

ONLINE TAXI BOOKING SYSTEM

CONTENTS

No	Topic	Page No
1	Introduction 1.1 About Project	1
2	Software / System Requirement Study 2.1 Software Requirement – Window 2.2. Hardware Requirement 2.3 Software Requirement – IDE 2.4 User and System Requirement Document	6
3	Objective of the Software 3.1 System Scope	15
4	Feasibility Study	19
5	Software / System Design 5.1 Overview of System Design Phase 5.1.1 APIs : Google Map APIs 5.2 Flow Chart 5.3 Data Flow Diagram 5.4 Entity-Relationship Diagram	24
6	Front-End Screen Shots with explanation	38
7	List of Database Tables	62
8	Back-End Screen Shots with explanation	68
9	Testing and Implementation	71
10	Limitations	79
11	Future Enhancements	81
12	Conclusion	84
13	Bibliography	86

INTRODUCTION

Cabme Taxi is an Android Phone Taxi Reservation application. The main objective of the project is to provide an easy to use and handy mobile application to the android users which enables them to reserve a **cabme** from one location to any location in the every state. The application generated confirmation number makes the application more reliable. The users can keep track of their reservations, the amount they have spent for each ride and the cab's current status. Additionally, the users can also see where he / she is currently located, see a route of the **cabme** from the source to the destination point, set reminders for a future pickup, send confirmation details to his email id and send an SMS to his mobile phone.

Book a taxi is the first site in India, which provides reliable online taxi booking facility to people in various cities in India, free of cost. Book a taxi acts like a bridge between the **cabme** operators and the customers/users/people who book a Taxi. This is the online Taxi booking service provided to customers. This brings together the registered travel taxi **cabme** owners and the customer.

Here the customer can book a taxi by viewing all the taxi details and pricing details available, according to selected city and area. It is the reliable service provided to both customers and Travel agencies. This provides service with well-conditioned new vehicles, with experienced drivers for a happy journey of the customers.

Moving on, this taxi booking system project in Android focuses mainly on dealing with customer's booking details with their respective bill amounts. Also, the system allows registration of customers. The Project only contains User Panel. In an overview of this app, the customer has to register and login in order to use the system.

This kind of development is now present in most of the developing cities. It would be user friendly and makes people on the easier side for transportation in large cities. This would change the traditional system and helpful in time management of the workload in the modern day livelihood.

Project Profile :

- Project Title : Online Taxi Booking System
- Group Member : Kinjal Kathiriya
- School : Bachelor of Science in Information Technology , Auro University
- Company Name : Scriptus Solution , Surat
- External Guide : Mr. Menil Radadiya
- Internal Guide : Mr. Dhaval Thaker

Software Configuration :

- Front End : Android Version 7.4.1.
- Back End : SQLite Version 5.1.1
- Operating System : Microsoft Windows , MacOS
- Language : Java
- Development Environment : Android Studio

1.1 ABOUT PROJECT

This project aims to provide software to taxi booking system center that maintains the information about the customer details, vehicle details, insurance detail, driver detail, booking detail and transaction details of the customer.

Through this site we can also be up to date with the revolution that are occurring in the automobile industry in India or throughout the world like the news about the latest releases of the 4-wheeler taxies.

This is the best place to increase their (the travel agencies / taxi owners / tourisms) publicity with zero cost. This site also provides premier account for travel agents. This is done with the feedback they get from the people who used their travels. So please find time to give your valuable feed back to the travels / taxi operators whose service you have used, which in turn may help you in getting cheaper, reliable, fast, facilitated and secure service.

PROCESS DESIGN :

❖ CUSTOMER DETAILS :

In customer details we store all the details of the customer, both new and existing customers.

❖ VEHICLE DETAILS :

In vehicle details we store all the details of all the vehicle in the company along with mileage and cost/km.

The details can be updated whenever needed.

❖ INSURANCE DETAILS :

In insurance details we store all the details of the vehicle insurance with their insurance amount and expiry date.

❖ DRIVER DETAILS :

In driver details we store all the details of the drivers working for the company with their availability and their charges/day.

❖ TRANSACTION DETAILS :

In transaction details we store the details of transaction of the customers.

These details can also be read by the customer whenever required.

❖ BOOKING DETAILS :

In booking details we store the details of the taxis booking by the customer.

Administrator after viewing the booking details, makes respective changes to other details .

SOFTWARE / SYSTEM REQUIREMENT STUDY

A taxi Services application required quite a bit of research before coming up with the design. taxi service, in general, requires the availability of taxis in order to serve user's requests. This project was programmed, keeping in mind, the Graphical User Interface at the user end. After reviewing many taxi reservation available for Android, a list of positives and negatives of the existing application was made. Most of the application targeted to serve a particular country or particular state, or in some cases a particular city.

To run this project successfully it is required that certain software and hardware requirement should be kept in mind. Following are the requirements :

2.1 SOFTWARE REQUIREMENT – WINDOWS

Given below is recommended specification that required at client side to run software

- Operating System : Android
- Language : Android SDK , java
- Database : SQLite
- Technologies : Java , SQLite , Android , XML , Google Map API
- Framework : Android SDK Version 7.4.1
- Network : Mobile Network and Internet
- Device : Android phone with version 7.5

2.2 HARDWARE REQUIREMENT

Given below is Recommended hardware specification that required at client side to run Software

- Process : Core I3 1.2 GHz
- Memory : 264MB RAM
- Output Device : Android phone
- Operating System : Microsoft Windows and Android

SERVER SIDE AND CLIENT SIDE

Client Side Tools

- Any Android Phone
- Internet Connection
- Android Electric Eel 7.5

Server Side Tools

- Higher Process
- 264MB or Higher RAM
- Higher Hard Disk

2.3 ANDROID STUDIO – IDE

- Android Studio

Android Studio is the official integrated development environment for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.

- Android SQLite

For repeated or structured data , such as contact information , saving the data to a database is ideal . this page explains how to start using SQLite databases on Android and assumes that you are already familiar with SQL database in general. The android database SQLite package contains the APIs you'll need to use a database on Android .

Classifications: Database management system

Developer: Google

1. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications.

SQLite is an open source database which is embedded into Android. SQLite supports standard relational database operations. The major advantages of SQLite is that it requires approximately only 250 Kbytes of memory at runtime. SQLite is available on every Android running device and does not require any additional setup. Data can be accessed, updated, inserted into the tables with simple queries. The **Cabme** taxi application uses the table Reservations in the database Bookings through Data Access Object. The transactions made by a user are stored in the local database called Booking on the device. The Reservation table is accessed via the primary key which is the confirmation Number.

2.4 USER AND SYSTEM REQUIREMENT DOCUMENT

The following section contains the user and system requirements for the carpooling application. The application is a meeting for ride share , both drivers and passengers. Users can share and find rides. The application will be divided into two main parts. The first one is for intercity trips where users can post their trips and register for trips created by other users.

In addition to that, a check in system is available to notify the users when the driver or the passenger reaches the meeting point. The other part is for frequent trips. Frequent trips are trips that occur on a weekly basis. A person who commutes to work, for example, may be interested in creating a frequent trip to find other passengers to ride with. Given the fact that the application should be socially enabled, the user should be prompted to share his trips on social media. The access of the application OS only granted to authorized users.

FUNCTIONAL REQUIREMENTS :

- CUSTOMER :
 - ❖ Register for a rider account :
The rider should be able to create an account using his personal information (full name, Email address, phone number)
 - ❖ Email / Password Authentication :
The rider should be able to log in to the application using his credentials (Email Address and Password)
 - ❖ Log off :
If the rider is previously authenticated, he / she have the option to log off from the app.
 - ❖ Manage Profile :
Riders can view and update their profile details
- ❖ Pickup location is manual and automatic :
Riders can choose their pickup location manually and see it on the map
- ❖ Destination :
Riders are able to choose their destination and see it on the map
- ❖ Request / cancel trip :
If riders are registered and origin and destination are identified, they can request a taxi and can also cancel the request
- ❖ Riders provides with all the information concerning the trip :
The riders is provided with the distance from the origin to the destination, the travel time, and the price of the trip.

❖ Driver's information and rating :

After the trip request is accepted, the rider is provided with all the information concerning the rider (full name , phone number , current location, and vehicle type and number)

❖ Riders can rate the trip and the driver :

After the riders reach their destinations, they can rate the trip and the drivers.

❖ Riders can change the language of the UI :

Riders are able to change to language of the user-interface based on their preference.

• DRIVER :

❖ Register for a driver account :

The driver should be able to create an account using personal information (Full Name, Email Address, Phone Number)

❖ Email / Password Authentication :

The driver must be able to authenticate using their credentials.

❖ Manage profile :

The driver can view and change their profile details .

❖ Manage car information :

Driver can view and change vehicle information

❖ Background location is updated :

The driver's location is updated on the map

❖ Accept / Refuse trip :

Driver will have the choice to either accept or refuse the rider's request.

❖ Drivers provided with all the information concerning the trip :

The driver will be provided with the rider's personal information, and their pickup location and destination .

❖ Driver can rate the rider :

Drivers have the possibility to rate the riders

❖ Drivers can change the language of the UI :

Drivers are able to change to language of the user-interface based on their preference.

NON-FUNCTIONAL REQUIREMENTS :

❖ Performance :

The application has to offer a very quick response time as the meeting between the driver and passenger is done through notifications. In other word, the server should be able to treat notifications and propagate them instantly. The application should handle 100 users sending queries at the same time.

❖ Scalability :

The application should respond properly to a high increase of users. It should be able to handle from 150 users to 200 users. And also from 500 to one millions users.

❖ Extensibility :

The application should be extensible in order to support multiple play forms

including iOS, Windows phone and Web.

❖ Availability :

Since a lot of information about the trips and check in are available in the application, it has to be highly available and guarantees a good server up-time. The server should allow only 1 hour down time per year which is 99.99% up-time.

❖ Privacy and security :

The application should ensure the privacy of the users including the trips they take part in, their social media accounts and their accounts. The login systems also be robust where only authorized users can post and edit their own information.

❖ Maintainability :

Since the application may be developed in the future by adding other features, it should be easily maintainable.

❖ Security :

All the application user's sensitive data will be maintained and protected from external intrusions by validating both front-end and back-end.

OBJECTIVE OF THE SOFTWARE

Online Taxi Booking System is a Android phone platform that allows your customers to book their taxi's and executive taxis all online from the comfort of their own home or office. The platform should offer an administration interface where the taxi company can manage the content, and access all bookings and customer information. More and more Taxi companies are looking for integrated taxi booking system as it makes life much easier for –

1. The traveller – this is highly important and in today's internet age people should be able to book taxis online without having to pick up the phone and
2. The taxi company as all their bookings are now managed via an automated system which means they have an electronic record of future and historic bookings

A Taxi Booking is a system that can be used temporarily for a period of time with a fee. Hiring a taxi assists people to get around even when they do not have access to their own personal vehicle or don't own a vehicle at all. The individual who want to rent a taxi must first contact the taxi hiring company for the desire vehicle.

Online Taxi Booking System specializing in Hiring taxis to customers. It is an online system through which customer can view available taxis; register the taxi , view profile and book taxis. Taxi booking system service is a major transport service provided by the various transport operators in a particular city. Mostly peoples use cab service for their daily transports need. The company must be a registered and fulfils all the requirements and security standards set by the transport department.

3.1 System Scope

- The scope of this project is to create an online android application which will work on wide area.
- This will be an online solution to people for their safe and easy journey to one place to another place.
- The user can book car as per their location and according to their choice.
- In this administrator he can add, remove the cars as well as manage Driver's rides.
- It will save customers time and efforts to search vehicle on unknown place, if they travel from one place to another place.



❖ TAXI SEARCH :

User can search taxi for a particular location here. User required to enter Source, Destination, and Place where he want to go.

❖ LOGIN PROCESS :

In this the customer has to give out the login details i.e. user id and password and then only he can be logged on. The user id and password given by the customer are checked from the data stored in the database.

❖ REGISTRATION PROCESS :

User must be registered before booking a taxi. Proper validation will be provided to keep only authenticated users i.e. those users who will provide correct information. All the data supplied by the user will be stored in database and it will be used for further validation and authentication. During registration, user has to give login and password of their choice. Login names and passwords will be stored in the database so that the user can directly login without registering again and again.

❖ BOOKING CONFIRMATION :

After validating the entered information and getting approval from Credit card authorization service the system provides the visitor the notice on successful registration.

❖ ADMINISTRATION PROCESS :

In this process Administrator will upload the availability of taxi information in the database. It includes place, services, and cost of the available taxi. Taxi availability will be viewed by the customer after he has logged on to the site.

FEASIBILITY STUDY

The feasibility study is an extremely important phase in any system Engineering process as it provides an overall idea about the achievability of the project. My project is a mobile application that will enable the citizens and tourists of **Cabme** to book taxis from their location without the need for the search cost and will enable the taxi drivers to find the closest clients.

Concerning the technical feasibility, a good knowledge in computer science and software engineering is required. The project is technically feasible because it only requires tools that are free, for example, Android Studio code that is used as an IDE. On the other hand, I will be using other libraries like APIs for directions , places, and distances and all these tools are free.

Regarding the business opportunity, after doing my research, there are some booking mobile applications already existing in the market. However, all the existing applications are for random drivers that work with their personal cars and do not have taxi drivers licence. In addition to that, there is no booking mobile app that is concerned about the city of **Cabme**, which makes the project ,market feasibility.

Nowadays, taxi services have become the most used transportation option, therefore, the mobile application will be providing a huge service to all its customers, so that they can easily book their taxi by specifying their ride requirements and the taxi will reach on the pickup place. On the other hand, I trust that all the potential clients use smartphones, so the application will be socially feasible.

When it comes to scheduling of the project, for all the steps of the mobile application development, design, and testing to be done, it will take from three to four weeks so I can balance the workload between the capstone project and my other course. Regarding the available time, which is approximately 18th weeks, I believe the project will be delivered on time.

Specific recommendations regarding the candidate system, including personnel assignments, costs, project schedules, and target dates.

❖ LOCATION INDEPENDENT APPLICATION :

The same application should work everywhere in state of Gujarat.

❖ PAY THROUGH THE APP :

The payments for trips goes through the application.

❖ MAP PICKER :

For picking the meeting points.

❖ PAYMENT SYSTEM :

The payment can go through the application, this to implement given the complexity of this system and its legal implication

Three key considerations are involved in the feasibility analysis these are;

1. Operational Feasibility
2. Technical Feasibility
3. Economic Feasibility

❖ Operational Feasibility:

Operational analysis is the most frequently used method for evaluating the effectiveness of a system. More commonly known as cost/ benefit analysis, the procedure is to determine the benefits and savings that are expected from a system and compare them with cost.

Earlier in Computer Craft the work has been done manually which takes lot of time as well as man power which is more economical. Now the same work is computerized which is more effective and efficient, less time consuming, reduces man power which in turn proves to be less economical.

❖ Technical Feasibility:

To develop this application, an internet connection and a database server is required. The application was deployed and tested on Samsung Galaxy S2, thereby making it technically feasible.

Technical Feasibility centres around the existing computer system (hardware/ software) and also it can support the modification. In manual processing there are more chance of errors are there, creating lot of complications, less technical or logical.

Through proposed system we can set this process in a very systematic pattern, which is more technical, full proof, authentic, safe and reliable.

❖ Economic Feasibility:

This assessment typically involves a cost / benefits analysis of the project, helping organizations determine the viability , cost and benefits associated with a project before financial resources are allocated. It also serves as an independent project assessment and enhances project credibility – helping decision-makers determine the positive economic benefits to the organization that the proposed project will provide.

- System level goals and requirements.
- Cost estimation for development process and work product.
- Solution strategy development.
- Outlines of the several solutions strategies.
- Recommendation of solutions strategy.
- Feasibility and study of each strategy.

