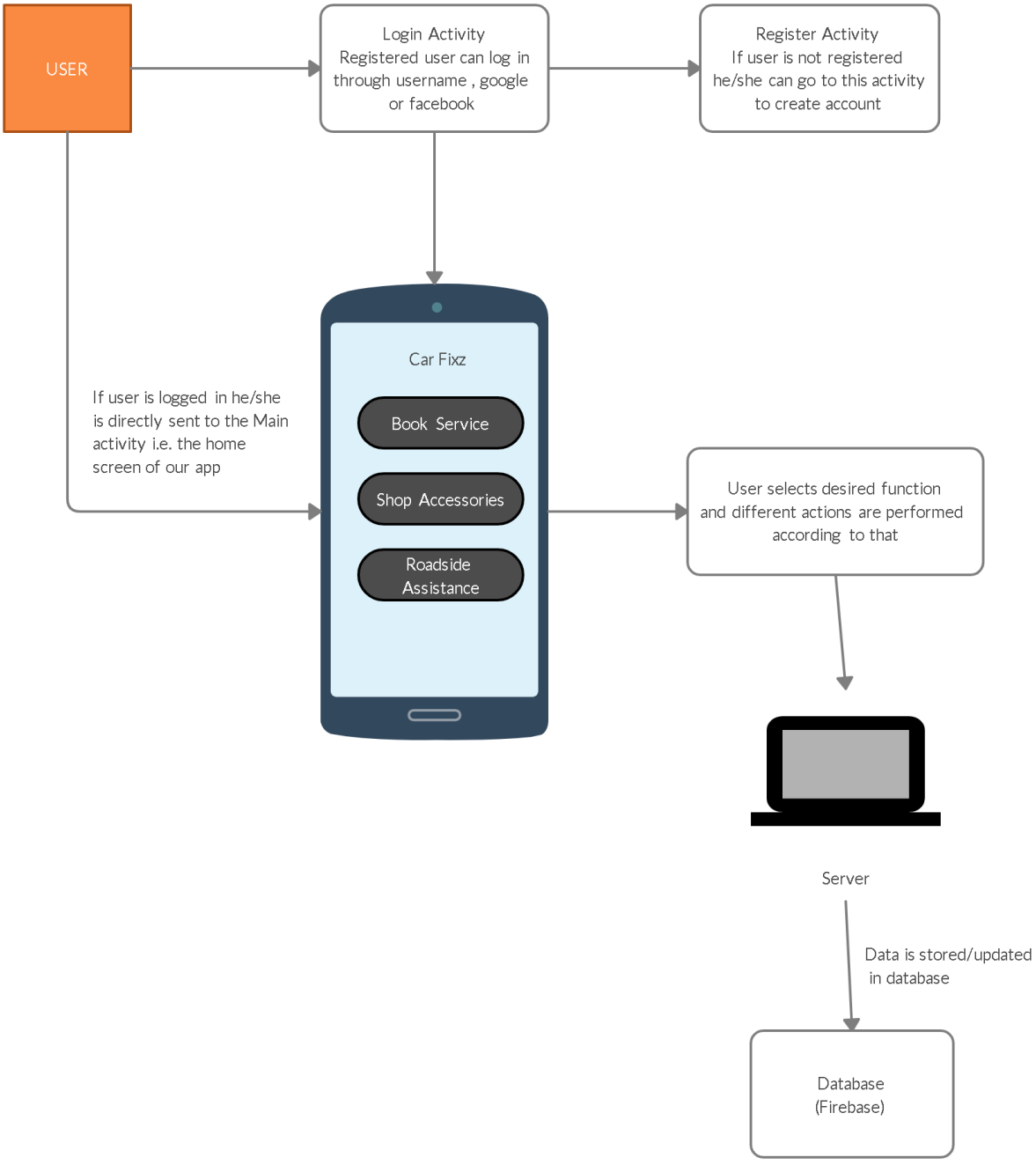
4.Software Requirements:

Android Studio 3.6 or higher .

Hardware Requirements:

PC/Laptop with min 4GB RAM , 1TB HDD , Intel Core Processor i5 .

