



SECJ3104: Application Development

SYSTEM DOCUMENTATION



Project Name & Acronym: **JomShare**



Software House: **Apple Sky inc.**

School of Computing, Faculty of Engineering

Universiti Teknologi Malaysia

Stakeholders:

- 1. Chong Wee Tiam (Product Owner)*
- 2. Carpool JB-SG - Facebook Group (Name of Community)*

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1 Introduction

1.1 Document Overview

This document contains the organization, the specifications, the architecture, and verification or testing of JomShare software development project.

1.2 Scope

1.2.1 Identification

This document applies to the mobile application developed in the JomShare project.

1.2.2 Overview

There is an urgent need for transportation sharing in our community and there is a community of people who do not have a transportation license or vehicle for them to reach their destination that takes a long ride easily. Besides, some of the drivers have a regular journey routine and suffered from a huge expense on the vehicle especially when it was a long-distance journey. Hence, it has a purpose to solve the problem by proposing a carpool application, JomShare. JomShare is a mobile application that can be downloaded from the market. The reason to propose a carpool system on a mobile application is because it is more reasoning and compatible to use on a portable device anytime and anywhere. JomShare enables the users to host or request a carpooling service. When the user is in need to reach his destination but does not own a car, he can search for a carpool service by our application and pay for the fee. On the other hand, the driver that wants to save the expenses on a journey can host a carpool service on the application and find the groups of people that have the same destination. The competitor of the application is GrabHitch that has similar functionalities.

To analyze the underlying problem and requirements from proposing the system, there is a huge increase in the number of cars on the road that ultimately leads to traffic jams. It is causing environmental pollution and other underlying issues. It is important to reduce the number of cars on the road and carpooling is one of the options that can solve the problem and bring benefits to both the environment and the passengers. It is the main objective to design the JomShare application. For the technical feasibility of this project, the application development team decided to implement Firebase, Dart and Flutter programming knowledge to develop our proposed application. For the financial feasibility, our team has minimized the cost of the development process and focus on the functionalities. For the market feasibility, carpooling is a need in the market and has a high opportunity in future market growth. It is important to implement and test the JomShare application among the test users before publishing to the customers. JomShare application should be improving and updating functionalities from time to time to provide a better user experience for the customer.

1.3 Abbreviations and Glossary

1.3.1 Abbreviations

Index	Abbreviations	Meaning
1	App	Application
2	SDK	Software Development Kit
3	UI	User Interface

1.3.2 Glossary

Index	Term	Definition
1	carpool	An arrangement between people to make a regular journey in a single vehicle
2	Dart	Open-Source and client-side programming language
3	feasibility	Assessment of the practicality of a proposed plan
4	Firebase	Real time database that enables data to be stored and synced between users in real time
5	Flutter	Open-Source UI SDK that allows development of IOS and Android applications
6	functionalities	The ability of the system to do the work for which it was intended

1.4 References

1.4.1 Project references

#	Document Identifier	Document Title
[R1]	DOI:10.5120/20226-2506	Carpooling Application for Android Focusing on Authentication and Traffic Analysis

1.4.2 Standard and regulatory references

Not Applicable

1.4.3 Other references

#	URL	Title
[OTH1]	https://www.grab.com/sg/driver-hitch-returns/	GrabHitch

2 Project Management

The section describes the organizational structure of the JomShare project.

2.1 Team/Human Resources

The team is described in the diagram below.



Figure 2.1: Team Description Diagram

2.2 Responsibilities

The team of the project has the following responsibilities:

- **Team Leader:** See Wen Xiang
[Lead the team besides development]
- **Scrum Master:** Desmond Chieng Chee Hong
[lead the project management besides development]
- **Developer 1:** Yong Jing Xuan
[Include stabilising and deployment]
- **Developer 2:** Kong Hao Yang
[Include stabilising and deployment]
- **Tester:** Chong Kai Jie
[Lead the UAT besides development]

2.3 Customer-User Involvement

During the software development, the product owner is invited to join a meeting to watch the presentation of the intermediate version of JomShare. The product owner is also given a trial on some testing features such as searching a carpool and offering a carpool.

The product owner is then asked to fill a form and give some feedback based on his experience of the app. The team collected the review and arranged a meeting to discuss the suggestion of the user's review.

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2.4 Tasks, Planning, and Milestones

The planning below contains all tasks of the project as product backlogs and the four Sprints.

Product Backlog

Table 2.1: Product backlog for JomShare

Task ID	User Story ID	Estimate (Day)	Priority	Team Member
1	US001	2	1	Kong Hao Yang
2	US002	1	2	Yong Jing Xuan
3	US003	2	3	See Wen Xiang
4	US004	2	4	Desmond Chieng Chee Hong
19	US005	2	5	Chong Kai Jie
15	US016	4	6	See Wen Xiang
14	US015	3	7	Kong Hao Yang
16	US017	2	8	Desmond Chieng Chee Hong
18	US019	1	9	Yong Jing Xuan
17	US018	1	10	Chong Kai Jie
9	US010	4	11	Desmond Chieng Chee Hong
11	US012	2	12	Chong Kai Jie
10	US011	2	13	See Wen Xiang
12	US013	3	14	Yong Jing Xuan
13	US014	2	15	Kong Hao Yang
5	US006	2	16	Yong Jing Xuan
6	US007	1	17	Kong Hao Yang
7	US008	2	18	Desmond Chieng Chee Hong
8	US009	1	19	See Wen Xiang
20	US020	1	20	Chong Kai Jie

For the sprint 1, new users need to register their account so that they can login to the system. After they login to the system, they can view and update their profile such as their profile picture and password. They can delete the wrong information when they realize that they fill in the wrong detail. Next, they can choose to hide their personal information if they care about their privacy.

T	Key	Summary	Assignee	Reporter	P	Status	Resolution	Created	Updated
<input checked="" type="checkbox"/>	AS-26	Modify profile	CHONG KAI JIE A19EC0036	Desmond Chieng Chee Hong	==	DONE	Done	17/Nov/21	17/Nov/21
<input checked="" type="checkbox"/>	AS-17	Delete profile	Desmond Chieng Chee Hong	Desmond Chieng Chee Hong	==	DONE	Done	17/Nov/21	17/Nov/21
<input checked="" type="checkbox"/>	AS-16	Log In to the system	KONG HAO YANG A19EC0065	Desmond Chieng Chee Hong	==	DONE	Done	17/Nov/21	29/Nov/21
<input checked="" type="checkbox"/>	AS-10	Create profile	WINSON SEE WEN XIANG A19EC0206	Desmond Chieng Chee Hong	==	DONE	Done	31/Oct/21	13/Jan/22
<input checked="" type="checkbox"/>	AS-9	Register New Account	Yong Jing Xuan	Desmond Chieng Chee Hong	==	DONE	Done	31/Oct/21	29/Nov/21

Figure 2.2: Sprint 1 for JomShare

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The sprint 2 is about offering a carpool. The host needs to fill in the details of the carpool before he posts his carpool service. The host can modify the details of the carpool or remove the carpool service anytime if the host has decided not to offer a carpool service anymore. After passengers request to join the carpool, the host can either reject or accept their request.

T	Key	Summary	Assignee	Reporter	P	Status	Resolution	Created	Updated
<input checked="" type="checkbox"/>	AS-31	Delete carpool	CHONG KAI JIE A19EC0036	Desmond Chieng Chee Hong	=	DONE	Done	10/Dec/21	19/Dec/21
<input checked="" type="checkbox"/>	AS-19	Edit carpool	Desmond Chieng Chee Hong	Desmond Chieng Chee Hong	=	DONE	Done	17/Nov/21	01/Dec/21
<input checked="" type="checkbox"/>	AS-18	Offer frequent carpool	KONG HAO YANG A19EC0065	Desmond Chieng Chee Hong	=	DONE	Done	17/Nov/21	28/Nov/21
<input checked="" type="checkbox"/>	AS-13	Accept and reject request	Yong Jing Xuan	Desmond Chieng Chee Hong	=	DONE	Done	31/Oct/21	01/Dec/21
<input checked="" type="checkbox"/>	AS-12	Offer one-time carpool	WINSON SEE WEN XIANG A19EC0206	Desmond Chieng Chee Hong	=	DONE	Done	31/Oct/21	28/Nov/21

Figure 2.3: Sprint 2 for JomShare

For sprint 3, we focus on the task to find a carpool. When a passenger needs to take a carpool, he can search for their own preference option by filtering the carpool offered. The details of the trip and host can be seen by the passenger in order to help him to confirm this is the option he wants. Besides, the passenger can view their upcoming trip in order to manage their schedule well. The passenger can cancel their requested carpool by clicking on the cancel button. The host will receive the notification when passengers cancel the carpool.

T	Key	Summary	Assignee	Reporter	P	Status	Resolution	Created	Updated
<input checked="" type="checkbox"/>	AS-23	View requested carpool	KONG HAO YANG A19EC0065	Desmond Chieng Chee Hong	=	DONE	Done	17/Nov/21	10/Dec/21
<input checked="" type="checkbox"/>	AS-22	Filter carpool	WINSON SEE WEN XIANG A19EC0206	Desmond Chieng Chee Hong	=	DONE	Done	17/Nov/21	19/Dec/21
<input checked="" type="checkbox"/>	AS-21	View offered carpool details	CHONG KAI JIE A19EC0036	Desmond Chieng Chee Hong	=	DONE	Done	17/Nov/21	13/Dec/21
<input checked="" type="checkbox"/>	AS-11	Cancel carpool	Yong Jing Xuan	Desmond Chieng Chee Hong	=	DONE	Done	31/Oct/21	19/Dec/21
<input checked="" type="checkbox"/>	AS-8	Find a carpool	Desmond Chieng Chee Hong	Desmond Chieng Chee Hong	=	DONE	Done	31/Oct/21	18/Dec/21

Figure 2.4: Sprint 3 for JomShare

In the sprint 4, the host and the passengers can contact each other for the details that need to be known. The host and passenger can give feedback and rating after they finish their trip. The rating of the host and passenger will be recorded so that they can be a better user for our application.

