VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

SHUTTLE CAB MANAGEMENT SYSTEM

(Project Final Report)

By

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CSE3001 – Software Engineering

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Lab slot: L31+L32

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1.Abstract:

In the VIT campus, a lot of students face problems regarding the shuttle cab service such as location, availability of the shuttle and absence of online payment methods. Too Many students face problems regarding the amount that has to be paid as they do not always carry change. Students are clueless about the timings of the shuttle and find it difficult to estimate the amount of time they have to wait for the next shuttle to come. To overcome these methods, we have come up with a web based Shuttle cab management system to provide the said facilities to all students. The system takes the registration number and the password of the user so as to make an account and helps the user to travel to various blocks such as the academic blocks, Ladies hostel blocks and the Men's hostel blocks. The system also ensures effective and efficient management of the service from the admin's side since the admin is able to modify the number of shuttles in the campus depending upon their availability.

2.Introduction to problem:

For the current shuttle cab system in the vit , the following are some of the problems which are being faced by the people using it.

- Of a student is not having the cash in hand then that student will not be able to board the service.
- Consider a case if the passenger is not having the enough changes then also it poses a problem in payment.
- The current system is an old cash based system, which is notcompatible with the modern day cashless system.

If there are many students waiting after the class is over, then anyone is not sure about the status of the cab, every time the people will have to go inside or have a peek into the shuttle, which is going to lead to the gathering of the large crowded and it will also be causing problems for the nearby walking people who don't want to board the shuttle.

In the current times of pandemic regarding the spread of COVID-19,when the status of the shuttle is unknown, the people make crowd in the front of the cab, which is very dangerous considering the spread of COVID-19.

3.Process Model:

- Waterfall Model is the suitable process model for the project since all the requirements are perfectly known and simple updates are to be done every time. This model is chosen since the project is small, simple and tools to be used are known and not much of customer feedback is required. In waterfall model progress is made sequentially from one phase to another i.e

- Requirements-> Design->Implementation->Testing->Maintenance.

- Evolutionary development is not used since we are not going to go back to phases which we have already completed and it's time consuming.

- Incremental development is not used since some working functionality is not required for us early in the life cycle and we are not going to take customer feedback everytime.

- Spiral model is not used since we are not much worried about risks and the process becomes complex.

4.Introduction to our project:

Our project is an online smart shuttle management system which lets the students manage their travel inside their college campuses in a more faster and efficient manner. The system consists of student accounts who are frequent users of the college shuttle cabs. Students have an option of adding or reducing the credit (money) from their account for using the shuttle. The system keeps track of the number of shuttles available per day and manages the shuttles efficiently during peak hours of the day. It also keeps track of the number of passengers (vacancy) in the shuttles and a shuttle tracking (GPS) system which shows the location of the shuttle at any particular time. Our software will provide the user with the following functionalities:

• Account and Credit management

• Route

• Time management

• Shuttle tracking(GPS System)

• Feedback

• Non-functionalities

• Security for Database

5.Literature Review:

The following literature has been extensively studied and implemented for the completion of this project

1)Consumers' Perspective on Cab Services in Guwahati – by Saibal Kumar Saha, Jupitara Kalita,Sangita Saha.

The introduction of app basedcab services and radio taxis is primarily a new concept in the Indian context. The success of such services in the metropolitan cities of India has lured the companies to start their operation in the major cities of the country and are slowly heading towards the urban and semi urban areas. The facilities and tariff ratesprovided by these companies are unmatchedThe physical, laborious and time consuming job of a taxi hunt is eliminated with a search algorithm in the servers of these cab companies. The study on consumers' perspective on the cab services in Guwahati gives us a glimpse of the viewpoint of people towards thefacilities provided by such companies. The lack of published literature on thetopic indicated the potentiality of research in this field. Hence, personalinterviews, review of published newspaper articles have been referred to get ahold over the topic and frame a questionnaire for the survey.

2) Mobile App Usage and its Implications for Service Management – Empirical Findings from German Public Transport (by Christoph Schmitz, Anton Meyer)

By drawing on self-service technology literature, the technology acceptance model (TAM), and on results of qualitative research, a model is presented to explain consumers' intentions to use mobile apps of service companies. Additionally, the research identified outcomes of actual mobile app usage. The model was tested by collecting data from 197 public transport app users in Germany. Results indicate that information fit to task, convenience value, and speed of transaction affect perceived usefulness of mobile apps. Moreover, ease of understanding, intuitive handling, and reliability were found to drive perceived ease of use. The research also identified perceptions of overall service quality, firm innovativeness, and subjective firm knowledge as three outcomes of app usage. These findings emphasize thebenefits of developing company owned mobile apps and have important implications for encouraging customers to use such programs.

3)Citizen Apps to Solve Complex Urban Problems (Akshay Bhagwatwar and Kevin C. Dsouza)

Tackling complex urban problems requires us to examine and leverage diverse sources of information. Today, cities capture large amounts of information in real-time. Data are captured on transportation patterns, citizen use of government services (e.g., parking meters), and even on weather events. Through open data initiatives, government agencies are making information available to citizens. In turn, citizens are building applications that exploit this information to solve local urban problems. Citizens are also building platforms where they can share information regarding government services. To the best of our knowledge, this is the first paper to examine the range of citizen applications ("citizen apps") targeting urban issues and to address their effects on urban planning, decisionmaking, problem solving, and governance. We examine citizen apps that address a wide range of urban issues from those that solve public transportation challenges to those that improve the management of public utilities and services and even public safety.

4) Taxi App Market Analysis in Hong Kong (Jacky W. Y. Chan, Vicky L. N. Chang, William K. Lau, Lawrence K. T. Law, and Corrine J. Lei)

This paper proposes a framework of how current Taxi Apps evolve in the market structures of Hong Kong based on the analysis of the corresponding markets in China, Europe and the United States. Researches are conducted to show the difference and uniqueness of the Hong Kong Taxi App market from the global ones. In addition, conventional taxi-calling systems and methods of Hong Kong are assessed in order to reveal the challenges and opportunities in the future development of this market in Hong Kong. In this paper we also describe in Hong Kong what the transition processes of taxi calling methods are. We concluded with a discussion that to project the market potential in Hong Kong and to support the growth in the Hong Kong Taxi App Market

6.Module Description:

Account and credit management:

This module deals with the management of account for students, the verification of these accounts, and add/using credit to travel from shuttle cab management system. this module requires implementation of high security measures in order to prevent misuse

Route management :

This module is required to manage the routes across vit where the cabs shall be travelling on, depending upon availability and demand on the routes. the user will also be able to track the shuttle cab and get to know the availability status of the cabs.

Time management:

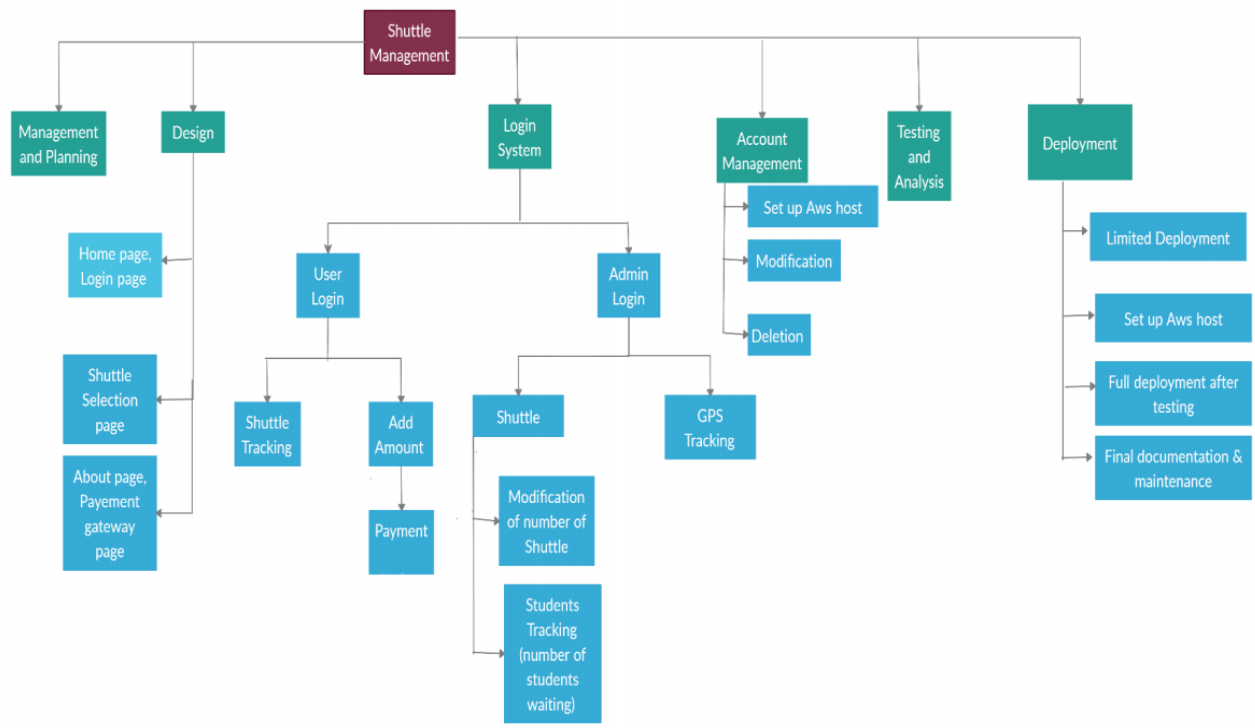
This module enables the system to make payment directly wherever we are and directly board the shuttle.

Shuttle tracking software (Google Maps API integrated):

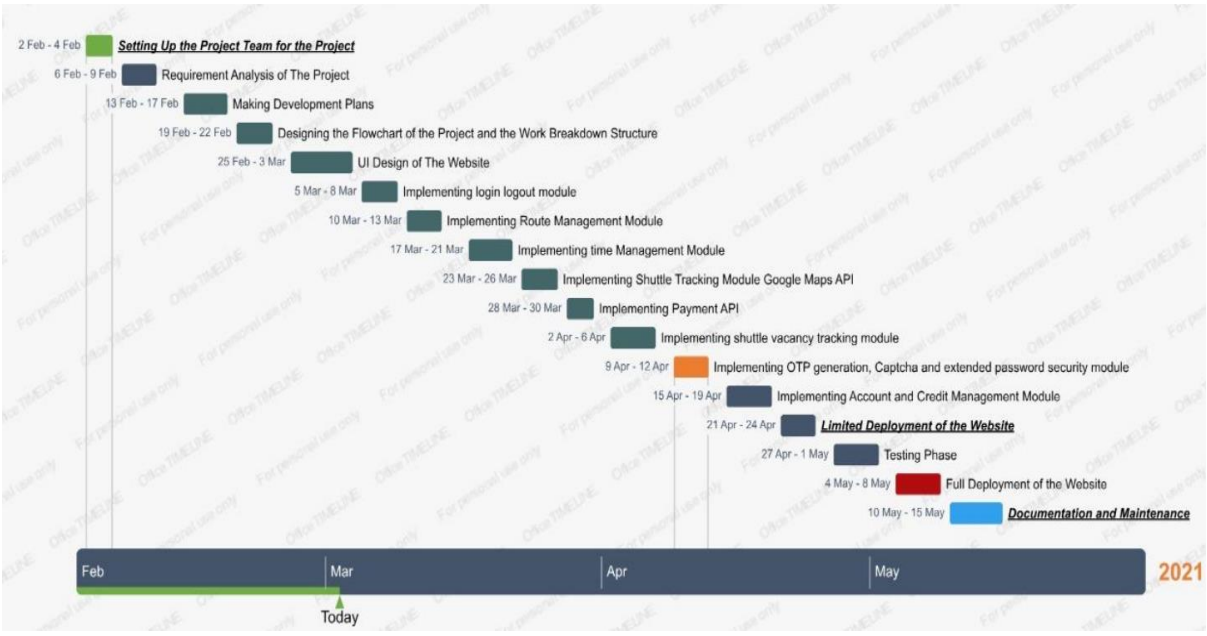
Proposed method - tentative: System tracks each and every cab by an installed GPS. It provides the current location of each and every shuttle cab at a particular moment. This feature can be used by passengers as well as the admin to locate the exact position of the cab and hence this module serves as a complimentary module to almost all other modules.

