



§ *SC2006 Software Engineering*

PARKIT!

Find Parking Spaces Near Your Destination

SCS1 Group 20



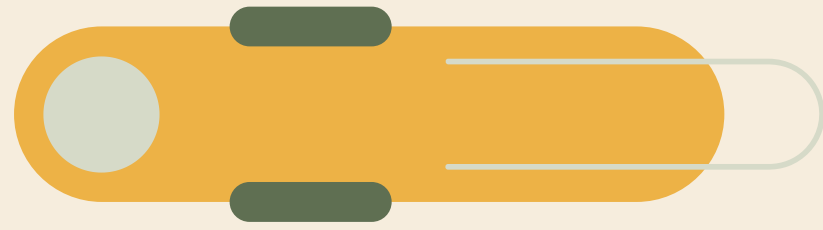


TABLE OF CONTENTS

01

Overview

02

Demonstration

03

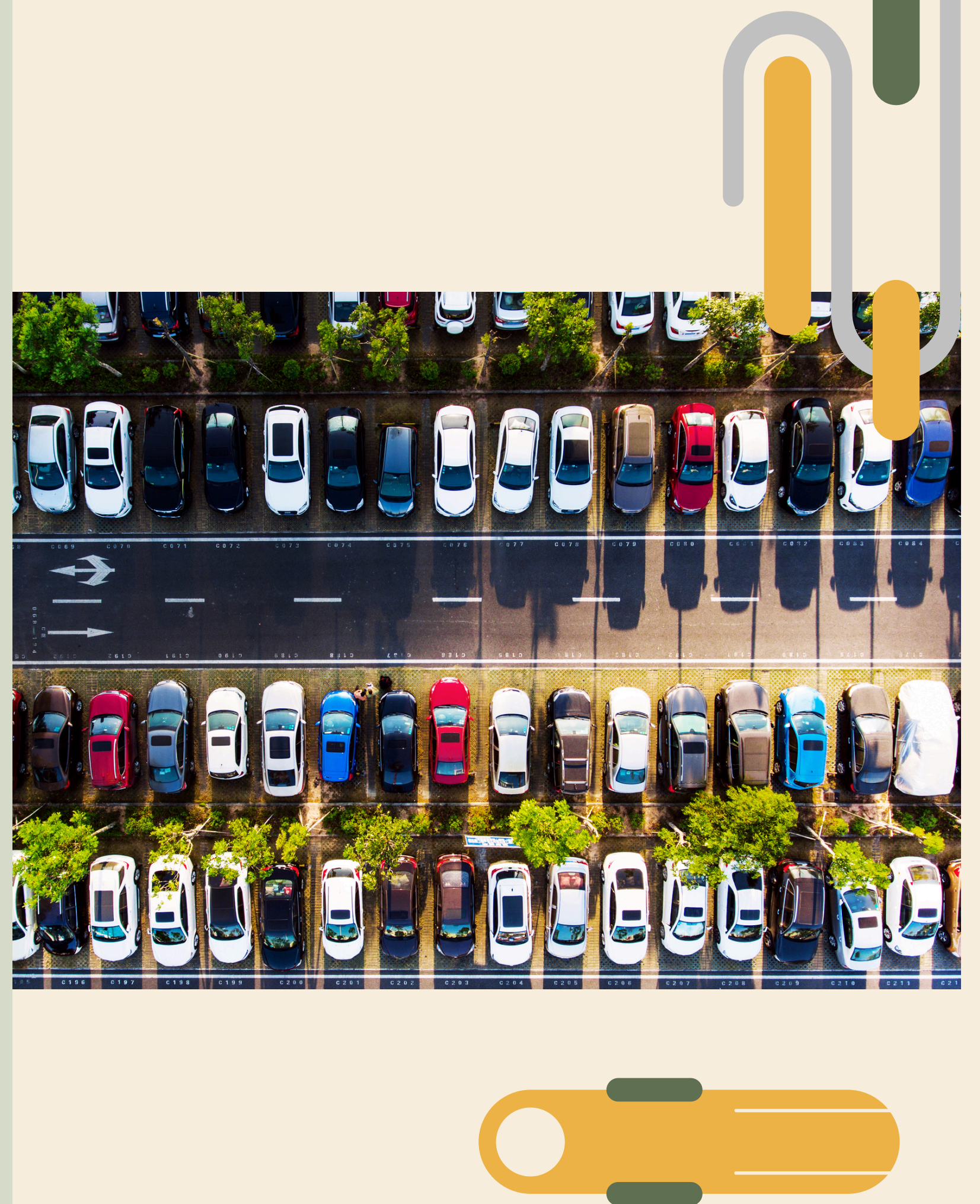
Software Engineering
Practices and Future
Improvement

PARKIT!

