

Project Report on

E-Suvidha for Railyatri And Ticket Checker

Submitted in partial fulfillment of the requirements
of the degree of Bachelor in Engineering

by

Name of student	Class	Roll No.
Ruchik Dama	BE-3	05
Deep Bhanushali	BE-4	33
Kaushik Bhanushali	BE-4	34

Under the guidance of

Prof. Sarika Rane



DEPARTMENT OF COMPUTER ENGINEERING
SHAH AND ANCHOR KUTCHHI ENGINEERING COLLEGE
CHEMBUR, MUMBAI – 400088.

2019 – 2020



Certificate

This is to certify that the report of the project entitled

E-Suvidha for Railyatri And Ticket Checker

is a bonafide work of

Name of student	Class	Roll No.
Ruchik Dama	BE-3	05
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submitted to the

UNIVERSITY OF MUMBAI

*during semester VIII in partial fulfilment of the requirement for the
award of the degree of*

BACHELOR OF ENGINEERING

in

COMPUTER ENGINEERING.

(Prof. Sarika Rane)

Guide

(Prof. Uday Bhawe)
I/c Head of Department

(Dr. Bhavesh Patel)
Principal

Approval for Project Report for B. E. Semester VIII

This project report entitled E-Suvidha for Railyatri And Ticket Checker by Ruchik Dama, Deep Bhanushali, Kaushik Bhanushali is approved for semester VIII in partial fulfilment of the requirement for the award of the degree of Bachelor of Engineering.

Examiners

1. _____

2. _____

Guide

1. _____

2. _____

Date: 15/04/2020

Place: Mumbai

Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Name of student	Class	Roll No.	Signature
Ruchik Dama	BE-3	05	
Deep Bhanushali	BE-4	33	
Kaushik Bhanushali	BE-4	34	

Date: 15/04/2020

Place: Mumbai



Mahavir Education Trust's
SHAH & ANCHOR KUTCHHI ENGINEERING COLLEGE
Chembur, Mumbai - 400 088

UG Program in Computer Engineering

Attendance Certificate

Date: 15/04/2020

To,
The Principal
Shah and Anchor Kutchhi Engineering College,
Chembur, Mumbai-88

Subject: Confirmation of Attendance

Respected Sir,

This is to certify that Fourth year (BE) students:

- 1) Ruchik Dama
- 2) Deep Bhanushali
- 3) Kaushik Bhanushali

have duly attended the sessions on the day allotted to them during the period from 08/01/2020 to 18/03/2020 for performing the Final Year Project titled E-Suvidha for Railyatri And Ticket Checker.

They were punctual and regular in their attendance. Following is the detailed record of the student's attendance.

Attendance Record:

Date	Ruchik Dama	Deep Bhanushali	Kaushik Bhanushali
08/01/2020	Present	Present	Present
15/01/2020	Present	Present	Present
22/01/2020	Present	Present	Present
29/01/2020	Present	Present	Present
05/02/2020	Present	Present	Present
04/03/2020	Present	Present	Present
11/03/2020	Present	Present	Present
18/03/2020	Present	Present	Present

Signature and Name of Internal Guide: **Prof. Sarika Rane**

Abstract

Everything in the World is becoming digital. Nowadays, you can buy and sell anything on the internet. Technological development has resulted in a boundary free digital world. This Development has resulted the use of virtual money instead of the real money. Furthermore, this development has created E-ticketing. Majority of the population of the world use this form of ticketing to book tickets for their journey. This form of ticketing has various benefits like no customer has to stand in long queues and they do not have to worry about misplacing the ticket.

Additionally, customers have to carry their smartphones which has their tickets. We have always thought of what benefits should be given to the customer or the client. So, we created E-ticketing to reduce the customer's workload but at the same time workload on the other side has been the same. Ticket checkers have to check the tickets using traditional method of pen and paper. So, our project is to build an android application to reduce their workload and also help them with the technological boost in the world. We are going to design and make an Android application that will provide Ticket checker with the train details and the passenger details. To conclude, our Application is an attempt to make a Ticker Checker's job easier and to ease the process of checking tickets.

Acknowledgements

We have great pleasure in presenting the report on “E-Suvidha for Railyatri And Ticket Checker”. We take this opportunity to express our sincere thanks towards our teacher Prof. Sarika Rane, the faculty of the Department of Computer Engineering in Shah and Anchor Kutchhi Engineering College for guiding and mentoring us with the views and approach regarding the line of work. We would like to express our gratitude towards her constant encouragement, support and guidance through the development of project report.

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Chapter 1

Introduction

In the world of digital era when each and everyone is enjoying the luxury of digitalization that is use of gadgets, technology, networks, we often found that the ticket checker in India are the only one with the old-age paper and pen technique.

So, we basically thought of developing an android app for ticket checker which will make his work easy and efficient. He will be assigned with a unique registration key which will be authenticated and each and every detail about his work will be posted and updated to him like, details of passenger which have booked reserved tickets, his collected fine, etc. He will also be able to fine passenger digitally who are found violating the rules and regulations of Indian railways.

We have also planned to make a separate window for users where users can register that is authenticate itself and can access the services of the app with internet connection. Users will be able to complaint online using the app for any inconvenience caused. Be it anything like bedsheet not received in AC coaches, fan not working, toilet is not cleaned, any fellow passengers is bullied or harassed and the complaint will be received directly to the concerned authority travelling in the same train so the retaliation should be fast and efficient. Passengers can also pay the fine online if violating any norms of Indian Railways. Passenger can also check the current coach location of assigned cop and ticket checker for his efficient use. Registration of user is necessary , in case the passenger misuses the technology or his rights so he can be under scanner and necessary actions can be taken.

Chapter 2

Literature Survey

2.1 Survey Existing System

2.1.1 Android Application for Ticket Booking and Ticket Checking in Suburban Railways

The paper published by Subarnarekha Ghosal, Shalini, Chaturvedi discusses the android application for ticket reservation and validation using mobile. ticket can be bought with the help of Smartphone application where the railway tickets are carried in the phone in the form of quick response code. The ticketing information of the user is stored in database. The proposed system uses the Smartphone facility to validate the ticket and delete it after specific interval of time once the user reaches the destination. This application also includes the automatic fine deduction facility if the user tries to extend the journey. Also, the ticket checker is provided with the checker application which is used for the validation of the ticket. As soon as passenger gets down from the train or metro users ticket will be automatically deleted from the Smartphone.[1]

2.1.2 Android Railway Ticketing with GPS as Ticket Checker and using QR Code scanner

The Paper published by Bhandekar Ankit, Chougale Madhuri discusses the android application for ticket booking in the suburban trains. Moreover, it only deals with the local trains and metro that a daily person boards everyday. The Advantages of this application is that the no one has to be in long queues and also the passenger has will not worry about misplacing the ticket. The “Android Suburban Ticket (ASR)” can be bought easily anytime, anywhere and ticket will be present in the customer’s phone in the form of “Quick 3 Response Code”. GPS facility is used for validation of the ticket at the source and deletion at the destination. The information for each user is stored in a CLOUD database for security purpose which is unavailable in the current suburban railway system. Also, the ticket checker is provided with an application to search for the user’s ticket with the ticket number in the cloud database for checking purposes.[2]

2.1.3 Android Application for Integrated Travel Transport System

The paper published by Mrs. S. Subbulakshmi, K.Jaichithra deals with the problem of long queues in all 3 types of mode using a mobile ticket application. A mobile ticket application is developed for Android 1.5 using Java, SQLite, MySQL, and XML on the server side which can change the way people buy their tickets in future. This kind of ticketing application can be applied to any kind of transport system. This android app is one of the huge application to buy 3 modes of transport tickets through android mobile. Time Trains will also be available that ease the user to allot his time accordingly to reach the station. Hence a huge problem of buying tickets has been solved with this new application.[3]

2.1.4 Application for online booking of unreserved ticket for Indian Railways

Singh Siddharthkumar Sanjaykumar, Sheikh Mannan Sohail, Ismail Badri deals with ticket booking for unreserved passengers in long distance trains. They face an issue of waiting in long queues, so this paper gives a solution of booking tickets for general compartment passengers.[4]

2.1.5 Smartphone Application for Railway Ticket Reservation and Validation Using Mobile Network

The paper published by Pranjali Kharwade, Vaibhavi Datey deals with ticket booking and validation using Quick Response(QR) Code and GPS. Ticket checker validates ticket by scanning the QR code which was generated while booking the ticket.[5]

2.2 Problem Statement

Everything in the World is becoming digital. Nowadays, you can buy and sell anything on the internet. Technological development has resulted in a boundary free digital world. This development has created E-ticketing. Majority of the population of the world use this form of ticketing to book tickets for their journey. The E-ticketing has made it easy for passengers to book the tickets, but the workload for the TC is same. It is very difficult and time-consuming work for TC to check the reservation tickets. TC has to carry lot sheets of papers and check the identity proof and tickets of each and every passenger. TC has to carry a fine slip book where TC will keep record of the Fine. Furthermore, to collect fines from the passengers with invalid tickets or passengers without Ticket is very troublesome for TC. If a berth/seat is found without a passenger than that seat should be allocated to the RAC passenger using first come First Serve basis. The first come first serve means that the seat allocation should start from RAC-1 but this does not happen. The RAC passengers that approach the TC are allotted the empty seats. Furthermore, TC cannot solve passenger's complaint in a stipulated time. So, we require application by which TC and passengers can directly interact and solve all the problem without any hurdles.