SOFTWARE / SYSTEM DESIGN

The purpose of System Design is to create a technical solution that satisfies the functional requirements for the system. At this point in the project lifecycle there should be a functional specification, written primarily in business terminology, containing a complete description of the operational needs of the various organizational entities that will use the new system.

The challenge is to translate all of this information into Technical Specifications that accurately describe the design of the system, and that can be used as input to system Construction. The Functional Specification produced during System Requirement Analysis is transformed into a physical architecture. System components are distributed across the physical architecture, usable interface are designed and prototyped, and Technical Specifications are created for the Application Developers, enabling them to build and test system. Many organizations look at System Design primarily as the preparation of the system component specifications; however, constructing the various system components is only one of a set of major steps in successfully building a system.

The preparation of the environment needed to build the system, the testing of the system, and the migration and preparation of the data that will ultimately be used by the system are equally important. In addition to designing the technical solution. System design is the time to initiate planning efforts for both the testing and data preparation activities.

5.1 OVERVIEW OF SYSTEM DESIGN PHASE :

The design phase may also be known as conceptual design or architectural design. During this phase, the high-level design concept is created, which will implement the complex electronic requirements. This design concept may be expressed as functional block diagrams, design and architecture descriptions, sketches, and behavioural hardware description language.

The objective of the design phases is to create a design that will correctly and completely implement the requirements. For the preliminary phase, the main goal is to map out how the complex electronics will perform the functions specified in the requirements, within the constraints of the devices, the defined interfaces, and the environment the device will operate within. At this phase, the designer needs to maintain a systems perspective and look at the complex electronic operations in concert with the rest of the system. Now is the time to identify inconsistencies, misunderstandings and ambiguities.

The objective of design assurance is to verify that the design does implement all the requirements, and that it implements nothing but the requirements. Any deviations are fed back to the requirement engineering process.

The main design activities for the preliminary design phase are :

1. Create the high-level design description.
2. Identify major components, including third-party IP modules or cores.
3. Any derived requirements that result from the process are fed back to the requirements engineering process
4. Any omissions or errors are resolved
5. Include reliability, maintenance, and test features that are necessary to meet performance and quality requirements, and to ensure that testing can be performed to verify the requirements.

6. Identify constraints on other system elements that are a result of this high-level design.

This assurance process for complex electronic assumes that complex electronics requirements have been developed, assessed, and baselined. In reality, these requirement may be included in a higher-level assembly requirements specifications, such as a circuit board or sub-system.

The requirements for complex electronic are likely to be a work in progress, as design decisions in other areas of the system influence the functions the CE device will perform. Requirement will be an important process throughout the design, implementation and test phases.

5.1.1 APIs : Google Map APIs

APIs stands for application programming interface. Google Map APIs is a list of APIs that allows me to access integrate google service into my application.

- Google places APIs :



By using this Places APIs, I was able to retrieve information about places in Iframe such as Location (longitude , latitude), also the place's description.

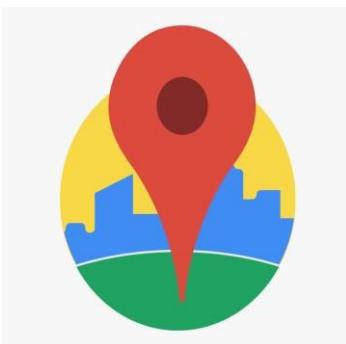
The service that I used from this API is Google Places Autocomplete, so that when the users type in the placeholder, it automatically fills in the name and address of place.

- Distance Matrix API :



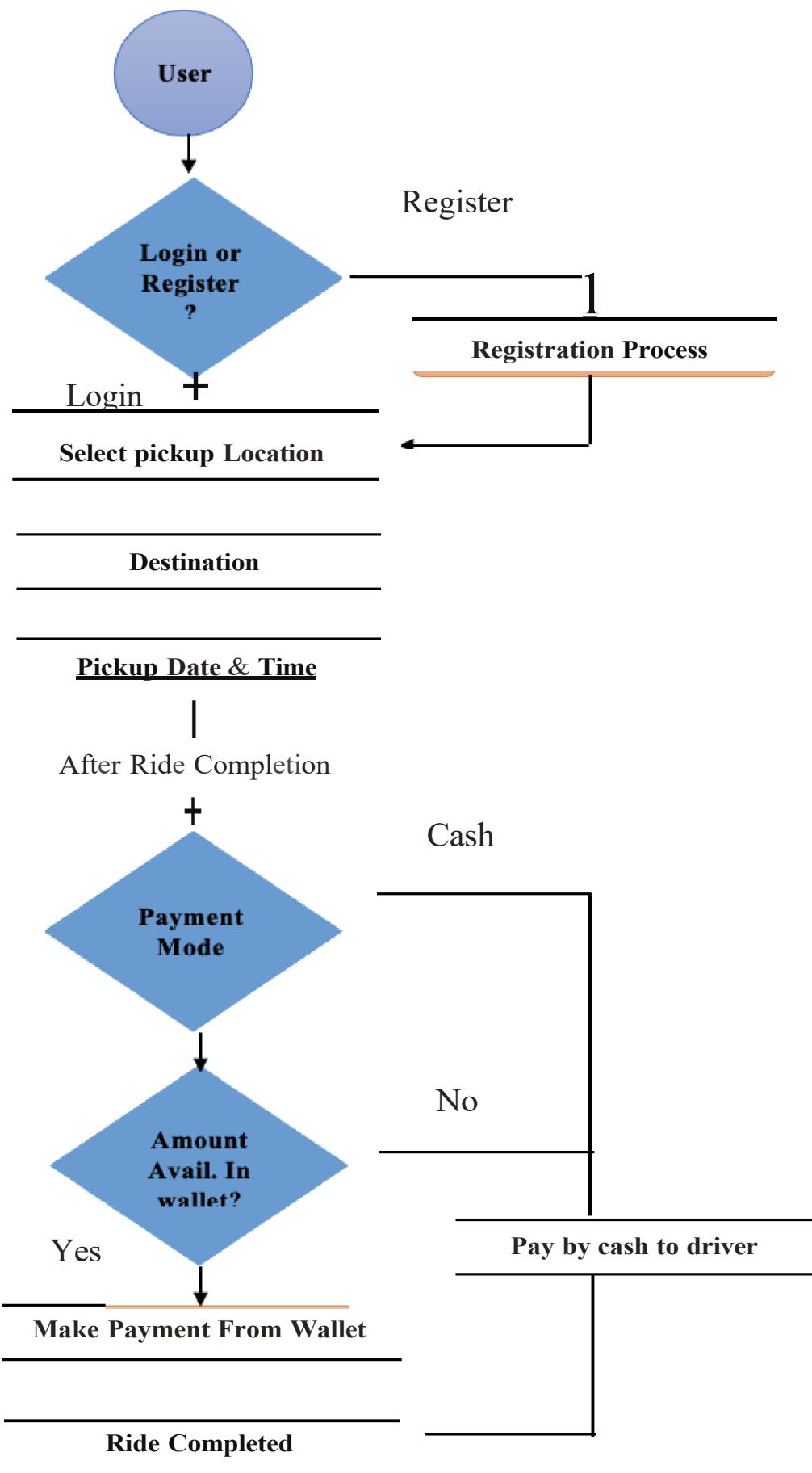
By using this API, the service provided me with all the information concerning the trips (Travel distance, and Travel time). This API return the needed information based on the specified origin and destination.

- Directions API :

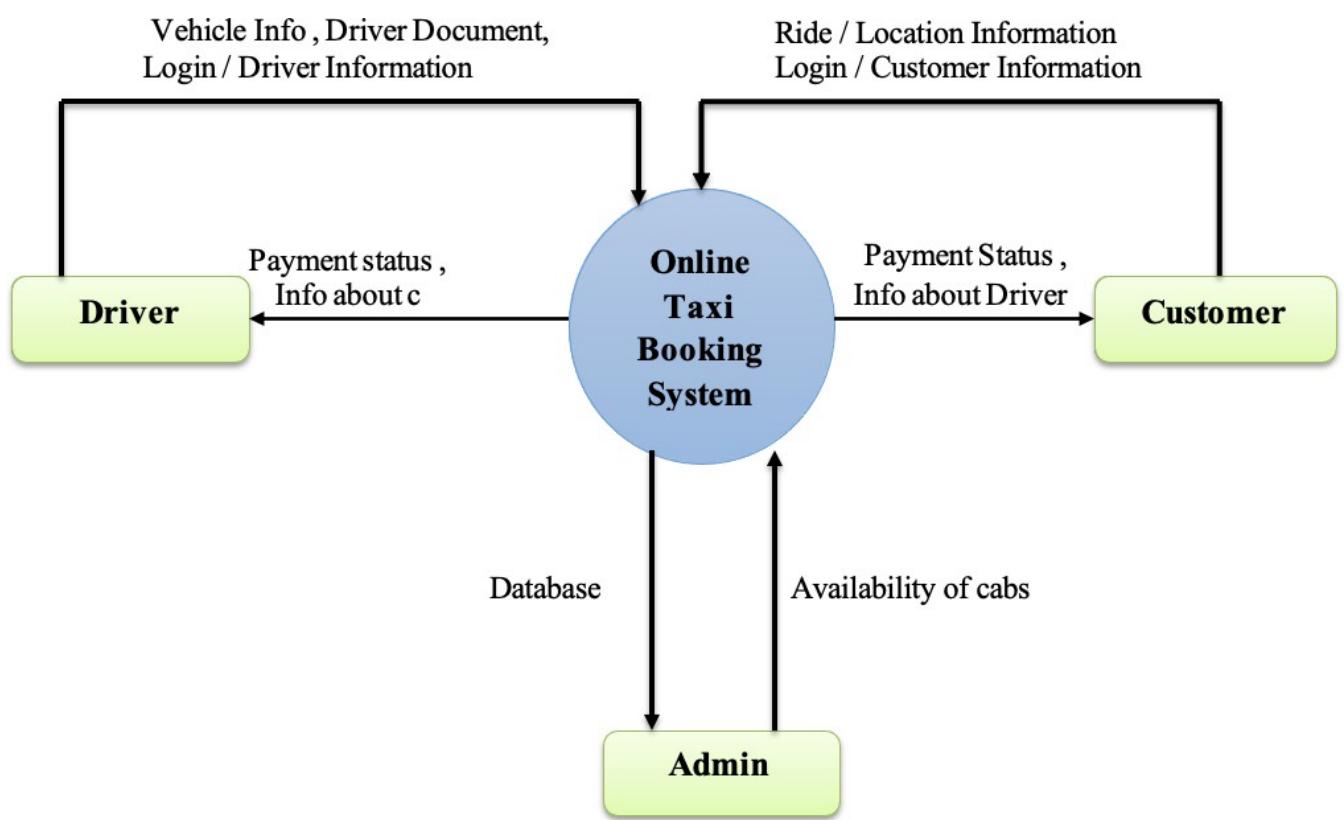


This API is a web service that return directions between locations. It can provide directions for the different modes or transportation.

