PROJECT REPORT ON

“Ride Sharing App using Geo-Location API”

CSE 2200: Advanced Programing

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Objectives:

To develop an application that

1.By using the app,one can call a transport like car,motorcycle etc.

2. One can share their information with the drivers and vice versa.

3.One can see available passengers or drivers nearby on Google map.

4.One can locate their transportation on the Google map.

5.One can also cancel the transportation if needed.

Introduction:

The app is called “চলো” which is basically a ride sharing application which will help a person as a driver as well as traveller.Transportation is an huge asset to the human beings.But now in this modern world,time is money.In order to save time,this application is created for calling a ride in order to save time.One can easily call a ride, by using this application.

The application is created in **Android Studio**.This is an IDE created by a community named “IntelliJIDEA "used as a platform for developing Mobile Apps based on Android Technology.The IntelliJIDEA, Android based studio provides a massive amount of plugins created by different communities.

To develop this application,**Geolocation API** and a **Real-Time database** are used.

Geolocation API - The geolocation api allows the user to provide their location to web applications if they so desire.For privacy reasons,the user is asked for permission to report location information.Application that wish to use the Geolocation object must add the “geolocation”permission to their manifest.The user’s operating system will prompt the user to allow location access the first time it is requested. Geolocation API is a complete package of products that allows users to build web and mobile apps, and improve the app with real time location services. The Geolocation API returns a location and accuracy radius based on information about cell towers and WiFi nodes that the mobile client can detect. It can even get location data from satellites. This document describes the protocol used to send this data to the server and to return a response to the client.

Real-Time database - To develop this app, a real-time database is required. Here Firebase Real-Time database was used for this purpose. Firebase real-time database is a free database provided by Google. It's a no SQL platform,which means SQL is not required to operate this platform. So it is easy to use. Moreover, it is a cross-platform app, so it can be accessed from any operating system (Android, IOS and Windows). All Operations (e.g. update, read and delete) are performed very fast. For all of these advantages, Firebaseis selected as the real-time database. This Real-time database would be used to store Users information and Users transaction.To sign-up users, Firebase Authentication is used. Firebase Authentication is another feature of Firebaseprovided by Google. This platform provides facilities of Sign up, Sign-in and reset password which is very necessary for this app.

Implementation:

Description:

After installing the application file the user will be able to open the app.At first Welcome Screen will be shown for 3 seconds that is created using Splash Screen and Full Screen Activity.Then there will be two choices.One is **Driver** and the other one is **Traveller**.User can choose either the driver option or the traveller option.After choosing that, the user will be sent to the Login page which contains Email andPassword fields. In case the user does not have an account, the user can head over to the Register page and create a new user id. If the user is already logged in the user will be directly sent to the MainActivity of the application. Otherwise the user will have to put proper Email And password to log into the account.

Driver Account:

After registering as a driver,he or she can see a button called **INFO** where he or she can tap to save his or her name,phone number,car name and his or her picture.By tapping that ,he or she will be taken to a page called **Information** .Then he can wait for any traveller who request a ride and he can see that in map which is provided in app.If the driver is in break ,he can leave the app by tapping the **Logout** button and his or her driver marker will be gone from the map.

Traveller Account:

After registering as a traveller,the traveller can also see a button called **INFO** where he can save his name,phone number and picture.After saving the Information,now he can call a ride by tapping the **Call Ride** button.By tapping, the button he will see the nearest driver from him

on the map providing by the app.If he wants to cancel the ride,he can tap the button call ride again.If he wants to get out from the app,he can tap the **Logout** button.

Functionality of the app:

When both the driver and the traveller active on the app,after calling a ride by the traveller,the nearest driver will get the information of the traveller which is stored by the traveller and the traveller's position will show on the map.The traveller will also see his driver's information and also his position on the map.When the driver is under the 100 meter radius of the traveller,there will be a message will be change on **Call Ride** button from **"call ride"** to **"Driver is here".**Now the traveller can travel to his desired destination in that ride that he called by the ride.

Flowchart:

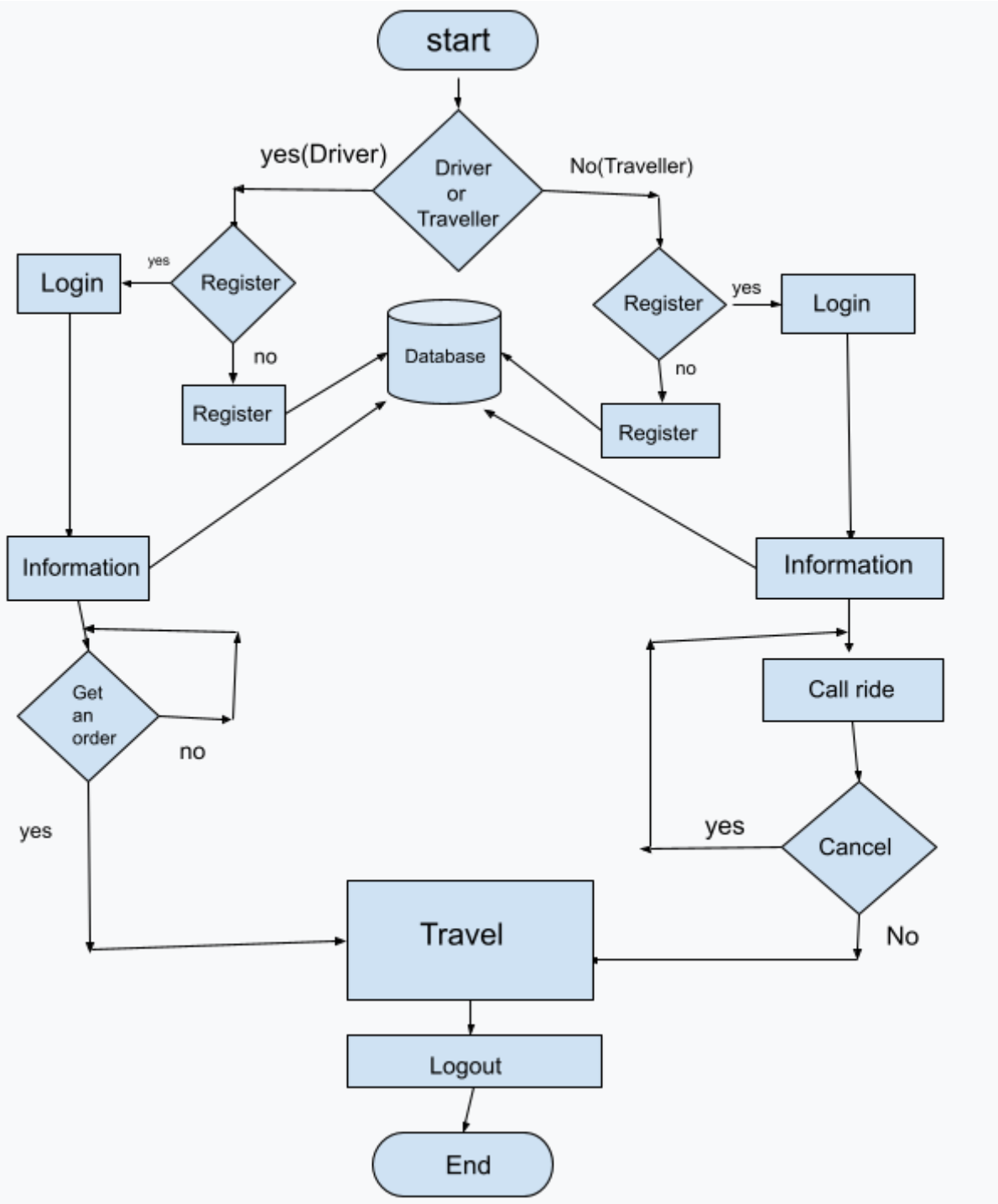


Fig 1.1:FlowChart of the app

Schema diagram:

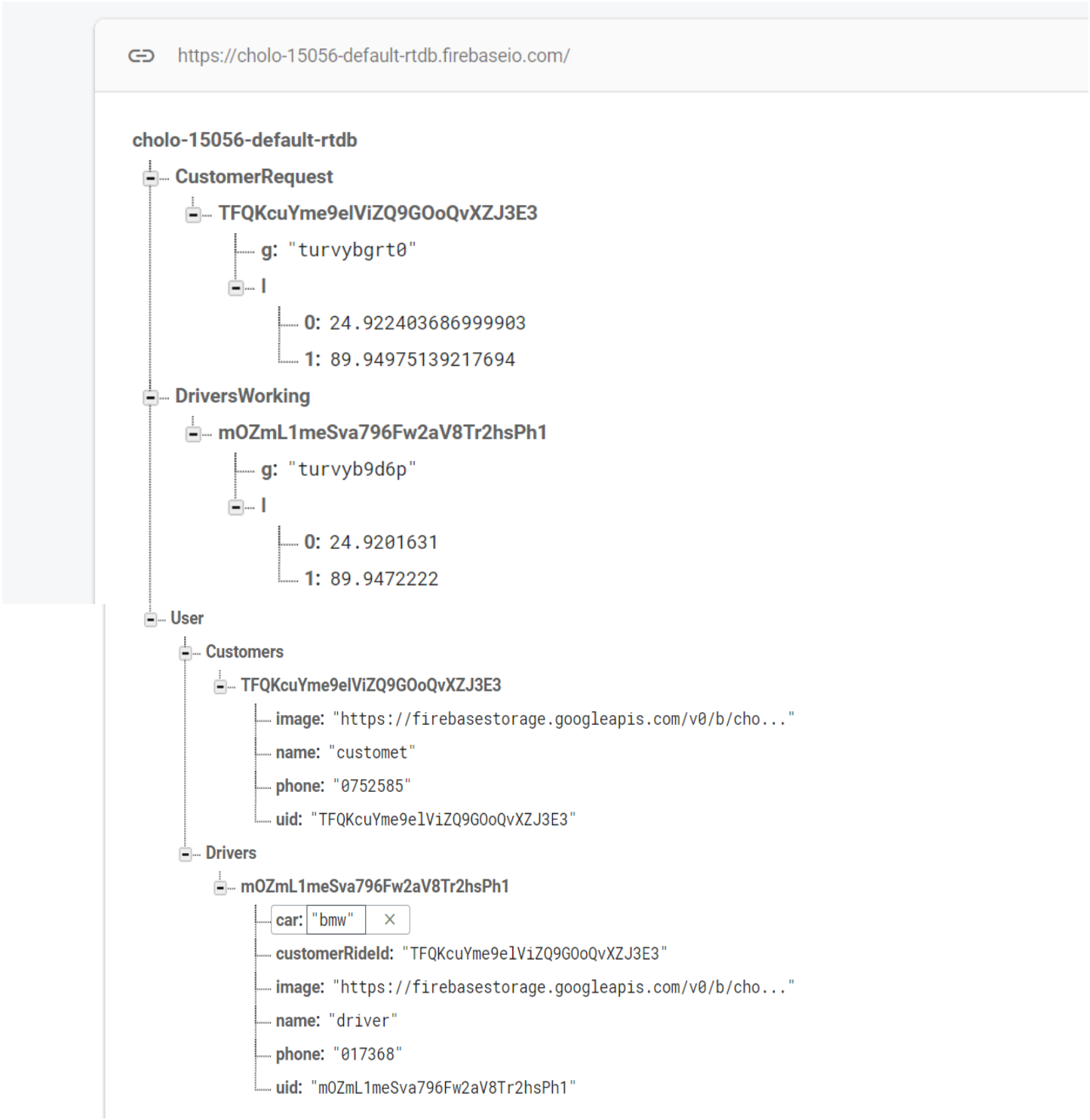


Fig1.2:Firebase Thread

Sequence diagram:

Fig 1.3:SplashScreen

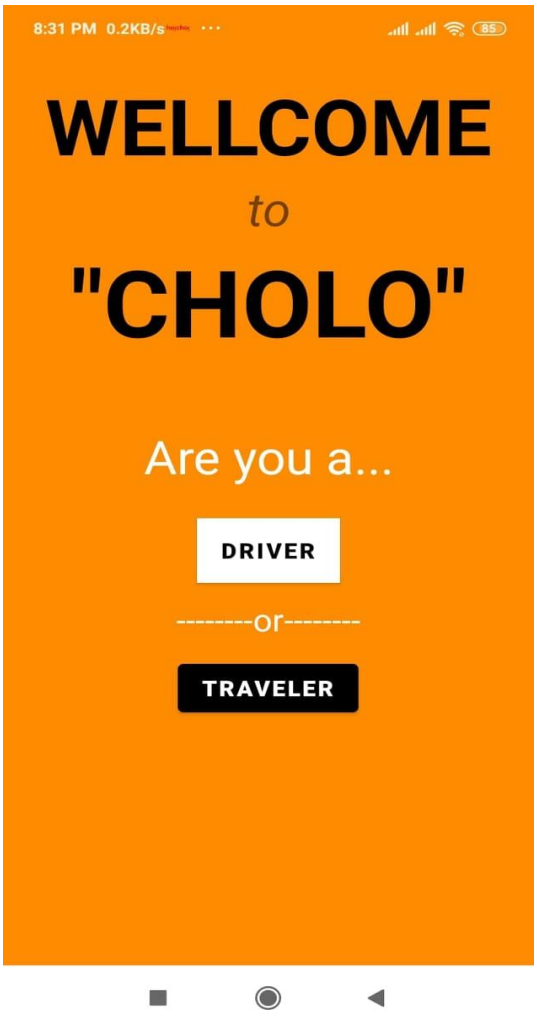


Fig 1.4:Welcome Screen

Fig 1.5:Register as Driver

Fig 1.6::Register as Customer

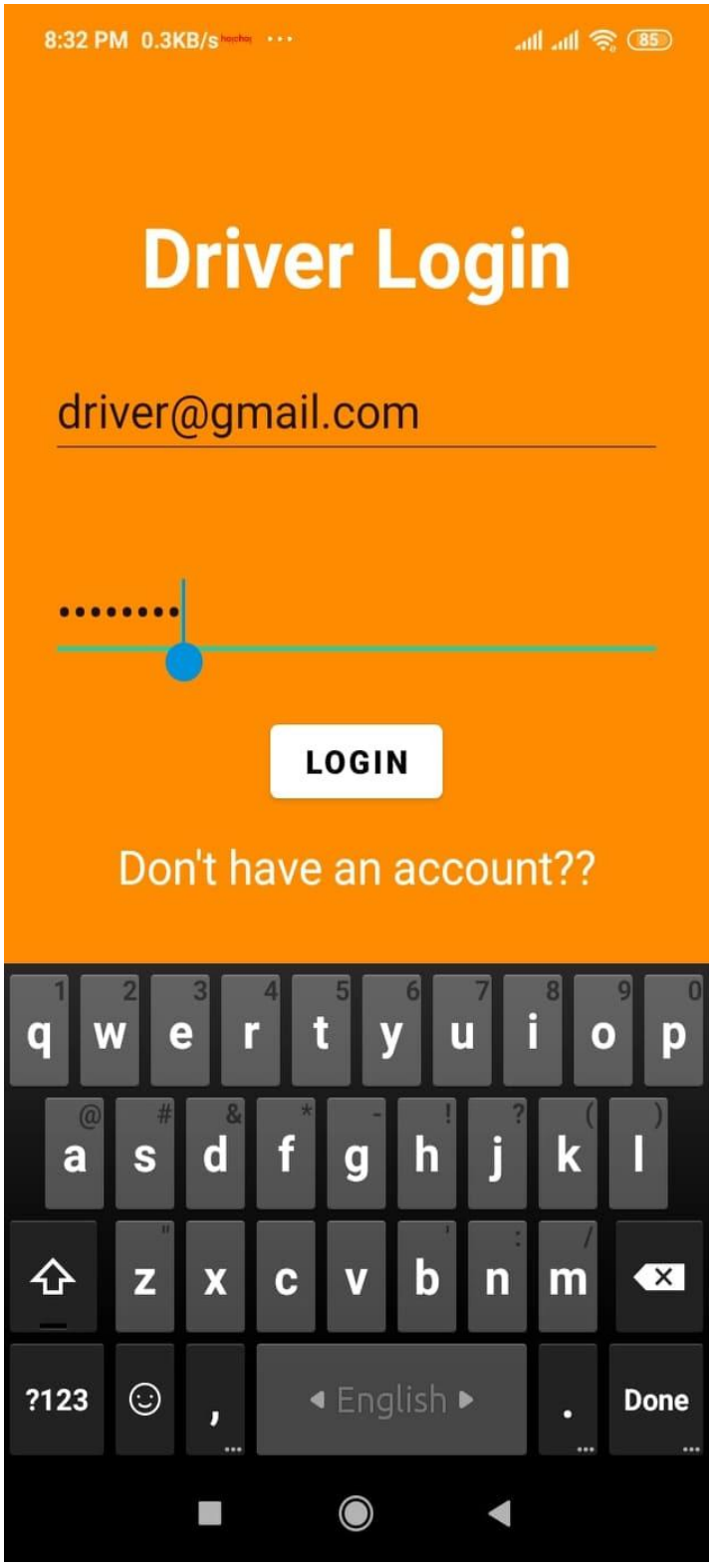