2.3 Objective

The proposed android application will make everything centralized and eliminate all the paperwork for the Ticket Checker. The Fine calculator module will calculate the fine and the passengers will pay fine through cashless mediums. The entire fine amount collected will be directly updated and can be viewed by central authority. In the proposed system, the vacated seat would be allotted to a RAC passenger using First come First Serve.

2.4 Scope

Indian Railways have started their Electronic-governance (E-governance) and Digital India platform. As a part of digital India initiative there are Wi-Fi services in 216 stations that provide free internet services to nearly 7 million passengers. Similarly, our system is also going to promote E-governance and digital India initiatives. TC can carry a electronic device(mobiles) instead of pen and paper. Using Electronic devices promotes E-governance initiative. Similarly, even fine calculations can be done through our proposed Application. Passengers can pay fine through cashless mediums. The fine calculation module promotes the digital India Initiative. So, through our proposed system, we promote E-governance and Digital India.

Chapter 3

Proposed System

3.1 Analysis/Framework/Algorithm

3.1.1 Android Studio Plugins

In Android Studio, Java and XML is used to Create the Frontend of Application. The application consists of various plugins and permissions required for the Application.

The permissions required are:-

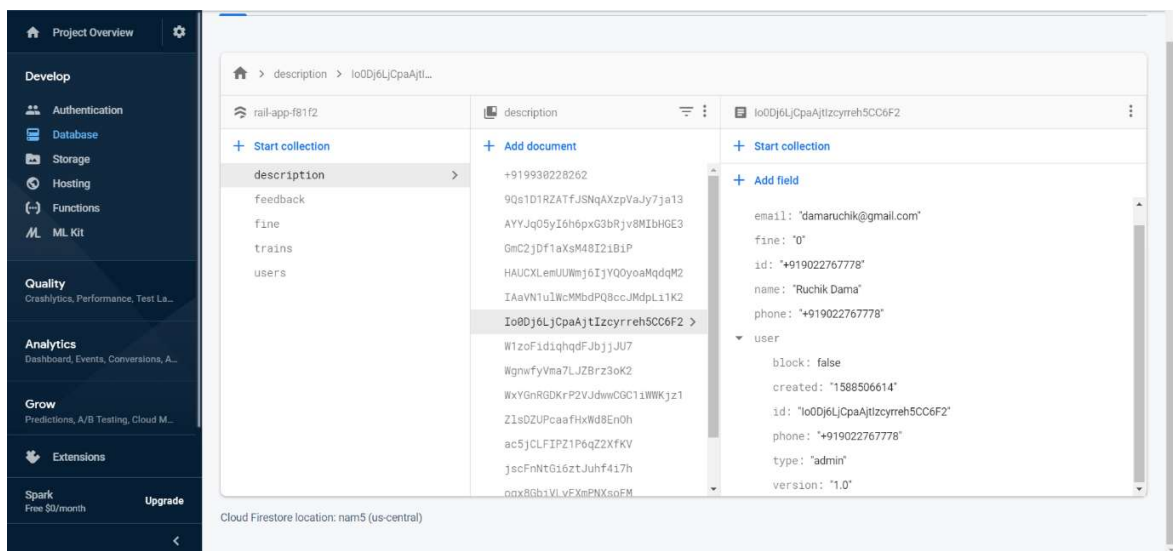
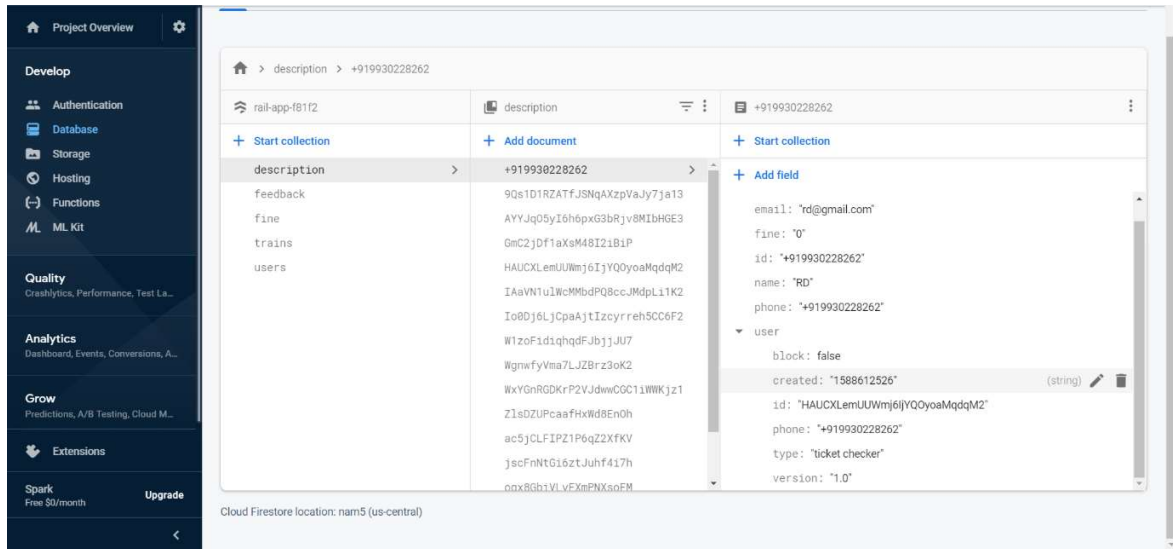
- Internet:- Internet is required for the connection between the application and the database.
- Network State:- Network state helps to see the strength of the network in the users phone.
- WIFI State:- WIFI State helps to check the Strength of the WIFI of the users phone.
- Write External Storage:- The permission to write the storage is important as once the user has logged in and if the user closes the application, the current instance must be saved in the storage.
- Read External Storage:- The permission is to read the storage, so that the current instance can be used of the application. The current instance is stored in form of cache.
- Camera & Camera. Auto-focus :- The camera is used to scan the QR code provided in the application.
- C2dm. Receive:- The permission is important as the OTP is send and the app automatically reads the OTP using this Permission.

3.1.2 Firebase And Firestore

Android Firebase is used for the database in the project. As the project runs on realtime database, it requires cloud support. So, Firestore is used. Firestore is the cloud platform provided by the google firebase. Cloud Firestore is a flexible, scalable database for mobile, web, and server development from Firebase and Google Cloud Platform. Like Firebase Realtime Database, it keeps your data in sync across client apps through realtime listeners and offers offline support for mobile and web so you can build responsive apps that work regardless of network latency or Internet

connectivity. Cloud Firestore also offers seamless integration with other Firebase and Google Cloud Platform products, including Cloud Functions.

The snapshots of the databases :-



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3.1.2 Database Snapshots

3.2 Details of Hardware and Software

Hardware details:

Laptop with following configurations:

- 8 GB Ram for Android Studio
- 1 TB Hard Drive
- Server Requirements for storing user data for cloud computing

Software details:

- Android Studio
- Firebase

3.3 Methodology

This project is to build an android application to reduce the workload of Ticket checkers and also help them with the technological boost in the world. The proposed project is to develop an Android application that will provide Ticket checker with the train details and the passenger details.

- The Ticket checker has to authenticate itself using phone number, i.e an OTP (One time password) will be received on his mobile number and he has to authenticate itself with that OTP to use the services of that app. After authentication TC will be able to see the train details for the train assigned to him by the central authority. The TC has the option to view details of the passenger using the QR code scanning i.e scanning the QR code of the user in the app itself. Also TC can fine the user if found violating any norms of IRCTC.
- From the perspective of the passenger, the passenger will also have to go through mobile number OTP authentication for accessing the services of the app. After authenticating itself passengers will be able to book train tickets from the list of trains present in the app for demonstration purposes. After the train ticket has been approved by the admin he will be able to see various details related to train like motorman name, TC name ,etc. Also he will be able to access services like chat system and complain box for his convince. Hw can also view his pending fine from previous trips and current trip.
- If the passenger is fined then, passenger can pay the fine digitally if not willing to pay by cash. Moreover, for some reason the passenger cannot pay the fine then the passenger id would be kind of blacklisted and he should not be able to book further tickets if fine amount exceeds certain limit and also a notice can be sent to the passenger's home by concerned authority. The fine collected would be directly updated in the database i.e live tracking of fine updation is used and all the live data will be reported to central authority so that they can have all details of the fine collected by various TC.