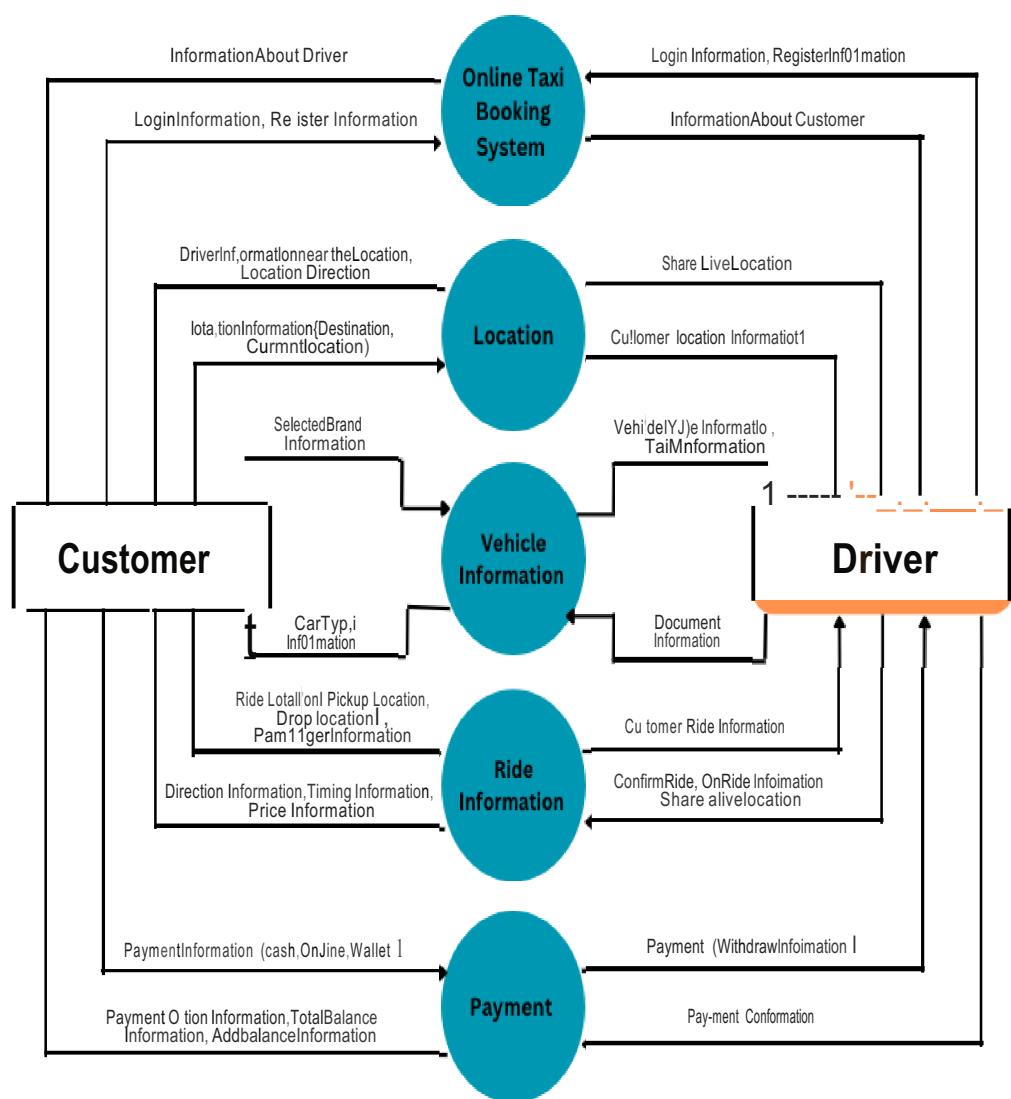
FLOW CHART

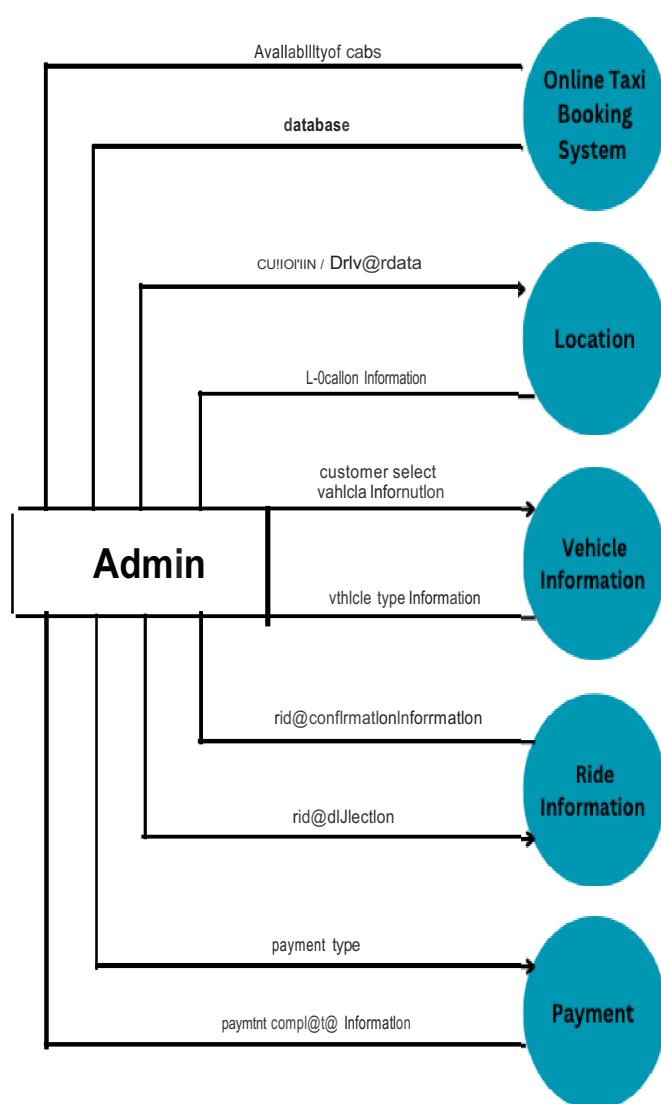


0 LEVEL DFD

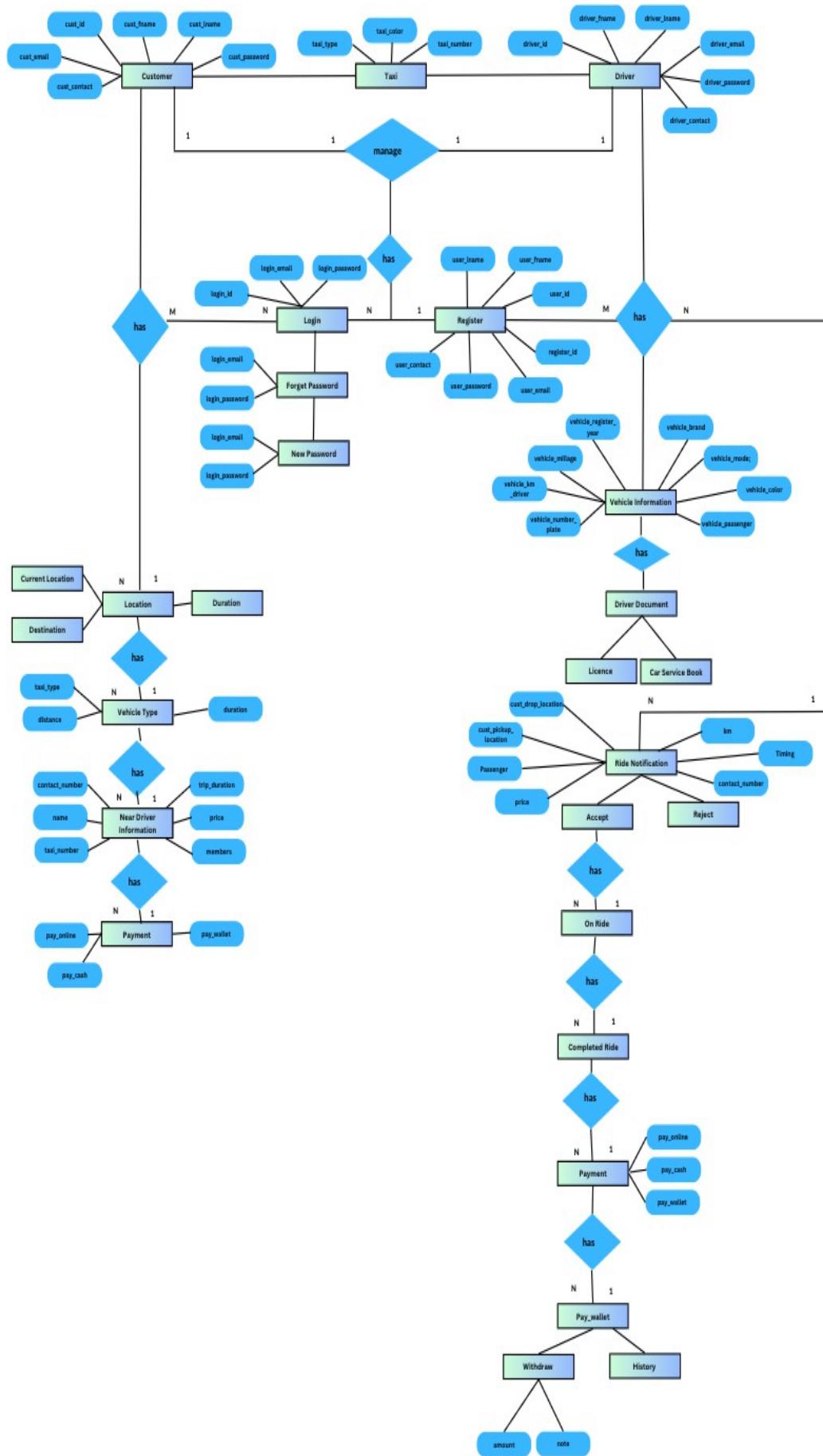


1 LEVEL DFD





ER DIAGRAM



FRONT-END SCREENSHOTS WITH EXPLANATION

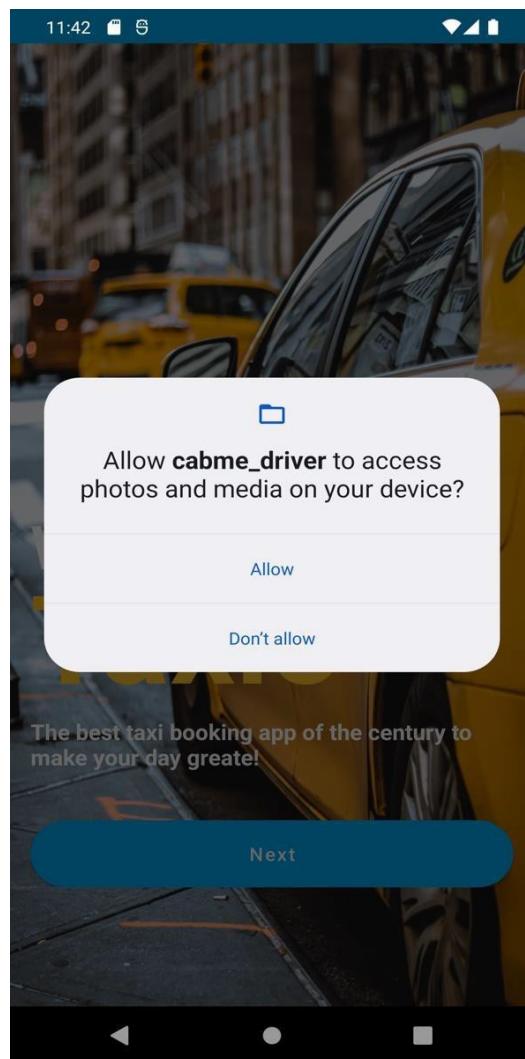
(Driver-side)

Splash screen :



- This is the first page of the Driver-side application when we start our phone first of all come application logo with timers in the application .

Device Notification Screen :



- In this screen , show the alert box for driver allow to access photos and media on your device.

Welcome Screen :



- This is the first and initial page which loads when the users , customers or any other interested person tries to browse the **Cabme** application. The page has all the links that the customer requires to navigate from one page of the site to another depending on where the customer wants to visit within the site.
- when we start our phone, the application splash activity then welcome page with next button.

Slider Screen :



We provide
professional taxi
services for you



Your satisfaction
is our number one
priority



Let's make your day
great with Taxio
right now!

● ● ○

Next

○ ○ ○

Next

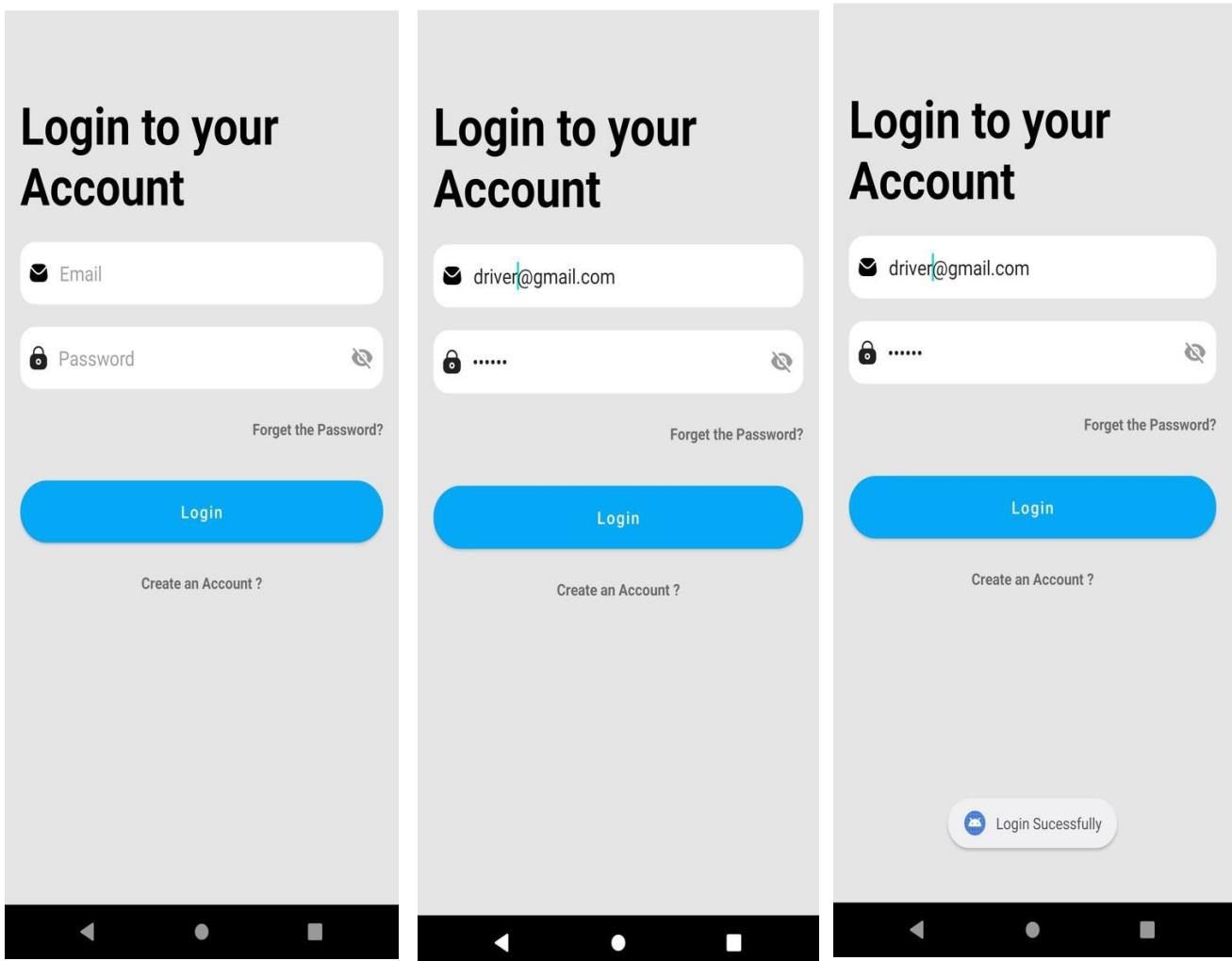
○ ○ ○

Get Started



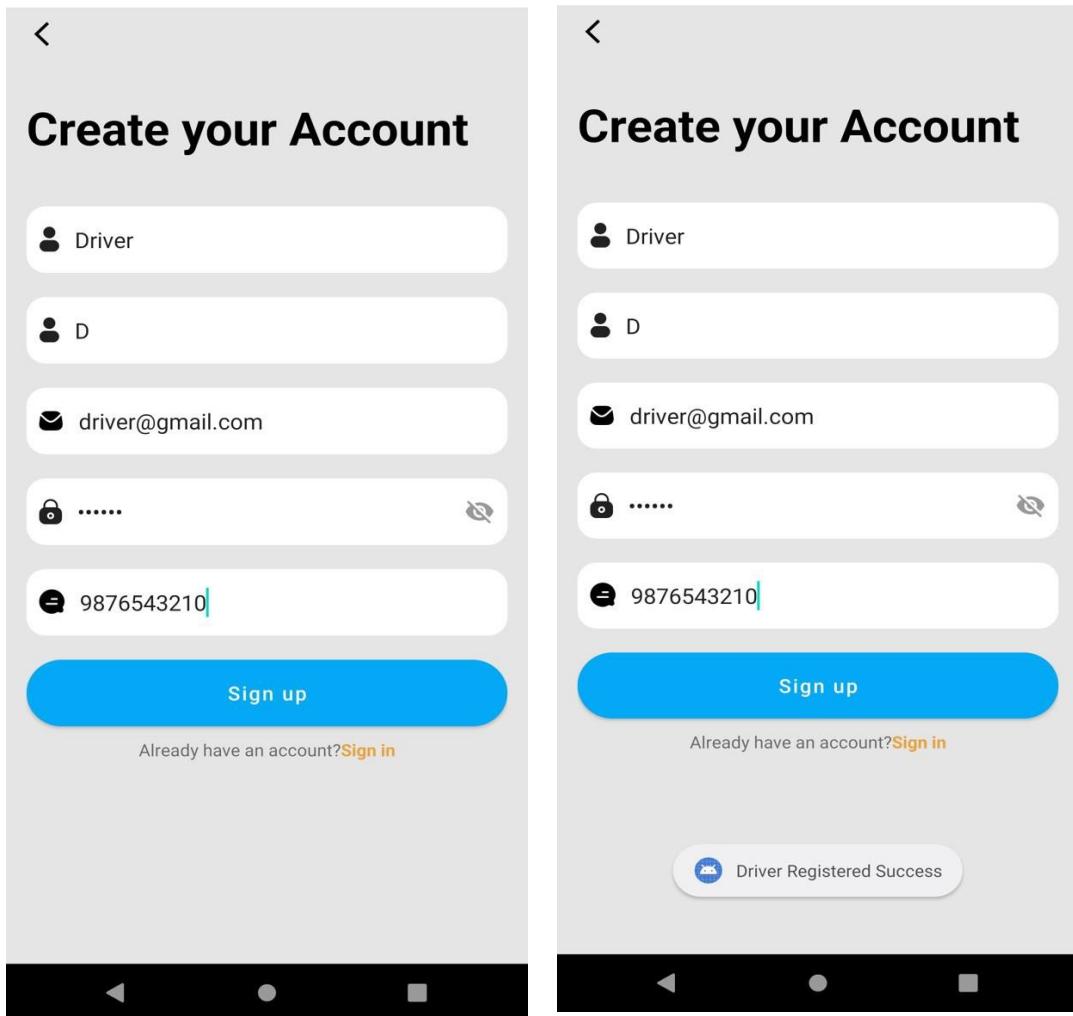
- This is the slider page of the customer-side application .