T	Key	Summary	Assignee	Reporter	P	Status	Resolution	Created	Updated
<input checked="" type="checkbox"/>	AS-37	View carpool passengers detail	CHONG KAI JIE A19EC0036	Desmond Chieng Chee Hong	=	DONE	Done	29/Dec/21	13/Jan/22
<input checked="" type="checkbox"/>	AS-25	Make feedback to carpool partners	WINSON SEE WEN XIANG A19EC0206	Desmond Chieng Chee Hong	=	DONE	Done	17/Nov/21	06/Jan/22
<input checked="" type="checkbox"/>	AS-24	Contact carpool partner via phone call	KONG HAO YANG A19EC0065	Desmond Chieng Chee Hong	=	DONE	Done	17/Nov/21	06/Jan/22
<input checked="" type="checkbox"/>	AS-15	Contact carpool partner via chat box messaging	Yong Jing Xuan	Desmond Chieng Chee Hong	=	DONE	Done	01/Nov/21	06/Jan/22
<input checked="" type="checkbox"/>	AS-14	Make rating to carpool partners	Desmond Chieng Chee Hong	Desmond Chieng Chee Hong	=	DONE	Done	31/Oct/21	05/Jan/22

Figure 2.5: Sprint 4 for JomShare

2.5 Development Environment

Integrated Development Environment (IDE)

- Microsoft Visual Studio Code (version 1.63)

Workstation

- Firebase (version 1.0.3)

Mobile App Framework

- Flutter (version 2.5.3)

Backend Service

- Google Map API
- Google Places API

2.6 Other Resources

Simulator used:

- Google Pixel 4

2.7 Software Life Cycle Model

Agile Model.

The team used agile development software, Jira to manage the whole development process. The team has implemented the agile method in the software development by breaking the process into individual model and assign them in each sprint by using Jira. Besides, the team also apply the agile principle such as customer collaboration by involving the product owner in each iteration of the development process. When the user requirements undergo changing, the team immediately respond to the changes and continuous development.

2.8 Reviews

Launch Review

The team has identified the project requirements, product owner, and also the sustainable development goal of project. The team also defined the user story based on the research on the community and product owner.

Design Review

In sprint 1 meeting, the team decided to focus on features such as user registration and authentication and ensure the sprint development accordance with the requirement.

In sprint 2 meeting, the team started proceed to the core feature in the application which is offer carpool and ensure the sprint design and development accordance with the requirement.

Test Review

The team has invited a user for user acceptance test to ensure all functionalities and features are fitting the user's need. During the testing, the tester has recorded the feedback from the user in each testing phase.

Final Review

In the final phase of the application development, the team has integrated the mobile application and compile it to a release version.

2.9 Software Configuration Management

Configuration management consists of four major activities which are configuration identification, configuration change control, configuration auditing, and configuration status accounting.

The team used GitHub for software configuration management. First, the directory structure of the project is identified and a root project is push to GitHub main branch. During the development, the team members would commit their changes to the source code once they push the updates to GitHub and each previous version is tracked.

All the codes are stored on GitHub repository and it is an integration repository with multiple collaborators.

2.10 Documentation Management

At first, we identified the NABC of our proposed system, existing system and use case stories in the project proposal. Prepare slides for every sprint review meeting and the slide is including the details of all team members and stakeholders, development environments, progress, backlog and active sprint of all the team members. Besides that, each sprint contains the tasks for every member to complete and the duration is 2 weeks. After the tasks are done, the member can go to Jira tool to record or update the progress.

Table 2.2: Verification and Approval of Project Technical/Management Document

Document	Verification from Technical Wise (Kong Hao Yang)	Verification from Quality Manager (Chong Kai Jie)	Approved by See Wen Xiang
Project Proposal	Verified	Verified	Approved
Jira Board	Verified	Verified	Approved
System Documentation Version 1 (Chp 1- 3)	Verified	Verified	Approved
System Documentation Version 1 (Chp 4- 6)	Verified	Verified	Approved

Table 2.3: Verification of Project Meeting Reports

Project Meeting Report	See Wen Xiang	Kong Hao Yang	Yong Jing Xuan	Desmond Chieng	Chong Kai Jie
Slide Sprint 1 meeting review	Verified	Verified	Verified	Verified	Verified
Slide Sprint 2 meeting review	Verified	Verified	Verified	Verified	Verified
Slide Sprint 3 meeting review	Verified	Verified	Verified	Verified	Verified
Slide Sprint 4 meeting review	Verified	Verified	Verified	Verified	Verified

2.11 Verification

In sprint 1, the review is done to verify the requirement of registration such as creating an account and user login. The development of the features is recorded in the document including the screenshot of the user interface and the database view. The testing of the registration feature such as creating an account is successfully verify the functional requirement by reflecting on the database when the user inputs.

In sprint 2, the review is done to verify the requirement of offer carpool such as implementing the search location function. The development of the features is recorded in the document including the screenshot of the user interface and the database view. The testing of the offer carpool feature such as searching a location based on the Google Maps API is successfully verify the functional requirement by reflecting on the search results on the offer carpool page.

3 Specifications

3.1 System Features

There are 8 use cases for JomShare. In JomShare application, users which are long distance travelers can have two roles at the same time. The roles are host and passenger. The common functionalities for both roles are user authentication, management of profile, contacting carpool partner, and making feedback and rating. On the other hand, passengers can find carpools and manage their requested carpools while the host can offer carpool and manage his/her offered carpools.

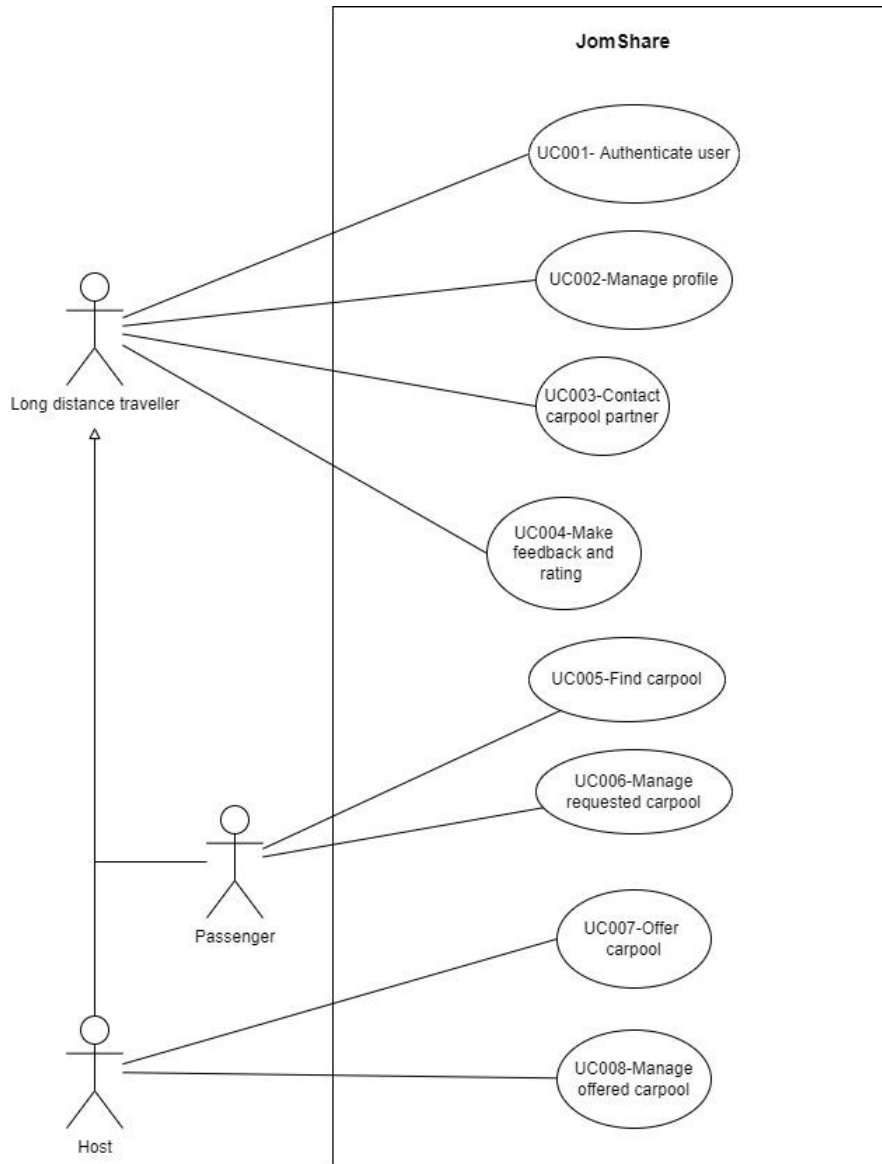


Figure 3.1 Use Case Diagram of JomShare

3.1.1 Use case UC001 <Authenticate user>

In this use case, the long-distance travelers will be able to log in to the system and register a new account for them.

User Story US001 <Register New Account>

As a new user, I want to register a new account by creating an email address and password for authentication so that the system can remember me and store my data.

User Story US002 <Log into system>

As a registered user, I want to log in to the system by using my email address and password so that the system can authenticate me.

3.1.2 Use case UC002 <Manage profile>

In this use case, users will be able to create their personal profile, edit profile, delete profile as well as account from the system.

User Story US003 <Create Profile>

As a user of this application, I want to be able to create my profile during the registration of new account, so that the system can recognize me when I log in to the system.

User Story US004 <Modify Profile>

As a user of this application, I want to be able to edit my profile so that I can update my profile with the latest information.

User Story US005 <Delete Profile>

As a user of the application, I want to be able to delete my account as well as my profile, so that the system will no longer store my information in case I no longer want to use this application.

3.1.3 Use case UC003 <Contact carpool partner>

In this use case, the long-distance traveler will be able to contact carpool partners as well as host and passengers to deliver relevant information about the carpool to them.

User Story US006 <Contact carpool partner via phone call>

As a long-distance traveler, I want to contact my carpool partners including host and passengers via phone call so that I can contact them directly when I am in urgent

User Story US007 <Contact carpool partner via chat box messaging>

As a long-distance traveler, I want to contact the carpool partners via chat box messaging so that I can contact them in case they are not available to pick up a phone call.