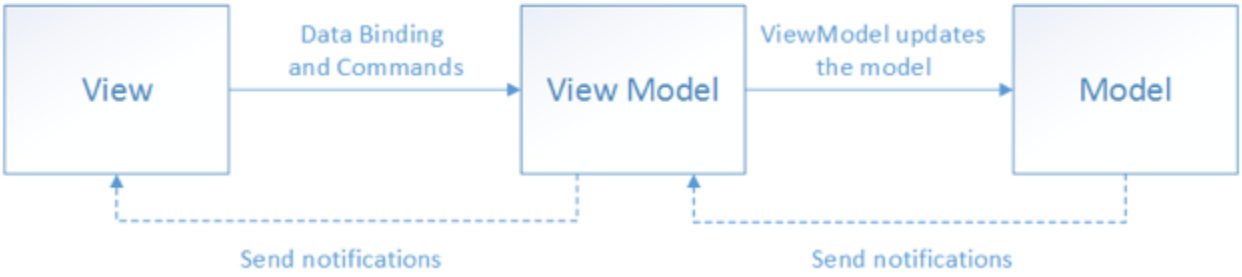
5.Implementation Details:


USER
Login Activity
Registered user can log in through username , google or facebook
Register Activity
If user is not registered he/she can go to this activity to create account
If user is logged in he/she is directly sent to the Main activity i.e. the home screen of our app
Car Fixz
Book Service
Shop Accessories
Roadside Assistance
User selects desired function and different actions are performed according to that
Server
Data is stored/updated in database
Database
(Firebase)

Our app ‘Car Fixz’ follows a FCM service which stands for **F**irebase **C**loud **M**essaging. It is a free mobile notification service by Google that enables (third-party) app developers to send notifications from GCM (Google Cloud Messaging) servers to their users.

Flow diagram of our Application which overviews our database handler for the admin(Here, App and Garage Owners) as well as the client(Here, the user).

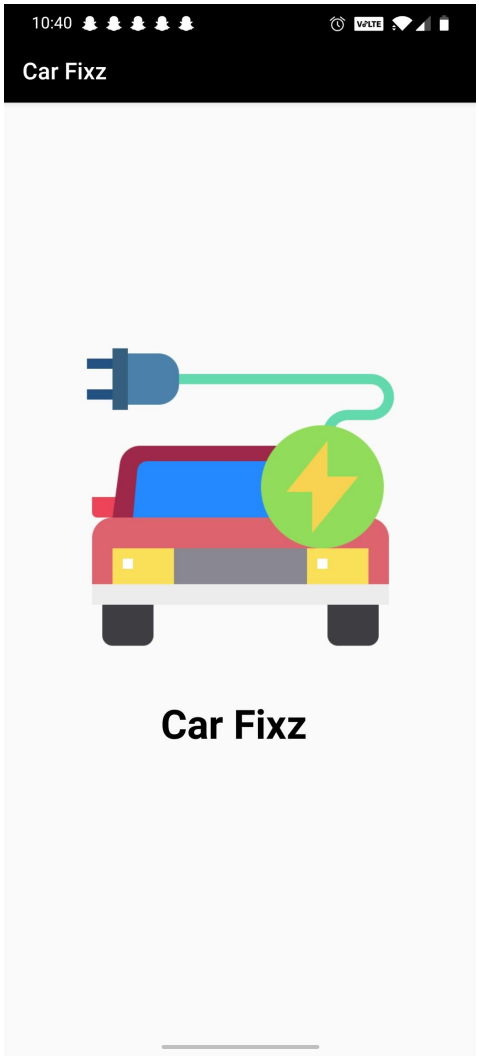
We have used MVVM architecture for our accessories shopping module which helps us to dynamically change the data shown on the app giving user a better functionality experience.