- There would be chat system in the Application. The chat system is equally important to other features. There is a law that if a passenger is not present on its seat 9 and even for the next one hour he/she is not present then the seat would be vacated and the seat would be assigned to different passenger. So using the chat system, the passenger can inform Ticket Checker about his/her whereabouts that is that the passenger is in different coach with his/her family members. Additionally, the passenger can also request to change the seat such that he/she is nearer to their family or friends.

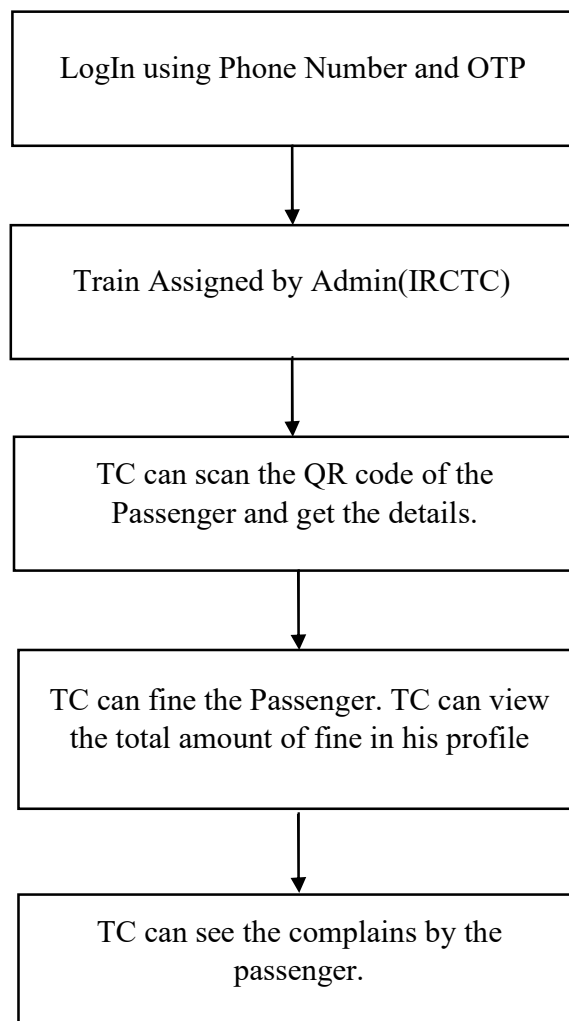
Chapter 4

Implementation details

4.1 Modules and Description

The Application is divided into basic three Modules. The Modules are Ticket Checker Application module, Passenger Module and Admin (IRCTC) Module. The above methodologies are divided amongst them. The Modules are:-

4.1.1 MODULE 1:- TICKET CHECKER APPLICATION MODULE

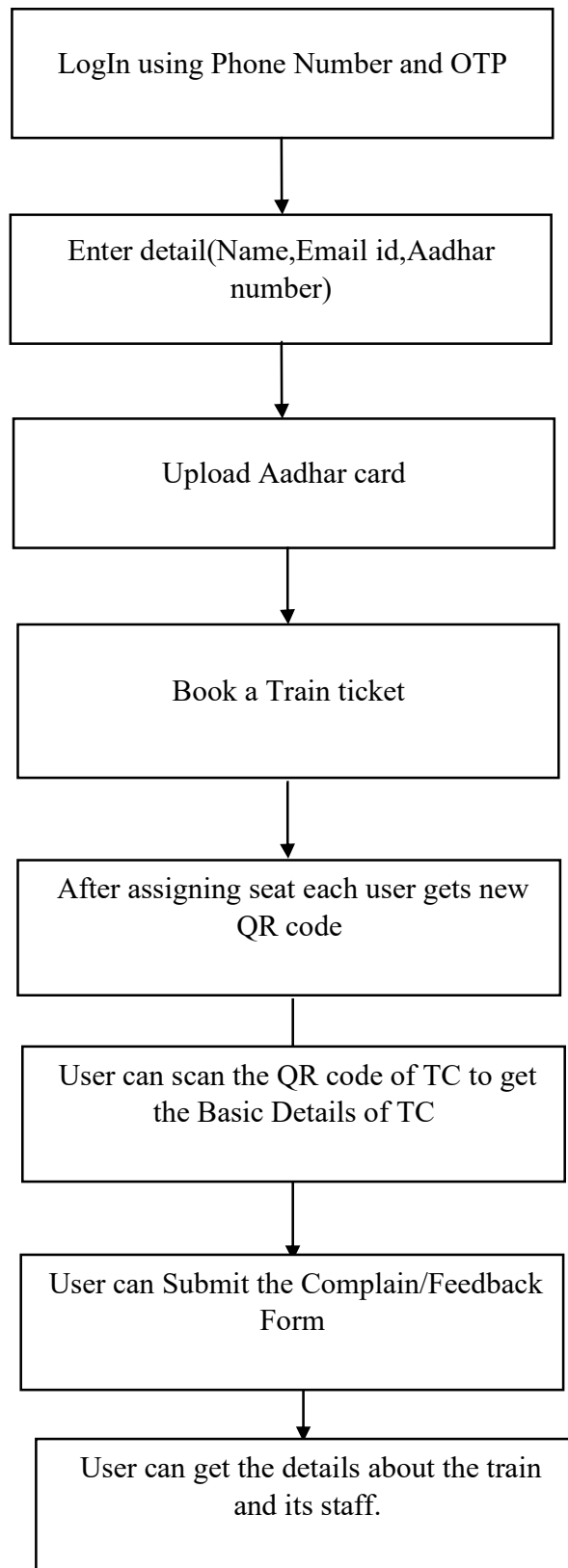


4.1.1 TC Application Flowchart

- The Ticket Checker (TC) is provided with the Application. Ticket Checker logs in using the Phone Number. The Phone Number is Verified Using the One Time Password (OTP) that is been send to the Number provided by the TC.
- Once the TC gets the login, TC is assigned a train by the Admin (IRCTC). Once the TC is assigned the Train, TC cannot be assigned to other trains until the train has completed its journey.
- Every Passenger is provided with its own QR code. TC scans the QR code and gets the details of each and every passenger.
- If the passenger is without a QR code or has done something against the rules, TC can fine the passenger. The Fine collected by the TC is shown in the TC's profile and also updated centrally.
- The profile of TC contains a QR code, his/her Basic details and fine amount. Fine amount means that TC has fined a certain total in that train.
- TC can also access the chat system in the app where both users and TC can access that and contact each other for any help.

4.1.2 MODULE 2:- PASSENGER APPLICATION

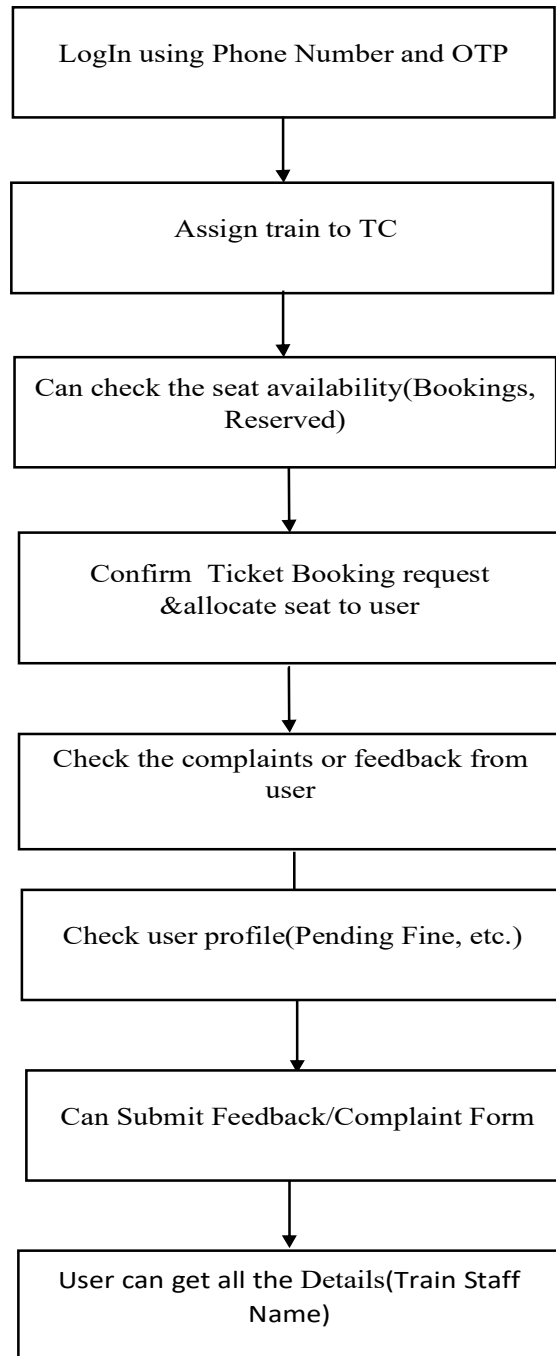
- Passenger is provided with the application and passenger has to login using its phone number, name and aadhar card number and photo. Once they are verified using OTP, the passenger logs into the App.
- Passenger can book the ticket in the app itself in the desired train.
- If the ticket of the Passenger is not booked or it is in waiting state, the passenger has to wait until it gets confirmed. Once the admin confirms the seat and allots it to the Passenger, the Passenger receives the QR code with the its details.
- The TC scans the QR code of the passenger and verifies it's details.
- If Passenger does not have the Ticket, or has done something against the Rules Passenger can be fined. Passenger can be fined by the TC. Passenger have options like online and offline. In offline payment they can pay in cash, whereas in online payment passenger can pay using online payment modes like paytm, etc to pay the fine. If passenger cannot pay the fine, the fine is added to the passenger's account and whenever a TC views his account, they can see the fine of the passenger and can ask them to pay the fine.
- If passenger faces some difficulties in the train then the passenger can shoot a complain about it. The complain is viewed by the admin(IRCTC) and required actions can be taken.
- Also passenger can access chat system in the app where both TC and users can connect and help each other.