Fig 1.7:Login as Driver

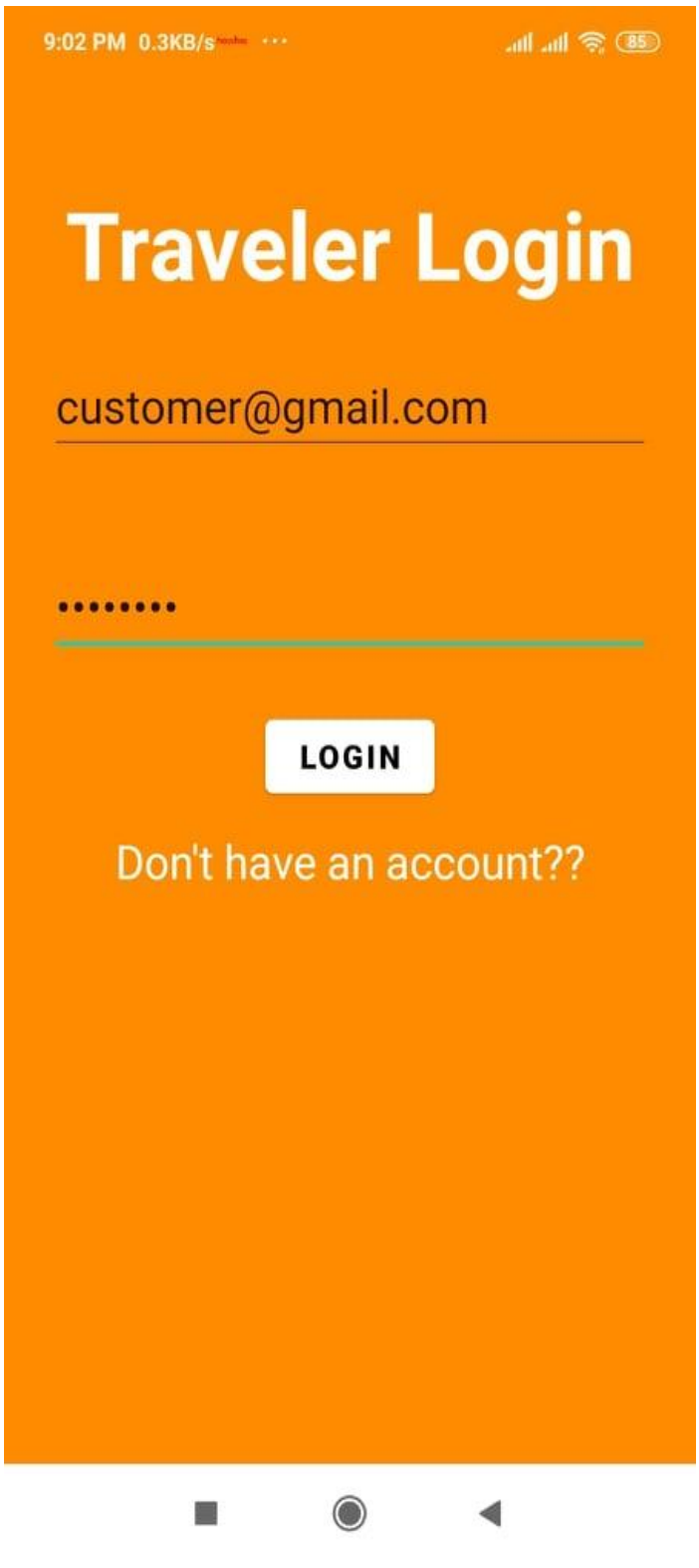


Fig 1.8:Login as Traveller

Fig 1.9:Homepage of Driver

Fig 2.0:Homepage of Customer