Here are the screenshots of our app :-

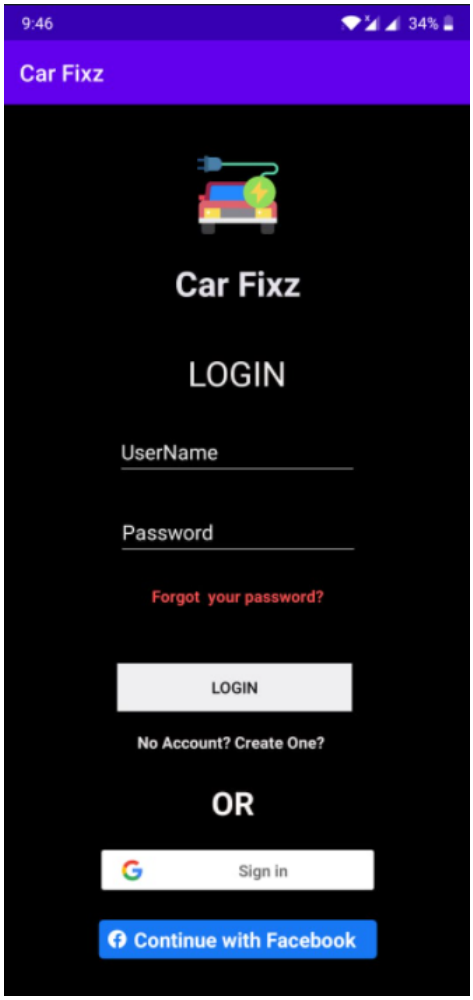
1.Splash screen:-

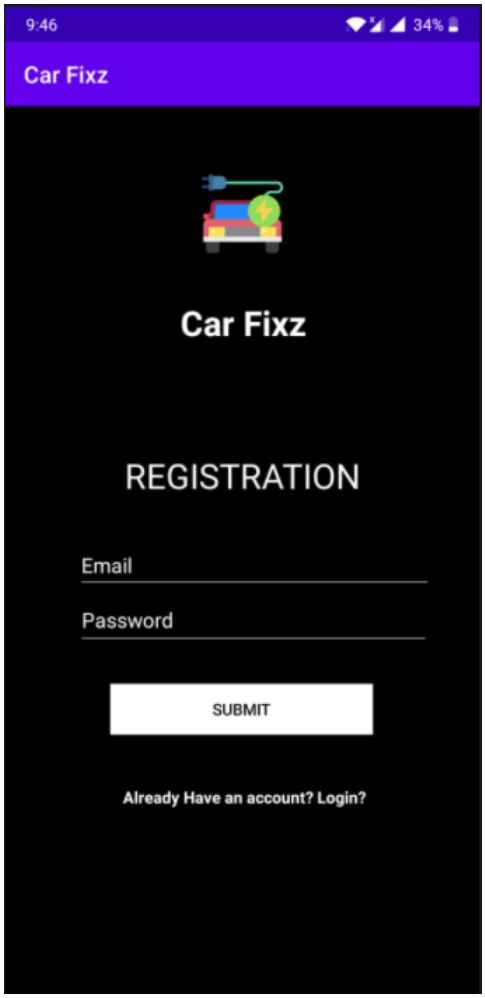
A splash screen of 3 sec gets displayed



2)Login and Registration Activity:-

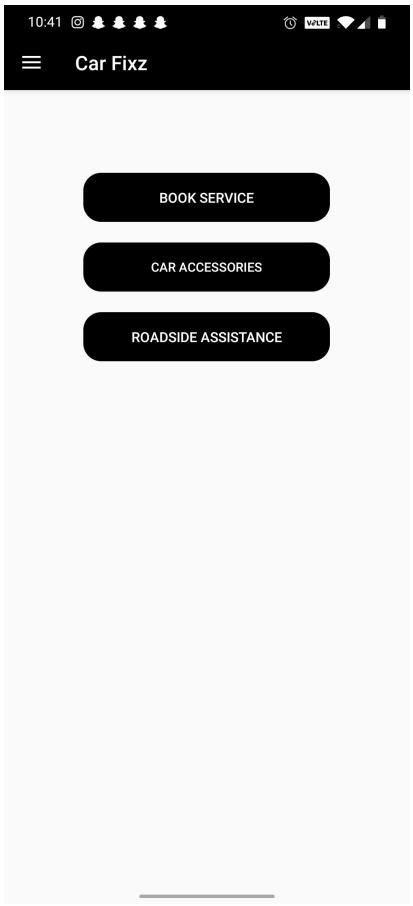
We provide login options with social media accounts , email as well as username and password.