4.1.2 Passenger Application Flowchart

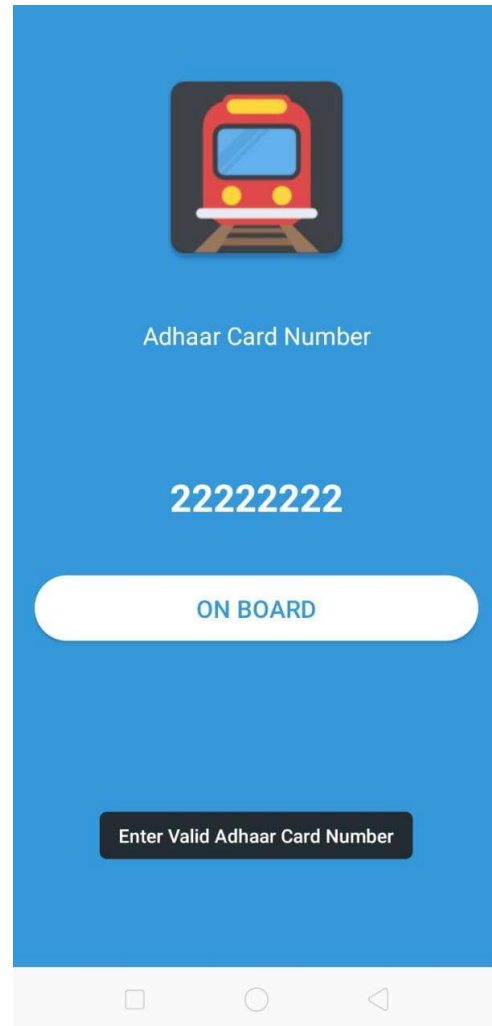
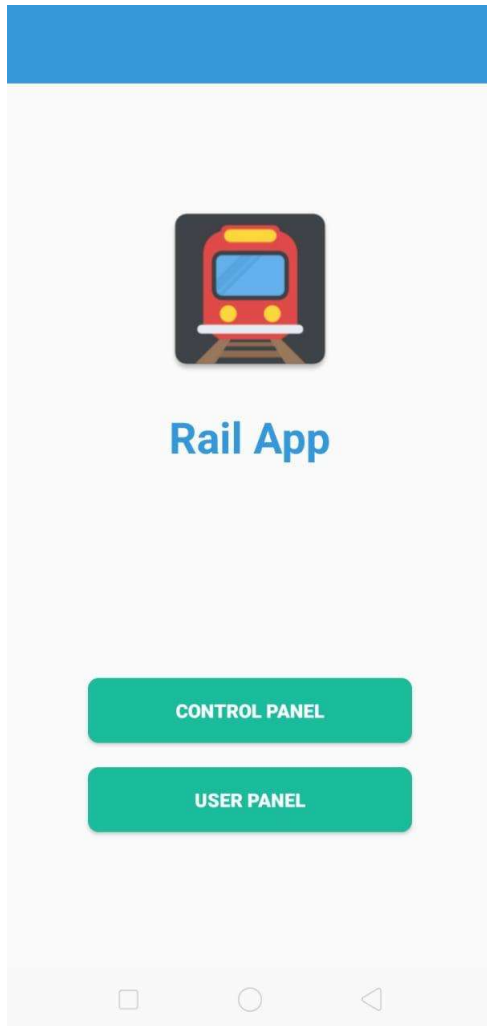
4.1.3 MODULE 3:- ADMIN (IRCTC) APPLICATION

- The Application also consists an Admin Login. The Admin here mean IRCTC.
- Admin is the one with the control over the Train and the TC. Admin allocates a TC to a particular Train. Once the TC is allocated to the Train, the TC cannot be allocated to any other train, until the TC is deboards the train or the journey is completed.
- Admin also has the control over the waiting list of the passengers. Admin can get the waiting list in a linear queue, once Admin finds a vacant seat, he confirms the seat for the first passenger and allocates the seat to the passenger. Due to this, TC has been freed from the burden of allocating empty seats to the passenger.
- Admin is the one who views and takes necessary action of all the complains that are been shot by the passengers using the complain box option in the app.
- Admin also views the complete fines paid in the train. The Complete fines include both offline and online fines that a TC has collected.
- Once, the journey is completed, admin deports the TC from the Train and then the journey is officially completed.




4.1.3 Admin Application Flowchart

4.2 Snapshots



4.2.1 ?? PAGE



Name

hshsb

Email ID

beproject021624@gmail.com

Adhaar Number

ADD FILE

User Home

Rajdhani Express

Code: 12431

Source: MUMBAI CENTRAL

Destination: NEW DELHI

Janitor name: Ramakant Shukla

Motorman name: Modi Sardesi


Tailman name: Sagar Shah


Seat Information

Seat: S1

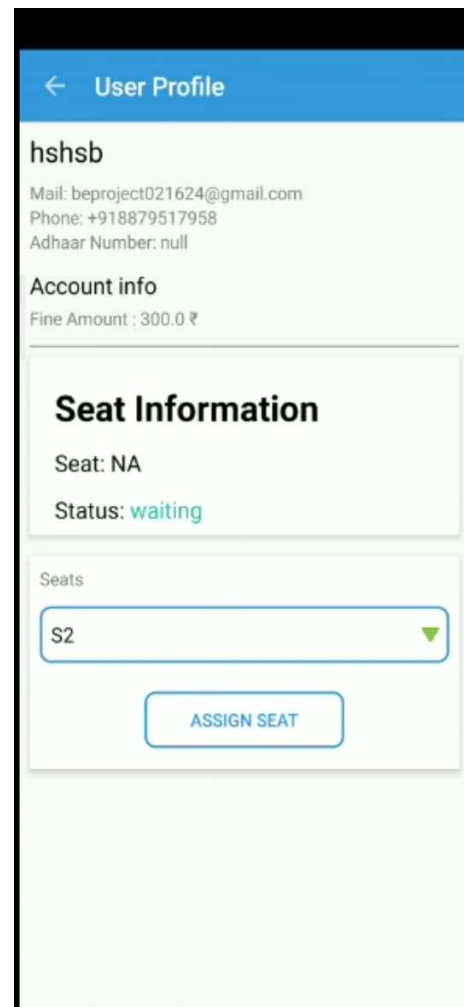
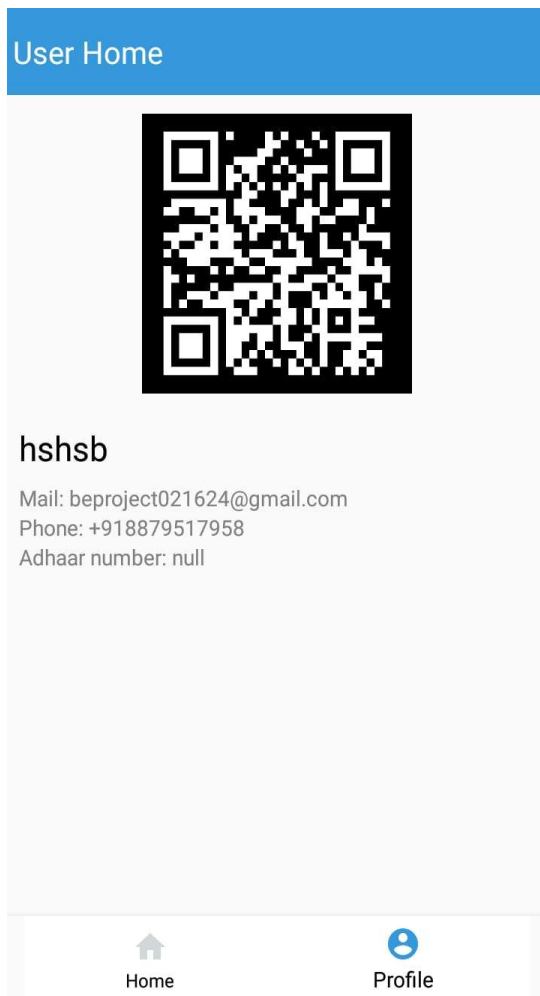
Status: Confirm