3.1.4 Use case UC004 <Make feedback and rating>

In this use case, both host and passenger can give rating and feedback on each other to reflect their carpool experience on the platform.

User Story US008 <Make rating to carpool partners>

As a long-distance traveler, I want to be able to give a rating on my carpool partners so that I can express my satisfaction about the carpool experience.

User Story US009 <Make feedback to carpool partners>

As a long-distance traveler, I want to give feedback on my carpool partners so that I can reflect and describe my feelings with the carpool experience.

3.1.5 Use case UC005 <Find a carpool>

In this use case, the passenger of long-distance travel will be able to search and find a carpool for them. The carpool database will show out the offered carpool for them to request. The passengers will be able to filter carpools based on several parameters according to their preferences. The screen will display a list of carpools fulfilling the parameters on the screen. Passengers will be

able to view the information of trips and host in helping them to make a better decision. There are three user stories in this use case.

User Story US010 <Find carpool>

As a passenger of long-distance travel, I want to find a carpool that fits my starting location and destination so that I can save my transportation expenses.

User Story US011 <Filter carpool>

As a passenger of long-distance travel, I want to be able to filter the carpools available based on several criteria such as gender of host, fee, date and time for pick-up so that I can find the carpool which is the best fit to me.

User Story US012 <View offered carpool details>

As a passenger of long-distance travel, I want to be able to view the details of the trips offered, and the details of host and passengers so that I can know more information about the host and trip.

3.1.6 Use case UC006 <Manage requested carpool>

In this use case, the passenger of long-distance travel will be able to cancel the requested carpool and view all the requested carpools in an order manner.

User Story US013 <Cancel carpool>

As a passenger of long-distance travel, I want to be able to cancel the carpool that I have requested so that I can choose other carpools that seem more suitable for me.

User Story US014 <View offered carpool details>

As a passenger of long-distance travel, I want to be able to view all of my requested carpools in an ordered manner except the carpools that have been canceled after requested so that I can plan my schedule more systematically.

3.1.7 Use case UC007 <Offer carpool>

In this use case, the host of long-distance travel will be able to offer carpool by filling in the important information of carpool. Besides that, the host also can offer two different types of carpools which are frequent carpool and one-time carpool.

User Story US015 <Offer frequent carpool>

As a host of long-distance travel, I want to offer a frequent carpool to the public so that I can save my transportation expenses and find someone to accompany me during regular trips.

User Story US016 <Offer one-time carpool>

As a host of long-distance travel, I want to offer a one-time carpool to the public so that I can save my transportation expenses and find someone to accompany me during a trip.

3.1.8 Use case UC008 <Manage offered carpool>

In this use case, the host of long-distance travel will be able to manage the offered carpool by modifying and deleting the carpool offered.

User Story US017 <Edit carpool>

As a host of long-distance travel, I want to edit the existing carpool which is offered by me so that I can update the latest carpool details.

User Story US018 <Delete carpool>

As a host of long-distance travel, I want to delete the existing carpool which is offered by me so that I can remove the unnecessary long-distance driving trip.

User Story US019 <Accept and reject request>

As a host of long-distance travel, I want to accept or reject the people who request to join the carpool so that I can find suitable partners for me.

User Story US020 <View carpool passengers detail>

As a host of long-distance travel, I want to view the details of my passengers so that I can know the backgrounds of my passengers.

3.2 Performance

- i. The waiting time for authenticating user shall not exceed 5 seconds.
- ii. The data shall be updated in the database within 10 seconds after the data is modified.

3.3 Other Features

- i. The application shall ensure that data is protected from unauthorized access.
- ii. The application shall encrypt the password entered by users.
- iii. The application shall be easy to use.
- iv. The application shall be easy to learn to use.
- v. The number of errors caused by users when using the application shall be minimized.