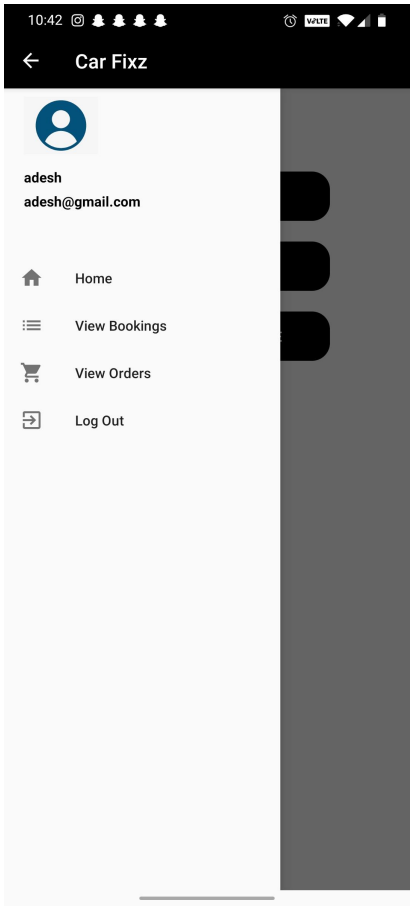




3)Home Page and navigation bar :-

This activity’s provides app functionalities





4)Book service:-

View Garages on map , select a garage , Fill in information of car select date and appointment slots , provide complaints suggestions . Get booking confirmation .

10:42

Car Fixz

A1 Garage
Garage1 description

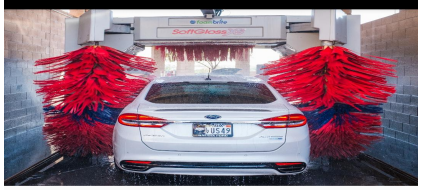
Om Service Center
Garage2 description

Sai Service
Garage3 description

LOCATE GARAGES

10:42

Car Fixz



A1 Garage

Address:

Shop No.2, Plot No. 8, Mahatma Gandhi Wasahat, Old Pune Mumbai Road, Baluchi Vasti, Shivajinagar, Pune, Maharashtra 411005

User Ratings:

GO FOR BOOKING!

10:43

Car Fixz

A1 GARAGE

CUSTOMER NAME

Adesh Oak

VEHICLE REGISTRATION NUMBER

MH12 HF 4596

VEHICLE BRAND

BMW

VEHICLE MODEL

5 Series

CONTACT NO.