OFF - BOARD

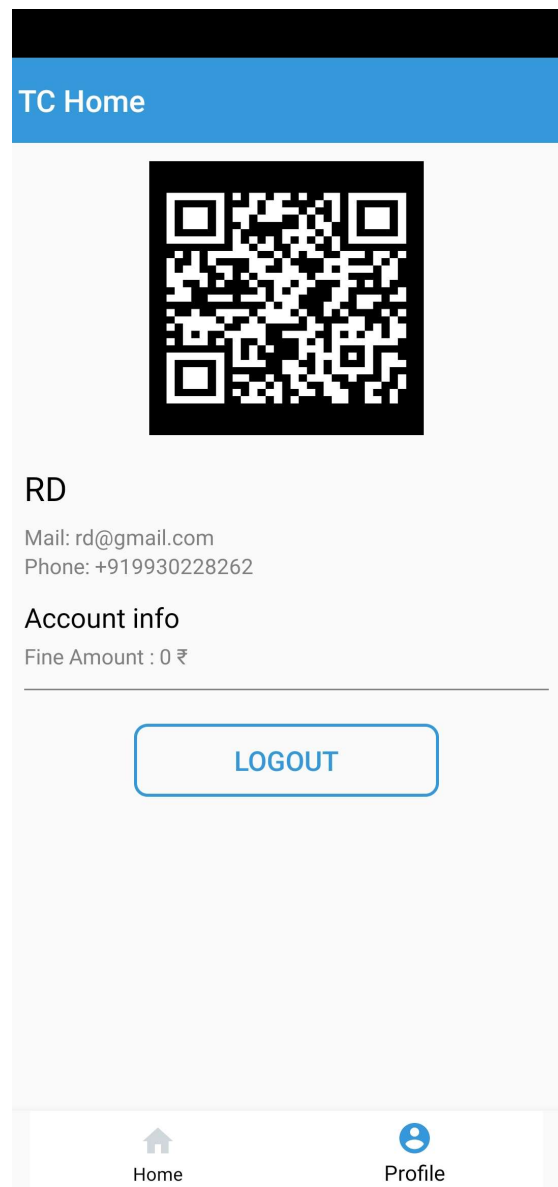
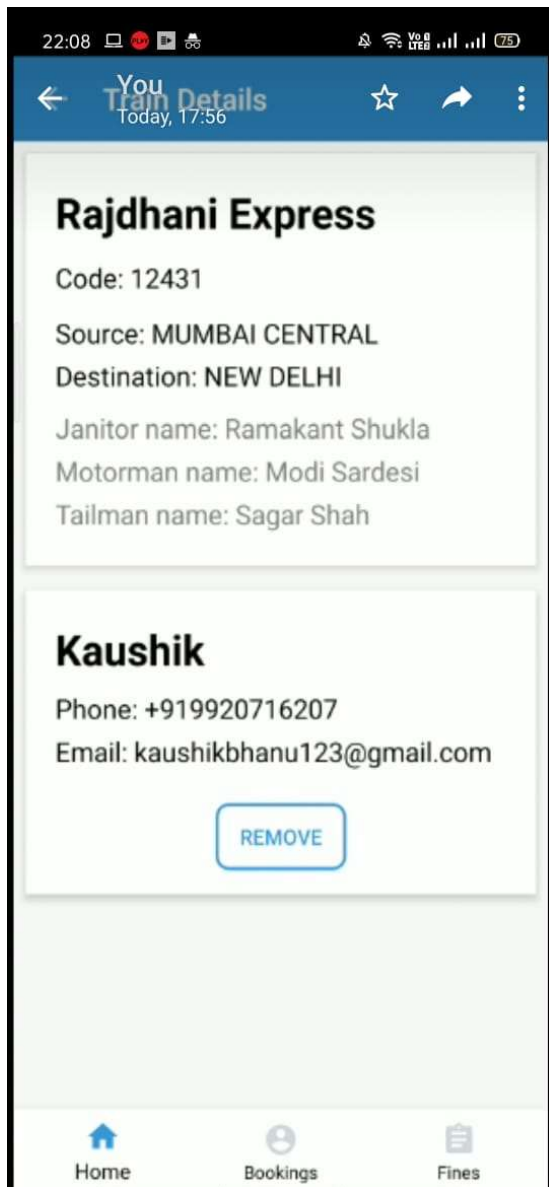
Home

Profile

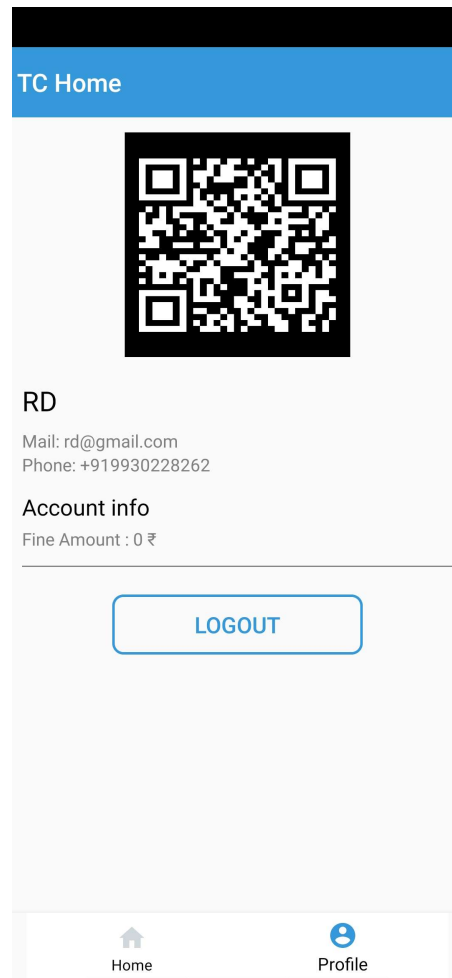
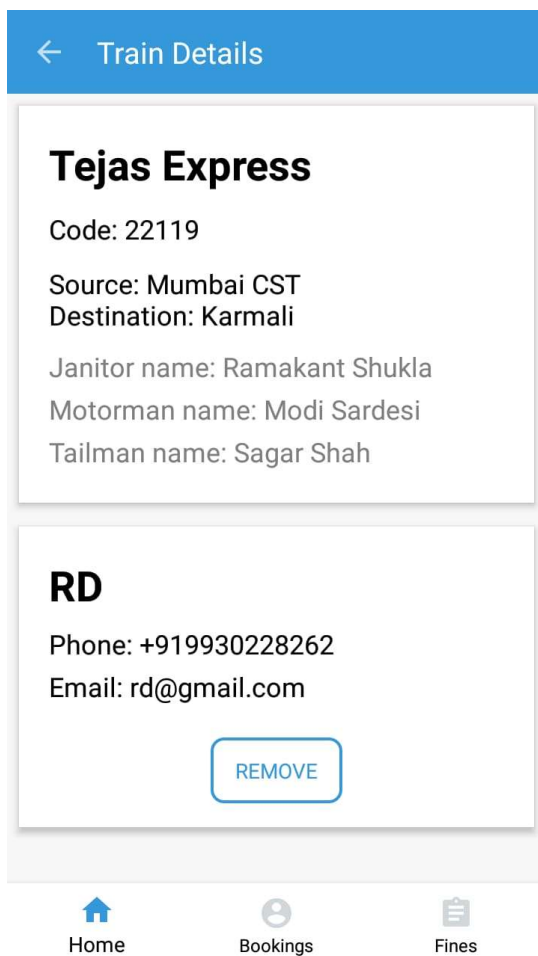
4.2.2 USER LOGIN PAGE