3.4 User Interface Layout

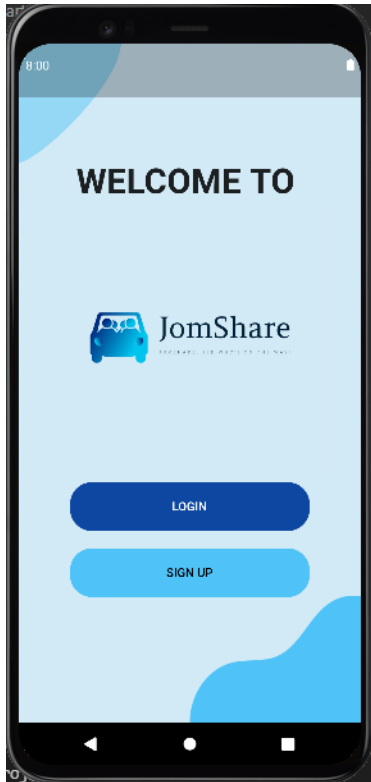


Figure 3.4.1 Welcome Screen

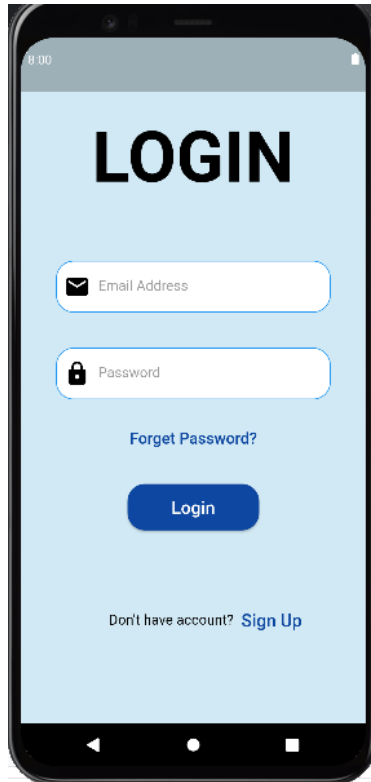


Figure 3.4.2 Login Screen

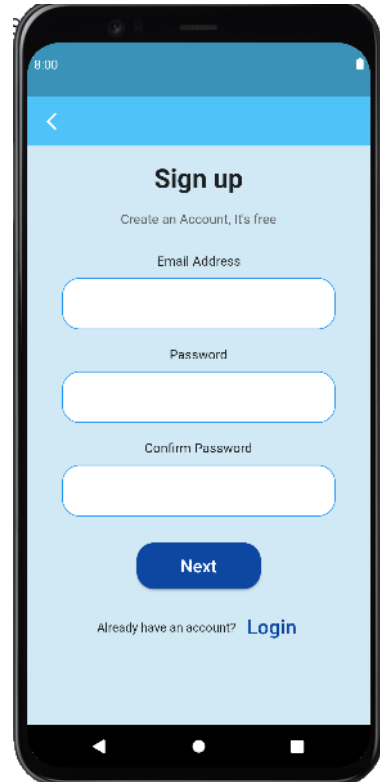


Figure 3.4.3 Sign Up Screen

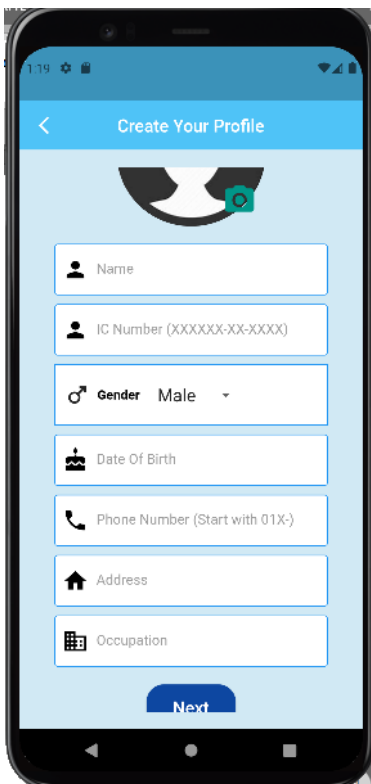


Figure 3.4.4 Add Profile Screen

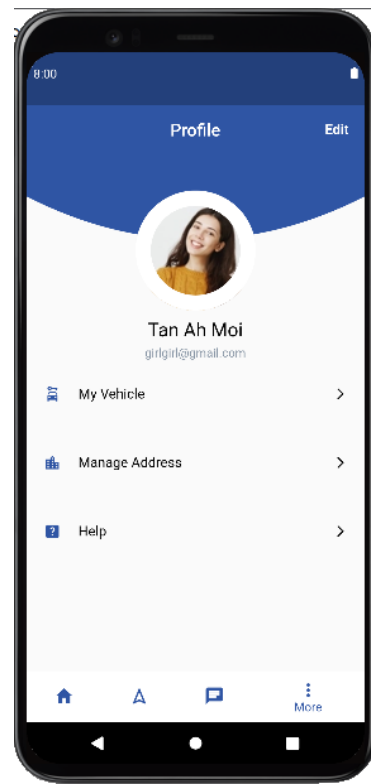


Figure 3.4.5 Profile Page

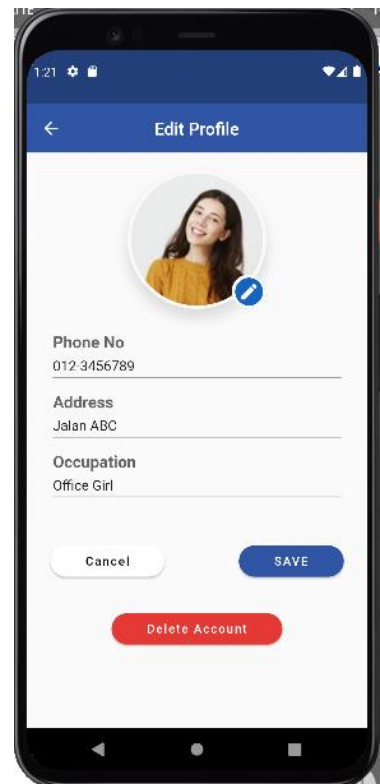


Figure 3.4.6 Edit/Delete Profile

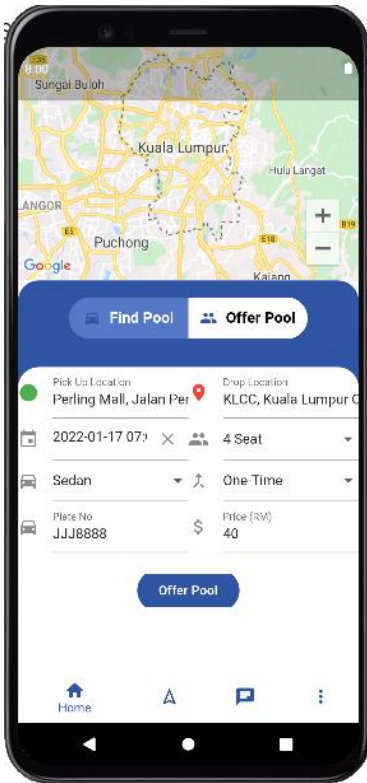


Figure 3.4.7 Offer One-Time Carpool

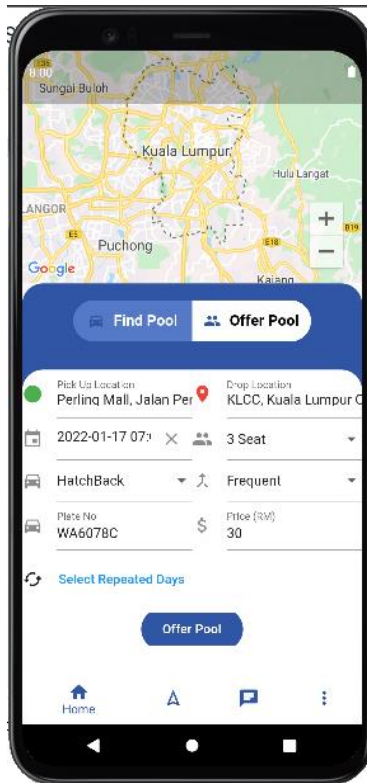


Figure 3.4.8 Offer Frequent Carpool

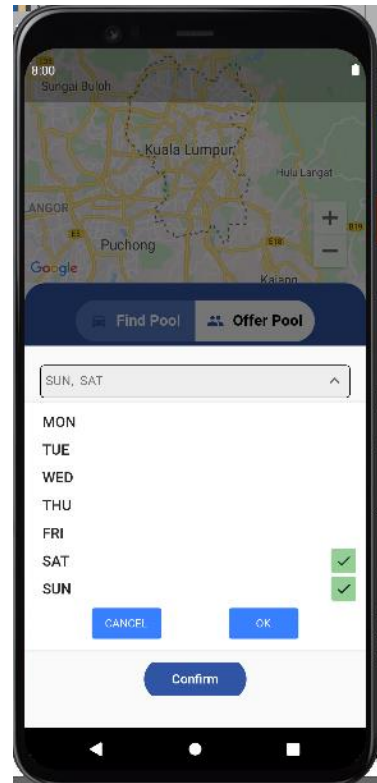


Figure 3.4.9 Select Repeated Day

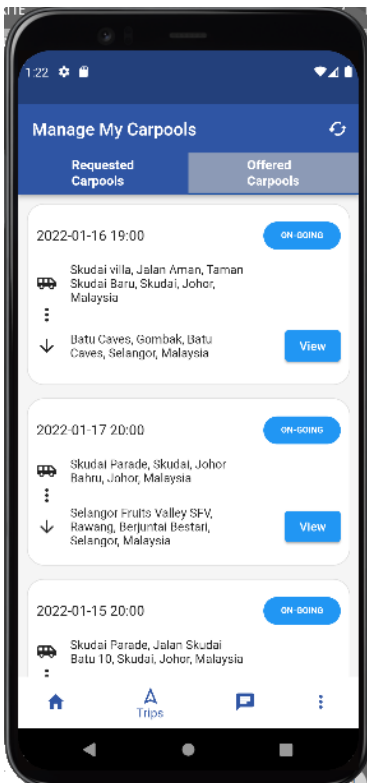


Diagram 3.4.10 View Offered Carpool

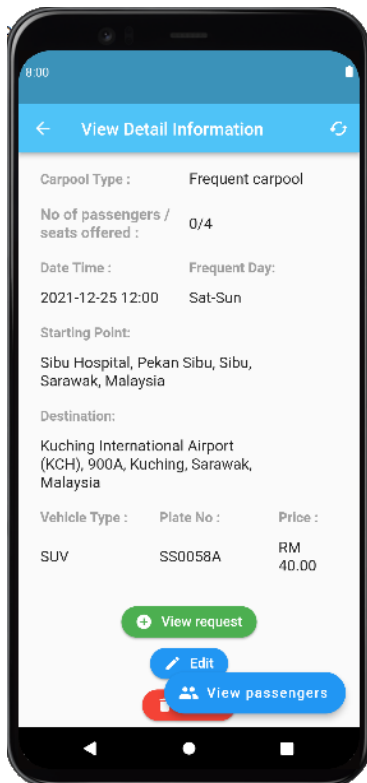


Figure 3.4.11 View Carpool Details /Delete Carpool

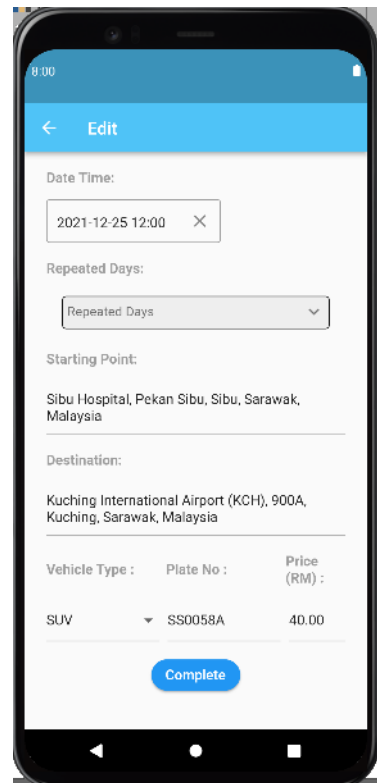


Figure 3.4.12 Edit Carpool Details

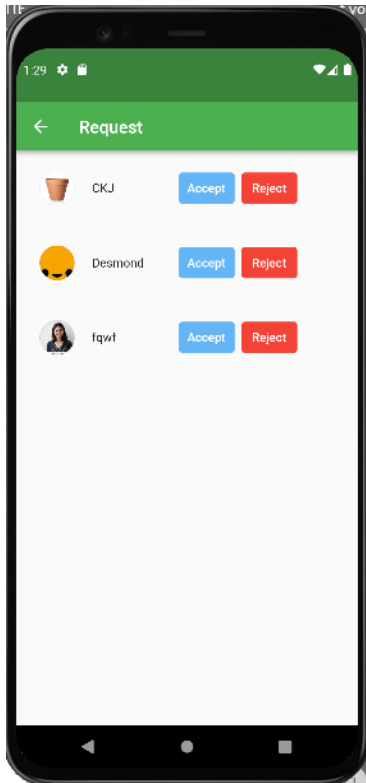


Figure 3.4.13
Accept/Reject
Carpool Request

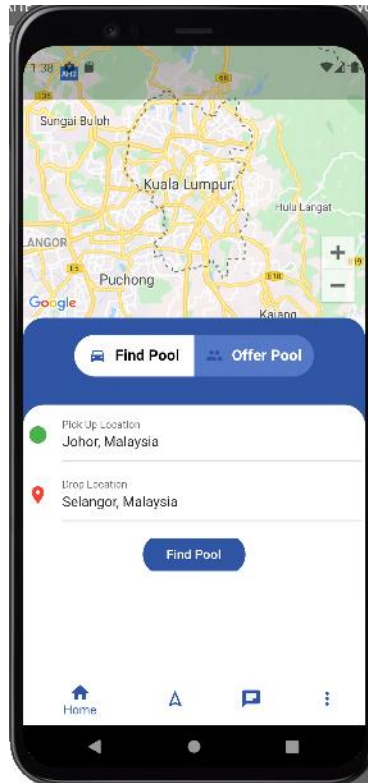


Figure 3.4.14
Find Carpool

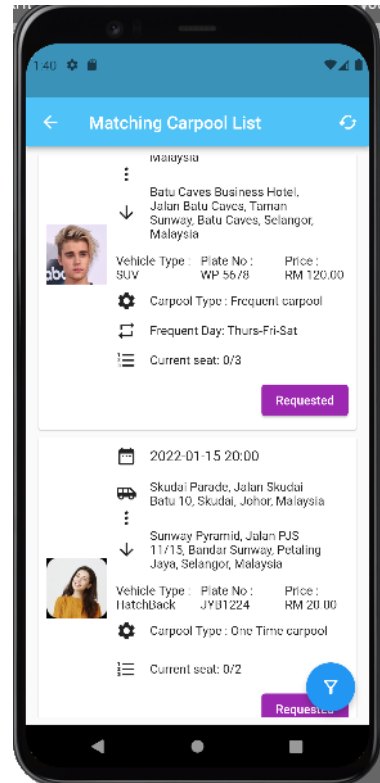


Figure 3.4.15
Matching Carpool

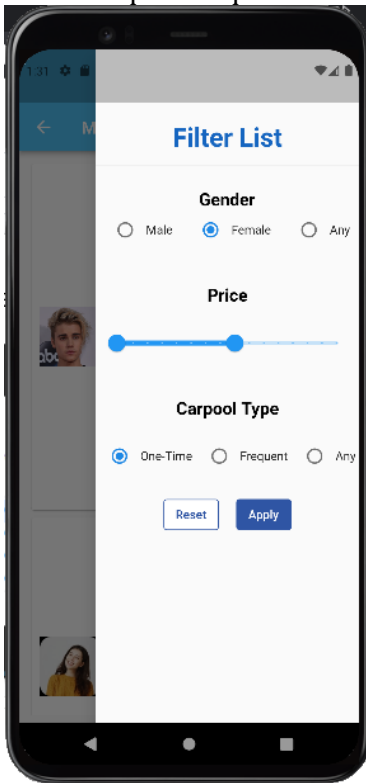


Figure 3.4.16
Filter Carpool

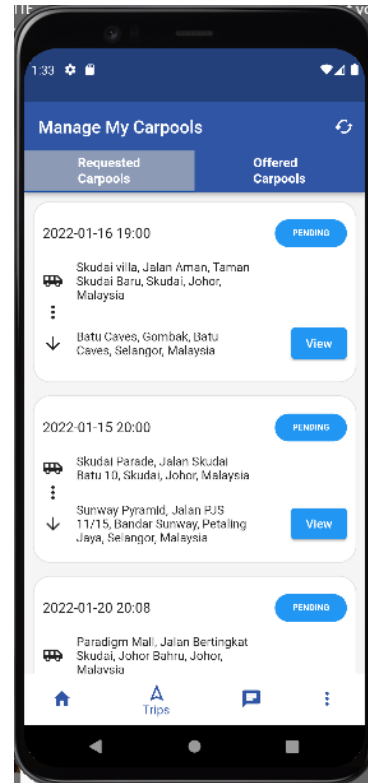


Figure 3.4.17
View Requested Carpool

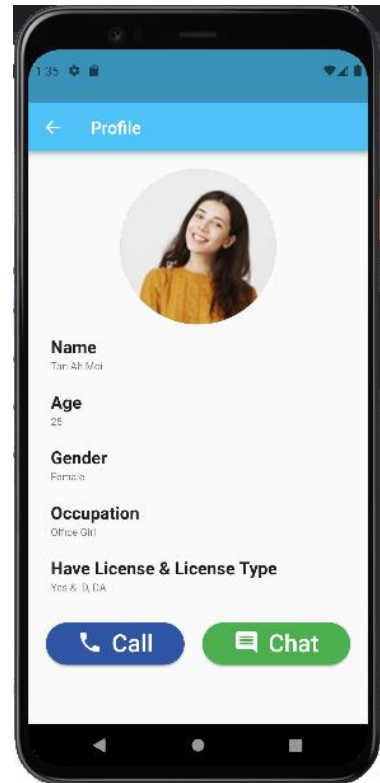


Figure 3.4.18
View Carpool Partner
Details/ Contact Carpool
Partner

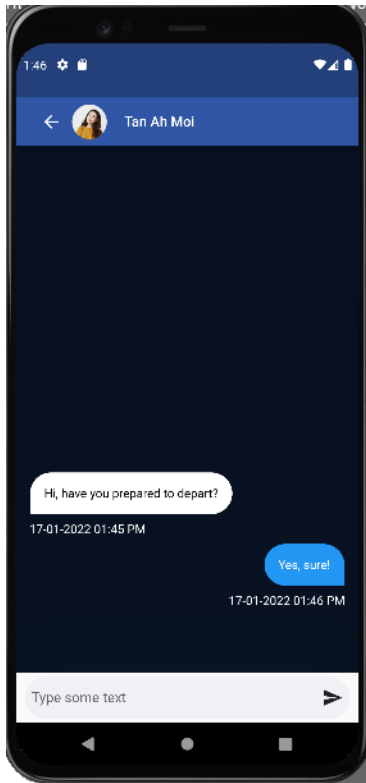


Figure 3.4.19
Contact Carpool Partner via chatting

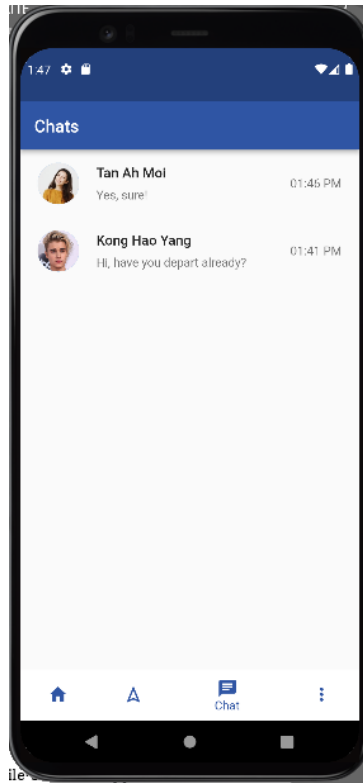


Figure 3.4.20
ChatBoxx

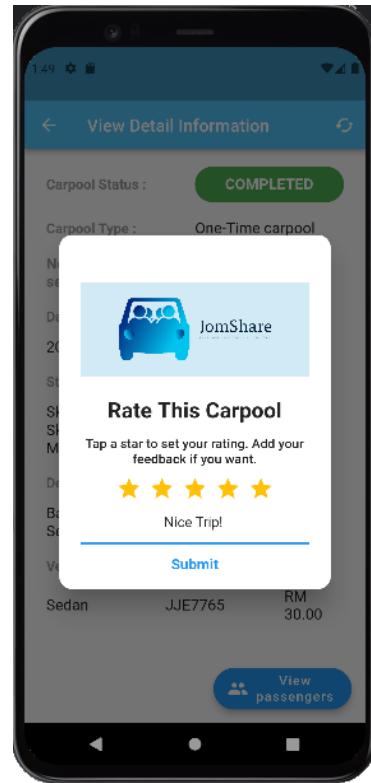


Figure 3.4.21
Make Rating and Feedback to Carpool Partner

3.5 System Environment

JomShare is an android mobile application that requires Google Mobile Services support and Global Positioning System (GPS) permission to perform map navigation functions.

3.6 External Interfaces

3.6.1 Hardware interfaces

Not applicable

3.6.2 Network interfaces

- Global Positioning System
- Wi-Fi
- Cellular Data

3.6.3 Data exchange

Data Exchange Happen in:

- Google Firebase for authentication and database interaction