5555444478

NEXT

10:43

Car Fixz

A1 GARAGE

SELECT DATE

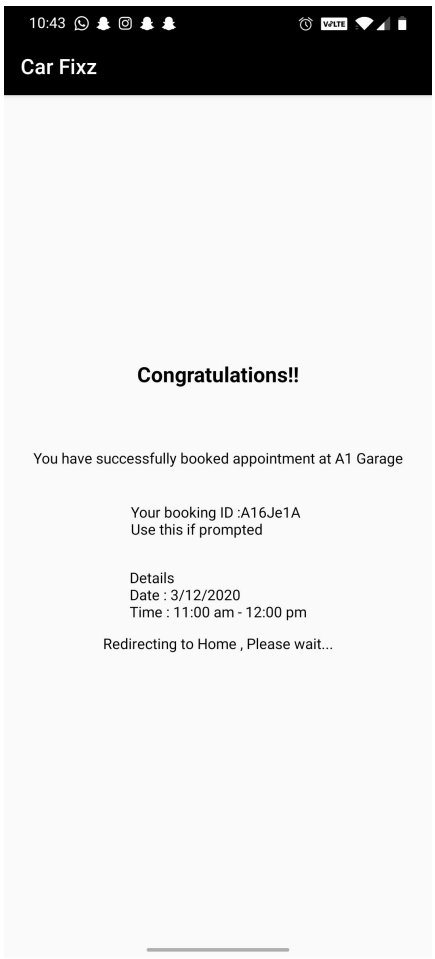
SELECT APPOINTMENT SLOT

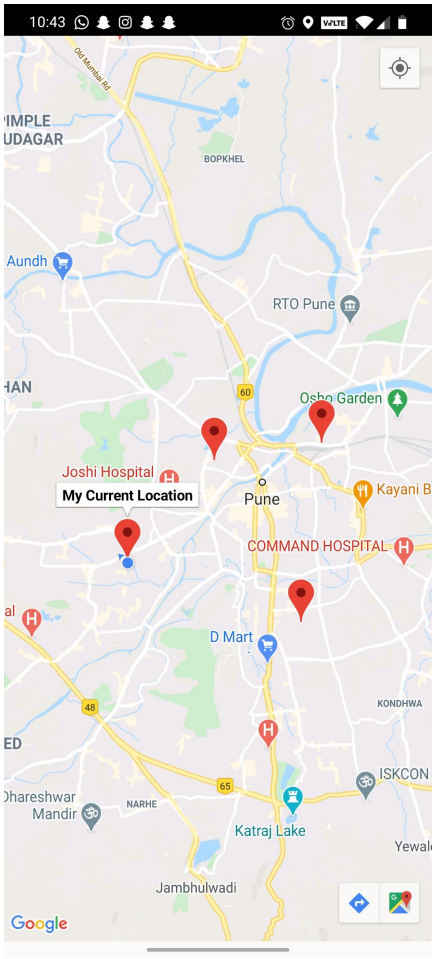
11:00 am - 12:00 pm

Any Complaints/Suggestions

No

BOOK

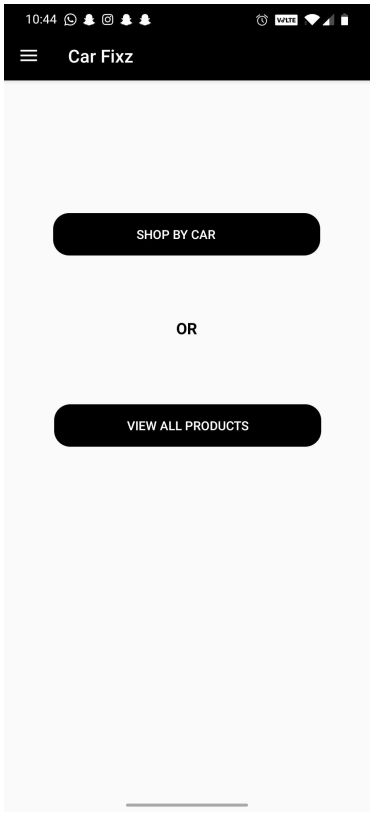