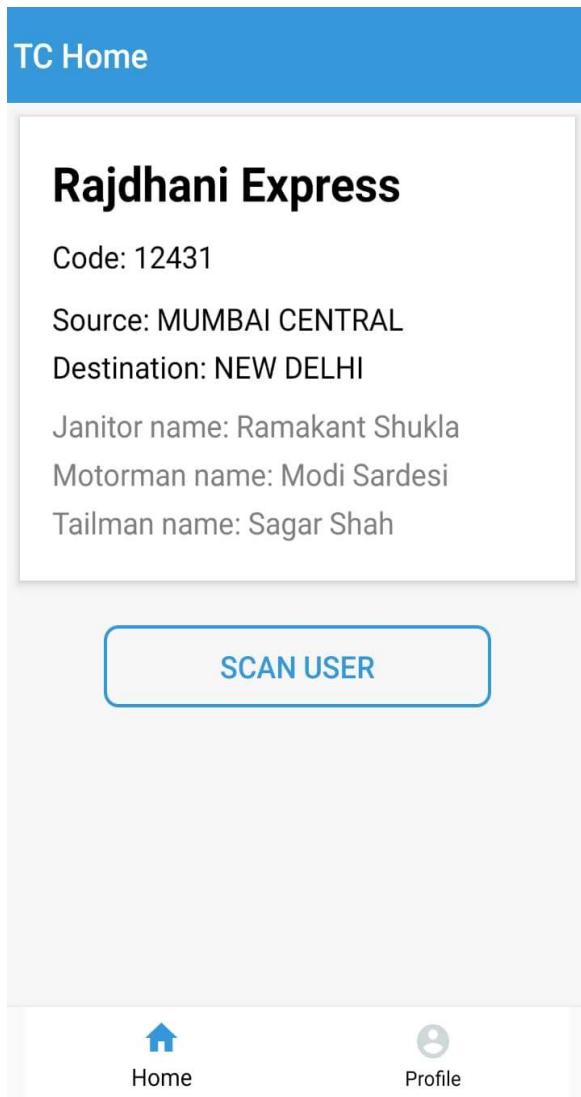
4.2.3 PASSENGER HOME PAGE



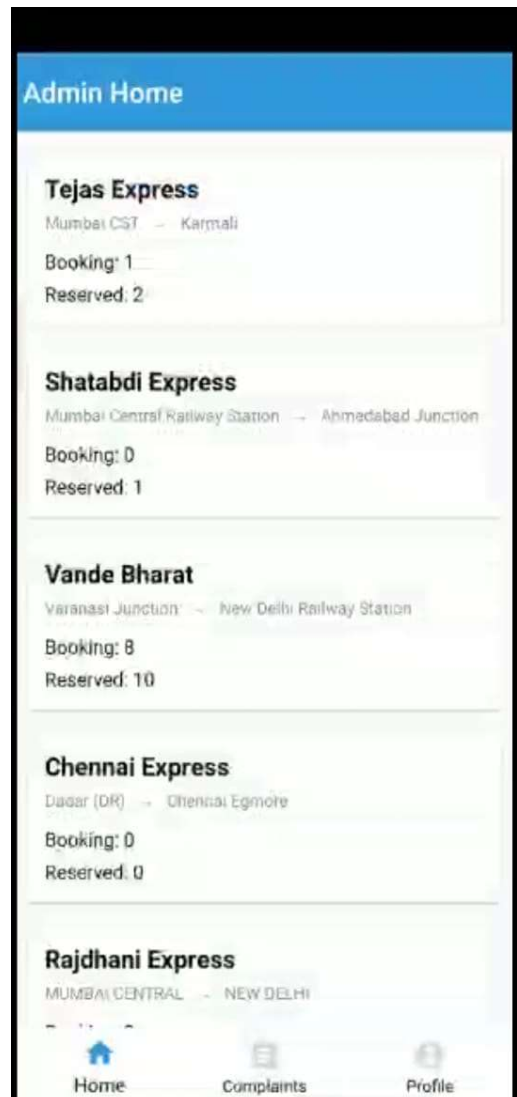
4.2.4 TC HOME PAGE



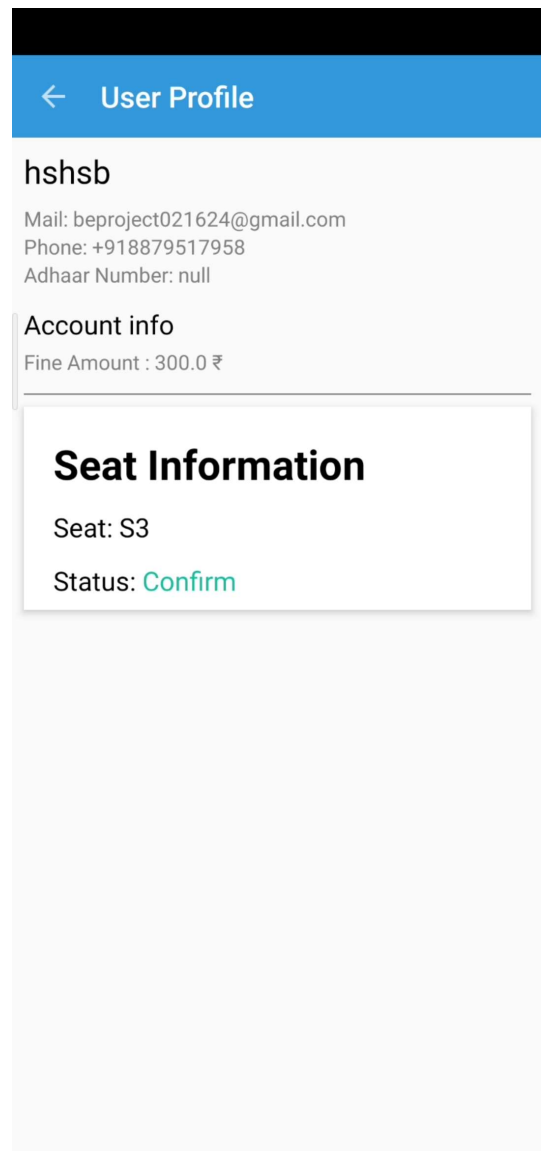
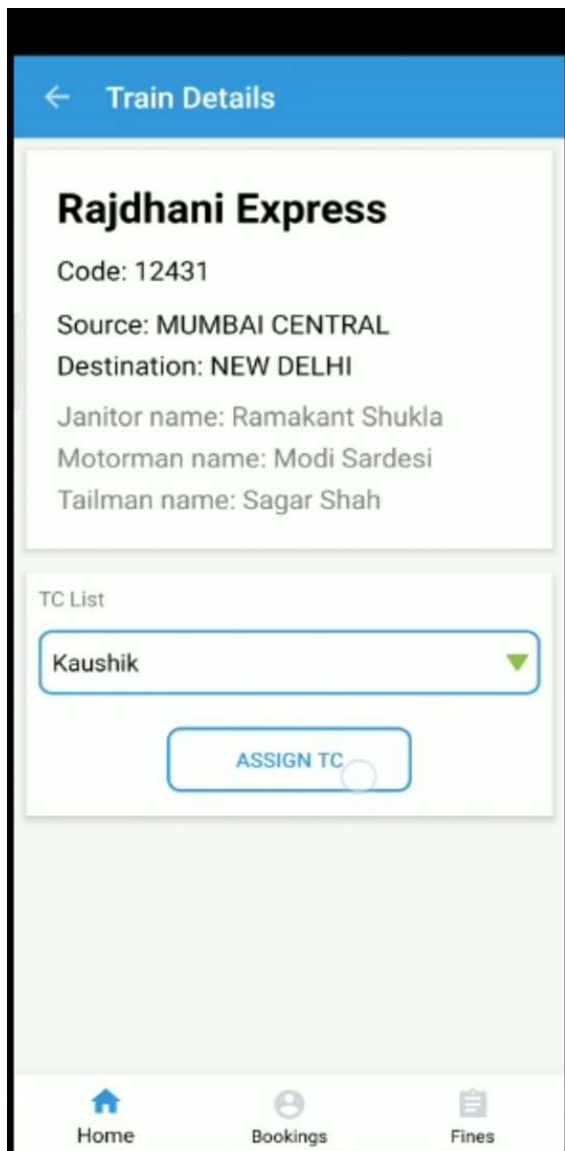
4.2.5 TC HOME PAGE