- Google Cloud Service such as Places API, Maps SDK for Android, Directions API

3.7 Resources

- Microsoft Visual Studio Code 1.63 with Flutter and Dart extension installed
- Flutter SDK version 2.5.3
- Android Emulator Google Pixel 4
- Android SDK version 29.0.3

3.7.1 Hardware resources

Hardware requirements:

- i) Minimum RAM 2GB
- ii) Processor Qualcomm Snapdragon 855
- iii) CPU Octa-core (1 × 2.84 GHz Kryo 485 Gold Prime & 3 × 2.42 GHz Kryo 485 Gold & 4 × 1.78 GHz Kryo 485 Silver)

3.7.2 Software resources

- OS, libraries, external programs requirements:
- Android 6 and above
- Google Mobile Services

3.8 Internal Data

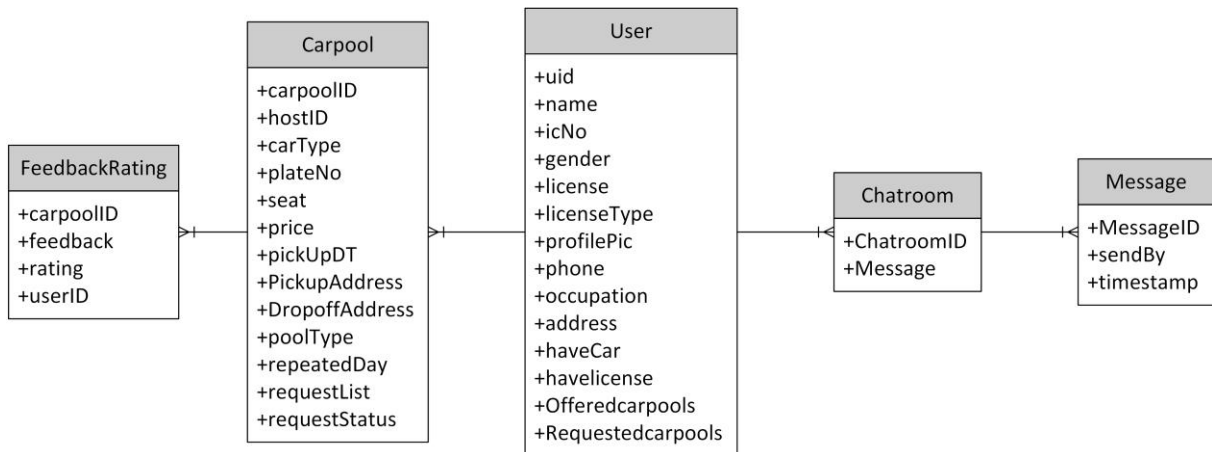


Figure 3.8.1 ERD of JomShare

The above ERD is the ERD for NoSQL. There are 5 tables in database which are carpool, feedbackrating, user, chatroom and message entities which contains important information like the id, name, IC number of the user and the carpool id, host id and plate number for the carpool details. User has chatroom, chatroom has message collection. Carpool has feedbackrating given by specific user.

3.9 Adaptation

- Not applicable

3.10 Verification

- Not applicable

3.11 Personnel and Training

Requirements about the capabilities/knowledge of users:

- Basic English and digital literacy
- Provide a workshop for demonstrating the flow of using the application

3.12 Packaging and Installation

Requirements about packaging, install shield:
Android Package (APK)

4 Architecture

4.1 Architecture Overview

The main use case scenario of JomShare is to provide a non-profit carpool service to the community. JomShare is built to prior service the users with long ride needs likes travel between states. The users can find a carpool or offer a carpool just staying in their home. Therefore, the two main functions of JomShare are find carpool and offer carpool. When finding a carpool, the user needs to input the pickup location and drop location. While for offering a carpool, the user needs need to input the pickup location, drop location, date and time, pax number, car type, carpool type, plate number, and price.