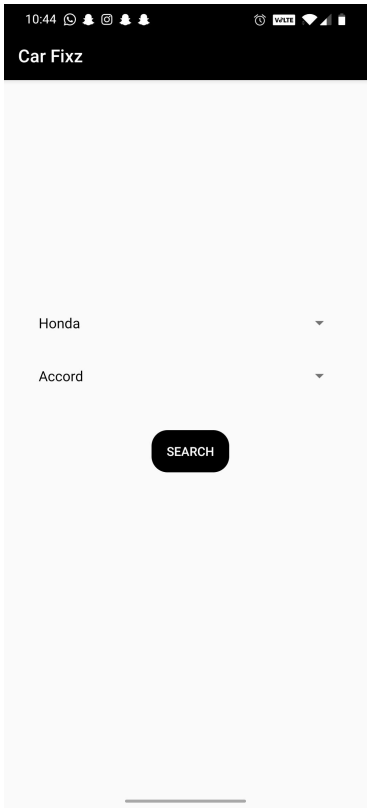


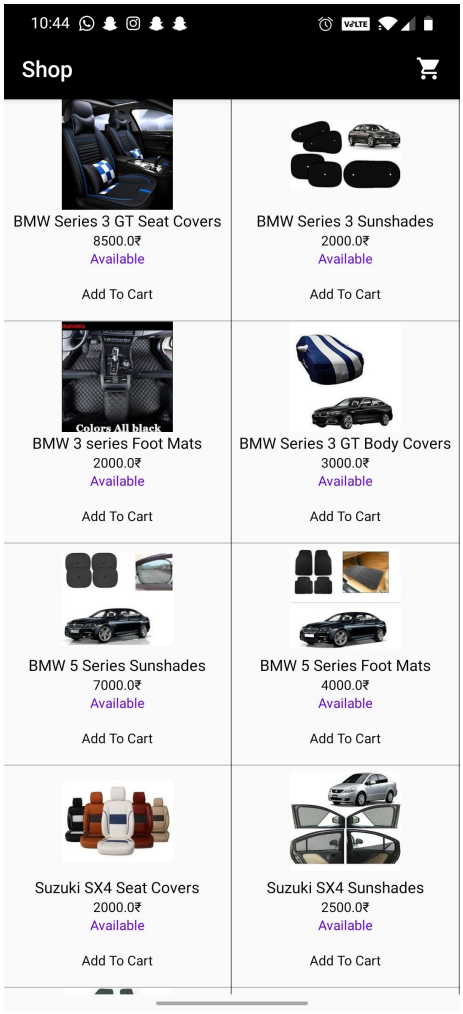
5)Car accessories :-

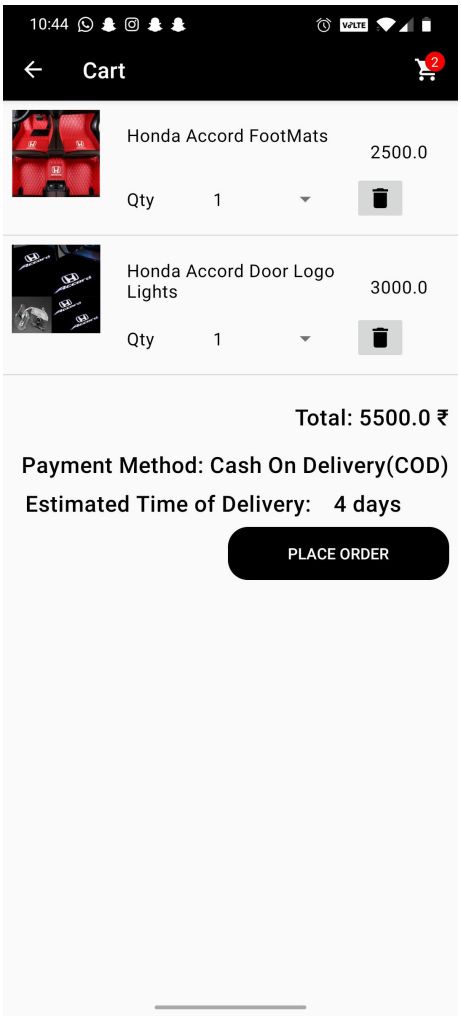
We provide user to view all car accessories or to select a particular car accessories ,