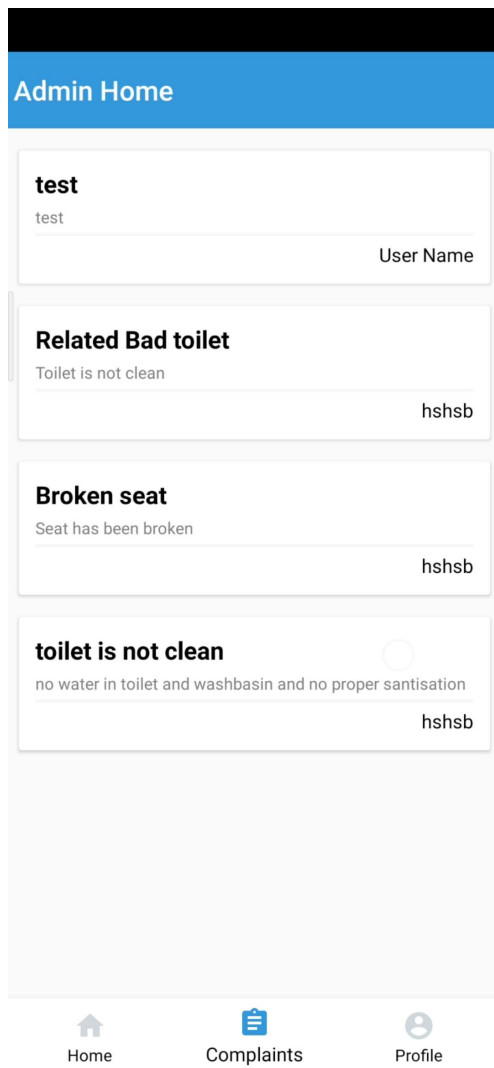
4.2.6 TC TRAIN DETAILS PAGE



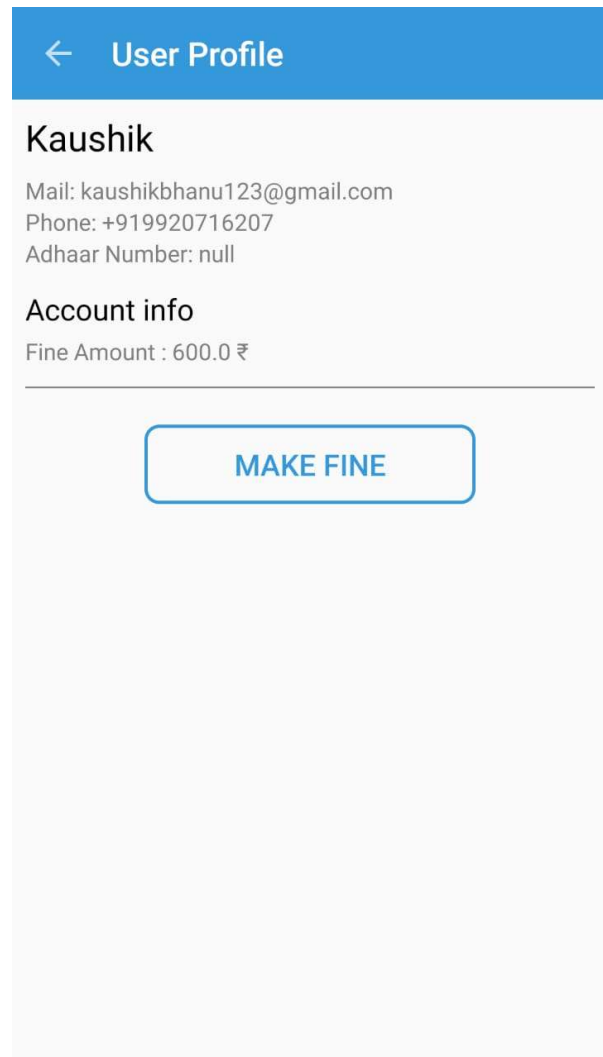
4.2.7 ADMIN HOME PAGE



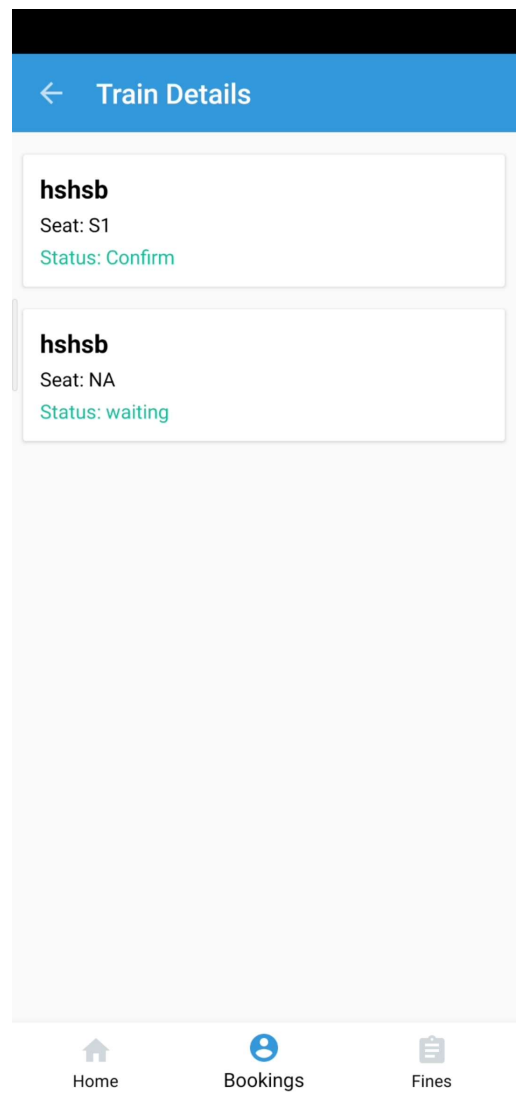
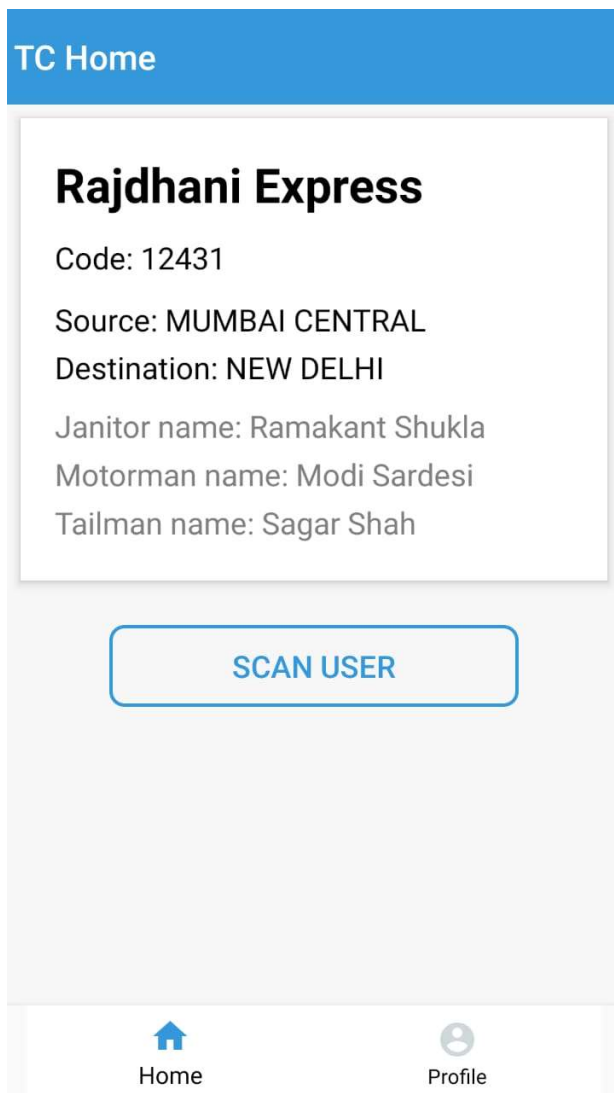
4.2.8 TRAIN DETAIL PAGE