Main Interface of Find Carpool and Offer Carpool

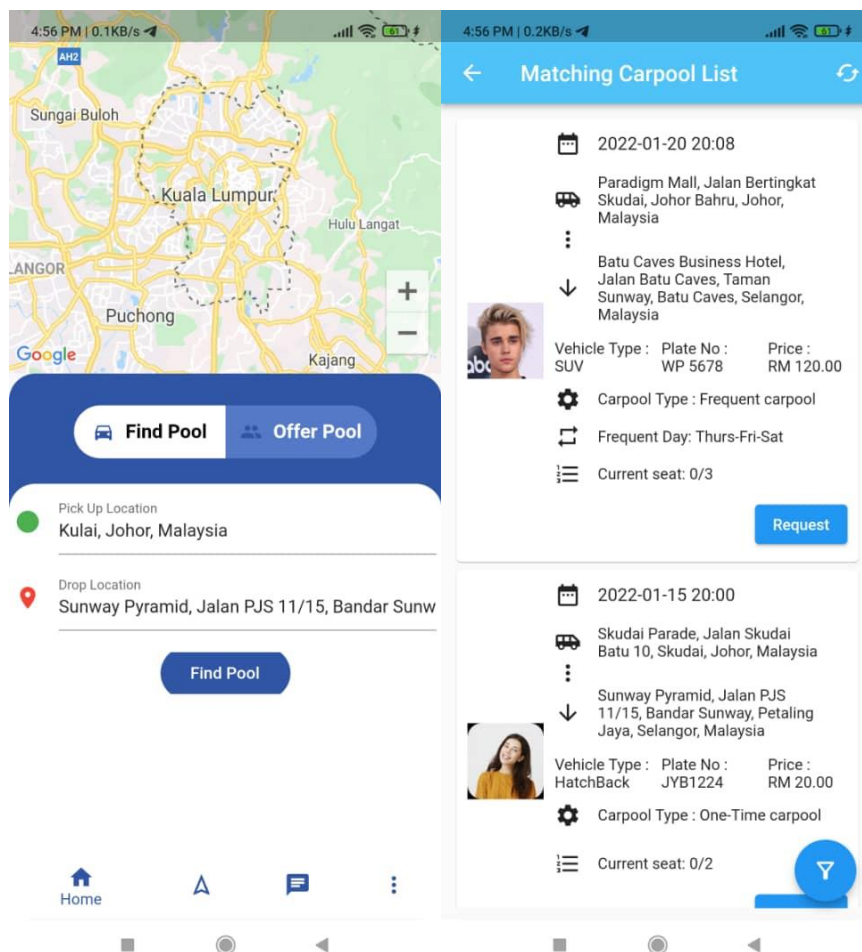


Figure 4.1 Main Interface of Find Carpool

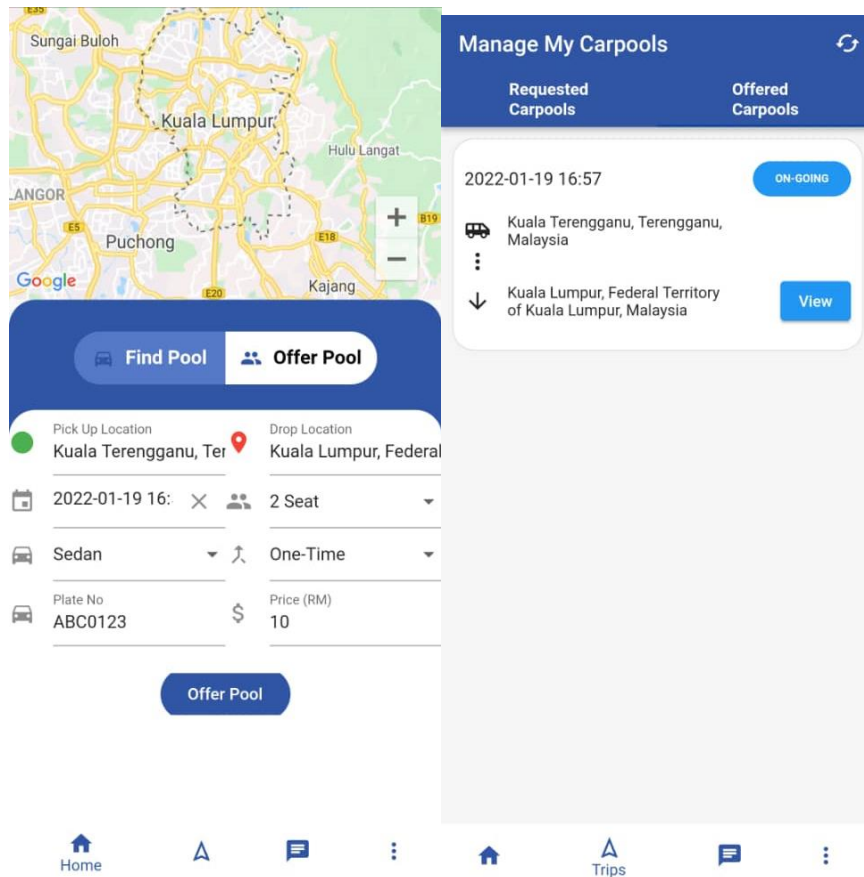


Figure 4.2 Main Interface of Offer Carpool

4.1.1 Logical architecture overview

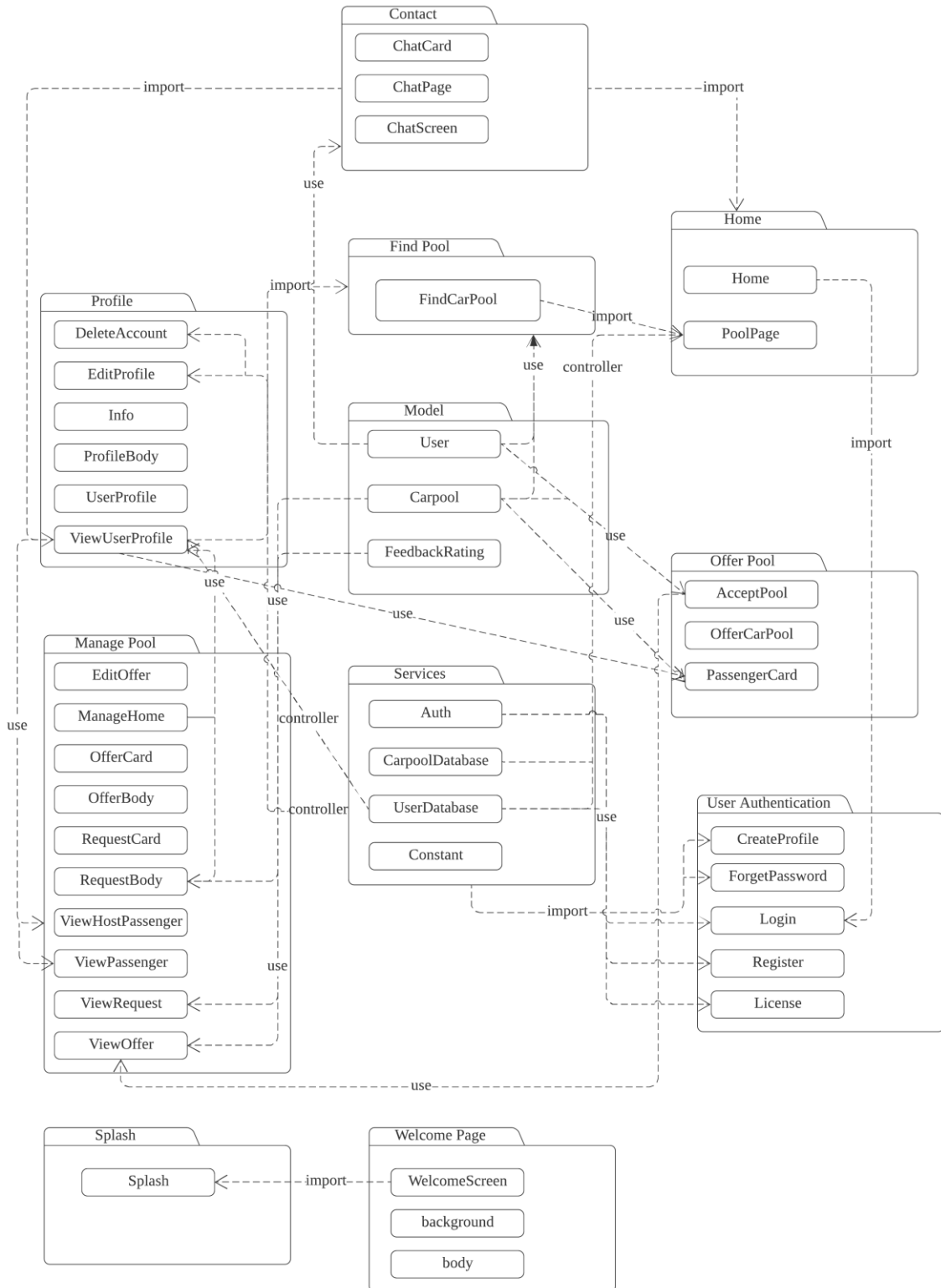


Figure 4.3 Package Diagram of Jomshare
 Operating system : > Android 6.0

4.1.2 Physical architecture overview

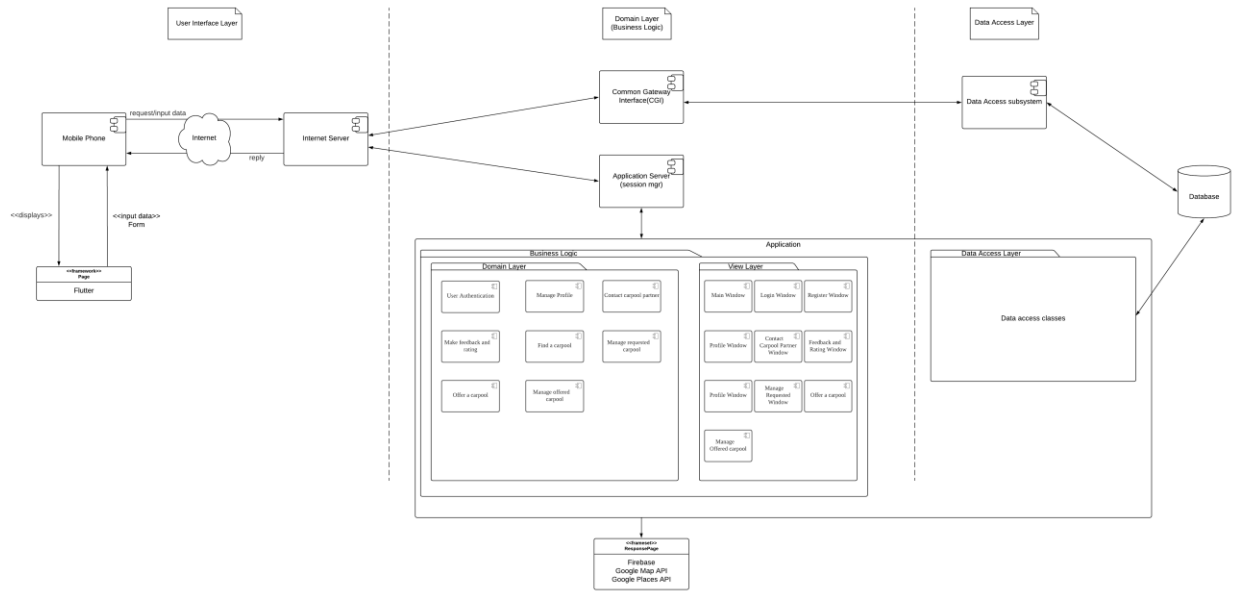


Figure 4.4 Physical Diagram of Jomshare

5 Verification

5.1 Test Plan

5.1.1 Test environment

JomShare is designed as a carpool mobile application that allows the users to use the application anywhere and anytime. Hence, the testing platform is focused on all the use cases and the testing phase is carried use case by use case manually by the tester and product owner. The only hardware that will be used to test the application is the smartphones with Android operating system. Nevertheless, the android version of the smartphone must be in version 6 or above to run the application and the smartphones must include internet connection and GPS service.