7.System Design:

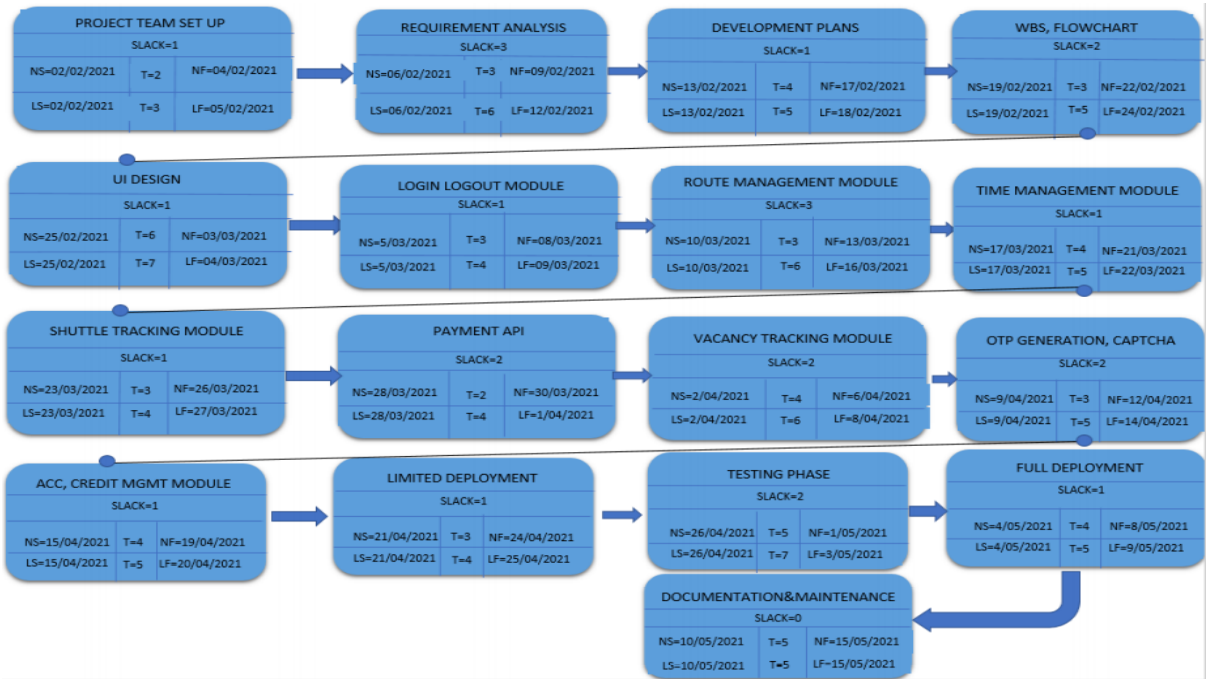
1) Work Breakdown Structure (WBS)