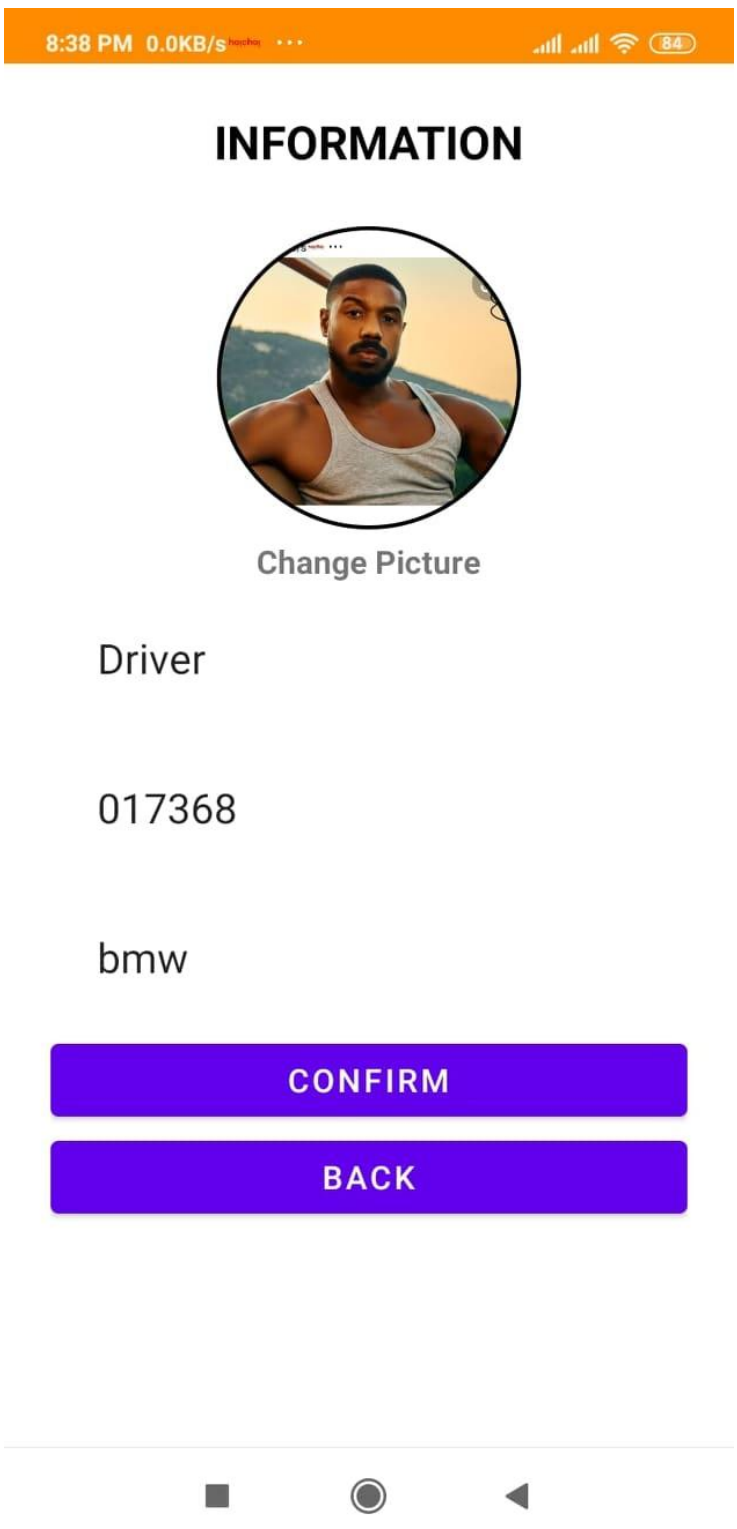


Fig 2.1:Storing Information as Driver

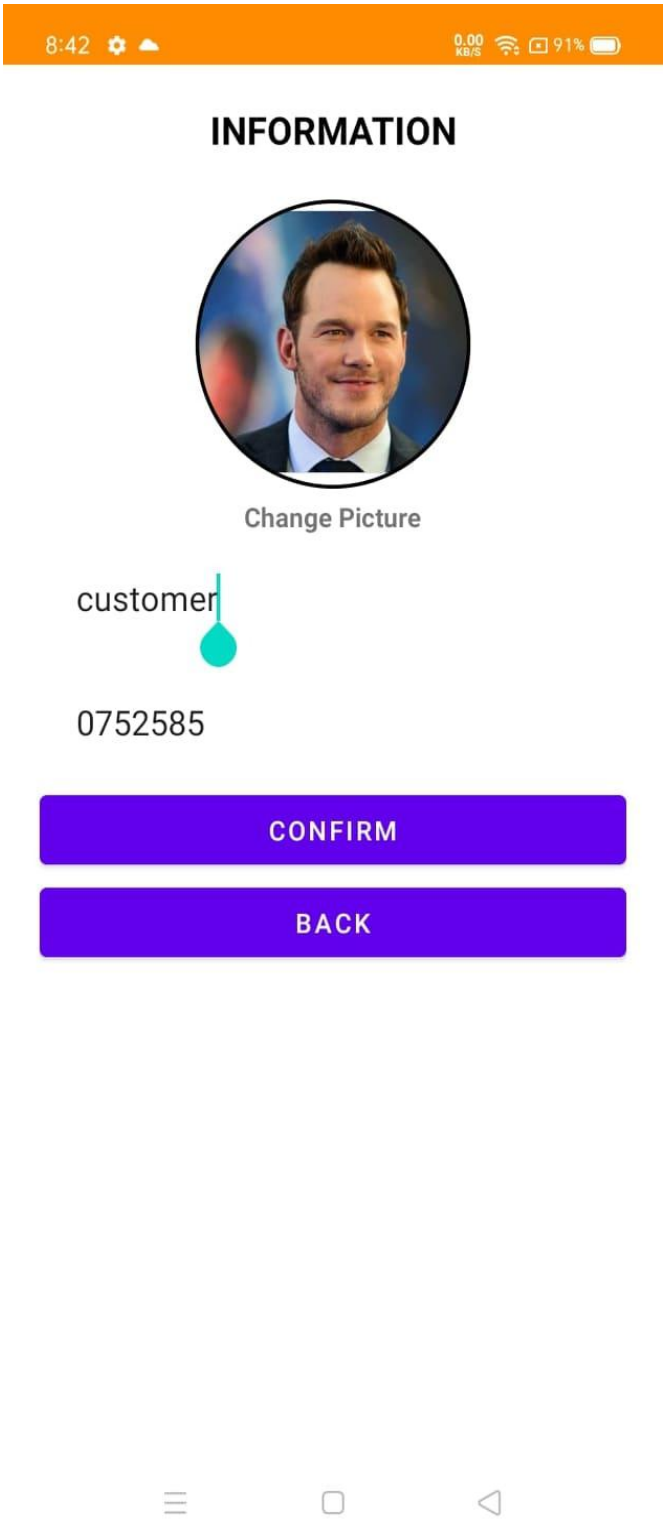
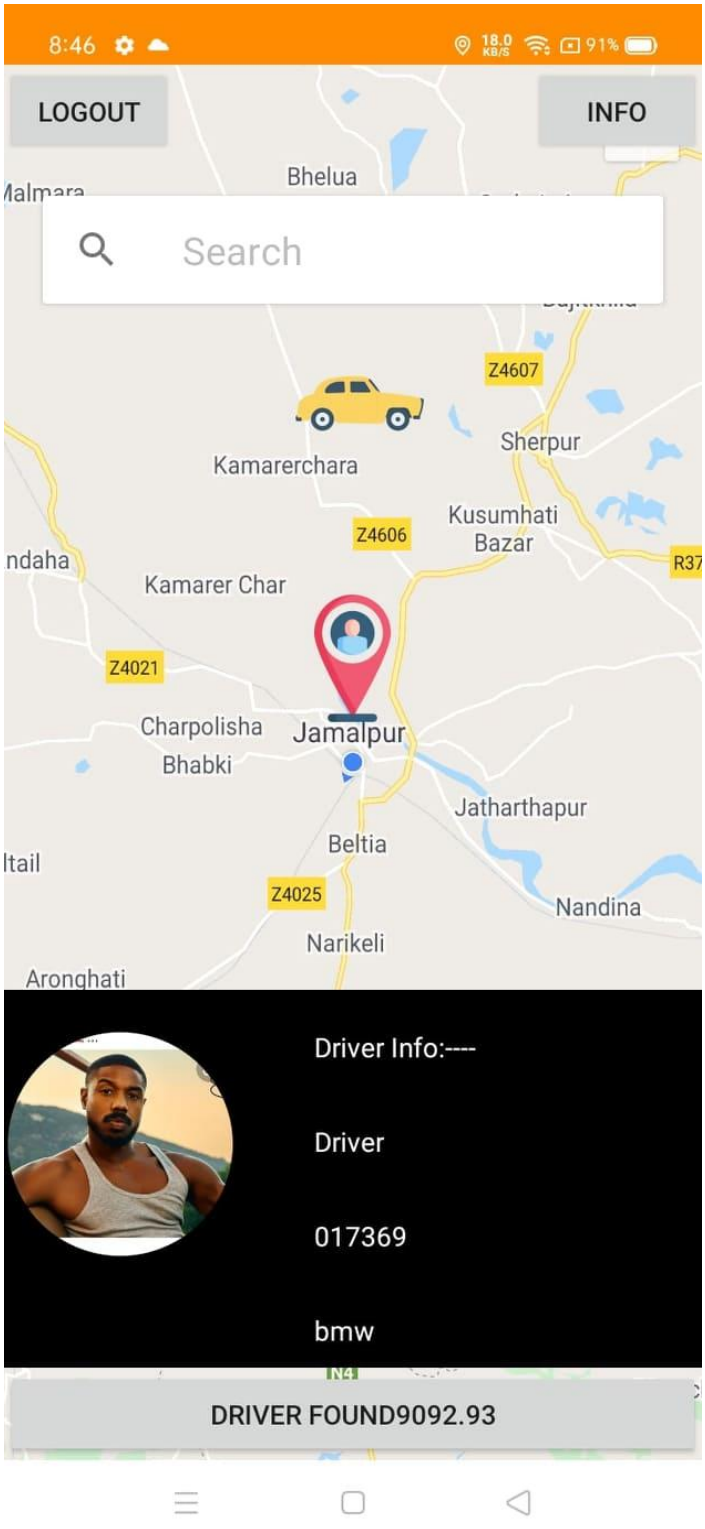