Software used for test:

- The JomShare application is built as APK to be downloaded in the users' phone to install it.
- The operating system that required to run the software is Android 6 and above.
- The database used for the software is Firebase
- The software is used about 60MB storage of the phone.
- The average ram usage is around 100 MB
- The software is required internet connection for testing phase.

Since the direction of our application is towards carpool service, hence The users input example:

- The registration credentials like name, email, password, phone number and others.
- The Login credentials
- Finding carpool credentials like pickup location, drop location
- Offer pool credentials like pickup location, drop location, date time, plate no, price and others.
- The feedbacks and rating of carpool
- The chat box

The output example:

- The list result of carpools that the user has searched.
- The chat box
- The list of passengers of the carpool that the user has offered.
- The information of the user profile.
- The status of the offered carpool and requested carpool.
- The feedbacks and rating of the users.

This document as system documentation will be referred as a standard and guidelines for the testing phase because it has included all the necessary test cases and instructions.

5.1.2 Customer/ field test site

The application we developed is tested among the potential users like the people who do not have transportations but wish to have a carpool service and the group of people that willing to provide carpool service for extra earnings. The application will be available in APK for users to download and the users do not need to have specific qualifications to use the application, having basic knowledge of using smartphone is enough to handle the application. For the user testing phase, we will guide the user to input the data accordingly to certain fields and observe the output shown. In the meantime, the tests logs and bugs reports will be collected throughout the testing phase by the tester.

5.2 Tests Description and Test Results

Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC001: Authenticate user			High	TC001_01	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Register new account			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Press Sign up button	15/1/2022	Redirect to sign up screen	The screen is successfully redirected to sign up screen	P	
2	Enter valid email address and password	15/1/2022	Email address and password can be entered	Email address and password can be entered	P	
3	Press next button	15/1/2022	Can be directed to next screen & new account is created at database	Can be redirected to next screen & new account is created at the database	P	

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Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC001: Authenticate user			High	TC001_02	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Login – positive result			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Press login button	15/1/2022	Redirect to login screen	Redirect successfully to login screen	P	
2	Enter valid email address and password	15/1/2022	-	-	P	
3	Press login button	15/1/2022	Redirect to home screen	Redirect successfully to home screen	P	

Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC001: Authenticate user			High	TC001_03	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Login – negative result			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Press login button	15/1/2022	Redirect to login screen	Redirect successfully to login screen	P	
2	Enter invalid email address and password	15/1/2022	-	-	P	
3	Press login button	15/1/2022	Display error messages	Display error messages	P	

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Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC002: Manage profile			High	TC002_01	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Create profile - Incomplete fields			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Enter incomplete details of profile	15/1/2022	-	-	P	
2	Press next button	15/1/2022	Display error messages	Display error messages	P	

Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC002: Manage profile			High	TC002_02	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Create profile - Complete fields			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Enter complete details of profile	15/1/2022	-	-	P	
2	Press complete button	15/1/2022	Redirect to next screen and the details of profile is inserted to the database	Redirect to next screen and the details of profile is inserted to the database	P	

Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC002: Manage profile			High	TC002_03	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Modify profile			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Modify profile picture, phone number, address and occupation	15/1/2022	-	-	P	
2	Press save button	15/1/2022	The details of the profile displayed are	The details of profile displayed are updated and the user	P	

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			updated and the user profile is updated at the database	profile is updated at the database		
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Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC002: Manage profile			Medium	TC002_04	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Delete profile			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Press Delete Account button	15/1/2022	Redirect to delete account confirmation screen	Redirect to delete account confirmation screen	P	
2	Press confirm button	15/1/2022	The details of the profile are removed from the database	The details of the profile are removed from the database and redirect back to login screen	P	

Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC003: Contact carpool partner			Medium	TC003_01	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Contact carpool partner via phone call			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Press call button for a particular carpool partner	15/1/2022	Dial the carpool partner	Dial the carpool partner	P	

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Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC003: Contact carpool partner		Medium	TC003_02	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Contact carpool partner via chat box messaging		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Press chat button for a particular carpool partner	15/1/2022	Redirect to a chat room	Redirect to a chat room	P	
2	Chat with the carpool partner by sending messages	15/1/2022	Deliver messages to the carpool partner	Messages are delivered to the carpool partner	P	

Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC004: Make feedback and rating		Low	TC004_01	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Make rating to carpool partners		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Select the number of stars for the carpool participated	15/1/2022	-	-	P	
2	Click submit button	15/1/2022	Give rating only once for each carpool participated and the feedback entered is reflected at the database	Can only give rating once for each carpool participated and the feedback entered is reflected at the database		

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Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC004: Make feedback and rating		Low	TC004_02	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Make feedback to carpool partners		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Enter feedback for the carpool participated	15/1/2022	-	-	P	
2	Click submit button	15/1/2022	Make feedback only once for each carpool participated and the feedback entered is reflected at the database	Can only make feedback once for each carpool participated and the feedback entered is reflected at the database		

Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC005: Find carpool		High	TC005_01	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Find a carpool service		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Enter the pickup location	15/1/2022	The pickup location field will be displayed	The pickup location is saved in the database	P	
2	Enter the destination location	15/1/2022	The destination field will be displayed	The destination is saved in the database	P	
3	Click the find carpool button	15/1/2022	It will redirect the user to the matching carpool list	It will redirect the user to the matching carpool list	P	
4	Click request button for a particular carpool	15/1/2022	A join request for the carpool is submitted to the host of the carpool	The join request for the carpool is submitted to the host	P	

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Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC005: Find a carpool		Medium	TC005_02	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Filter the carpools based on the criteria		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the filter button	15/1/2022	It will redirect the user to a filter list	It will redirect the user to a filter list	P	
2	Select the wanted filter fields like gender, price and carpool type	15/1/2022	The fields will be reflected based on the user choices.	The fields will be reflected based on the user choices.	P	
3	Click the apply button	15/1/2022	The matching carpool list displayed fulfills all the filter fields selected with the relationship of AND	The matching carpool list displayed fulfills all the filter fields selected with the relationship of AND	P	

Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC005: Find a carpool		Medium	TC005_03	15/1/2022		
Test Description		Test Designed by		Test Executed by		
View offered carpool details		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the trips button at the bottom navigation bar	15/1/2022	It will redirect the user to the manage my carpools list	It will redirect the user to the manage my carpools list	P	
2	Select the offered carpools	15/1/2022	All the offered carpools will reflect in the interface	All the offered carpools will reflect in the interface	P	

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3	Click the view button of the on-going status of offered carpool	15/1/2022	It will redirect the user to the detail information of the offered carpool that the user has selected	It will redirect the user to the detail information of the offered carpool that the user has selected	P	
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Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC006: Manage requested carpool		Medium	TC006_01	15/1/2022		
Test Description		Test Designed by		Test Executed by		
View the details of the requested carpool		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the trips button at the bottom navigation bar	15/1/2022	It will redirect the user to the manage my carpools list	It will redirect the user to the manage my carpools list	P	
2	Select the Requested carpools	15/1/2022	All the requested carpools will be reflected as a list in the interface	All the requested carpools will be reflected as a list in the interface	P	
3	Click the view button	15/1/2022	It will redirect the user to the screen for the detail information of the requested carpool that the user has selected	It will redirect the user to the screen for detail information of the requested carpool that the user has selected	P	

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Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC006: Manage requested carpool			Low	TC006_02	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Cancel the requested carpool			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the trips button at the bottom navigation bar	15/1/2022	It will redirect the user to the manage my carpools list	It will redirect the user to the manage my carpools list	P	
2	Select the Requested carpools	15/1/2022	All the requested carpools will reflect in the interface	All the requested carpools will reflect in the interface	P	
3	Click the view button	15/1/2022	It will redirect the user to the detail information of the requested carpool that the user has selected	It will redirect the user to the detail information of the requested carpool that the user has selected	P	
4	Click the cancel request button	15/1/2022	It will prompt an alert message to confirm the cancel request and the status of the request made will change to canceled in the database	It prompts an alert message to confirm the cancel request and the status of the request made changes to canceled in the database	P	

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Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC007: Offer carpool			High	TC007_01	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Offer one-time carpool			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the offer pool	15/1/2022	It will redirect the user to the offer pool interface	It will redirect the user to the offer pool interface	P	
2	Fill in all the fields in the offer pool interface	15/1/2022	The fields will be filled by the choices of user	All the information of different fields will be saved in the database	P	
3	Select the carpool type to one-time	15/1/2022	The carpool type field will display one-time carpool	The information of carpool type will be saved	P	
4	Click the offer pool button	15/1/2022	The google map will show the direction of the journey	The one-time carpool is offered and reflected in the database	P	

Test Title			Priority#	Test Case ID	Test Execution Date	
Test for UC007: Offer carpool			High	TC007_02	15/1/2022	
Test Description			Test Designed by		Test Executed by	
Offer frequent carpool			Chong Kai Jie		Chong Kai Jie	
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the offer pool	15/1/2022	It will redirect the user to the offer pool interface	It will redirect the user to the offer pool interface	P	
2	Fill in all the fields in the offer pool interface	15/1/2022	The fields will be filled by the choices of user	All the information of different fields will be saved in the database	P	