Login screen :



- The system login page is the first page that every user sees on launching the site, it contains on it the login form from through which users can gain access by correctly entering their user credentials.
- This is created by making a login activity and implementing google SQLite database authentication

Register Screen :



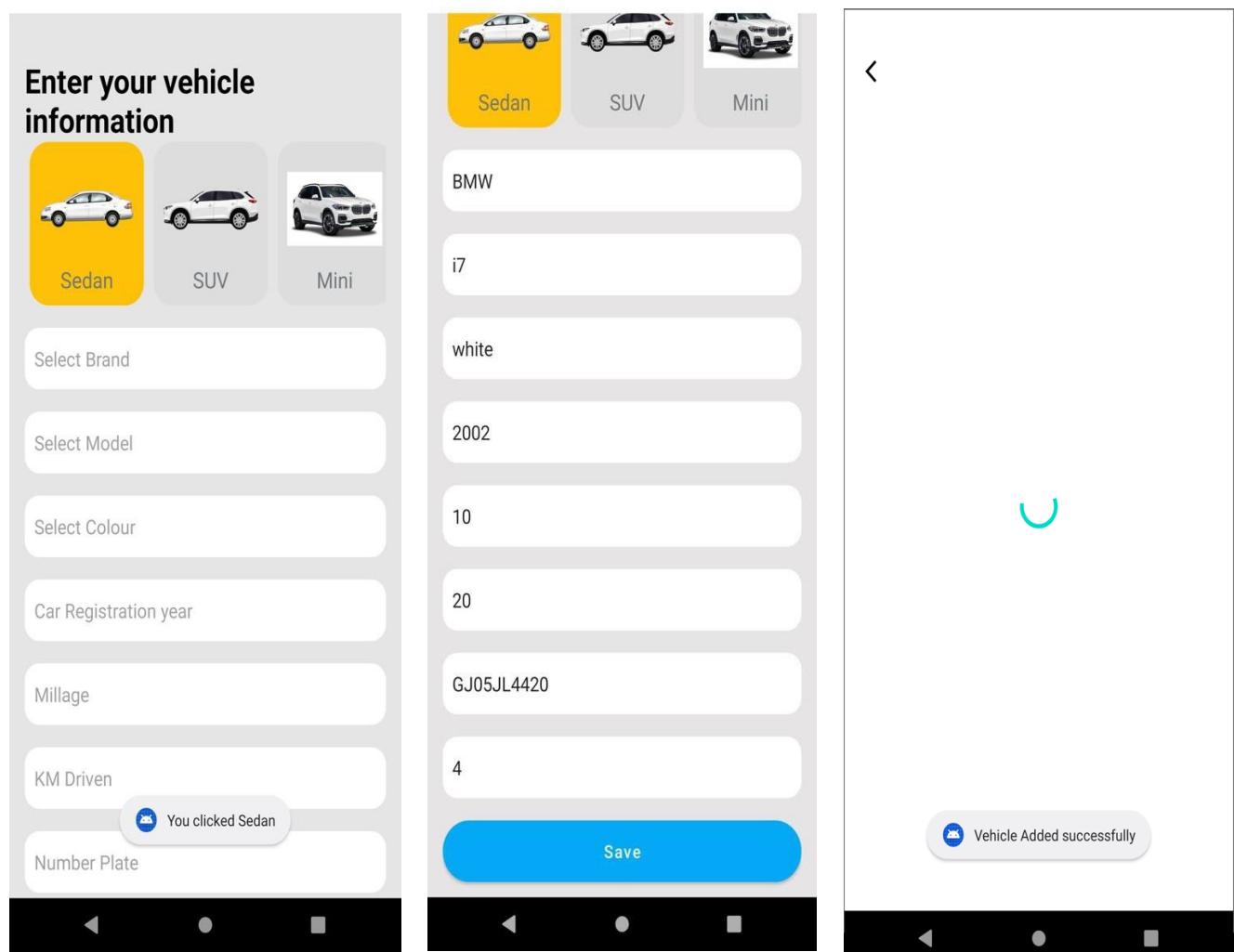
- After choosing to give a ride, the user is directed to the driver authenticate screen :

In the authenticate screen, the driver enter their credentials, and thanks to SQLite authenticate service, the application will check if the driver is already registered in the system or not.

- If the driver does not have an account, there is a register button that will direct him to the registration screen. If already registered, the driver will be automatically set available for requests.
- For the registered screen, the user will have to enter their personal information and their vehicle information, and once register, the driver is automatically signed in. if already

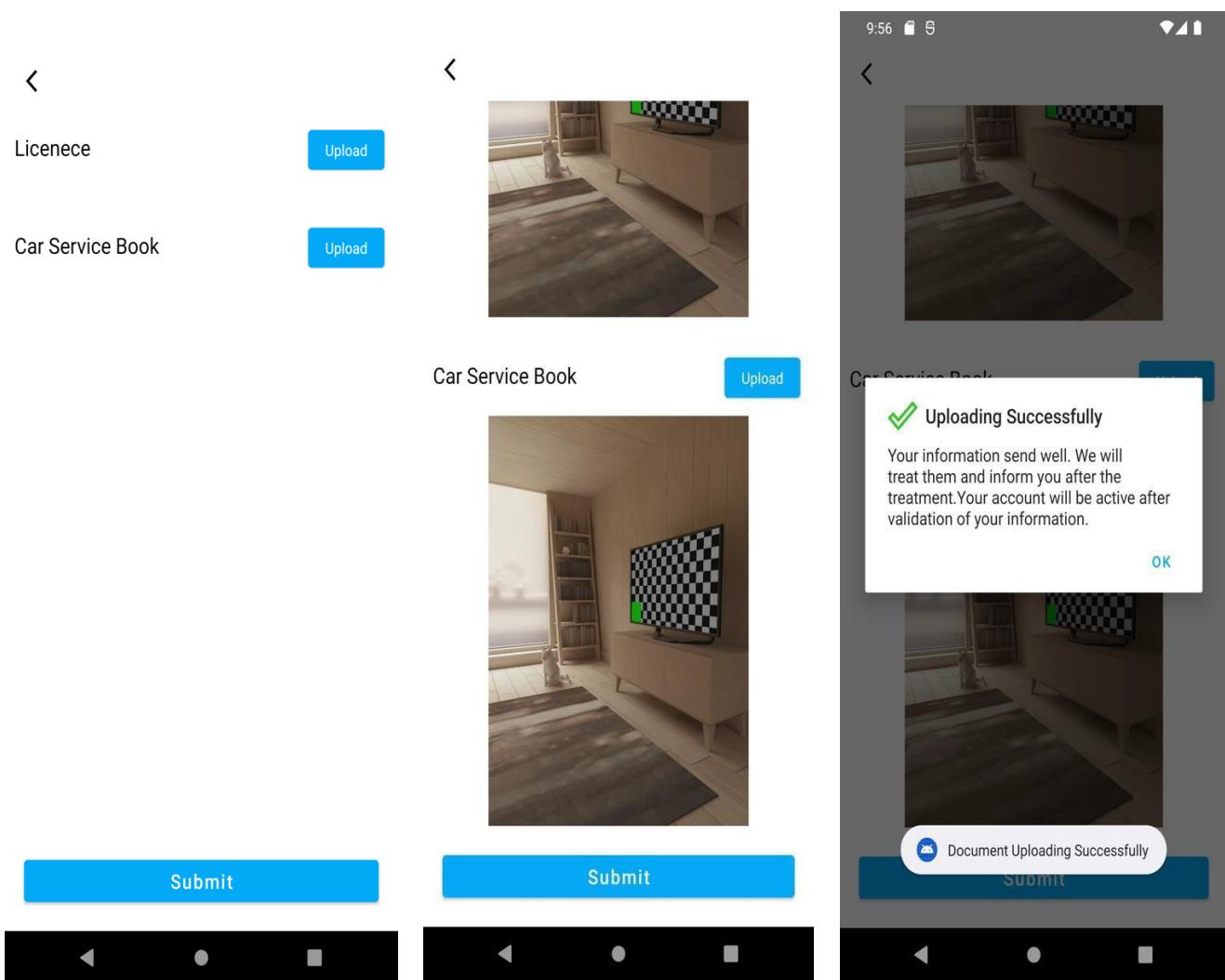
register, the user is provided with the option to go back to the Sign In screen by clicking on “Already have an account? Sign In”.

Vehicle Information Screen :



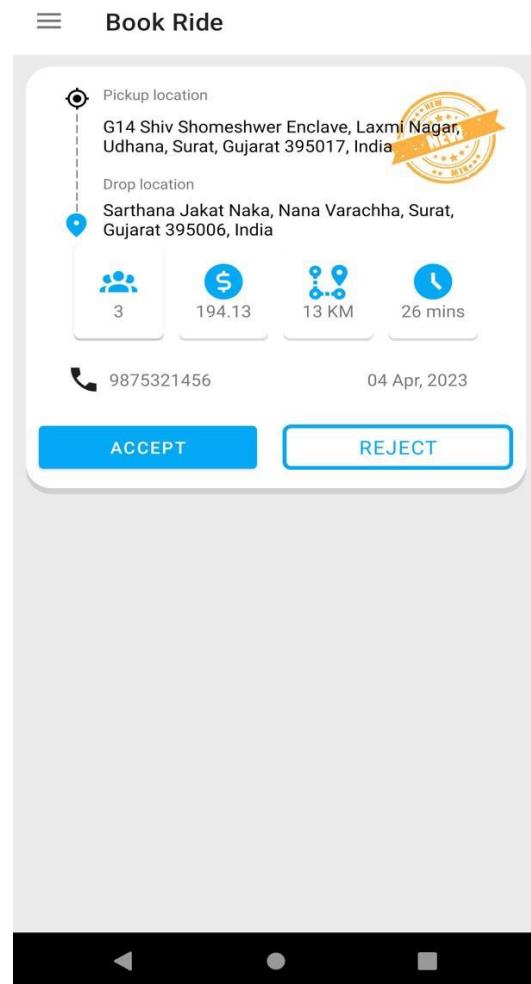
- After driver register In this Vehicle Information screen .

Driver Document screen :



- Driver Upload Document and create a toast Uploading Successfully.

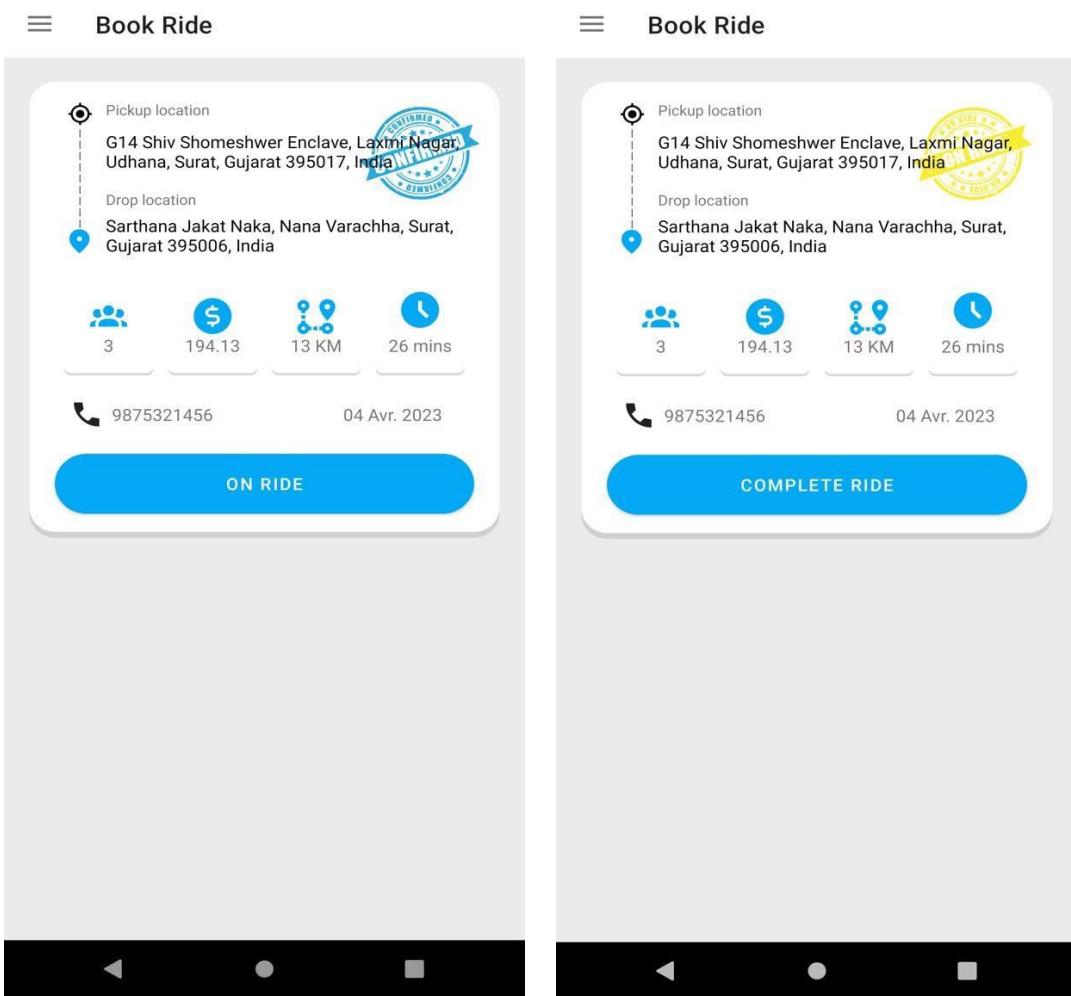
Confirm Ride Screen :



- After choosing to start working, the driver will be directed to this screen where he is provided with :
 - Their location on the map.
 - The option to take a break, which will automatically set the driver unavailable.

- The option to check the current requests by clicking on the button on the top of the screen.
- If any request available, the driver will be provided with all the rider's information including their pickup and destination.
- The driver will have the option to either accept or refuse the request.

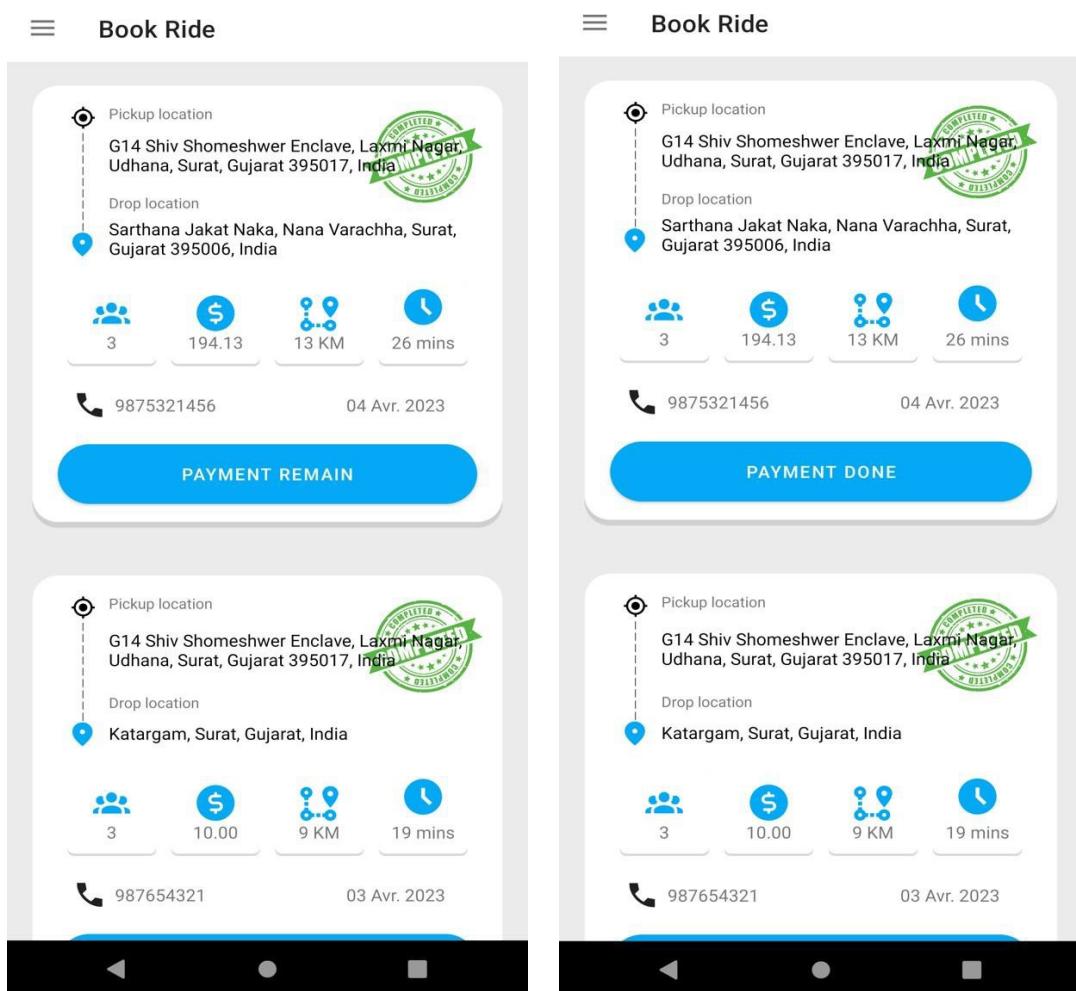
Complete Ride Screen :



- Once the driver accepts the rider's request , the driver is automatically marked unavailable, and will be directed to the map screen where the driver pick up location is shown.