Fig 2.2:Storing Information customer



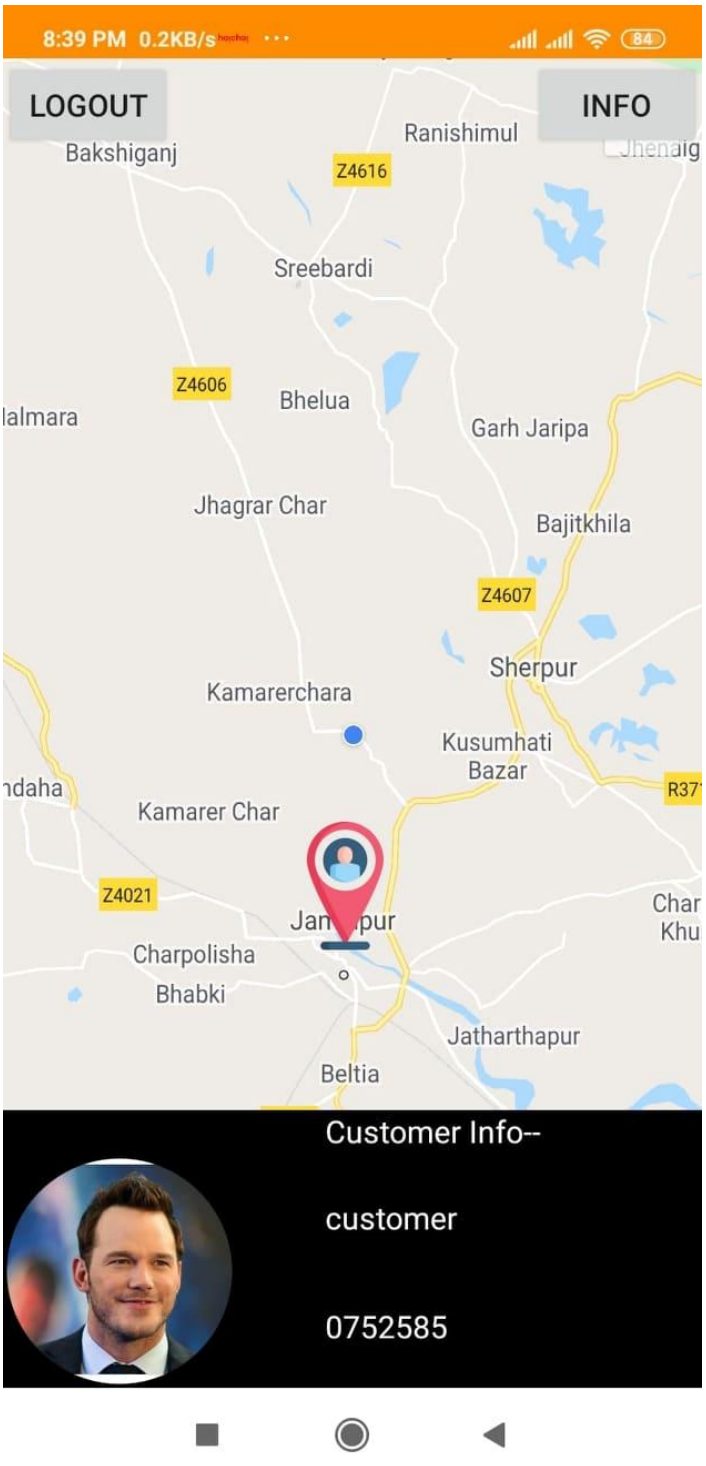


Fig 2.3: Homepage of Customer when the the ride is called.

Fig 2.4: Homepage of Driver when a order is placed.