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3	Select the carpool type to frequent	15/1/2022	The carpool type field will display frequent carpool	The information of carpool type will be saved	P	
4	Select the repeated days	15/1/2022	It will prompt the user to select the wanted repeated days	The frequent carpool with repeated days will be recorded	P	
5	Click the offer pool button	15/1/2022	The google map will show the direction of the journey	The one-time carpool is offered and reflected in the database	P	

Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC008: Manage offered carpool		Medium	TC008_01	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Edit offered carpool		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the trips button at the bottom navigation bar	15/1/2022	It will redirect the user to the manage my carpools list	It will redirect the user to the manage my carpools list	P	
2	Select the offered carpools	15/1/2022	All the offered carpools will reflect in the interface	All the offered carpools will reflect in the interface	P	
3	Click the view button of the on-going status of offered carpool	15/1/2022	It will redirect the user to the detail information of the offered carpool that the user has selected	It will redirect the user to the detail information of the offered carpool that the user has selected	P	
4	Click the edit button	15/1/2022	It will redirect the user to the screen for editing the offered carpool	The user is redirected to the screen for editing the offered carpool	P	

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5	Edit the information of the offered carpool	15/1/2022	The information of the offered carpool is displayed on the screen and editable.	The information of the offered carpool is displayed on the screen and editable.	P	
6	Click complete button to save changes	15/1/2022	The details of the offered carpool are updated on both of the screen and database	The details of the offered carpool are updated on both of the screen and database	P	

Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC008: Manage offered carpool		High	TC008_02	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Delete existing offered carpool		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the trips button at the bottom navigation bar	15/1/2022	It will redirect the user to the manage my carpools list	It will redirect the user to the manage my carpools list	P	
2	Select the offered carpools	15/1/2022	All the offered carpools will reflect in the interface	All the offered carpools will reflect in the interface	P	
3	Click the view button of the on-going status of offered carpool	15/1/2022	It will redirect the user to the detail information of the offered carpool that the user has selected	It will redirect the user to the detail information of the offered carpool that the user has selected	P	
4	Click the delete button	15/1/2022	It will prompt an alert message to confirm the delete operation	It will prompt an alert message to confirm the delete operation	P	

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5	Click confirm button	15/1/2022	The information of the offered carpool is removed from the database	The information of the offered carpool is removed from the database	P	
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Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC008: Manage offered carpool		High	TC008_03	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Accept the request carpool		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the trips button at the bottom navigation bar	15/1/2022	It will redirect the user to the manage my carpools list	It will redirect the user to the manage my carpools list	P	
2	Select the offered carpools	15/1/2022	All the offered carpools will reflect in the interface	All the offered carpools will reflect in the interface	P	
3	Click the view button of the on-going status of offered carpool	15/1/2022	It will redirect the user to the detail information of the offered carpool that the user has selected	It will redirect the user to the detail information of the offered carpool that the user has selected	P	
4	Click the view request button	15/1/2022	It will redirect the user to the request interface which the name and profile picture of the passengers will displayed	It will redirect the user to the request interface which the name and profile picture of the passengers will displayed	P	

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5	Click accept button	15/1/2022	The status of the request made will be updated to accepted at the database and the users that has been accepted will remove from the request list	The status of the request made will be updated to accepted at the database and the users that has been accepted will remove from the request list. The number of passengers in the detail information of offered carpool will be increased	P	
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Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC008: Manage offered carpool		High	TC008_04	15/1/2022		
Test Description		Test Designed by		Test Executed by		
Reject the request carpool		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the trips button at the bottom navigation bar	15/1/2022	It will redirect the user to the manage my carpools list	It will redirect the user to the manage my carpools list	P	
2	Select the offered carpools	15/1/2022	All the offered carpools will reflect in the interface	All the offered carpools will reflect in the interface	P	
3	Click the view button of the on-going status of offered carpool	15/1/2022	It will redirect the user to the detail information of the offered carpool that the user has selected	It will redirect the user to the detail information of the offered carpool that the user has selected	P	
4	Click the view request button	15/1/2022	It will redirect the user to the request interface which the name and profile picture of the passengers will displayed	It will redirect the user to the request interface which the name and profile picture of the passengers will displayed	P	

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5	Click reject button	15/1/2022	The status of the request made will be updated to rejected at the database and the users that has been rejected will remove from the request list	The status of the request made will be updated to rejected at the database and the users that has been rejected will remove from the request list. The number of passengers in the detail information of offered carpool will remain the same	P	
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Test Title		Priority#	Test Case ID	Test Execution Date		
Test for UC008: Manage offered carpool		Low	TC008_05	15/1/2022		
Test Description		Test Designed by		Test Executed by		
View carpool passenger details		Chong Kai Jie		Chong Kai Jie		
Step ID	Step Description*	Test Date	Expected Results^	Actual Results	Pass (P) / Fail (F)	Additional Notes
1	Click the trips button at the bottom navigation bar	15/1/2022	It will redirect the user to the manage my carpools list	It will redirect the user to the manage my carpools list	P	
2	Select the offered carpools	15/1/2022	All the offered carpools will reflect in the interface	All the offered carpools will reflect in the interface	P	
3	Click the view button of the on-going status of offered carpool	15/1/2022	It will redirect the user to the detail information of the offered carpool that the user has selected	It will redirect the user to the detail information of the offered carpool that the user has selected	P	
4	Click the view passenger button	15/1/2022	It will redirect the user to the interface that shows a list of passengers with name and profile picture	The interface is redirected to the interface that shows a list of passengers with name and profile picture for the carpool	P	
5	Click the profile picture for the selected passenger	15/1/2022	It will redirect the user to the interface that shows the details of the passenger.	The interface is redirected to the interface that shows the details of the passenger	P	

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User Acceptance Testing for Project JomShare

Note to development team: User Acceptance Testing (UAT), otherwise known as beta testing, is the final step in the change management process where a proposed strategy, technology implementation or product is tested with a group of individuals that are representative of the audience that will be affected by or utilize a new system. These "users" are typically individuals who are employees who volunteer or are requested to try out the new technology or service.

Project Name:		JomShare				
Last Updated:	15/1/2022	Release Date:	20/1/2022			
User Story	Responsible Party	Priority	Test Date	Response	Comments	Description
US001	Yong Jing Xuan	HIGH	15/1/2022	Positive	Stronger password suggestion	Register new account
US002	Kong Hao Yang	HIGH	15/1/2022	Positive	Nice	Login to the system
US003	See Wen Xiang	HIGH	15/1/2022	Positive	Overall good	Create Profile
US004	Chong Kai Jie	HIGH	15/1/2022	Positive	Nice	Modify Profile
US005	Desmond Chieng Chee Hong	MEDIUM	15/1/2022	Positive	Good	Delete Profile
US006	Kong Hao Yang	MEDIUM	15/1/2022	Positive	Good	Contact carpool partners via phone call
US007	Yong Jing Xuan	MEDIUM	15/1/2022	Positive	Good	Contact carpool partners via chatbox messaging
US008	Desmond Chieng Chee Hong	LOW	15/1/2022	Neutral	Rating object is not clear	Make rating to carpool partners
US009	See Wen Xiang	LOW	15/1/2022	Neutral	Ratiing object is not clear	Make feedback to carpool partners
US010	Desmond Chieng Chee Hong	HIGH	15/1/2022	Positive	Clear instruction	Find Carpool
US011	See Wen Xiang	MEDIUM	15/1/2022	Positive	Good	Filter carpool
US012	Chong Kai Jie	MEDIUM	15/1/2022	Neutral	Add pending duration	View offered carpool
US013	Yong Jing Xuan	LOW	15/1/2022	Positive	Good	Cancel carpool
US014	Kong Hao Yang	MEDIUM	15/1/2022	Neutral	Color of the view request button and view offered button is not clear	View requested carpool
US015	Kong Hao Yang	HIGH	15/1/2022	Positive	Good	Offer frequent carpool
US016	See Wen Xiang	HIGH	15/1/2022	Positive	Good	Offer one time carpool
US017	Desmond Chieng Chee Hong	MEDIUM	15/1/2022	Positive	Good	Edit offered carpool
US018	Chong Kai Jie	HIGH	15/1/2022	Positive	Good	Delete carpool
US019	Yong Jing Xuan	HIGH	15/1/2022	Positive	Good	Accept and reject request
US020	Chong Kai Jie	LOW	15/1/2022	Positive	Good	View carpool passengers details

6 Requirements Traceability

This table gives the traceability between requirements and tests, and the method of test.

Table 6.1 Requirements Traceability

Use Case ID, User Story ID	Use Case Description	Test Case ID	Test Description
UC001, US001	Authenticate user	TC001_01	Register new account
UC001, US002	Authenticate user	TC001_02	Login – positive result
UC001, US002	Authenticate user	TC001_03	Login – positive result
UC002, US003	Manage Profile	TC002_01	Create profile – Incomplete fields
UC002, US003	Manage Profile	TC002_02	Create profile – Complete fields
UC002, US004	Manage Profile	TC002_03	Modify profile
UC002, US005	Manage Profile	TC002_04	Delete profile
UC003, US006	Contact carpool partner	TC003_01	Contact carpool partner via phone call
UC003, US007	Contact carpool partner	TC003_02	Contact carpool partner via chat box messaging
UC004, US008	Make feedback and rating	TC004_01	Make rating to carpool partners
UC004, US009	Make feedback and rating	TC004_02	Make feedback to carpool partners
UC005, US010	Find carpool	TC005_01	Find a carpool service
UC005, US011	Find carpool	TC005_02	Filter the carpools based on the criteria
UC005, US012	Find carpool	TC005_03	View offered carpool details
UC006, US013	Manage requested carpool	TC006_02	Cancel the requested carpool
UC006, US014	Manage requested carpool	TC006_01	View the details of the requested carpool
UC007, US015	Offer carpool	TC007_02	Offer frequent carpool
UC007, US016	Offer carpool	TC007_01	Offer one-time carpool
UC008, US017	Manage offered carpool	TC008_01	Edit offered carpool
UC008, US018	Manage offered carpool	TC008_02	Delete existing offered carpool
UC008, US019	Manage offered carpool	TC008_03	Accept the request carpool
UC008, US019	Manage offered carpool	TC008_04	Reject the request carpool
UC008, US020	Manage offered carpool	TC008_05	View carpool passenger details