- After reaching the rider's origin, the driver then will have the option to start the ride.
- After reaching the rider's destination, the driver then will be able to click on finish the ride to get paid and come back to request screen.

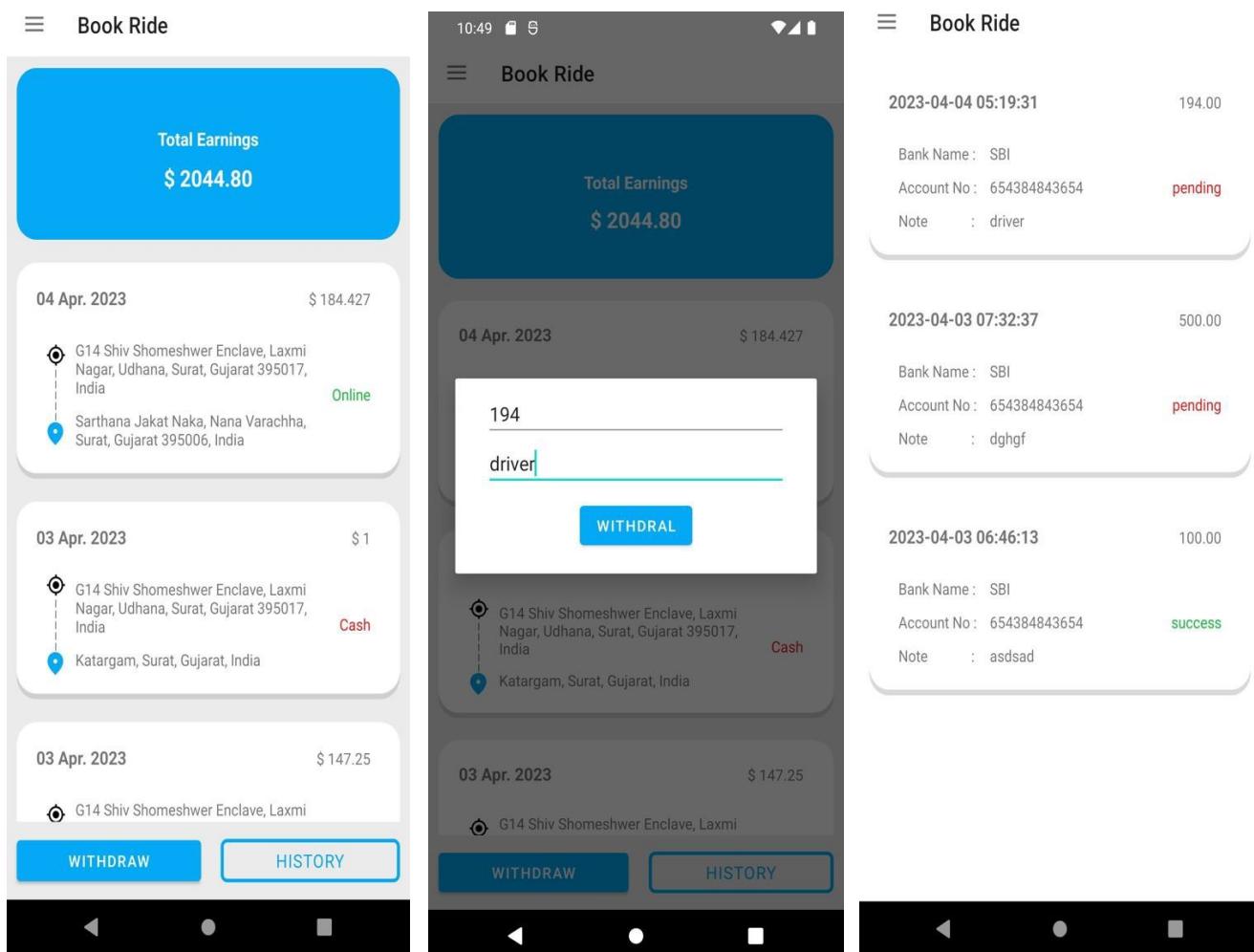
Payment Screen :



- In this payment screen , the rider will have to choose the payment method :
- If pay in cash, the rider will be directed to the waiting screen, where the notification will appear if request is accepted. But now in this application payment is in only cash.
- Time and distance determines the price

- Pay by cash or go cashless
- Choose payment gateway of your choice
- Pay with App wallet and carry forward balance
- Customer can input coupons

Driver Wallet screen :

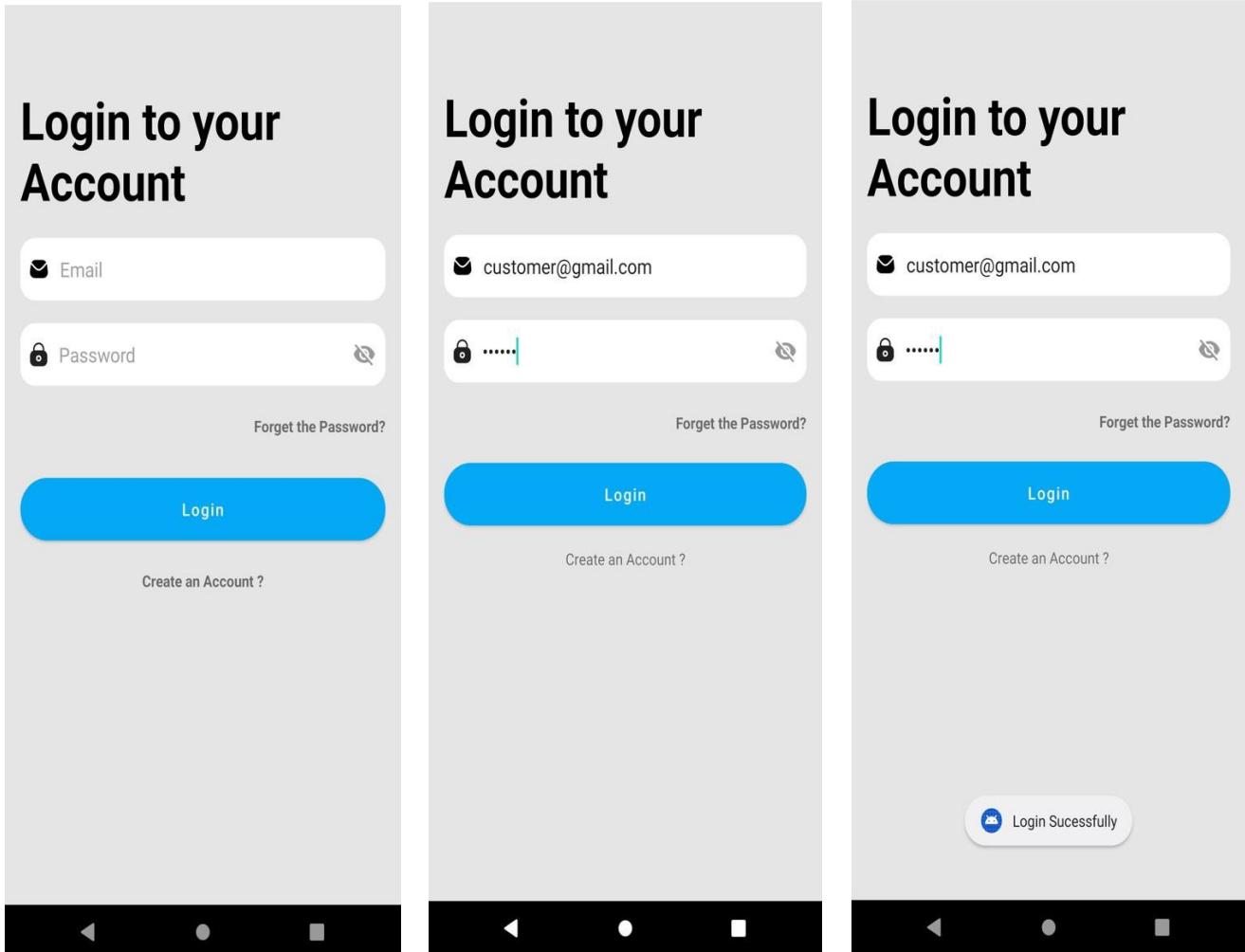


- In this payment screen (online wallet screen) , the rider will have to choose the payment method and see the driver total earnings.

FRONT-END SCREENSHOTS WITH EXPLANATION

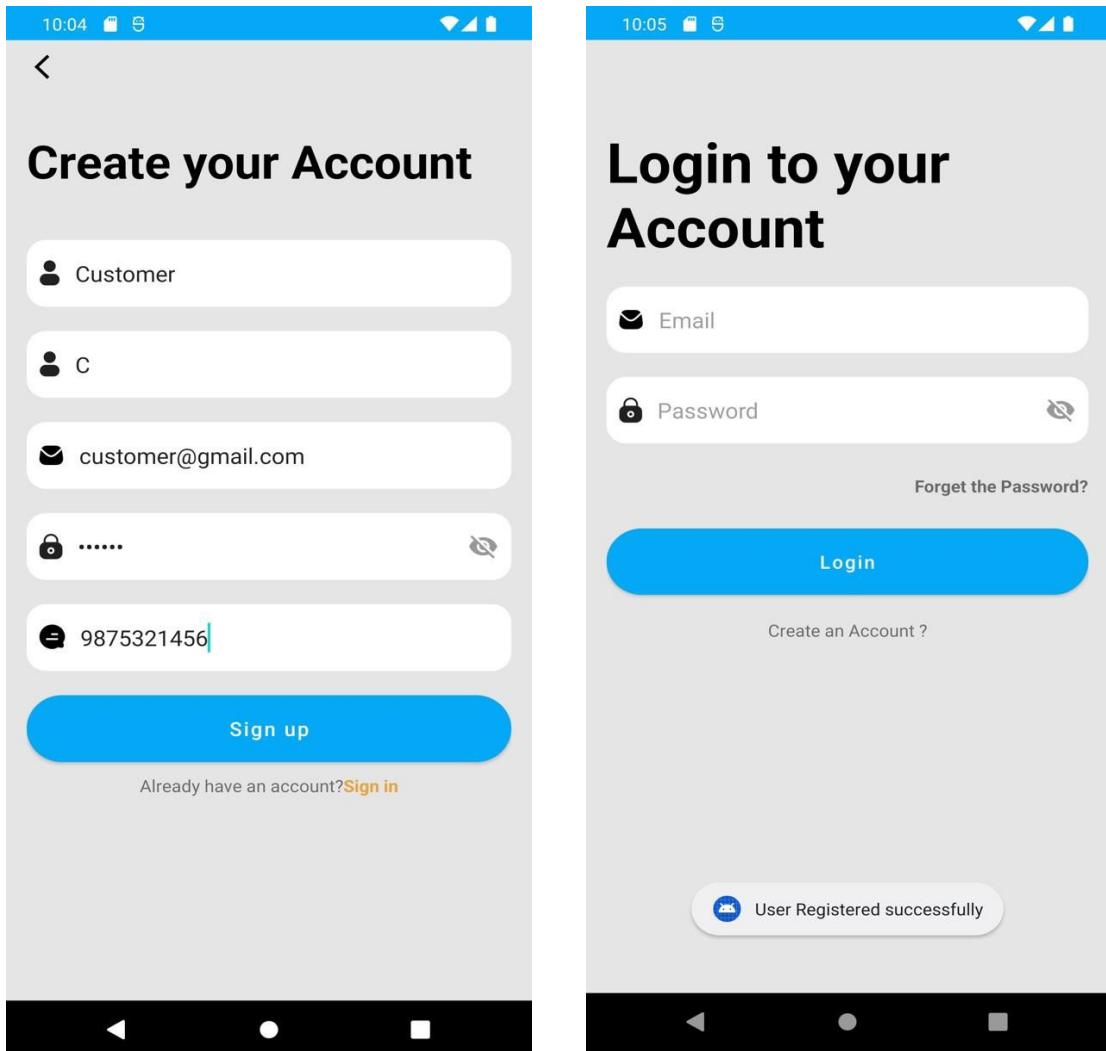
(Customer-side)

Login screen :



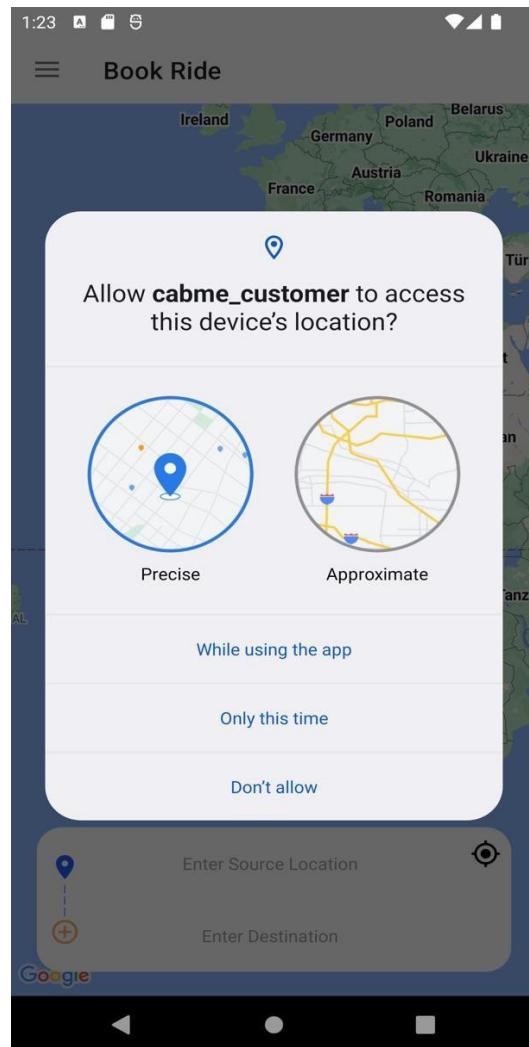
- The system login page is the first page that every user sees on launching the site, it contains on it the login form from through which users can gain access by correctly entering their user credentials.
- This is created by making a login activity and implementing google SQLite database authentication

Register screen :