Add your favourites to cart and place order


10:44
Car Fixz
SHOP BY CAR
OR
VIEW ALL PRODUCTS

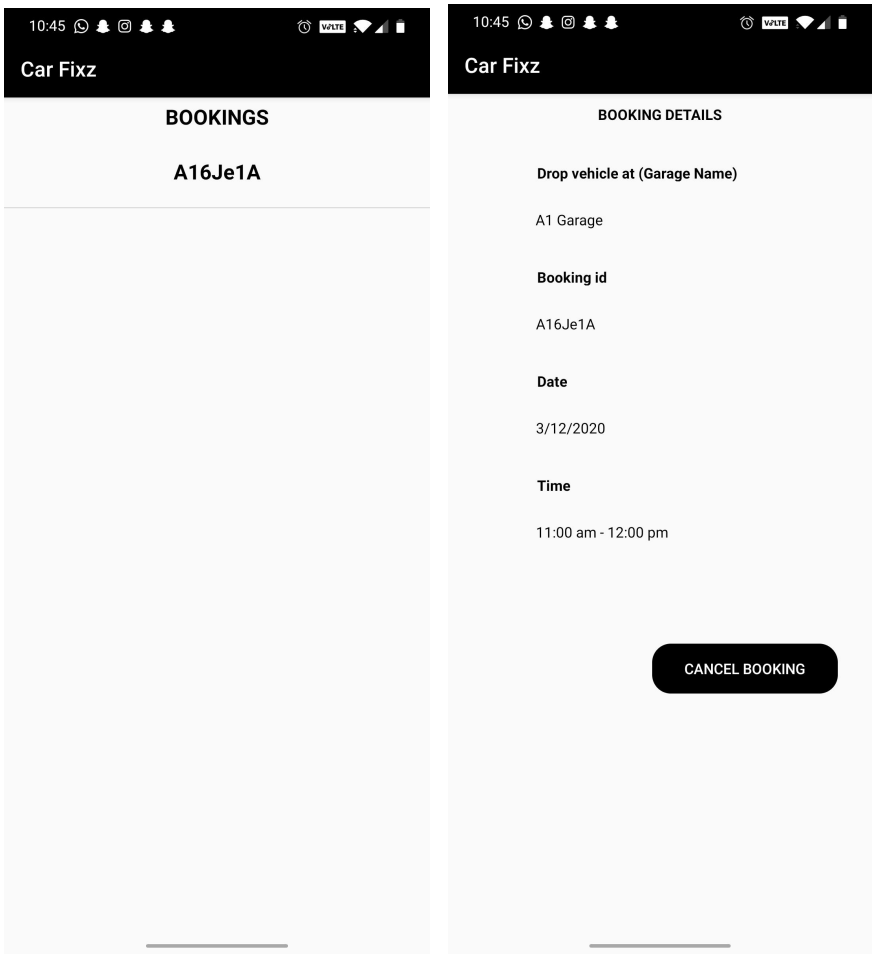

10:44
Car Fixz
Honda
Accord
SEARCH



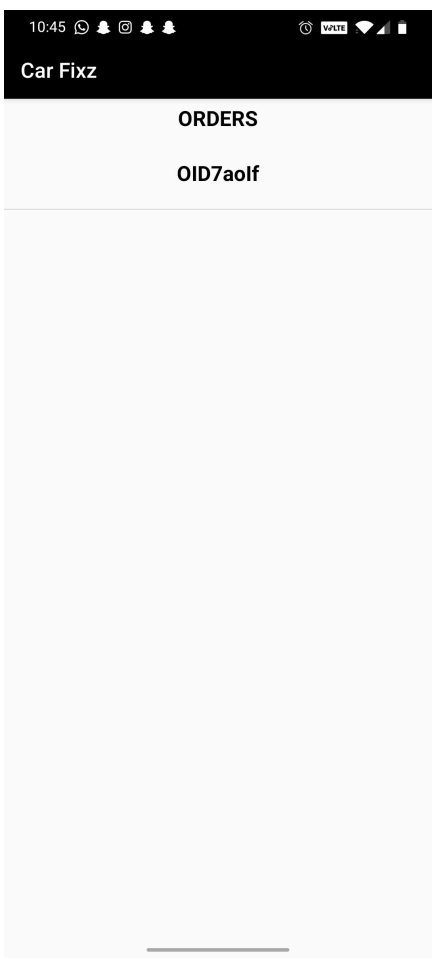


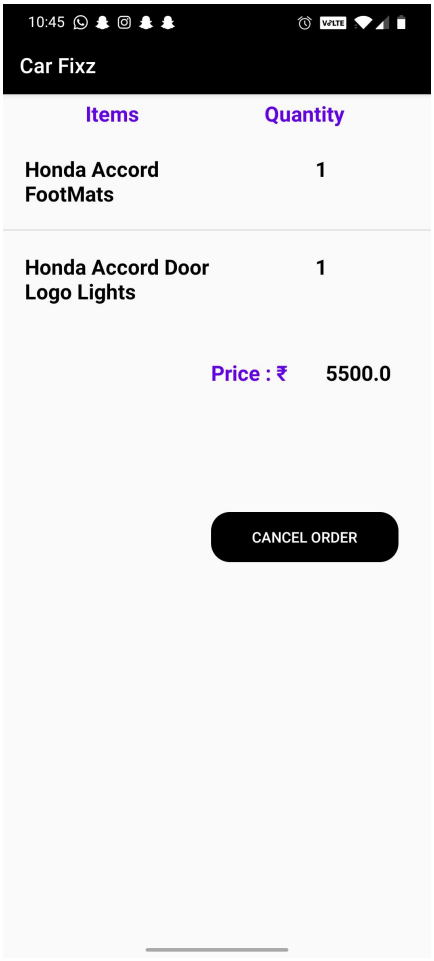
6)view appointment bookings and placed orders :