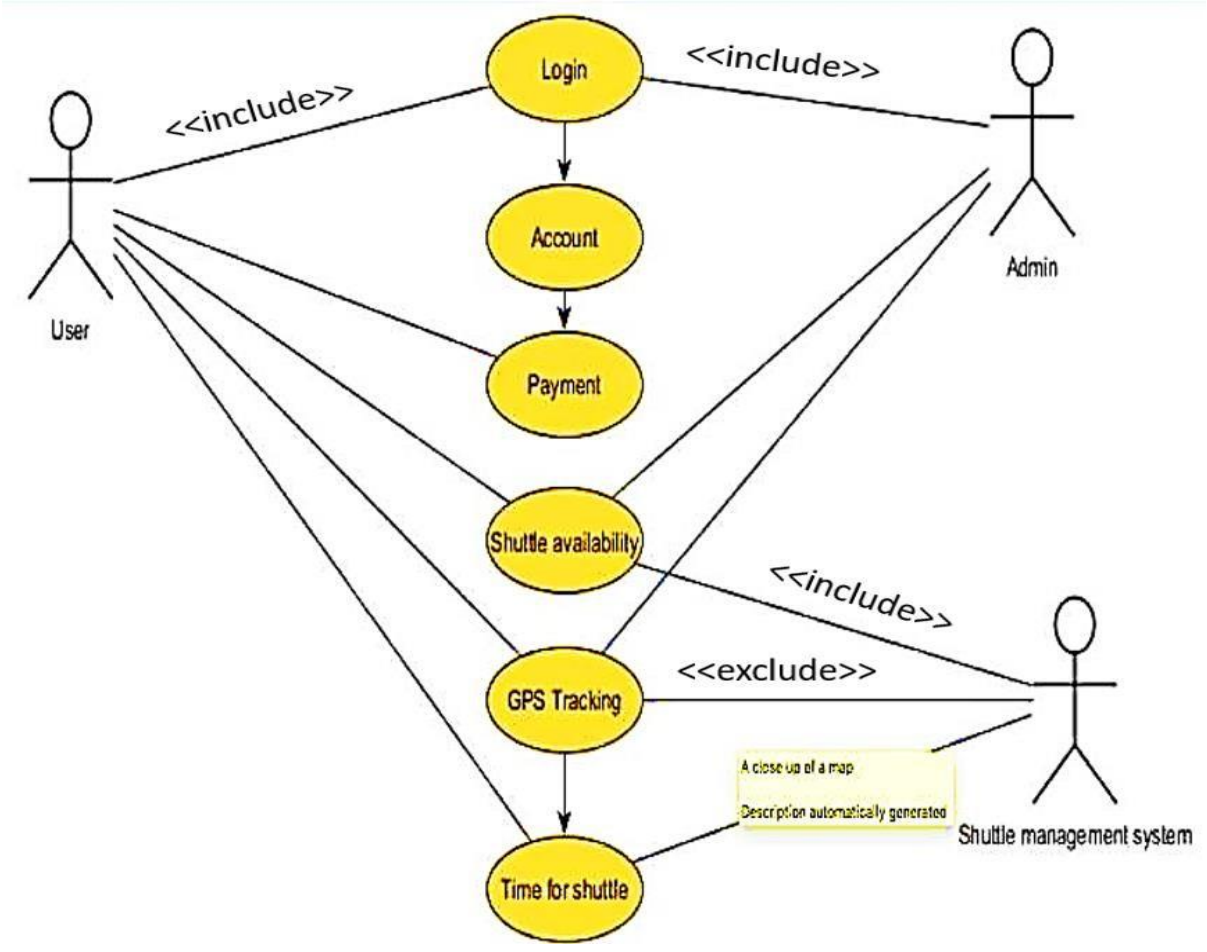
2)Gantt Chart



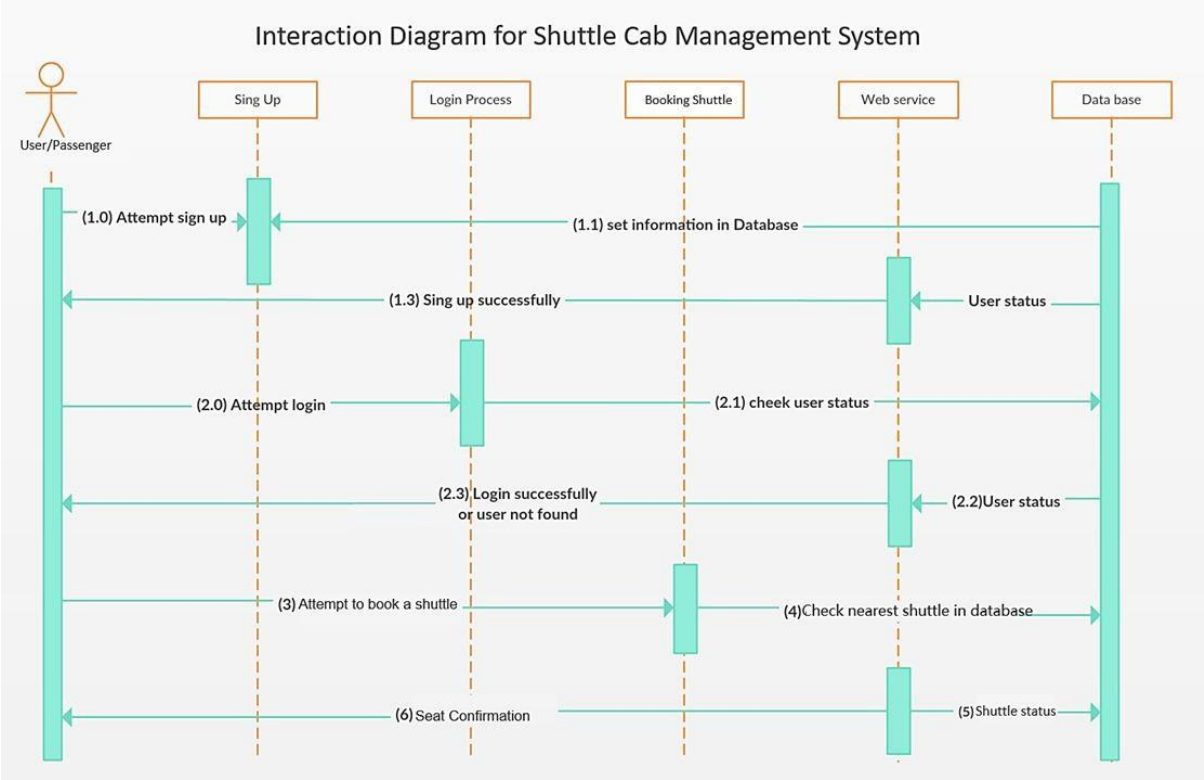
3)PERT chart



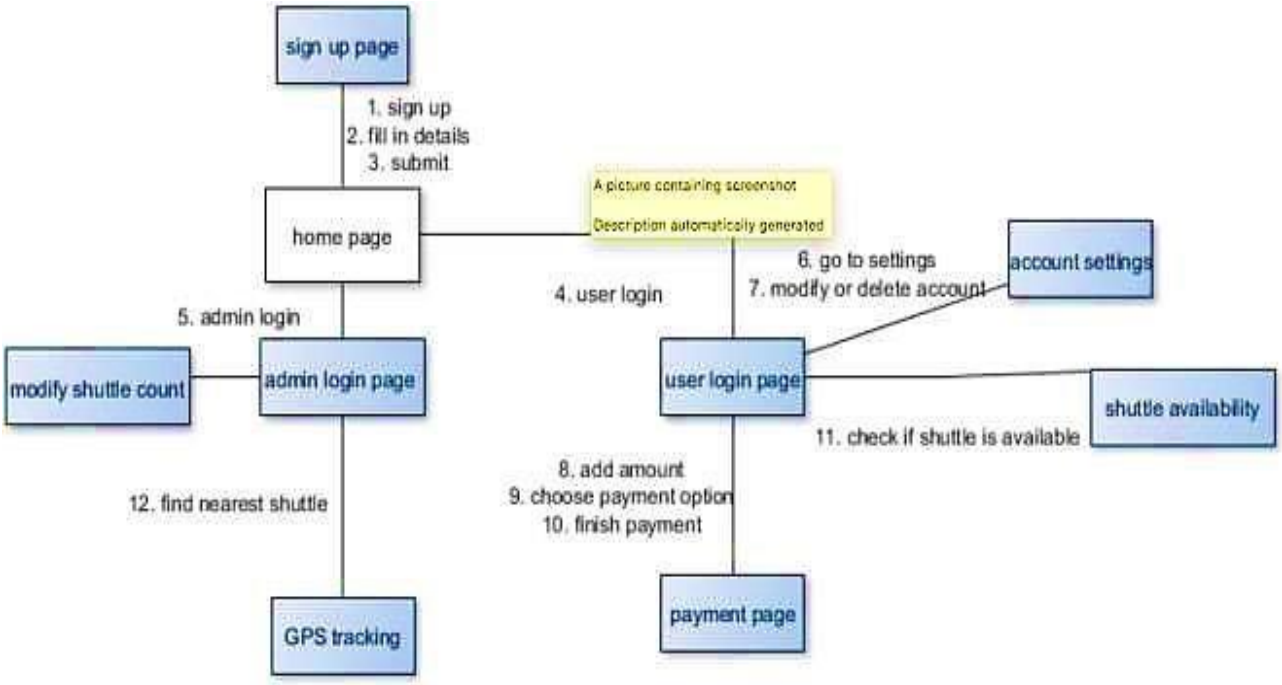
4)Use case diagram



5)Sequence Diagram

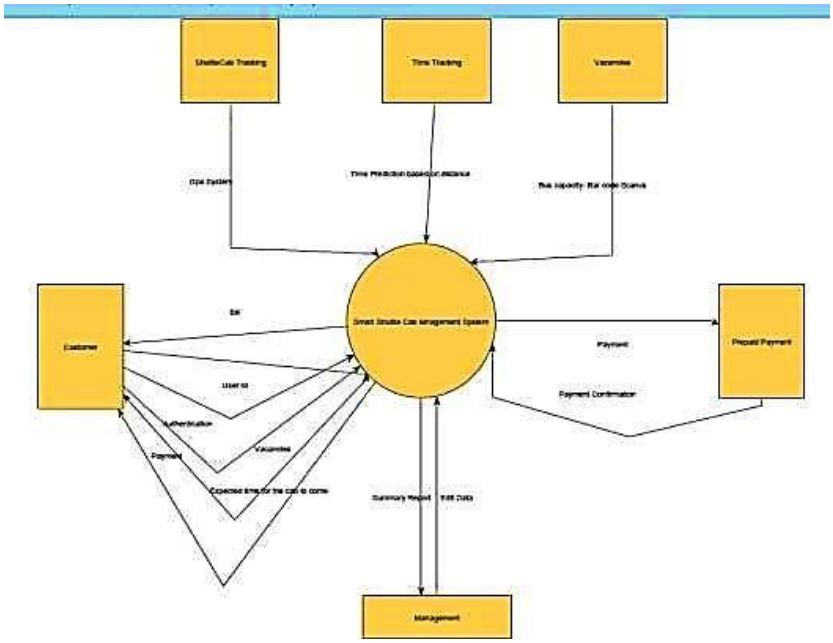


6)Collaboration Diagram:

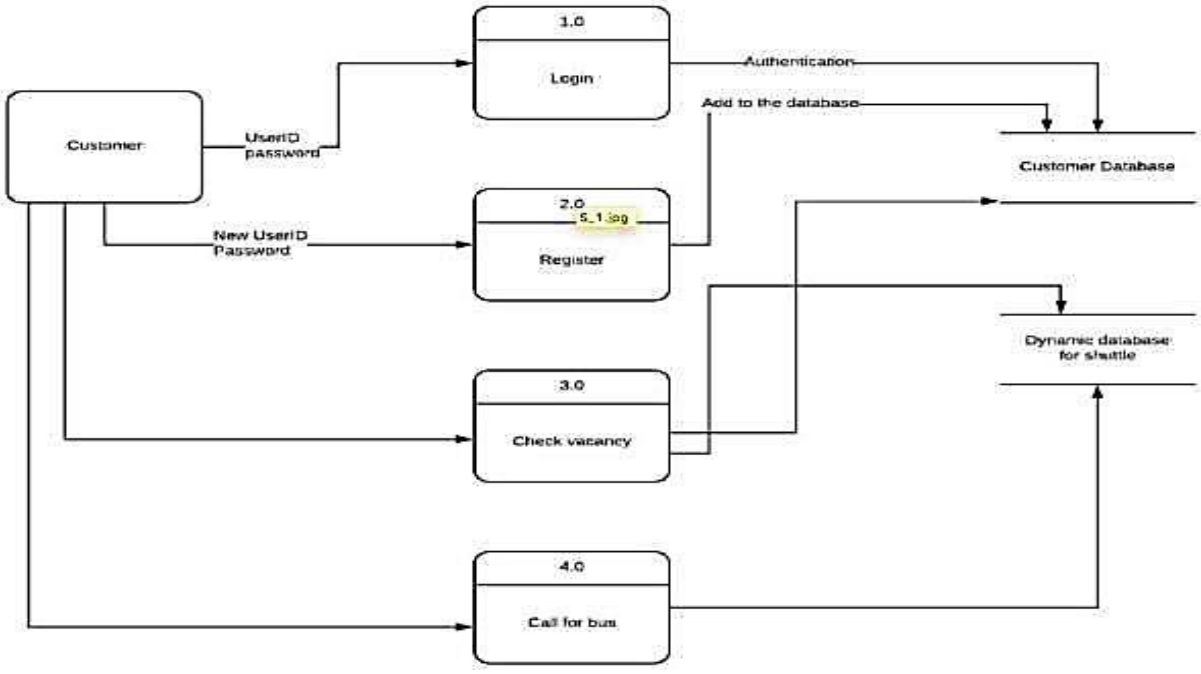


7) Data Flow Diagram:

Level 0



Level 1



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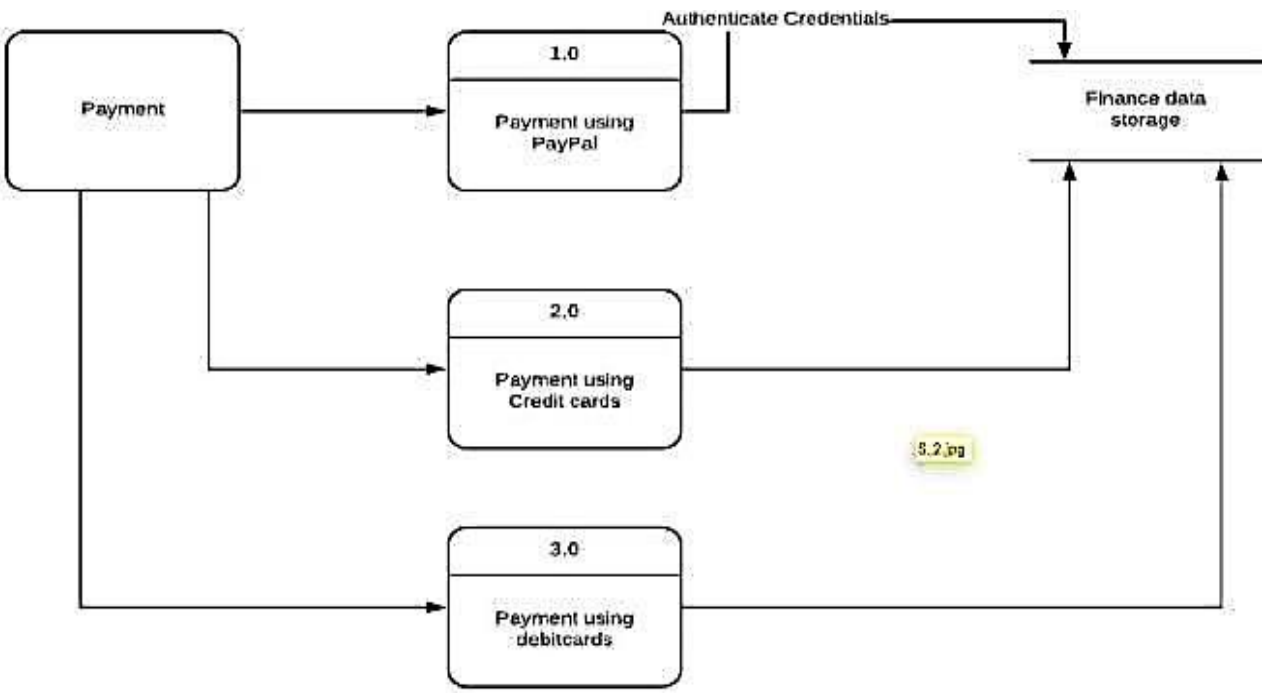
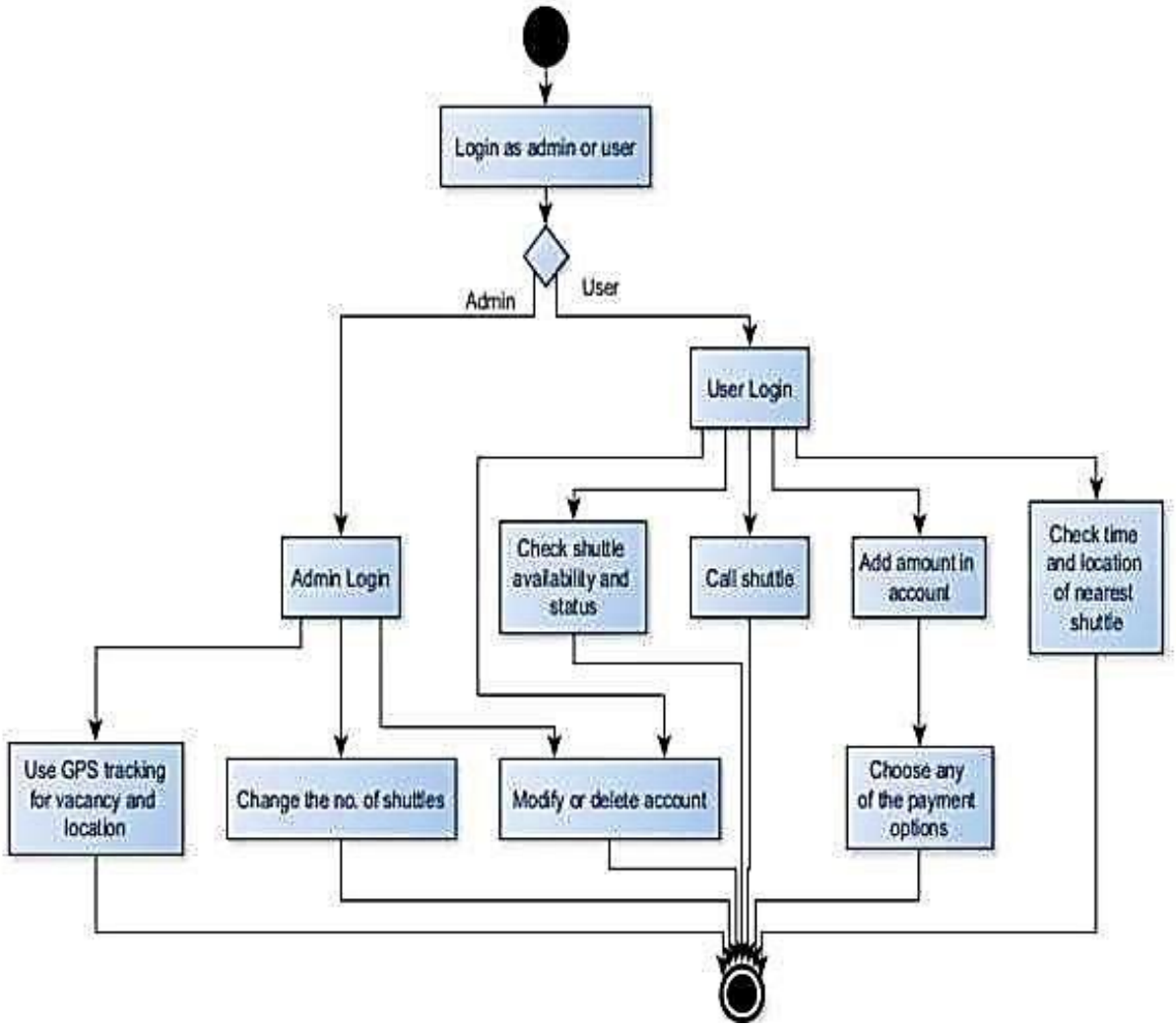
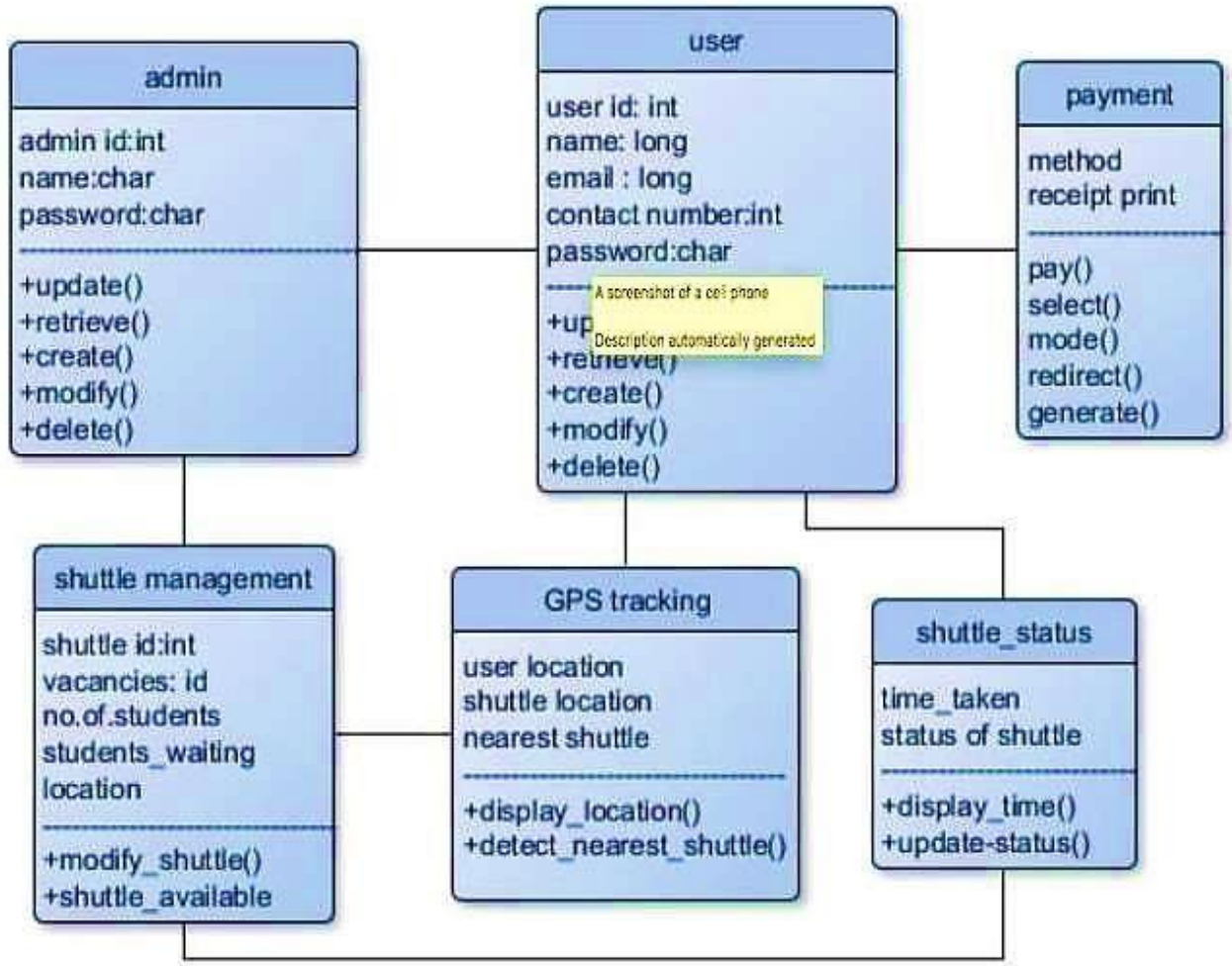