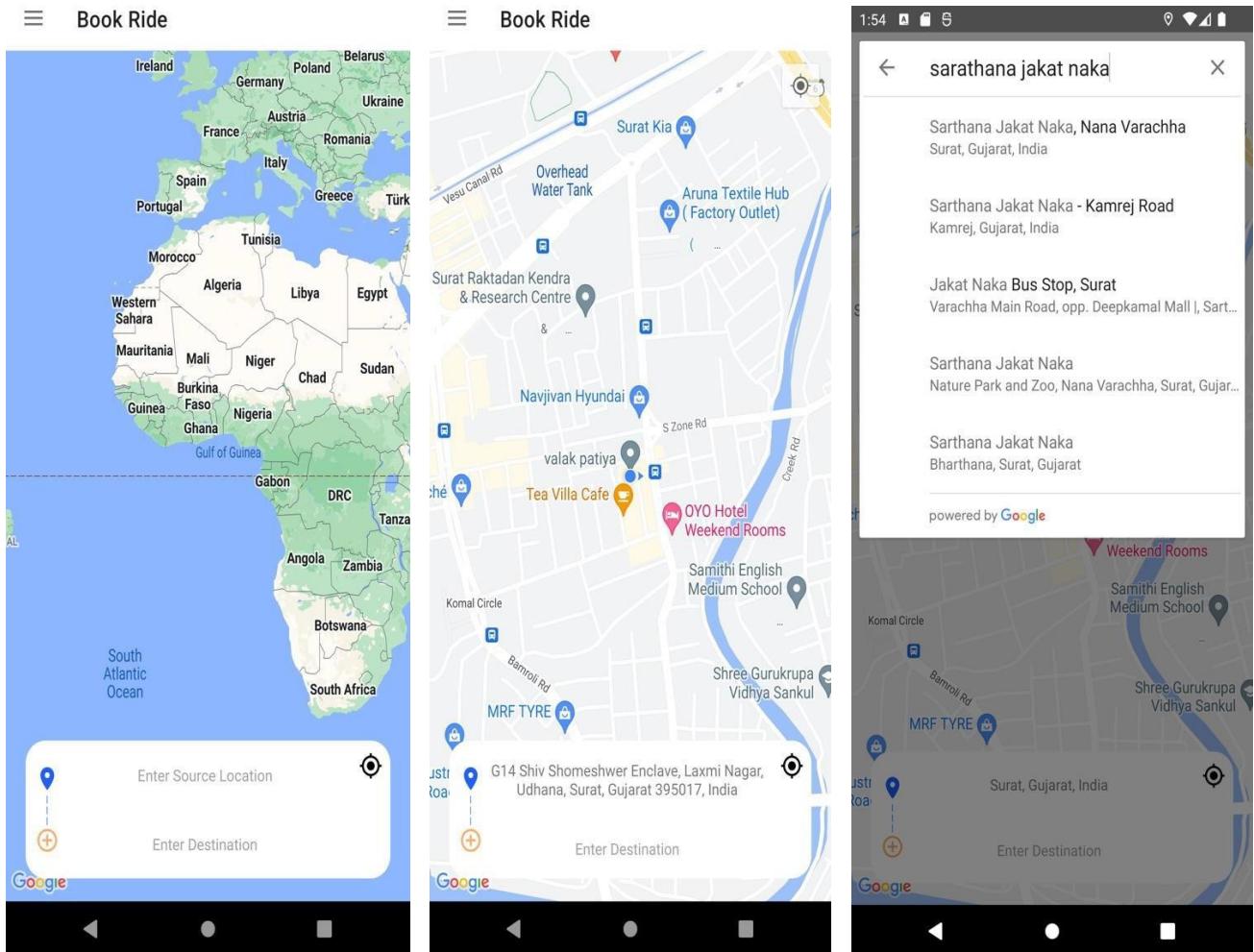
- The system sign up page is the second page that every user sees in launching the site, it is a page that is used to register a person as a different user before he / she can have access to the system.
- Where he can create his account by entering his username , password and contact which he wants registered in our database.
- Once the user login enters his details he will see a toast showing if the user registered successfully
- Once the user is registered he can then click the Already a user option to log in

Location Device Screen :



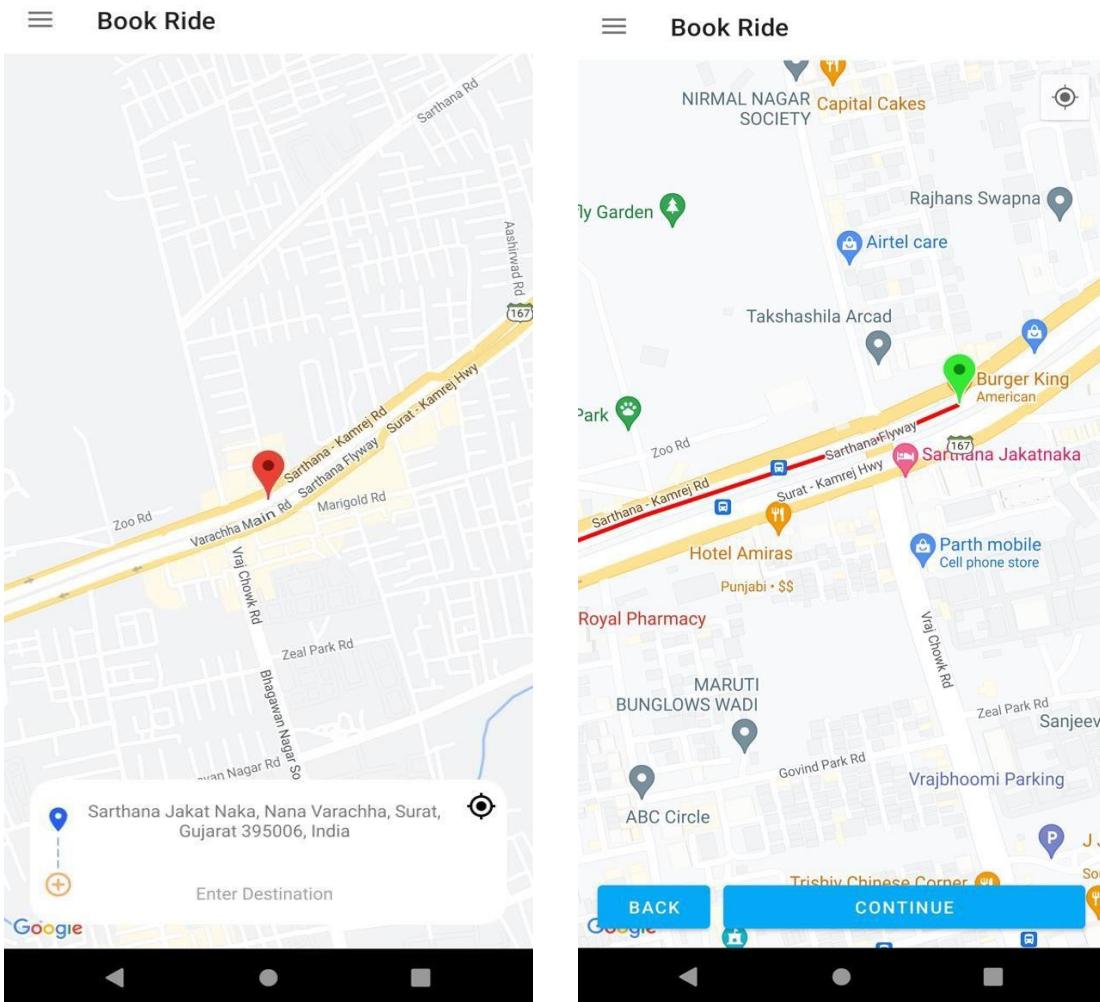
- In this screen , show the alert box for customer allow to access this device location.

Google Map Screen :



- These screenshots show the map view region, if the user wants to optimize or trace the path of the place which he / she had chosen from his / her current locations. His / her current location is determined by the GPS Receiver Hardware.
- Since we use the emulator the current location could not be determined as the hardware would be available in the original Android Phones.

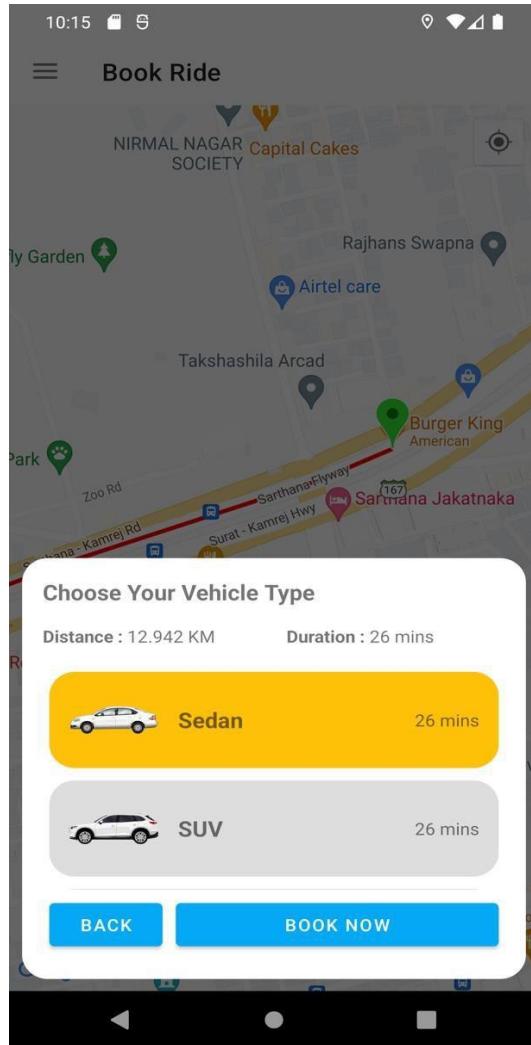
Destination Screen :



- After choosing the pickup location, the rider will then be directed to this screen to choose their destination.
- In this screen, the rider will have to enter their destination place in Iframe.
- After providing both the origin and the destination , the rider will be able to see the directions from their pickup place to their destination.

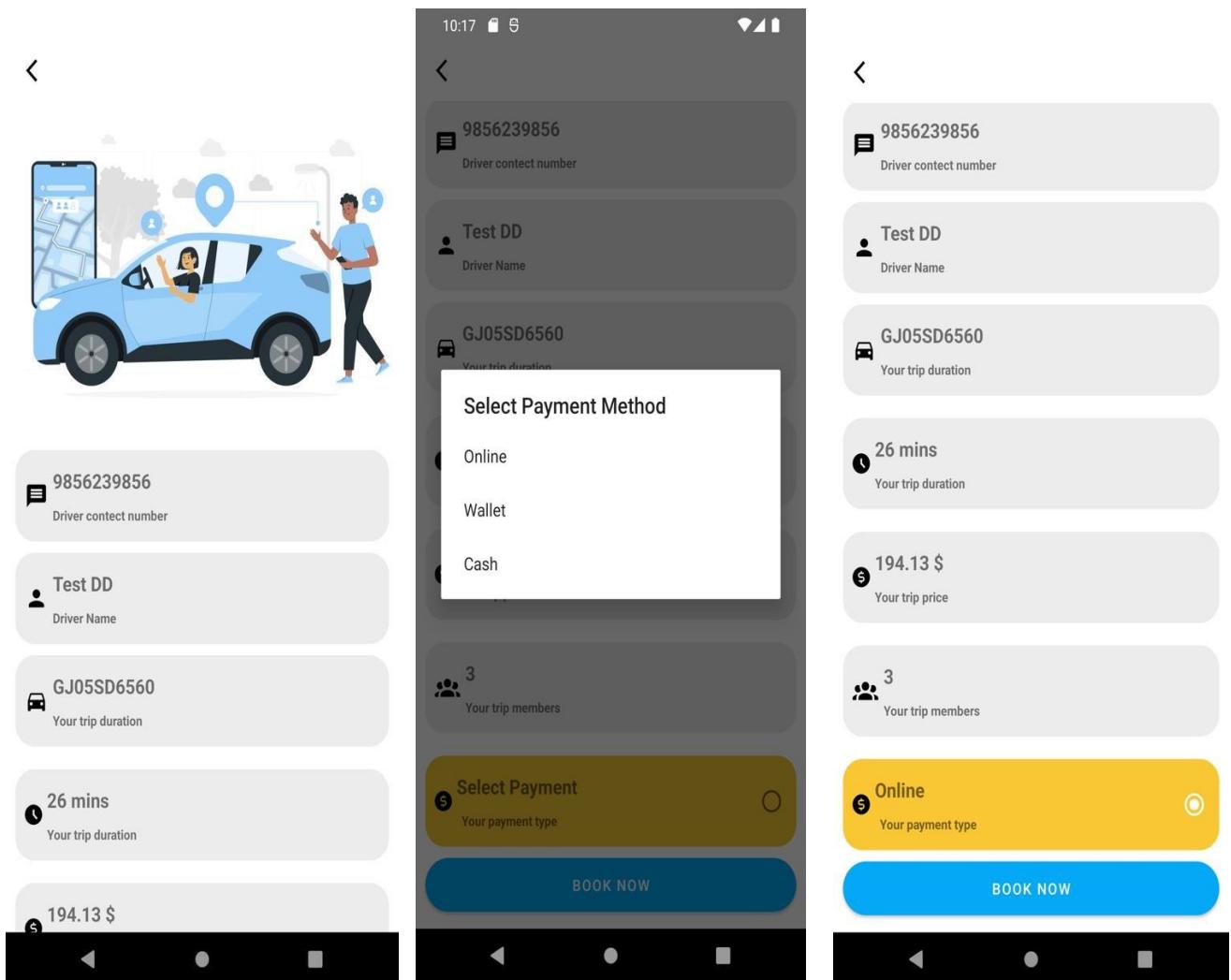
Also, in this screen, we are providing the riders with a list of their favourite places.

Vehicle Type Screen :



- After specifying the pickup and the destination locations, the user is provided with the following information :
 - The distance between the origin and destination that is calculated using Google distance Matrix API.
 - The time to finish the trip
 - The approximated price for the trip
 - Different vehicle choices.
- The rider will have to choose a choice for the car in order to send the request to the drivers and proceed with the payment.

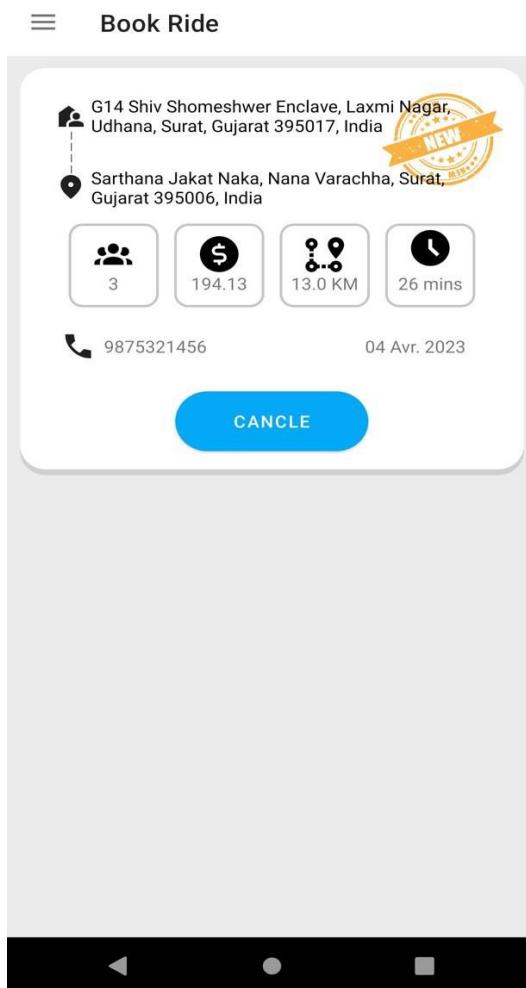
Driver Information Screen :



- After the vehicle type information screen , the central administrator app is contacted to see if they are taxis available at that time for a pick up.
- If at least one taxi is available , then the reservation is confirms and a confirmation number is generated and displayed the assigned cab number.
- In addition , the user can SMS the details to his phone, email the detail to his email id, check taxi status. Further , the user can set a notification to remind him 12 minutes before the pickup time.
- The user should be careful not to close the application or switch the phone off in order for the notification to work correctly.