Users can see their booking appointments



Users and can see their ordered products and cancel them if not required :-

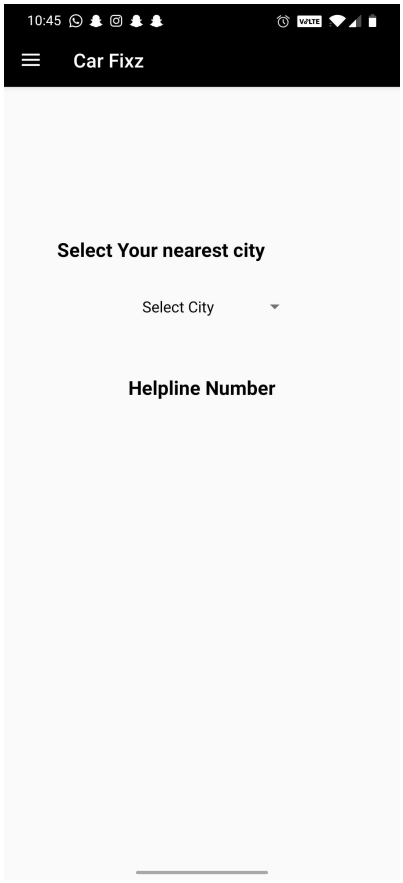


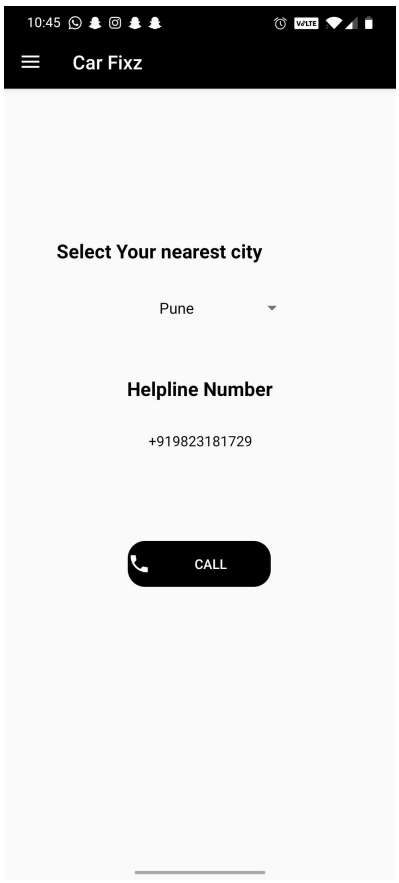


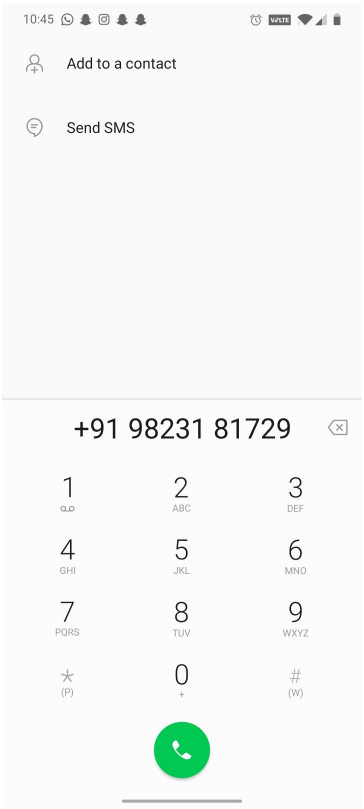
7) Road side Assistance service :-

We provide you contacts in case of emergency to the city you belong .

User will directly be directed towards phone call logs with number ready on dial .


10:45
Car Fixz
Select Your nearest city
Select City
Helpline Number


10:45
Car Fixz
Select Your nearest city
Pune
Helpline Number
+919823181729
CALL



6.Conclusion:

Thus, We have managed to make an app that provides users with the features like booking a servicing appointment for a garage , ordering car accessories online for their cars , viewing their booked appointments , viewing their orders and also getting a contact number(help from nearest city) for acquiring roadside assistance when they are stuck anywhere.

7.Future Scope:

-We plan on adding an admin module for the garage owners so that they can see the bookings in their garage and also updating servicing status and notifying the users whenever their car has been serviced and ready to be collected.

-We play to show estimated delivery status and live package tracking of customers orders .

-We plan to take users valuable feedback and rating on garages and on car accessories products to improve our service .This will help people to find best and trustworthy choices available for them.

-Building a Chat application between user and garage owners , to discuss car servicing details and getting cost estimation details for the service .

-We plan on optimizing our Accessories Shop and implement payments from users by proper verification and authentication of cards , GooglePay , Paytm or any other online transaction systems .