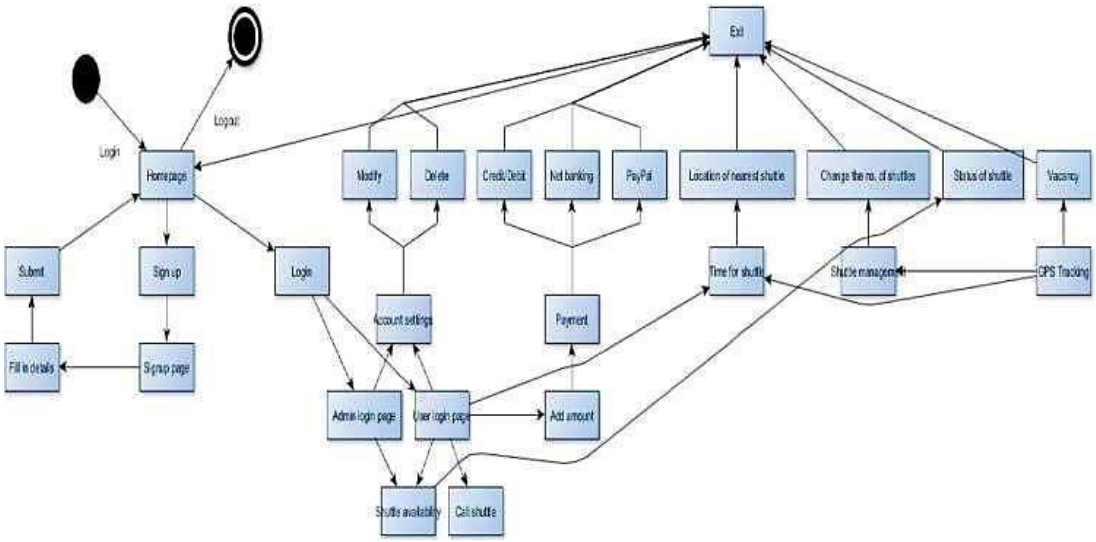
8)Activity Diagram:



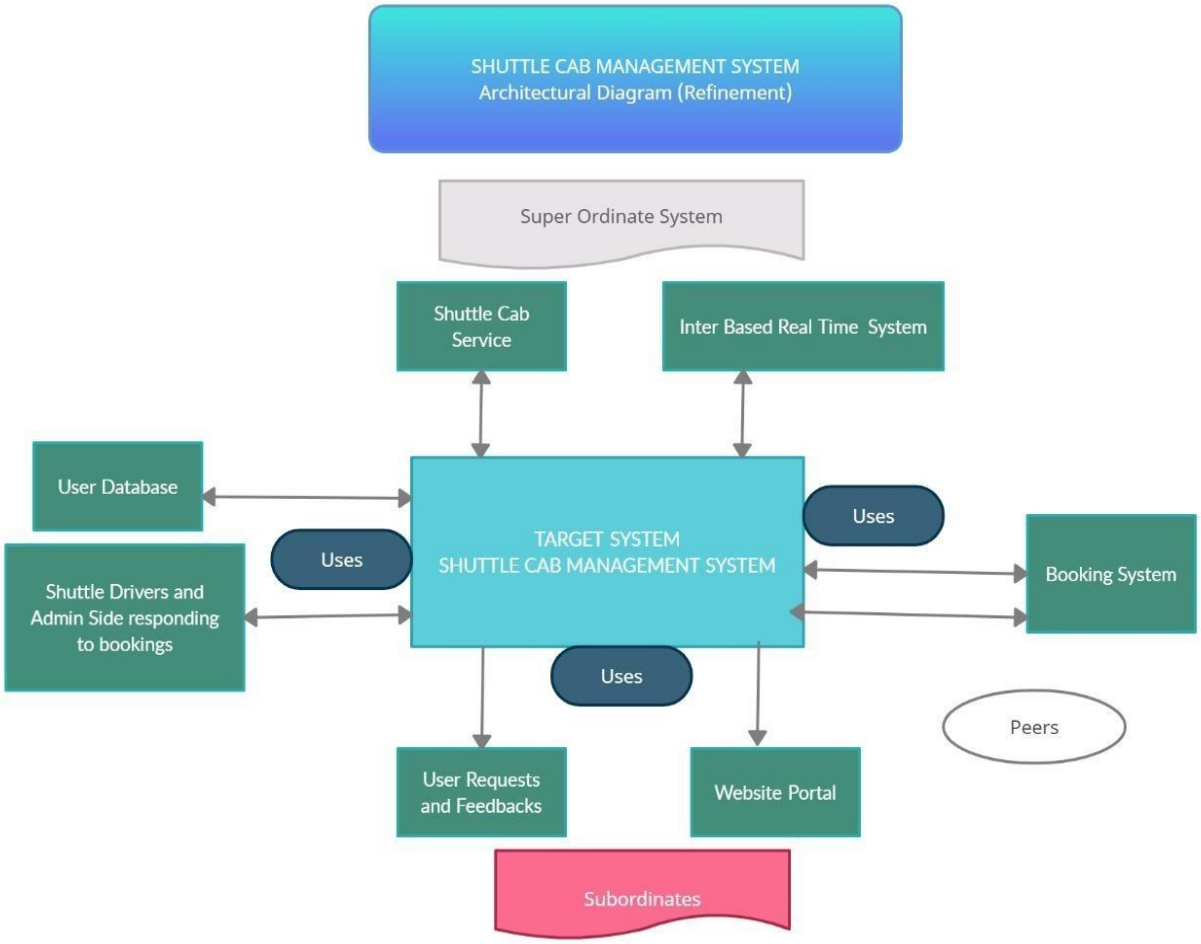
9)Class Diagram:



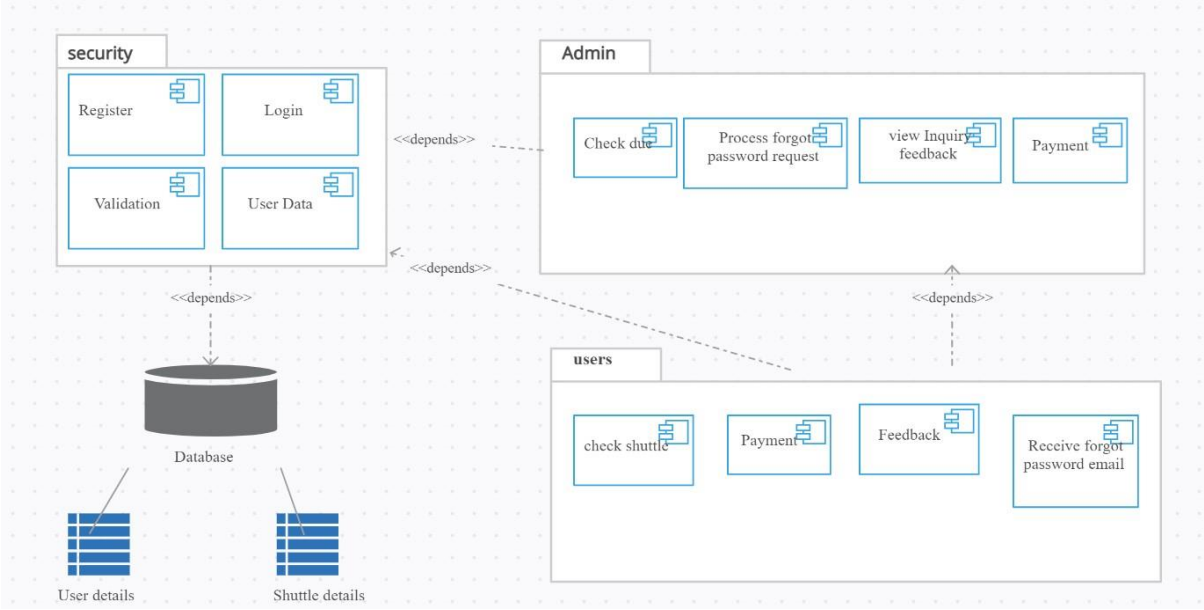
10)State Chart:



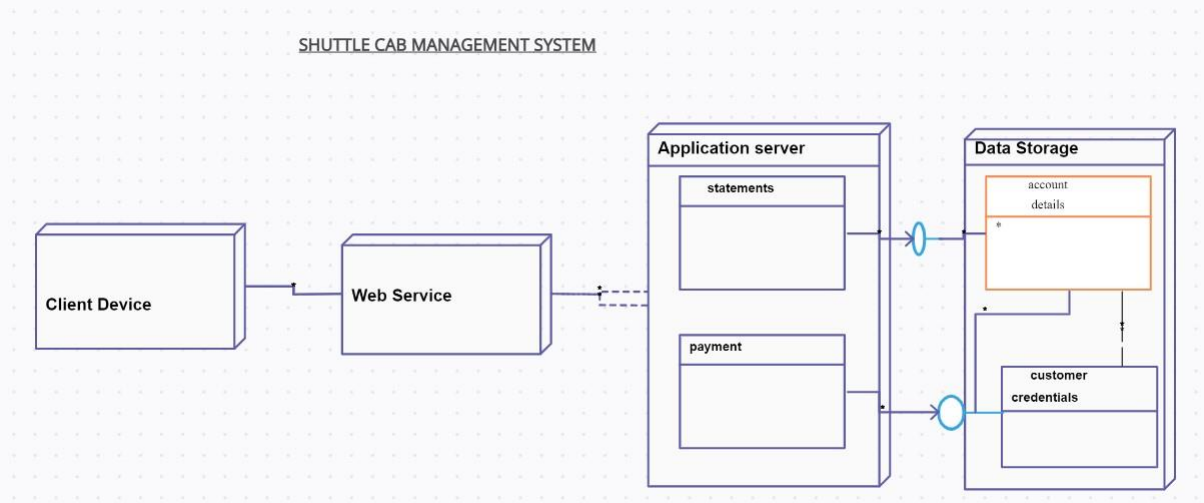
11) Architectural Diagram



12)Component Diagram:



13)Deployement Diagram



8.Test Cases

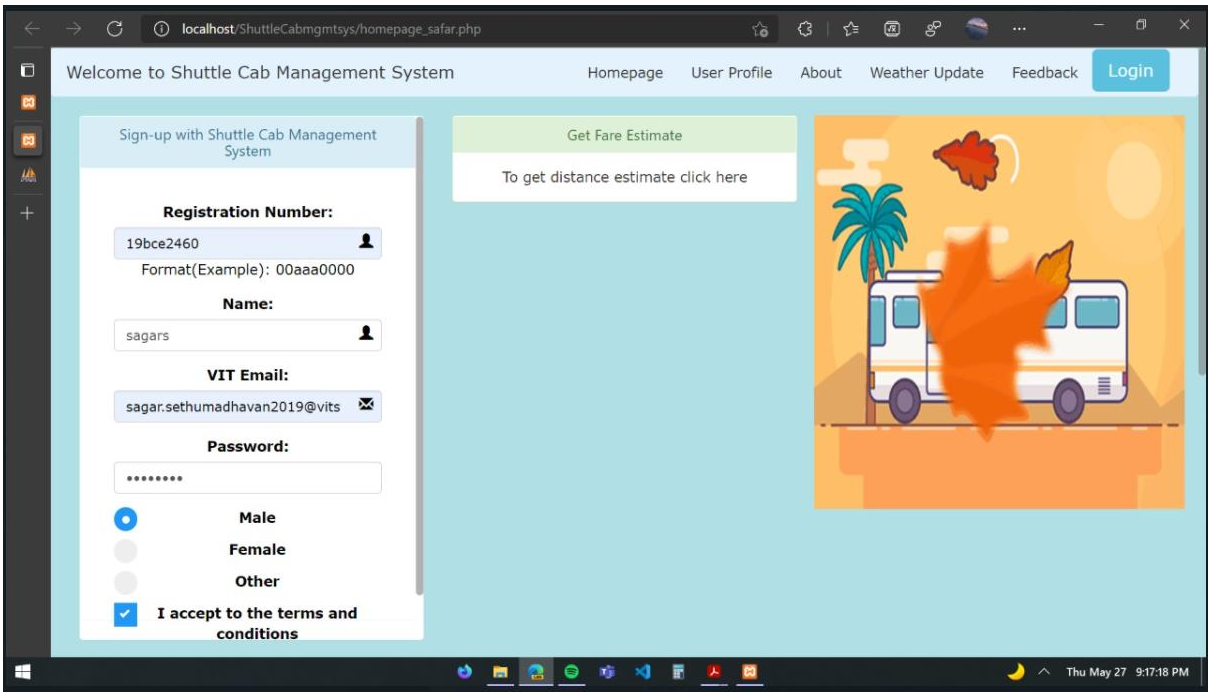
TEST SCENARIO	TEST_CASE	PRE -CONDITON	TEST STEPS	TEST DATA	EXPECTED RESULT
Login / Log out Module	Enter a valid User e-mail Name and Valid Password	1.User needs to have a registered account on the portal	1. Enter registered Email id 2.Enter Password 3. Click Login Button	<Valid User E-mail> <Valid Password>	Successful Login
Login / Log out Module	Enter a valid User e-mail Name and Invalid Password	1.User needs to have a registered account on the portal	1. Enter registered Email id 2.Enter Password 3. Click Login Button	<Valid User E-mail> <Invalid Password>	Login Unsuccessful
Login / Log out Module	Enter an invalid User e-mail Name and Valid Password	1.User needs to have a registered account on the portal	1. Enter registered Email id 2.Enter Password 3. Click Login Button	<Invalid User Email> <Valid Password>	Login Unsuccessful
Login / Log out Module	Enter an invalid User e-mail Name and an invalid Password	1.User needs to have a registered account on the portal	1. Enter registered Email id 2.Enter Password 3. Click Login Button	<Invalid User Email> <Invalid Password>	Login Unsuccessful
Account and Credit Management Module	Attempt paying an amount less than or equal to credit in account	1. Valid User 2.User needs to have credits in account.	1. Login into account 2. Paying through credits.	<Sufficient Credit Fund>	Transaction Successful
Account and Credit Management Module	Attempt paying an amount greater than credit in account	1. Valid User 2.User needs to have credits in account.	1. Login into account 2. Paying through credits.	<Insufficient Credit Fund>	Transaction Failed

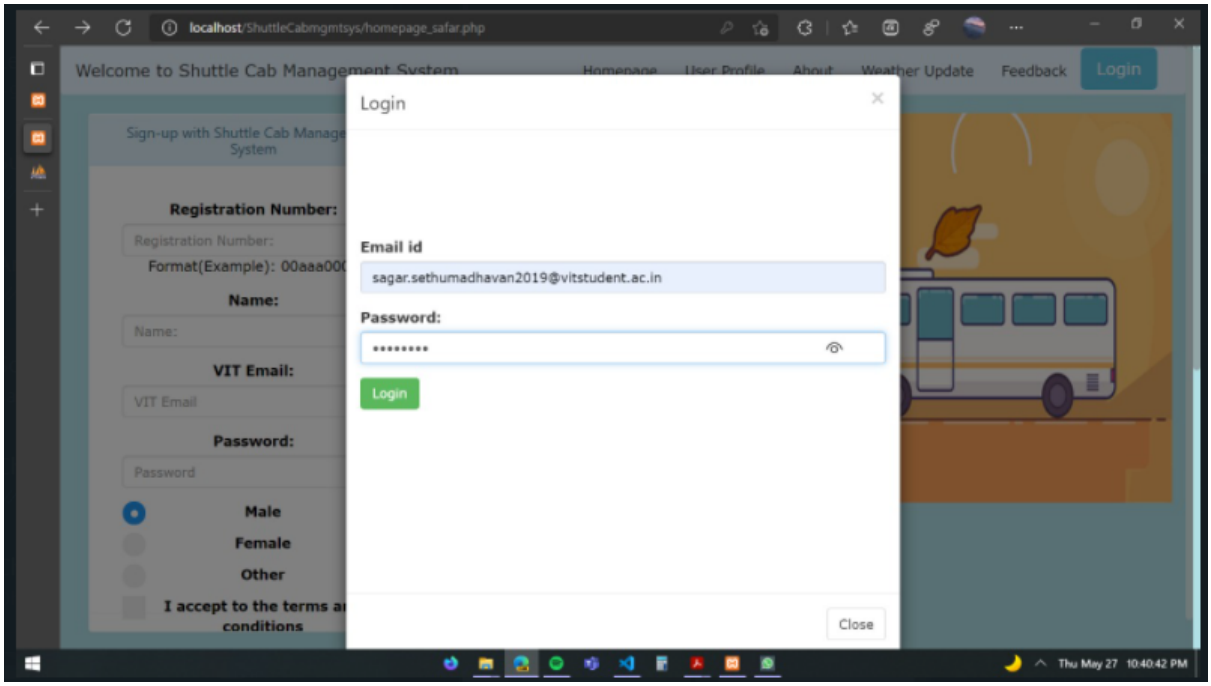
Route Management	'Shuttles available' and 'Shuttle tracking' option	User has valid username and password	1. Login into account 2. Click on 'Shuttles available' option.	No. of shuttles available	Status successful
Route Management	Nearest shuttle	User has valid username and password	1.Login into account 2.Click on 'Call shuttle' option.	nearest shuttle has been signalled	Status successful
Time management	Shuttle available option	User has valid username and password	'Shuttles available' option on any particular day.	No. of shuttles available	Status successful
Time management	Nearest shuttle	User has valid username and password	Click on the 'Call Shuttle' option	nearest shuttle has been signalled	Status successful
availability and vacancy in shuttles	Vacancy options	User has valid username and password	Click on 'vacancy' option	Displays the number of vacancies	Status successful
availability and vacancy in shuttles	availability options	User has valid username and password	Click on 'Student s waiting' option	Display the number of students waiting for a shuttle	Status successful
GPS Tracking	can see vacancies in each shuttle and call the shuttle	User has valid username and password	Click on the vacancies button	User is displayed the vacancies and the shuttles are visible to the user	Status successful
GPS Tracking	can see vacancies in each shuttle and call the shuttle	User has valid username and password	Click the location button	user is shown the location of the nearest shuttle.	Status successful
Payment module	Amount that user is willing to add in his account	User has valid username and password	clicks on 'add amount' option	User is navigated to payments page to add amount in his/her account	Status success

9.Implementation:

This Website helps us to search shuttle cab online and helps you to go from one place to other. The primary objective of the Registration process is to obtain the information of the user and provide unique Id and password. It is assumed that the user has created an account with the shuttle cab management Portal. The user should also provide information such as his e-mail address. The software stores all this information in a database. The information entered in the present module is used by the Admin for validation process via the internet. This process allows users to post their feedback about the website. It takes information such as registration number and email-id. We used PHP language and javascript to built our project. Thus using Java application, we can make all our options get accessed just by one click and we can proceed to do any operation

10.Results & Screenshots:




localhost/ShuttleCabmgmtsys/homepage_safar.php
Welcome to Shuttle Cab Management System
Homepage
User Profile
About
Weather Update
Feedback
Login
Sign-up with Shuttle Cab Manage System
Registration Number:
Format(Example): 00aaa00
Name:
VIT Email:
Password:
Male
Female
Other
I accept to the terms a conditions
Login
Email id
sagar.sethumadhavan2019@vitstudent.ac.in
Password:
Login
Close
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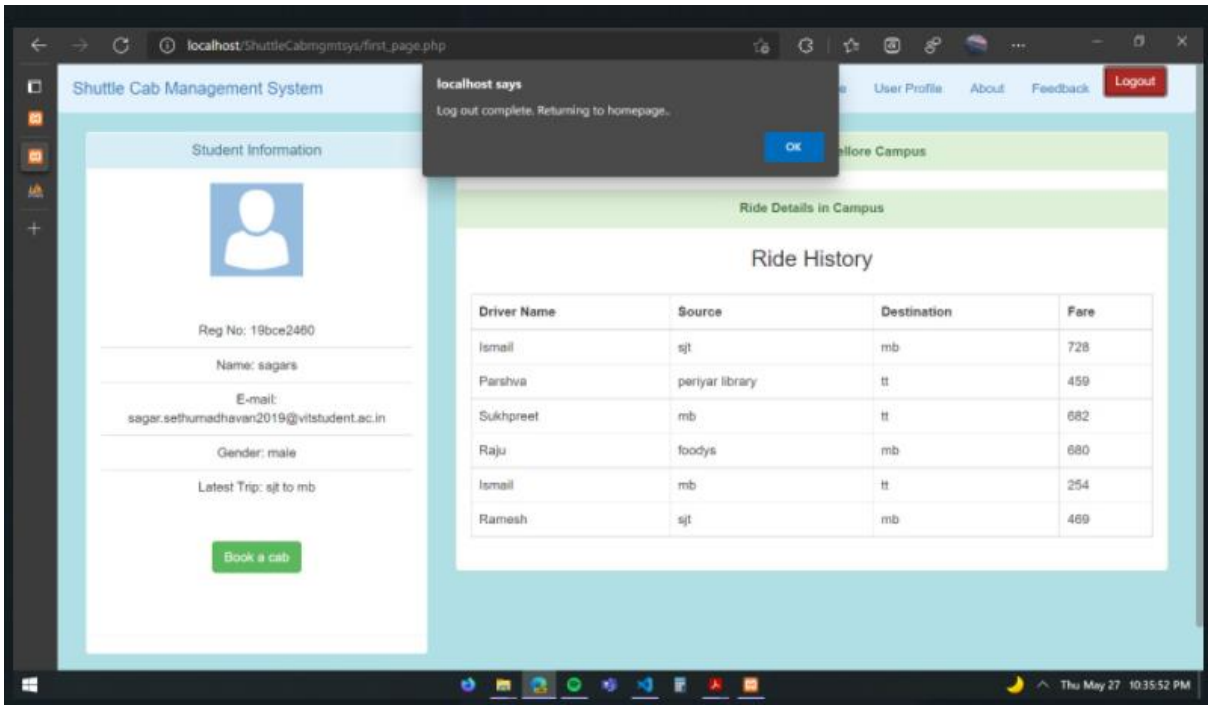
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Shuttle Cab Management System
localhost says
Log out complete. Returning to homepage..
OK
User Profile
About
Feedback
Logout
Student Information
Reg No: 18bce2460
Name: sagars
E-mail: sagar.sethumadhavan2019@vitstudent.ac.in
Gender: male
Latest Trip: sjt to mb
Book a cab
Ride Details in Campus
Ride History
Driver Name
Source
Destination
Fare
Ismail
sjt
mb
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Parshva
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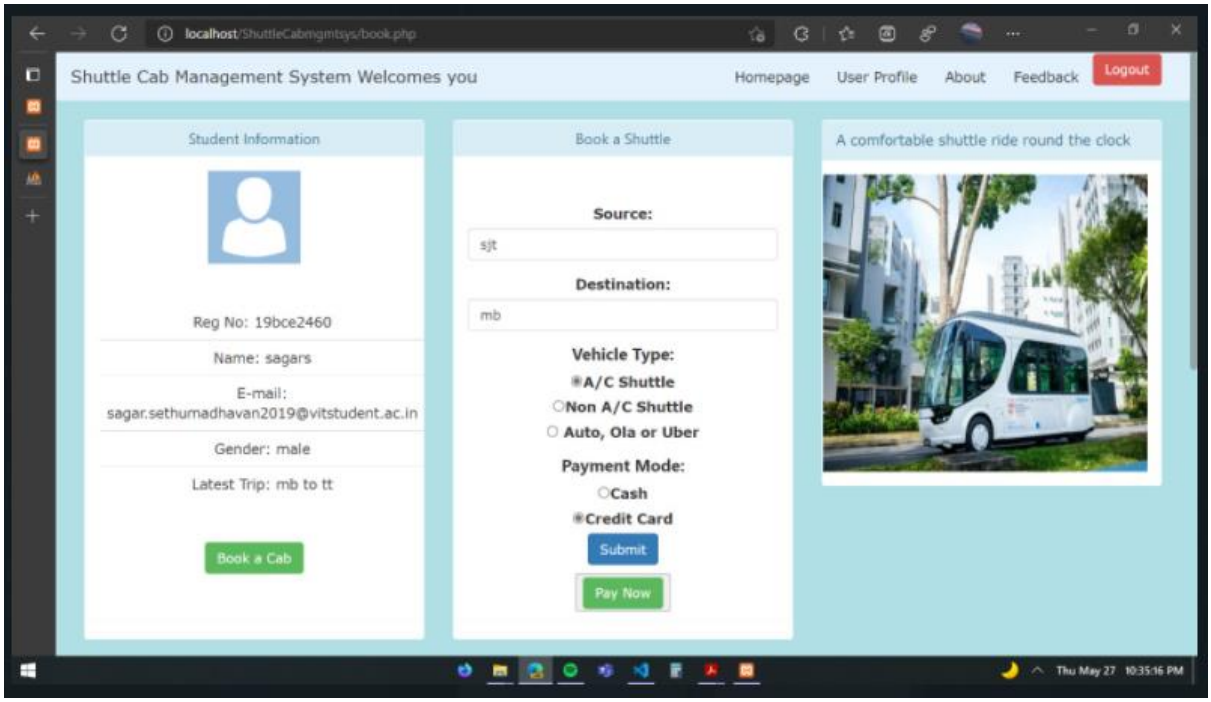
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Shuttle Cab Management System Welcomes you
Homepage
User Profile
About
Feedback
Logout
Student Information
Reg No: 19bce2460
Name: sagars
E-mail:
sagar.sethumadhavan2019@vitstudent.ac.in
Gender: male
Latest Trip: mb to tt
Book a Cab
Book a Shuttle
Source:
sjt
Destination:
mb
Vehicle Type:
A/C Shuttle
Non A/C Shuttle
Auto, Ola or Uber
Payment Mode:
Cash
Credit Card
Submit
Pay Now
A comfortable shuttle ride round the clock
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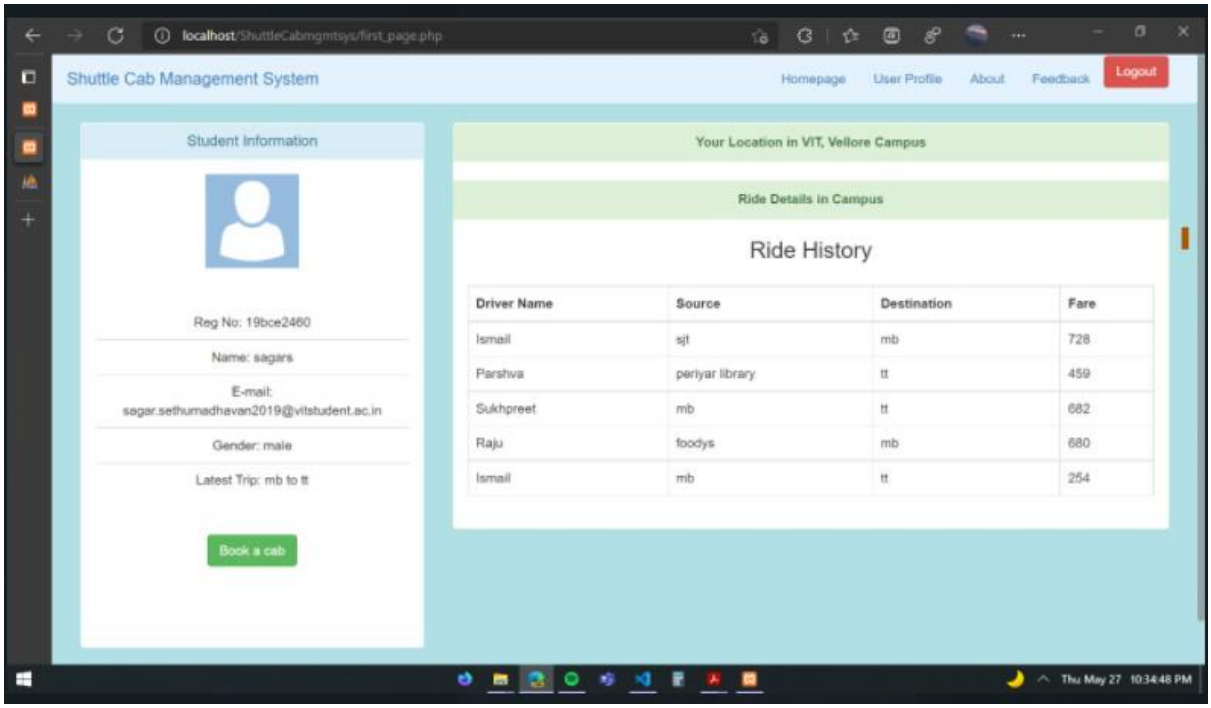
localhost/ShuttleCabmgmtsys/first_page.php
Shuttle Cab Management System
Homepage
User Profile
About
Feedback
Logout
Student Information
Reg No: 19bce2460
Name: sagars
E-mail:
sagar.sethumadhavan2019@vitstudent.ac.in
Gender: male
Latest Trip: mb to tt
Book a cab
Your Location in VIT, Vellore Campus
Ride Details in Campus
Ride History
Driver Name
Source
Destination
Fare
Ismail
sjt
mb
728
Parshva
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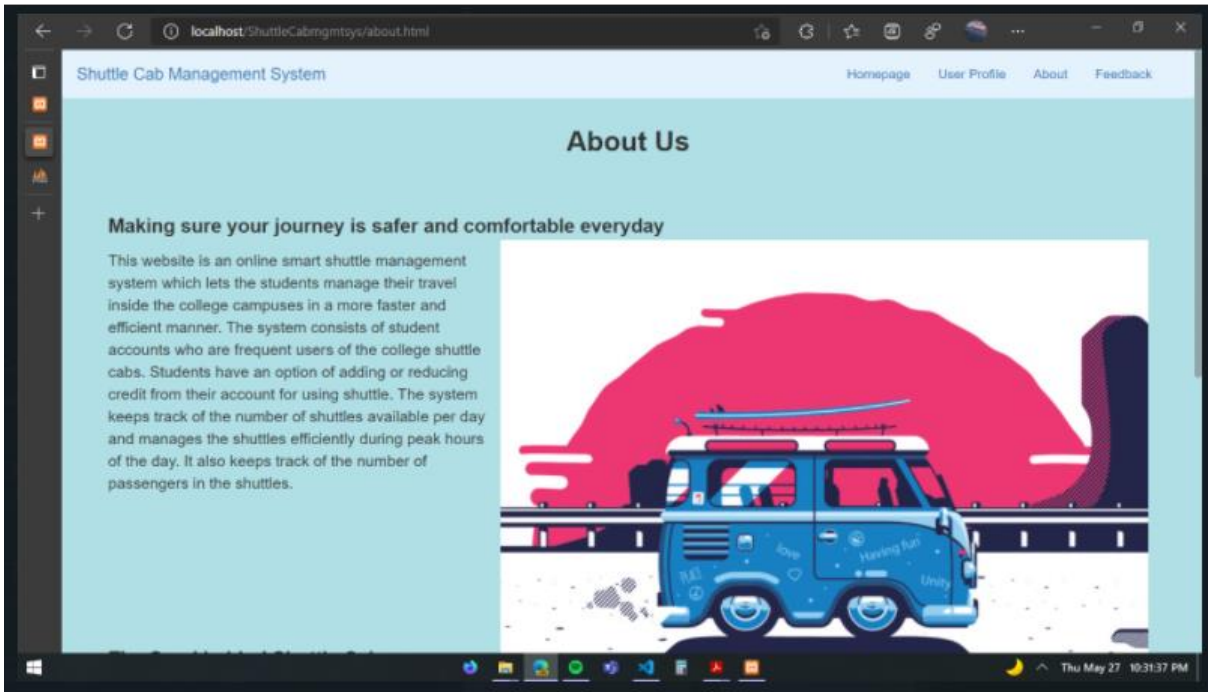
localhost/ShuttleCabmgmtsys/about.html
Shuttle Cab Management System
Homepage
User Profile
About
Feedback
About Us
Making sure your journey is safer and comfortable everyday