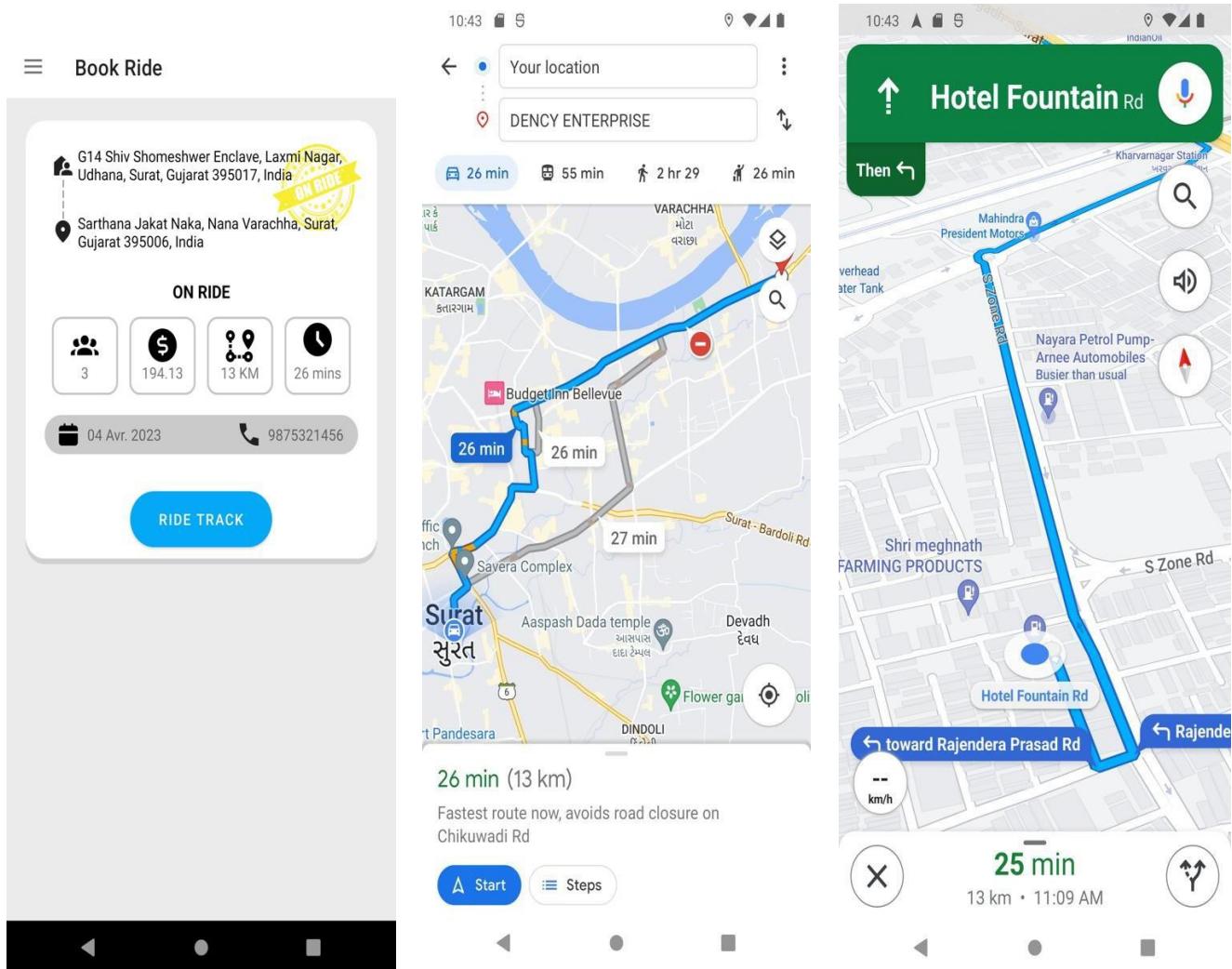
- Also, include in this payment screen, the rider will have to choose the payment method;
- If pay in cash, the rider will be directed to the waiting screen, where the notification will appear if the request is accepted.

Book ride screen :



- Your ride is booked.

Ride track screen :



- After choosing the pickup location, the rider will then direction to this screen to choose their destination.
- In this screen, the rider will have to enter their destination place in Iframe.

- After providing both the origin and the destination, the rider will be able to see the directions from their pickup place to their destination.
- Also, in this screen, we are providing the riders with a list of their favourite place.
- Once the driver accepts the rider's request, the driver is automatically marked unavailable, and will be directed to the map screen where the driver pick up location is shown.
- After reaching the rider's origin, the driver then will have the option to start the ride.
- After reaching the ride's destination , the driver then will be able to click on finish the ride to get paid and come back to request screen.

List of Database Table

This is the implementation of the back end of the **Cabme** online information system; it forms the data stores for all the data provided to the customer as well as the data the customers submits in the **Cabme** website about their details and the general reservation details.

The database has a number of tables used to give different information and details regarding the customers , drivers , cars , and reservations .

The taxi system will be developed using SQLite database named “**Cabme**” with serval tables about the cars , drivers , routes and the changes.

Customer table :

<input type="checkbox"/>		User Name	Email	Wallet History	Phone	Status	Actions
<input type="checkbox"/>		Test customer	test.customer@yopmail.com	Wallet History	12345642	<input checked="" type="checkbox"/>	
<input type="checkbox"/>		Test1 Customer	test1.customer@yopmail.com	Wallet History	+919876541235	<input checked="" type="checkbox"/>	

This contains all the customers who have booked or done reservation with the **Cabme** ; it contains the specific customer details and information .

Driver table :

	Driver Name	Documents	Email	Phone	Vehicle Type	Total Rides	Wallet History	Status
<input type="checkbox"/>	Driver Test		test.driver@yopmail.com	123456	Sedan	5	Wallet History	
<input type="checkbox"/>	Driver Test1		test1.driver@yopmail.com	+919876541235		0	Wallet History	

This keeps a list of all the drivers registered with the **Cabme** organization

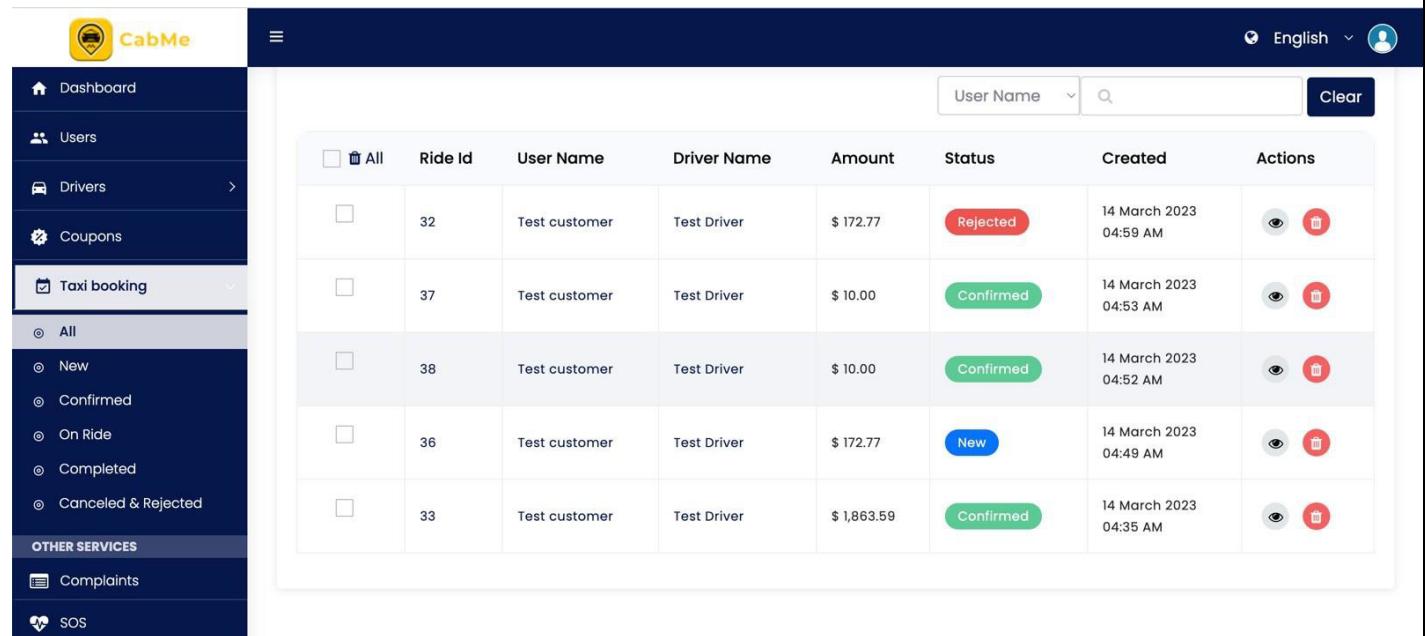
	Driver Name	Documents	Email	Phone	Vehicle Type	Total Rides	Wallet History	Status	Actions
	river Test		test.driver@yopmail.com	123456	Sedan	5	Wallet History		
	river Test1		test1.driver@yopmail.com	+919876541235		0	Wallet History		

This form is used to enter the driver details such as driver name , contact number , address , license number , date of joining are enter the corresponding text box control and stored in the table of the database .

This is the table with information of all the drivers employed by the **Cabme** organization and managing the business on behalf of the car owners. Some drivers come in with their cars which they register with the organization and continue serving as the drivers for their own cars .

In this case they are paid as the drivers as well as their cars getting paid too for the job they do on behalf of the company.

Taxi Booking :



The screenshot shows the CabMe application interface. On the left is a sidebar with the following navigation items:

- Dashboard
- Users
- Drivers >
- Coupons
- Taxi booking** (selected)
- All
- New
- Confirmed
- On Ride
- Completed
- Canceled & Rejected
- OTHER SERVICES
- Complaints
- SOS

The main content area displays a table of taxi bookings:

<input type="checkbox"/> All	Ride Id	User Name	Driver Name	Amount	Status	Created	Actions
<input type="checkbox"/>	32	Test customer	Test Driver	\$ 172.77	Rejected	14 March 2023 04:59 AM	
<input type="checkbox"/>	37	Test customer	Test Driver	\$ 10.00	Confirmed	14 March 2023 04:53 AM	
<input type="checkbox"/>	38	Test customer	Test Driver	\$ 10.00	Confirmed	14 March 2023 04:52 AM	
<input type="checkbox"/>	36	Test customer	Test Driver	\$ 172.77	New	14 March 2023 04:49 AM	
<input type="checkbox"/>	33	Test customer	Test Driver	\$ 1,863.59	Confirmed	14 March 2023 04:35 AM	

This form is used to enter the booking details such as Ride id , User name , Driver name , Amount , Status and time are enter the corresponding text box control and stored in the table of the database.

This form is used to enter the vehicle detail such as vehicle Image , vehicle type , insurance no are enter the corresponding text box control and stored in the table of the database .

This contains the list of cars that are available for hire at anyone given time. They also show details of the car location and the driver who is assigned to that car at anyone given time.

Tables :

Users table :

S No	Attributes	Data Type	Size	Key
1	id	bigint	20	Primary Key
2	name	varchar	255	
3	email	varchar	255	
4	password	varchar	255	

driver_document table :

S No	Attributes	Data Type	Size	Key
1	id	bigint	20	Primary Key
2	driver_id	int	11	
3	document_id	int	11	
4	document_status	varchar	255	
	comment	text		

payment_settings table :

S No	Attributes	Data Type	Size	Key
1	id	bigint	20	Primary Key
2	app_id	varchar	25	
3	username	varchar	20	
4	password	varchar	20	
5	tax_type	varchar	20	
6	tax_amount	varchar	20	

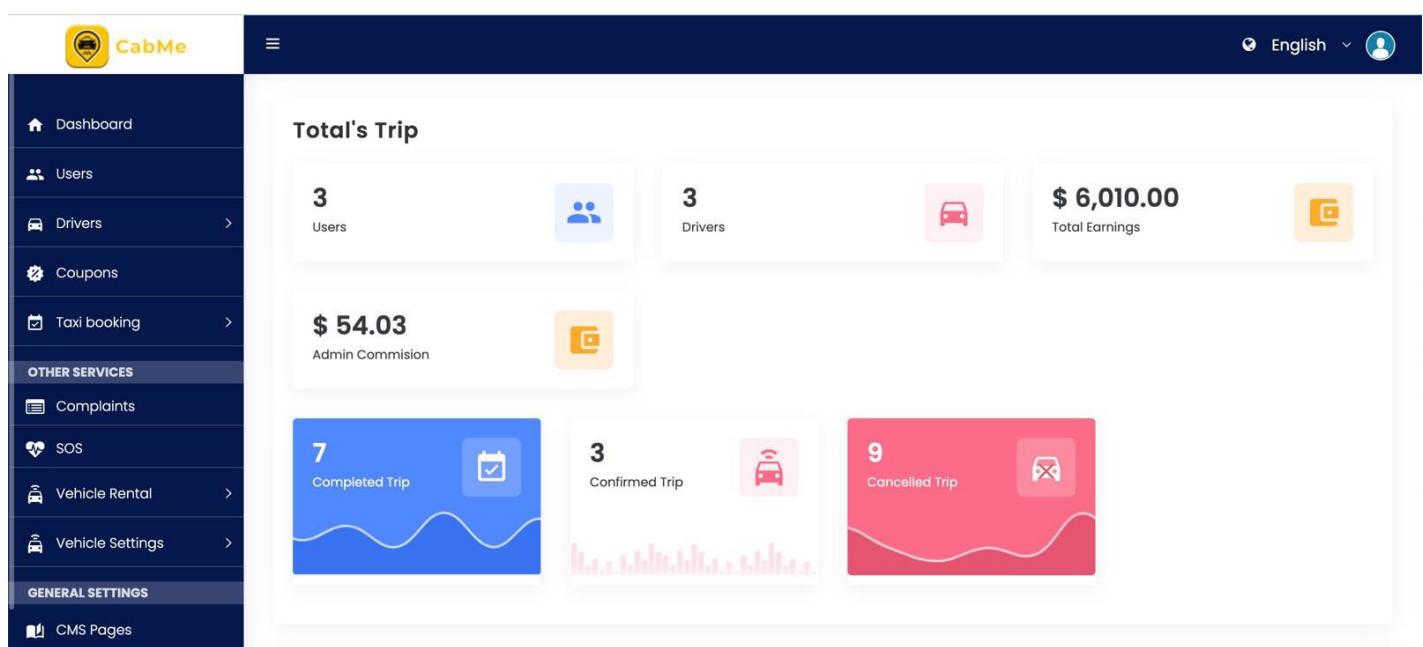
requete table :

S No	Attributes	Data Type	Size	Key
1	id	bigint	20	Primary Key
2	id_user_app	int	11	
3	latitude_depart	varchar	21	
4	longitude_depart	varchar	21	
5	latitude_arrivee	varchar	21	
6	longitude_arrivee	varchar	21	
7	place	text		
8	number_poeple	int	20	
9	distance	Int	10	
10	tax	decimal	10,2	
11	discount	decimal	10,2	
12	admin_commission	varchar	20	
13	transaction_id	varchar	20	
14	statut	varchar	10	
15	statut_paiement	varchar	10	
16	id_payment_method	int	11	