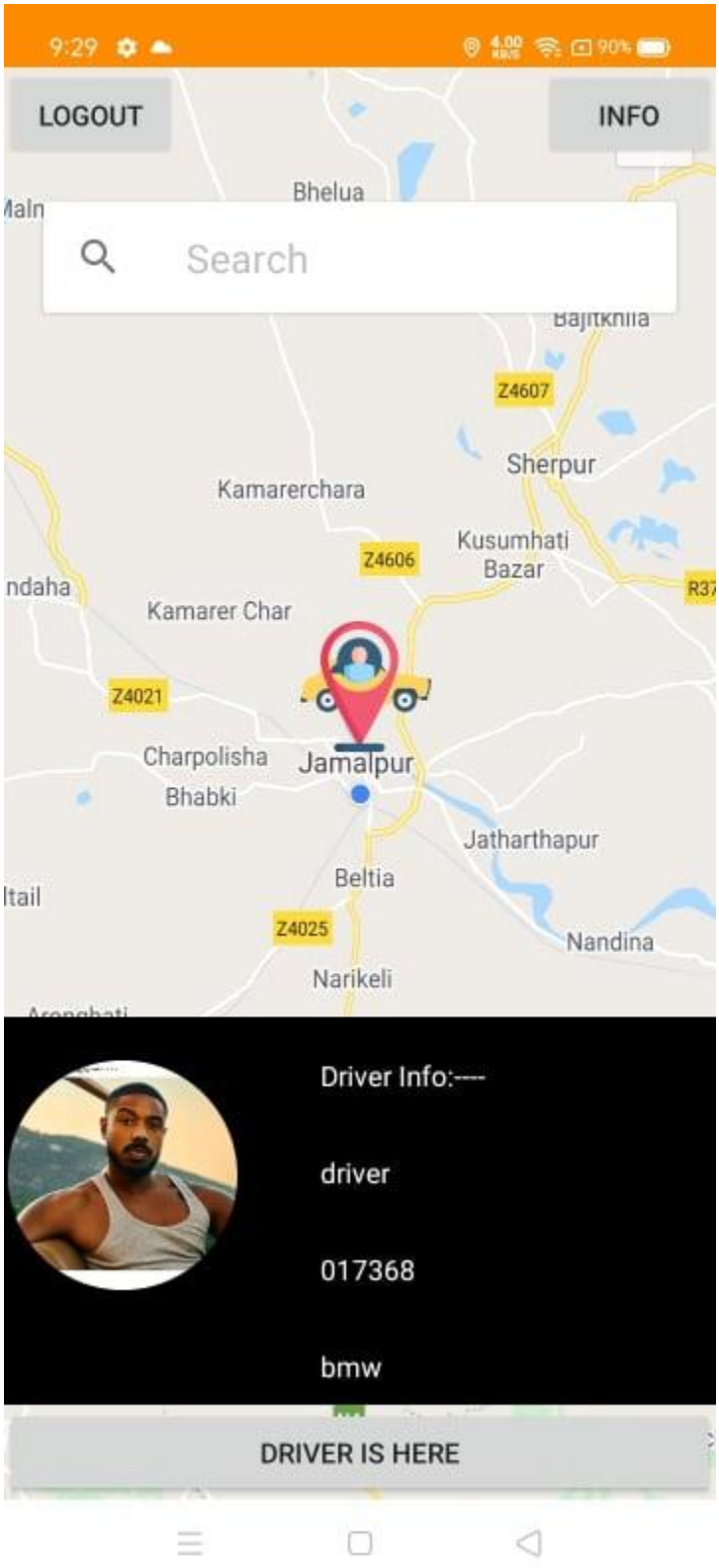


Fig 2.5: Homepage of Customer when the driver is nearby.

Target vs. Actual Accomplishments:

My target was to build an app like-

1.That saves time for travelers .

2.That helps a driver to find a traveler easily.

3.A traveler can locate drivers nearby.

4.Can also find drivers in specific places.

5.Can pay the bill of the driver via online transaction.

My target was almost achieved.Online transaction , I could not set it up in the app because there was no SDK for Bikas,Nogod or any other financial services used in Bangladesh which is required for online transactions.But overall,the app will give a great service both to the travellers as well as to the drivers.

Risks and Issues:

This app requires an internet connection and as it is a real-time app, it needs a continuous internet connection. Without the internet, it may malfunction.As this application uses Firebase Realtime Database and Firebase Authentication System, a stable network connection is compulsory.Another privacy issue linked to geolocation tracking is stalking. People may unknowingly share their real-time location with everyone, including potential stalkers.This issue will be solved in the next version .But the application tested good for approximately all other issues.My application is created for minimum SDK 21.So it will not work pre 5.0 android versions.

Discussion & Conclusion:

The project was performed quite perfectly. Some difficulties were faced at first.While creating the project,Firebase was difficult to connect.Then the another problem was created while using the Google Map API.The Map wasn't shown properly to the app.After solving the problem,geofire wasn't pushed the geo-coordinates to the firebase.But after all,the issues which were created ,they are solved now.The project is now working perfectly.This app will greatly helpful to the users who are travelling a lot.They can also save time by using the app.By performing the project,I learn a lot about android.This is the first time for me to develop an app in android studio.This experience will help a lot

in future for creating new apps.This project is an excellent learning experience for me as an android developer.

References:

1. https://developer.android.com/
2. https://firebase.google.com/docs/database
3. https://stackoverflow.com/
4. https://www.youtube.com/watch?AnisulIslamAnisulIslamVerified
5. https://www.youtube.com/watch?U4UniverseU4Universe