This website is an online smart shuttle management system which lets the students manage their travel inside the college campuses in a more faster and efficient manner. The system consists of student accounts who are frequent users of the college shuttle cabs. Students have an option of adding or reducing credit from their account for using shuttle. The system keeps track of the number of shuttles available per day and manages the shuttles efficiently during peak hours of the day. It also keeps track of the number of passengers in the shuttles.
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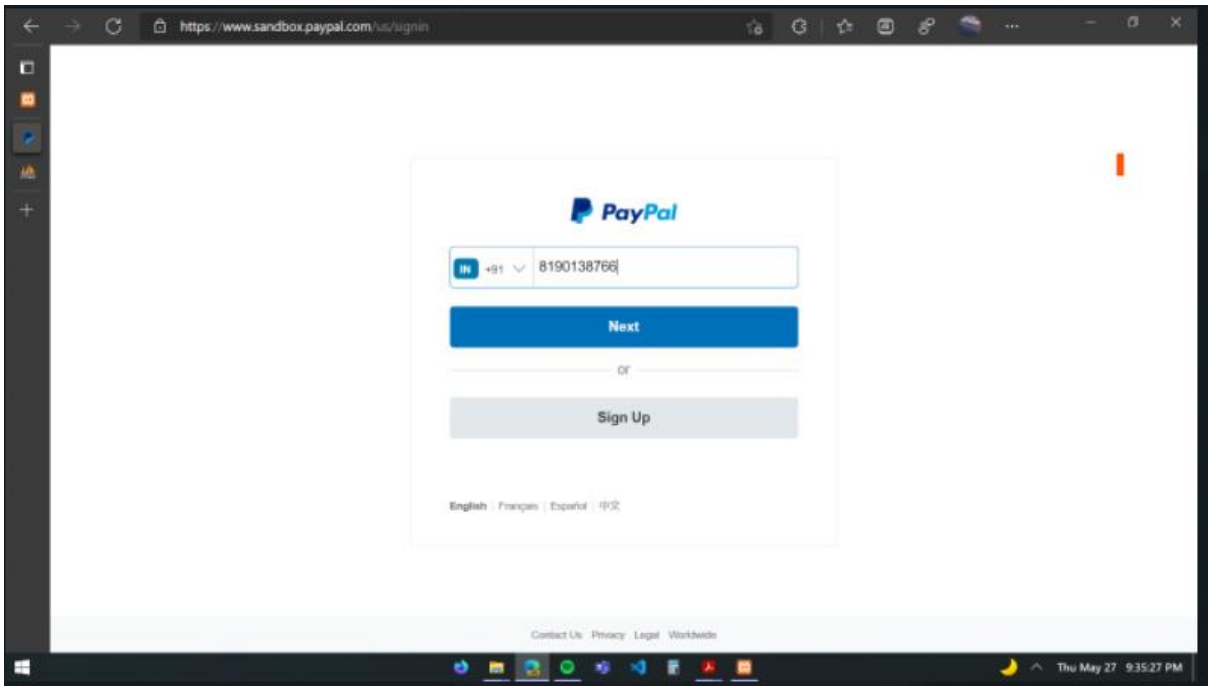
https://www.sandbox.paypal.com/us/signin
PayPal
IN +91
8190138766
Next
or
Sign Up
English
Contact Us
Privacy
Legal
Worldwide
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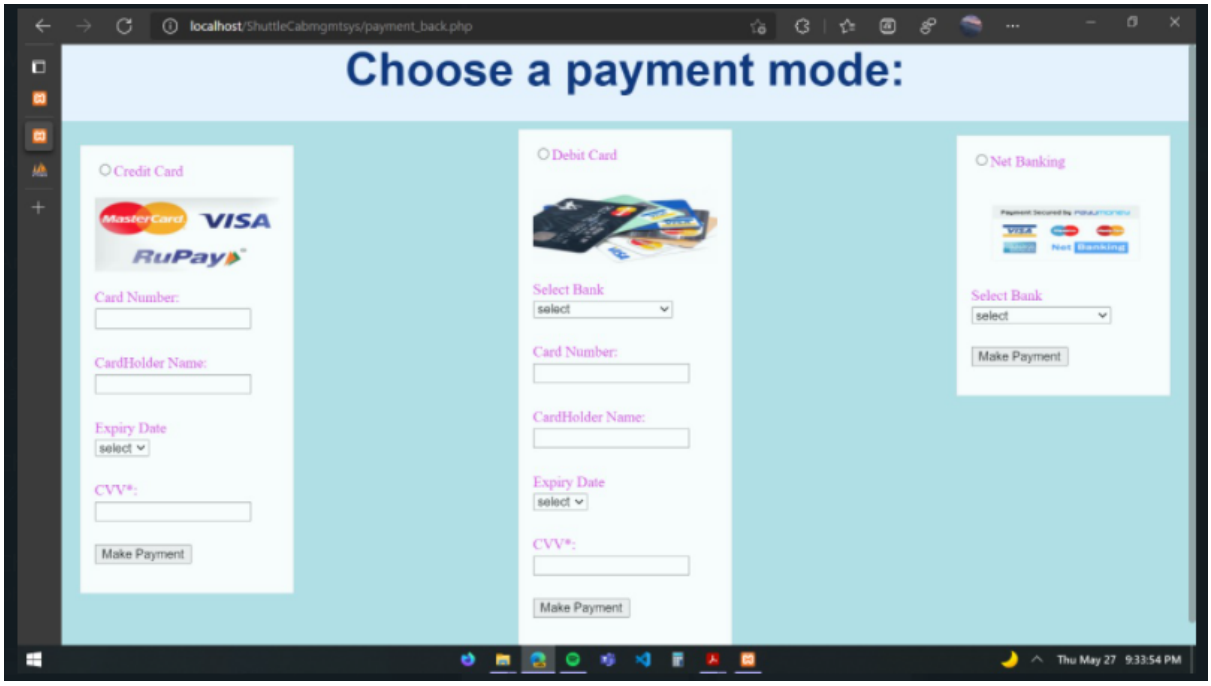
localhost/ShuttleCabmgmtsys/payment_back.php
Choose a payment mode:
Credit Card
Card Number:
CardHolder Name:
Expiry Date
select
CVV*:
Make Payment
Debit Card
Select Bank
select
Card Number:
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CVV*:
Make Payment
Net Banking
Select Bank
select
Make Payment
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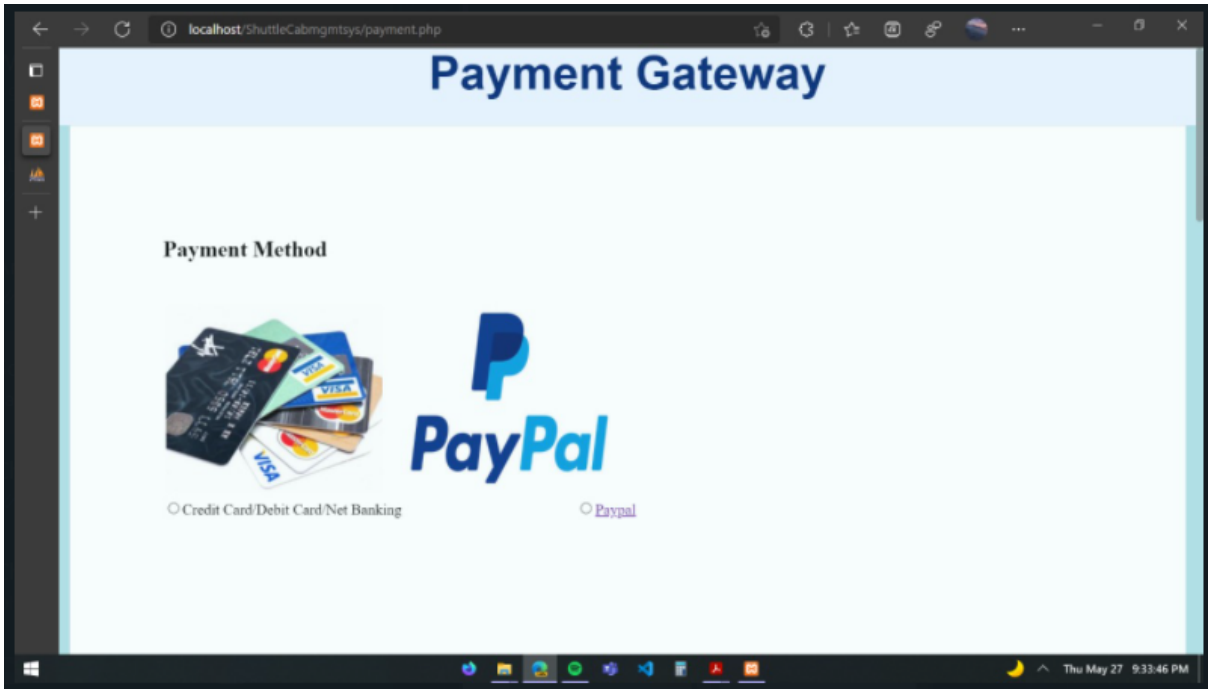
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Payment Gateway
Payment Method
PayPal
Credit Card/Debit Card/Net Banking
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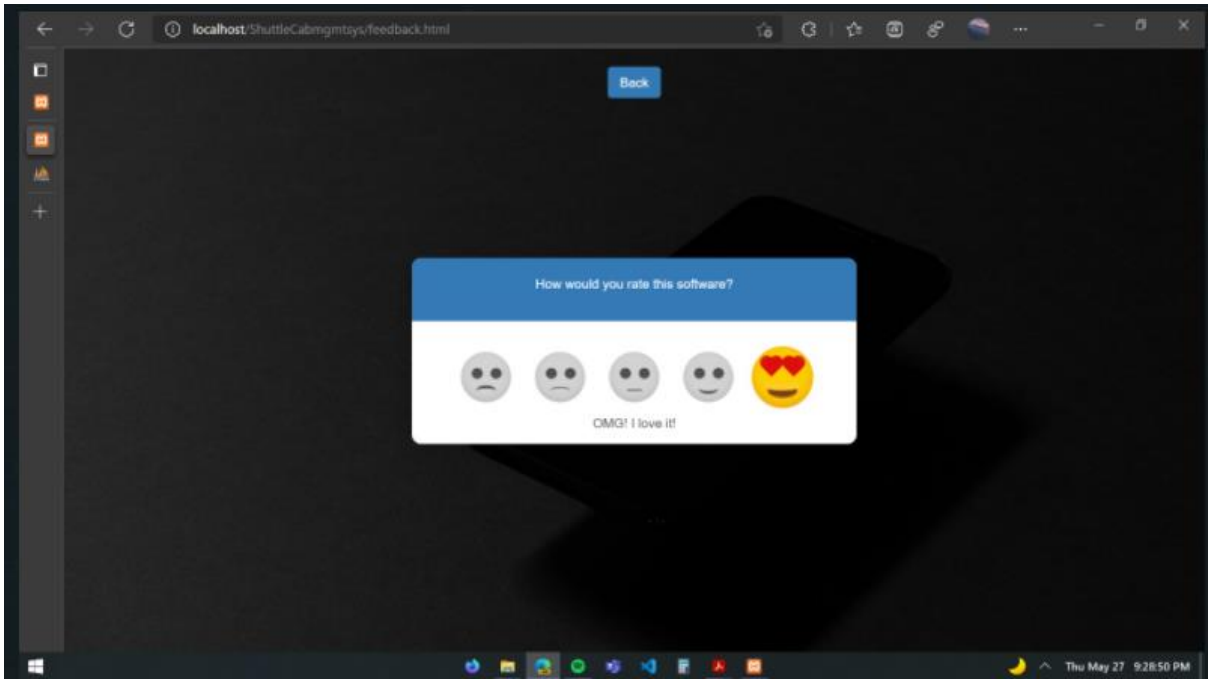
localhost/ShuttleCabmgmtsys/feedback.html
Back
How would you rate this software?
OMG! I love it!
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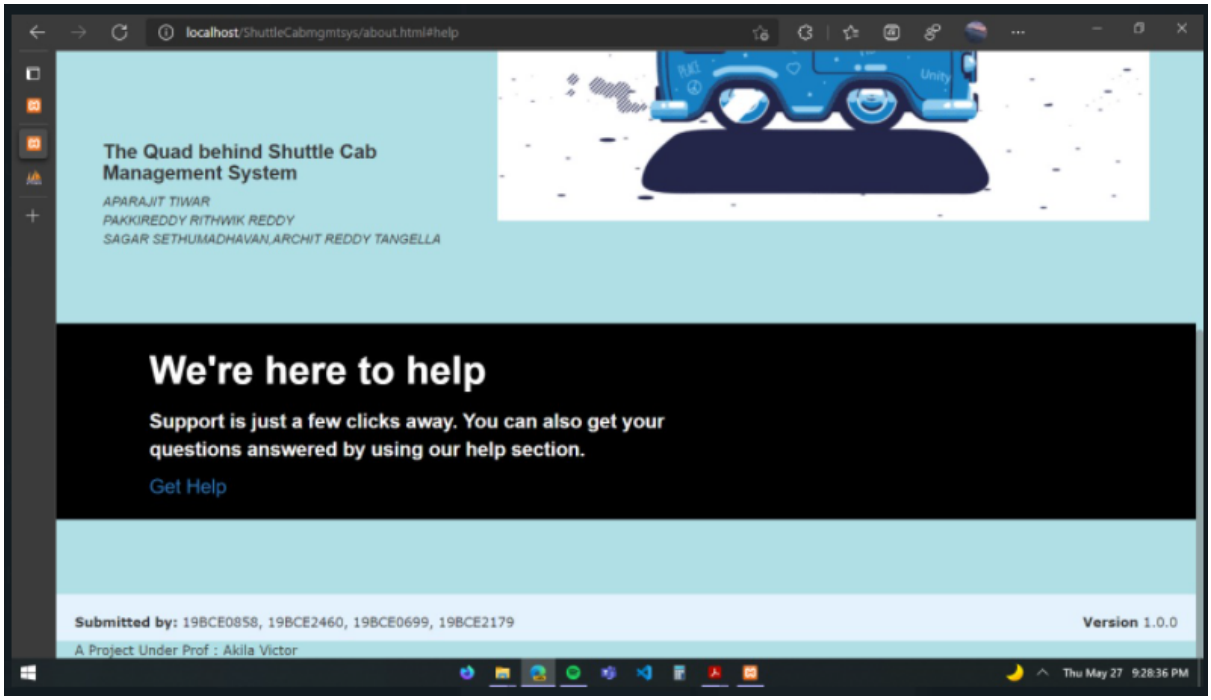
localhost/ShuttleCabmgmtsys/about.html#help
The Quad behind Shuttle Cab Management System
APARAJIT TIWAR
PAKKIREDDY RITHWIK REDDY
SAGAR SETHUMADHAVAN,ARCHIT REDDY TANGELLA
We're here to help
Support is just a few clicks away. You can also get your questions answered by using our help section.
Get Help
Submitted by: 19BCE0858, 19BCE2460, 19BCE0699, 19BCE2179
Version 1.0.0
A Project Under Prof : Akila Victor
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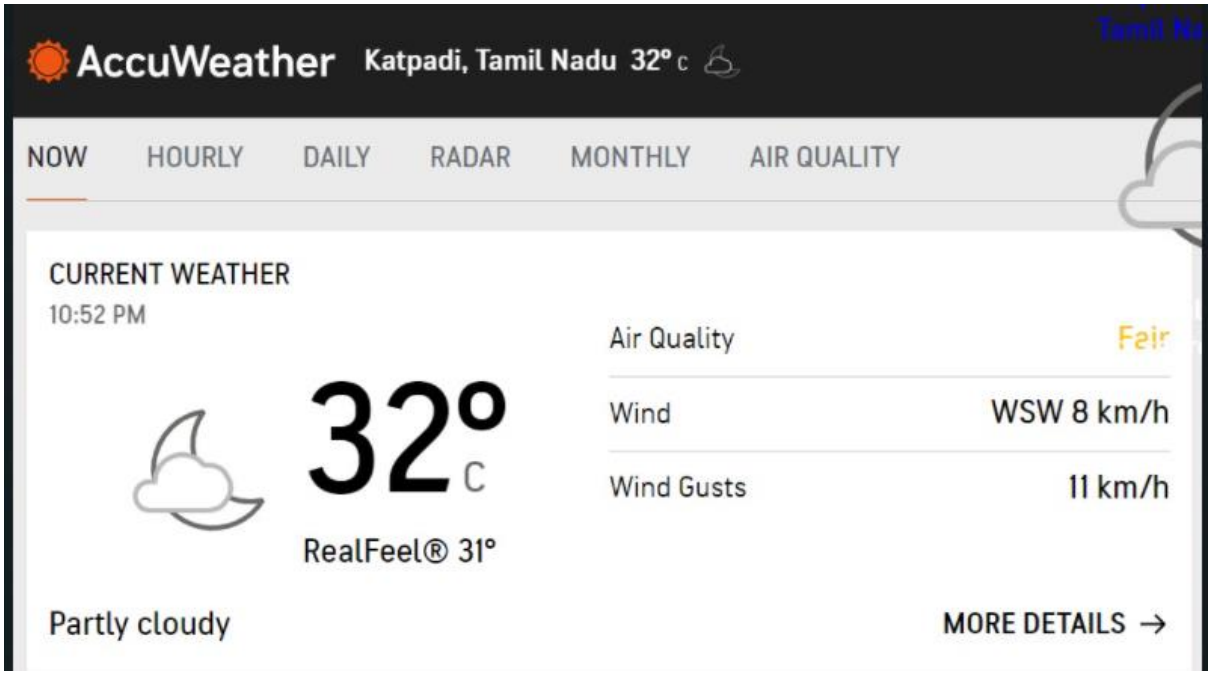
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Katpadi, Tamil Nadu 32° C
NOW
HOURLY
DAILY
RADAR
MONTHLY
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CURRENT WEATHER
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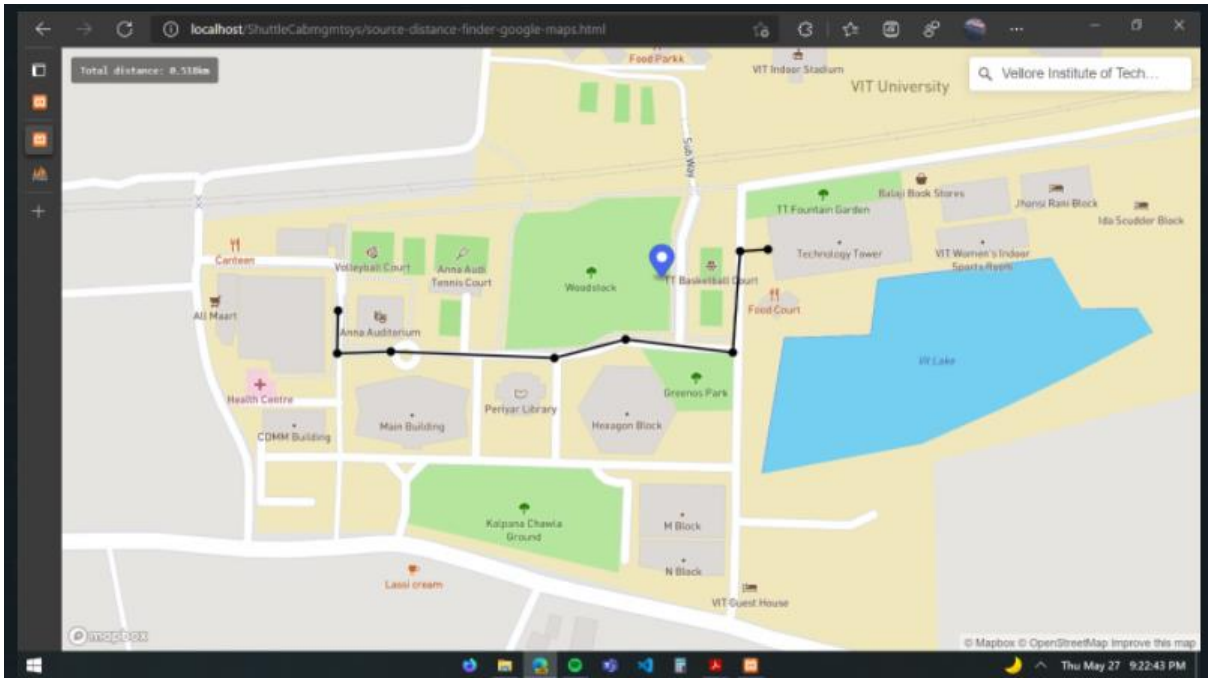
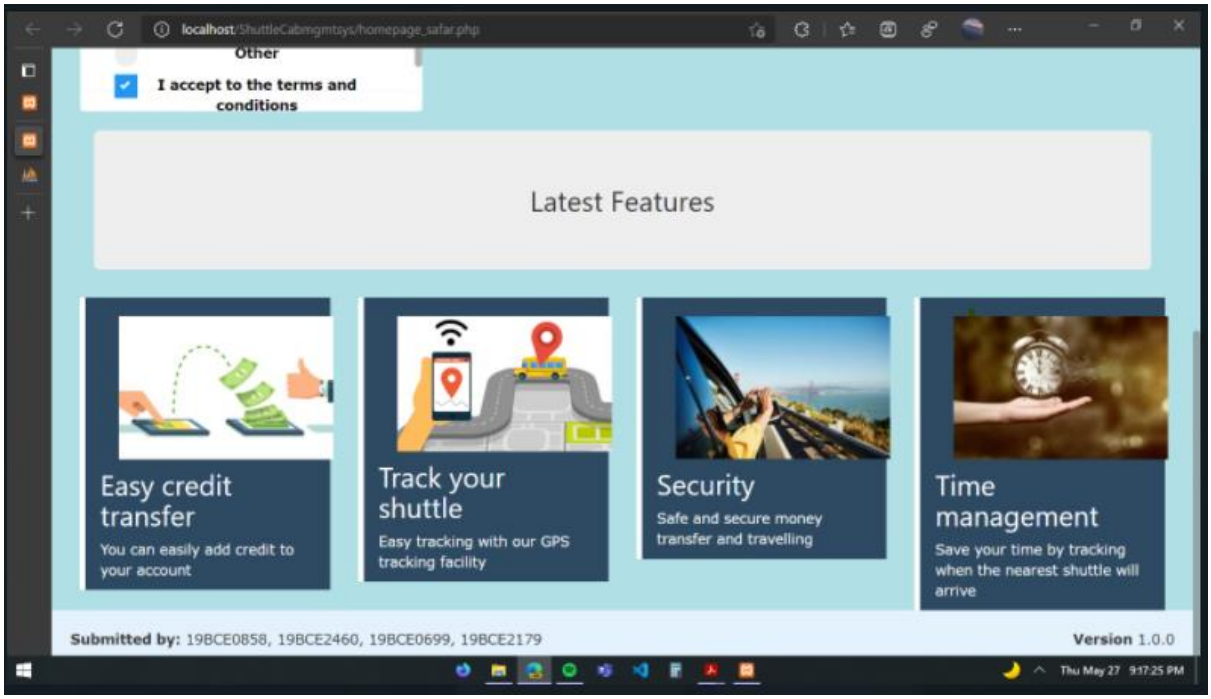
32° C
RealFeel® 31°
Partly cloudy
Air Quality
Fair
Wind
WSW 8 km/h
Wind Gusts
11 km/h
MORE DETAILS →