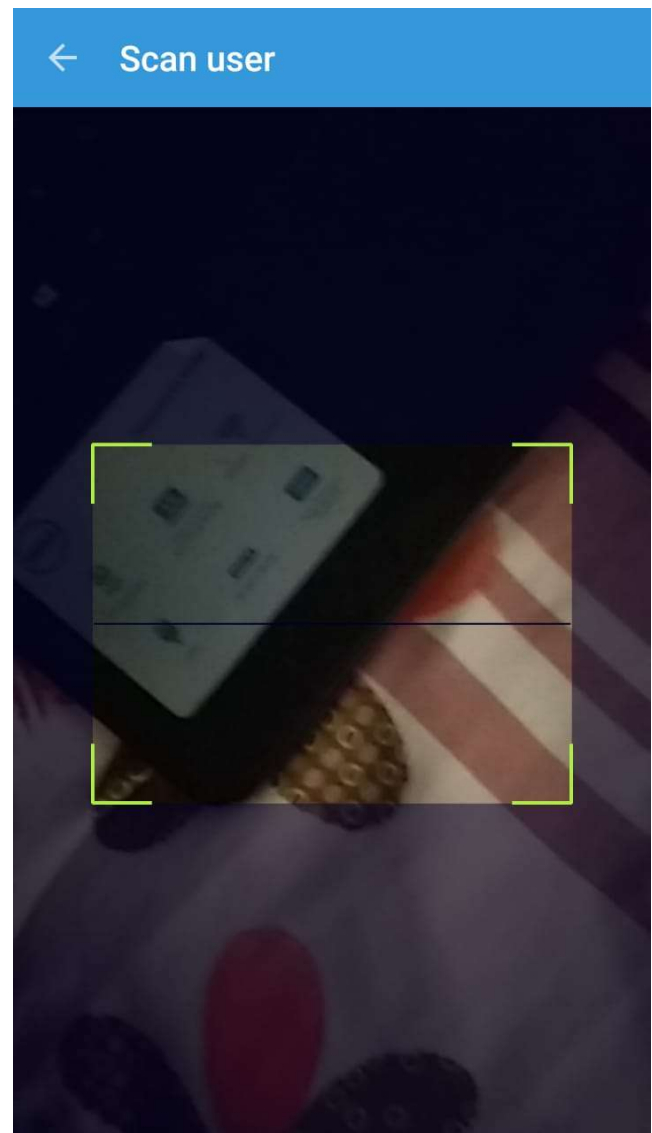
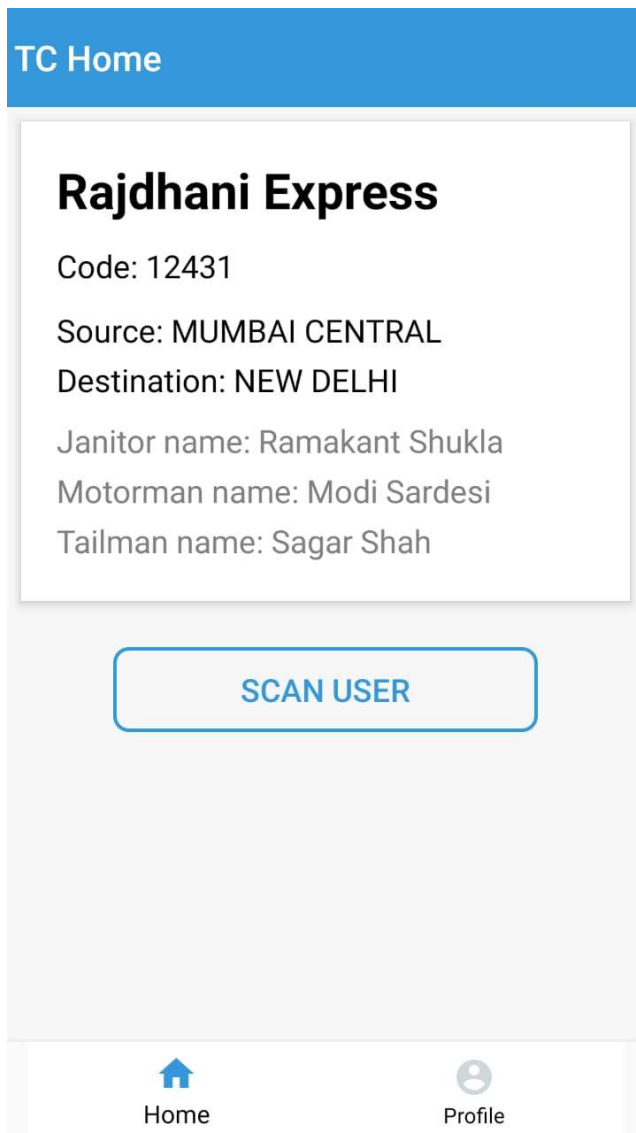
4.2.9 ADMIN FEEDBACK PAGE



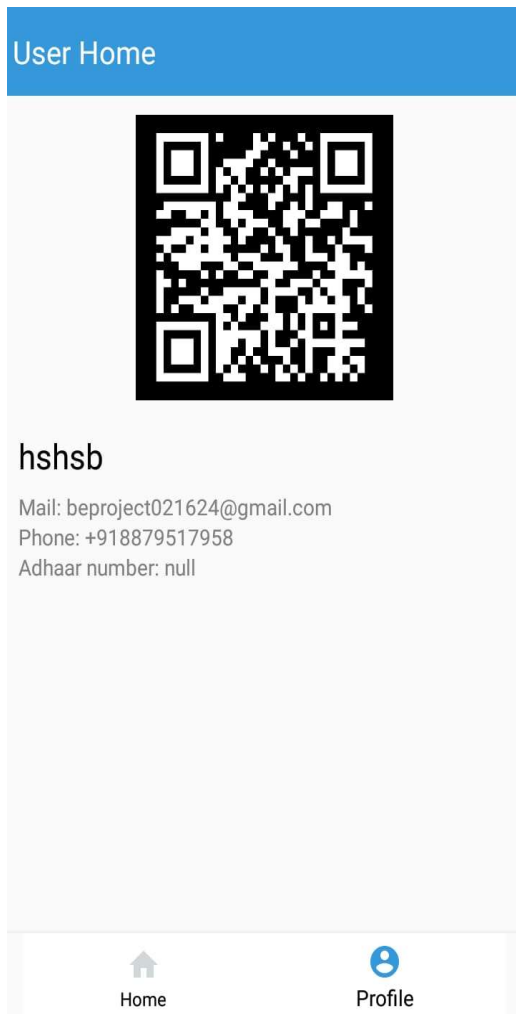
4.2.10 USER DETAILS PAGE



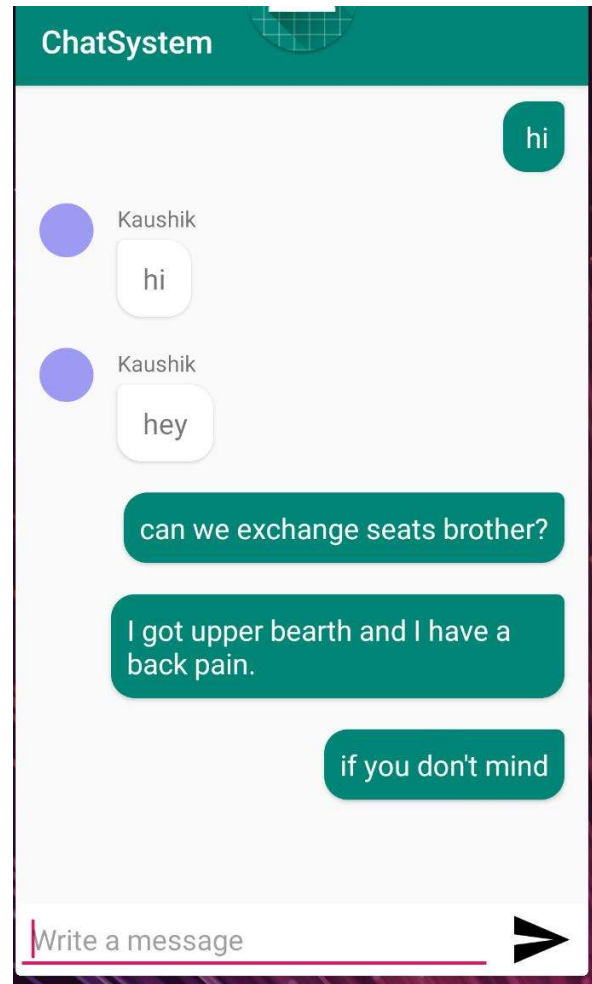
4.2.11 TRAIN DETAILS PAGE



4.2.12 TICKET SCAN PAGE



4.2.13 USER HOME PAGE



4.2.14 CHAT SYSTEM

Chapter 5

Results and Analysis

The Application consists of three logins that are Ticket Checker, Passenger and admin. Every login is divided and uses the main methodologies of the application discussed in the methodology segment.

The Admin Login covers the second Methodology where a Ticket Checker is assigned a train. The rail authority or the admin osr in the general case IRCTC provides the TC with the Train. TC also consists of its own QR code where the basic details of TC is provided. Admin also takes care of the last module where admin converts the Waiting list passengers to the confirm list passengers using queues.

The Ticket Checker login uses OTP verification to verify the TC. The QR code scanner is used to verify the Passenger. So, the TC login covers the First methodology. TC can also fine the passenger if passenger has broke any rules of IRCTC. Passenger is given an option to pay the fine in online or offline mode. This covers the fine methodology.

The passenger registers and logins using its phone number and aadhar card number. The Phone number is verifies using OTP. This covers the first methodology. Passenger can also chat between them and shoot complains to the Admin about the difficulties faced in the train. This covers the chat system methodology. The complains is directly viewed by the admin and admin takes appropriate actions to resolve the complains.

Chapter 6

Conclusion and Future Scope

Developing an application for ticket checker helps to reduce a lot of burden from ticket checker since they carry a lot of things when checking for tickets physically. The idea of developing an application for ticket checker will greatly promote the scheme "DIGITAL INDIA " one of the most heard word by our Prime minister Narendra Modi. Nowadays every business, enterprise, ideas are being developed in form of mobile applications and have their presence on internet which in turn has increased the smartphone users. So, we have tried to make an application that helps the Indian Railways to reach their passengers and also help Ticket Checkers to reduce their workload and help them work efficiently. The application helps the ticket checker and the admin to know the complains by the passengers or if someone is fined. This application keeps all the updates about the train and sends it to the admin(IRCTC).

This idea of developing an application will make a lot of sense with "Automation with proper infrastructure in future ". The price chart for the luggage compartment will be different and can be viewed by the passengers using the Train number. passengers will provide the dimensions and the weight of the luggage. The prices in the price chart varies as per the weight and the dimensions of the luggage. The percentage of vacant space in luggage compartment of every train can be tracked by the passengers and accordingly user can book luggage space.

Chapter 7

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