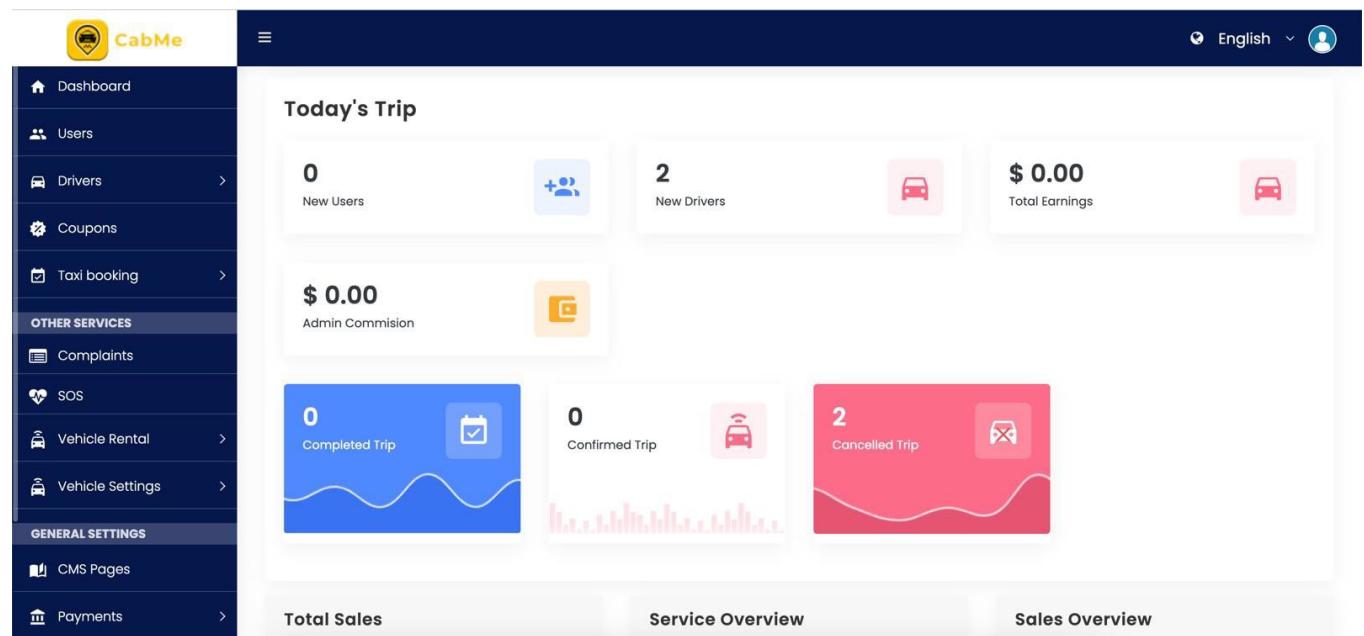
Admin_document_table :

S No	Attributes	Data type	Size	Key
1	id	bigint	20	Primary Key
2	title	varchar	255	
3	is_enabled	varchar	20	
4	Create_at	varchar		

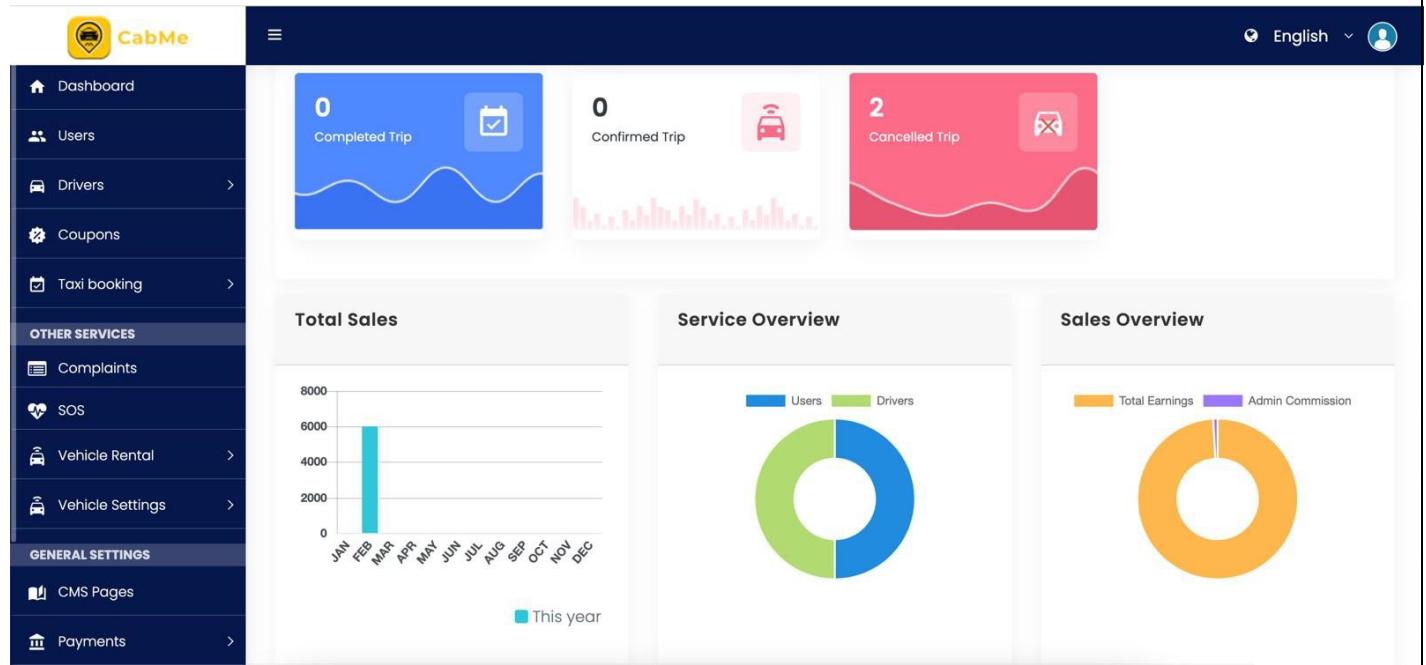
BACK-END SCREENSHOTS WITH EXPLANATION



SQLite database is an open source database which is embedded into Android. SQLite supports standard relational database operations. The major advantages of SQLite is that it requires approximately only 250 Kbytes of memory at runtime.



SQLite is available on every Android running device and does not require any additional setup. Data can be accessed, upload, inserted into the table with simple queries.



The Cabme taxis application uses the table Reservations in the database Bookings DB through Data Access Object. The transactions made by a user are stored in the local database called Bookings DB on the device. The Reservations table is accessed via the primary key which is the confirmation Number.

TESTING AND IMPLEMENTATION

This is the implementation and putting into reality the requirement and designs got from the analysis stages and covers a broad spectrum of activities ranging from the development of the graphical user interface of the system which forms the front end to the database component as the back end from where all the data is stored when the system forms are filled by the users, this continues as a detailed workflow analysis to the final new system which is expected by the Taxis management to manage the taxi operations in Surat city.

The essence of this System Implementation is to come up with new system that will serve the people of Surat city and ensuring that it meets the needs and expectations of the Taxis users and the general public who are the customers intending to use the online automation system for booking and reserving taxi and cars to travel with.

After the final stage of the system implementation, the completed and tested system is deployed which include executing all steps necessary to educating the general customers and users on the use of the new Taxis online information system, hosting the newly developed system into the public domains and web servers, making confirmations that all data and the site itself is available to customers globally and accurate, as well as validating that business functions to ensure that they are functioning properly.

The general implementation of the Taxis online information system is divided into two parts:

- Database implementation

This involves testing the complete system of the Taxis online information to see if it meets therequirements defined by the customers or the organization.

This is testing that is and was conducted on the Taxis online information system after it was completed; several modules and components integrated etc. the testing helped in determining and evaluating if the Taxis online information system complies with the specified functional and non-functional requirements defined by the management and the general expectations of how the taxi system should operate.

Again the testing will also be done to see if it can work on all the available technologies as well as inoperability and testing if the system is cost effective as it meets the users' needs withall the standards maintained.

The general usability and ease of use it also tested to ensure that the customers are able to use the system anywhere with ease without technical issues and complexities. This is mainly done to ensure the customers are able to manage and use the system in the most efficient manner possible as well as using any available technologies including and other devices.

The Testing phase comes after development and before deployment in the software process and consists of a set of types and methods used to evaluate and check a

software product for bugs and performance gaps. In other words, Testing is an important step since it validates whether the software meets the user requirements and the intended performance or not.

Types of software tests :

- Unit testing : consists of testing a single component of the software application. Such as a single function, at a time. Its aim is to check, usually through functions, the behaviour of the unit in different scenarios. For instance , in our Taxi booking application , we can perform a unit testing on the authentication function to check whether it operates correctly in all possible cases , like entering a wrong or a non-existing email address.

N o	Screen	Test Case	Excepted Results	Results
1	Home Page	Check the buttons Pick Me Up and View All Pickups	Each of these buttons open up the Pick Up screen and screen with a list of confirmation numbers respectively	Pass Or fail
2	Pick Up	Check the box for current location for pickup and drop off locations	The current location is displayed in the boxes either using GPS or internet depending upon user's choice	Pass Or fail
3	Pick Up	Enter the address manually in pick up and drop off locations and touch the Schedule button	No error on the locations is found	Pass Or fail
4	Pick Up	Enter an invalid address or address outside Kansas	Error displayed saying the location is not found	Pass Or fail

5	Pick Up	Mandatory fields validations	Error is displayed to the user asking him to enter the mandatory fields	Pass Or fail
6	Personal Details	Tap the See Route button	The route map from the source to the destination is displayed	Pass Or fail
7	Personal Details	Mandatory fields validations	Error is displayed to the user asking him to enter the mandatory fields	Pass Or fail
8	Personal Details	Phone number, emails id format validations	Error is displayed if the phone number or email address format entered is invalid	Pass Or fail
9	Payment Details	Mandatory fields validations	Error is displayed to the user asking him to enter the mandatory fields	Pass Or fail
10	Payment Details	Credit Card Number and CVV number format validations	Error is displayed if the Credit card number or CVV format entered is invalid	Pass Or fail
11	Confirm Screen	The confirmation number, assigned cab numbers are displayed to the user.	The confirmation details are displayed to the user	Pass Or fail
12	Confirm Screen	User clicks "Remind Me", "Send Email" and "Send SMS".	On clicking Remind Me button, a notification is set and message about the set notification is displayed to the user. On touching Send Email button, the	Pass Or fail

			confirmation details are emailed to the user. On touching the Send SMS button, the details are sent to the user's phone number	
13	View All Pick Ups Screen	The screen shows a list of confirmation numbers	Each confirmation number should be followed by a pickup date and pick up time	Pass Or fail
14	Booking Details Screen	The Booking Details screen should show the confirmation number, assigned cab number, pick up date, time, pickup place, drop off place and cab fare.	All the reservation details are shown to the user	Pass Or fail
15	Cab Status Screen	The screen should display the Confirmation number, assigned cab number and the current status of the cab	The cab status is displayed to the user	Pass Or fail
16	Cab Status Screen	Touch the "Cancel Cab" button	If the cab is assigned to the user, it is cancel and a success message is displayed to the user. If the cab is dispatched or Pass 33 already cancel, an error is displayed to the user	Pass Or fail

17	Notify Screen	The screen displays a message about his upcoming pick up	The notification alerts the user with an upcoming pick up	Pass Or fail
----	---------------	--	---	--------------

- Integration testing : consists of merging two or more Logically related units of the software application and testing them together as one large unit. Its aim is to test interaction and the flow of data between different functionalities. In our Taxi Booking Application , the integration testing can be done for example by integrating the sign-up and sign-in functionalities to check whether a newly registered user can sign-in or not.

N o	Test Case	Excepted Results	Results
1	The "Schedule my pickup" button action in thePick Up screen	This action should result inthe Personal Details sectionbeing displayed with the details about the cab fare, distance, time and the map with pick up and drop off places given in the pickup section.	Pass or fail
2	Pick up Screen - SelectDebit/Credit Card	The button changes to "PayNow", on clicking which the user is taken to the Payment Details screen	Pass or fail
3	Pick up Screen - SelectPay to Driver	The button changes to "Alright Pick me Up" and takes you to either the Confirmation screen or theCabs unavailable screen	Pass or fail

4	Confirm Screen - Touchthe Check Cab Status button	The cab status screen is displayed to the user alongwith his confirmation number and assigned cab number	Pass or fail
5	All Pick Ups History Screen - Select any reservation	The user is displayed the entire confirmation information on selecting a reservation.	Pass or fail

- System Testing : at this level, all the functionalities of the software application are fully integrated into a single unit and checked against the specified requirements. It consists of several categories, the commonly used ones are the Black Box testing , which focuses mainly on the input and the output rather than focusing on the internal design and structure of the code, and the End-to-End testing, which consists of checking if the application performs correctly in situation such as an interaction with a database or network communication system. In our software product, End-to-End testing can be check whether a change in the rider's data is updated in the database or not.
- Acceptance testing : It aims to checking if the whole software system meets the business requirements and criteria. It consist of several types :
- User Acceptance Testing : Checks whether the application is fully functioning for the user.
- Business Acceptance Testing : Checks whether the application meets the business intended performance and goals.
- Contact Acceptance Testing : It is based on a contract specifying a certain period for which the acceptance test of the software product must perform correctly for all the specified scenarios.

LIMITATIONS

Just as any researcher is bonded and restricted to encounter some limitation, this research is faced with the following limitations:

- i. The period used is limited for the executions of this project work and made the research a little bit tedious, because materials were not available on time.
- ii. Inadequate finance limited the information and timely completion of the work.
- iii. Poor availability of internet service at certain periods also inhibited the acquisition of necessary information for the execution of this project.

The project will be limited to creation of an interface to register for car booking and creation of a database which then will store customer data.

FUTURE ENHANCEMENTS

This project transverse a lot of areas ranging from business concepts to computing field, business, building commercial websites & required to perform several researches to be able to achieve the project objectives. A potential future scope for development in the above project could be to include optimized FPS services or real-time Google Maps integrated with the system to be able to reveal insights to user to further encourage with Taxi Booking .

The actual result is still a prototype which can be improve if more time is given. Normally more features should be implemented in order to obtain the product we envisioned. In order to make completely functional and adapted to the actual market I'm planning to improve it on different levels. These improvements are included in the future work part which will be composed of :

- Offering multiple methods of authenticating with a login supporting authentication with Google , Facebook , Twitter.
- Implementing an Admin panel , a visual one which will take care of the app's management and administration by keeping track of the users, modifying , or deleting any information related to them , as well as the sub admins and their rights , the dispatchers etc .
- Alerting the riders when the drivers accepted the request by sending instant messages using the SQLite service.
- The possibility to directly call the driver / rider after he accepted the request in order to keep track of the situation and facilitate the communication in case an unplanned event happens.

- Improving the user experience by working in the responsiveness of the app and making each page more visually distinct in order to help the user easily find the feature he is looking for.
- Future development will not be limited to these tasks; a software lifecycle is a cycle of continual refining and prototyping that leads to better products , and I will make sure that is app will be no exception .

CONCLUSION

Customer can use an online booking system to rent taxis. Customers may use this online system to browse available taxis, view profiles, and book taxis. Taxi booking is a typical kind of transportation that is offered by a number of different transportation firms in a particular city. The bulk of people rely on taxi services for their daily transportation needs. The company must be registered and fulfil all of the transportation departments requirements and security requirements. This paper demonstrates an effective taxi booking system. This project included a wide variety of topics. From corporate principles to computer science, and required the completion of a number of courses in order to reach the deadline.

This project is beneficial to all those users who are looking for booking their tours online by searching different places and different travel agencies around their desired place. This site gives them a better way to search and book their journey. This project has been developed by us as we thought that this type of project is worth making because this can be used to give information and fulfil a necessary requirement of this internet era.

Our project also provides a beautiful interface to work as well as having a good database to keep track all the user records.

- User friendly screens are provided.
- It has been thoroughly tested and implemented.

BIBLIOGRAPHY

- <https://stackoverflow.com/>
- <https://www.jsonschema2pojo.org/>
- <https://speeding-firefly-97757.postman.co/>
- <https://www.javatpoint.com/android-firebase-authentication-google-login>
- https://www.tutorialspoint.com/java/java_overview.htm
- <https://o7planning.org/10433/android-sqlite-database>