localhost/ShuttleCabmgmtsys/source-distance-finder-google-maps.html
VIT University
Vellore Institute of Tech...
Canteen
Volleyball Court
Anna Auditorium
Woodstock
TT Basketball Court
Food Court
Health Centre
Periyar Library
Main Building
Hexagon Block
Greenos Park
Kalpana Chawla Ground
M Block
N Block
VIT Guest House
Technology Tower
TT Fountain Garden
Balaji Book Stores
Jhansi Rani Block
Ida Scudder Block
VIT Women's Indoor Sports Room
Thu May 27 9:22:43 PM



11.Conclusion:

Finally, We've come up with a system that is versatile and helps the students of VIT get to their destination quicker and easier. As we have specified the username to be the registration number, the system is confined to VIT University and student-specific. In this project, we have tried to implement the functionalities like automatic deduction of the amount when the students take the ride, tracking of the shuttle, which includes time taken by that particular shuttle. Students ID cards will be scanned when they enter the shuttle, and automatic deduction of fare from their account takes place. Students can also add the amount into their account through credit card or debit card

12.Future Enhancements:

The project can be further developed by integrating it with other databases such as the VIT Gmail to make the system available to VIT professors as well. We can add an additional feature of combining the shuttle services to student timetables to help students get to blocks every day. We can also extend this system to other campuses or even cities and gated communities by changing the inputs for registration. We can also make a Vendor app for the shuttle management where the admin can modify the number of shuttles on a particular day based on the demand (for example, on weekdays demand is more). And admin can also view how many students are waiting for shuttles, which helps the admin to modify the number of shuttles

13.References:

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