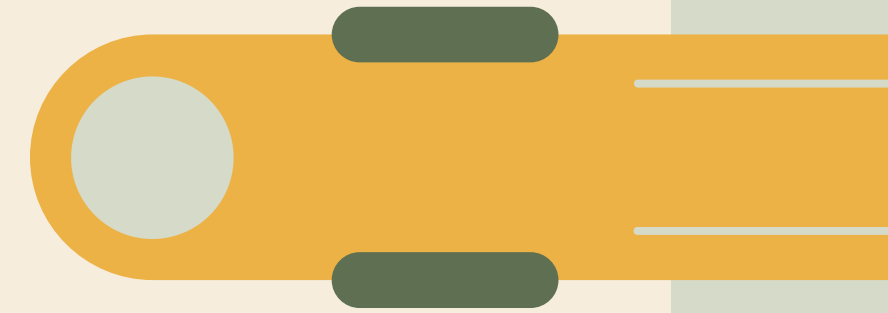
ParkIT! aims to simplify the parking experience by providing a user-friendly, time-efficient and transparent platform for drivers to locate parking spaces with ease.

ParkIT! aims to save users' time and enhance their journeys by offering transparent pricing, customisable options and real-time information on available car parks.

Data used: <https://data.gov.sg/>



EXPECTED USERS



Casual Users

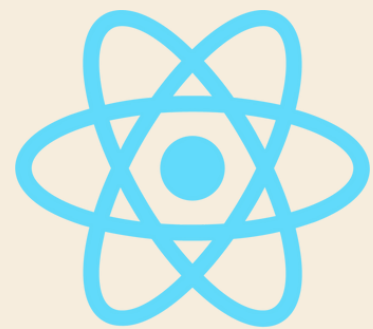


Cost Conscious Users

MERN STACK



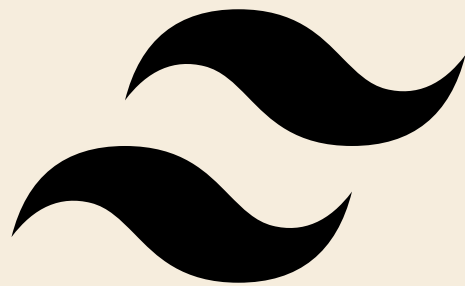
Front-end



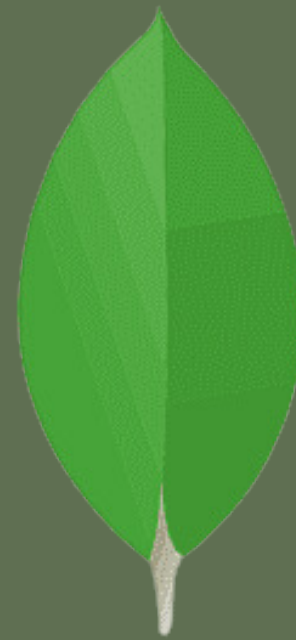
React



Google Maps

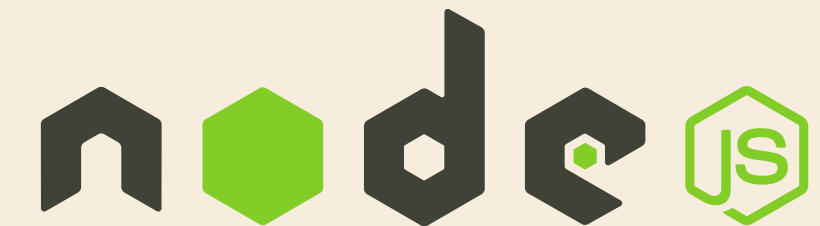


Database



mongoDB

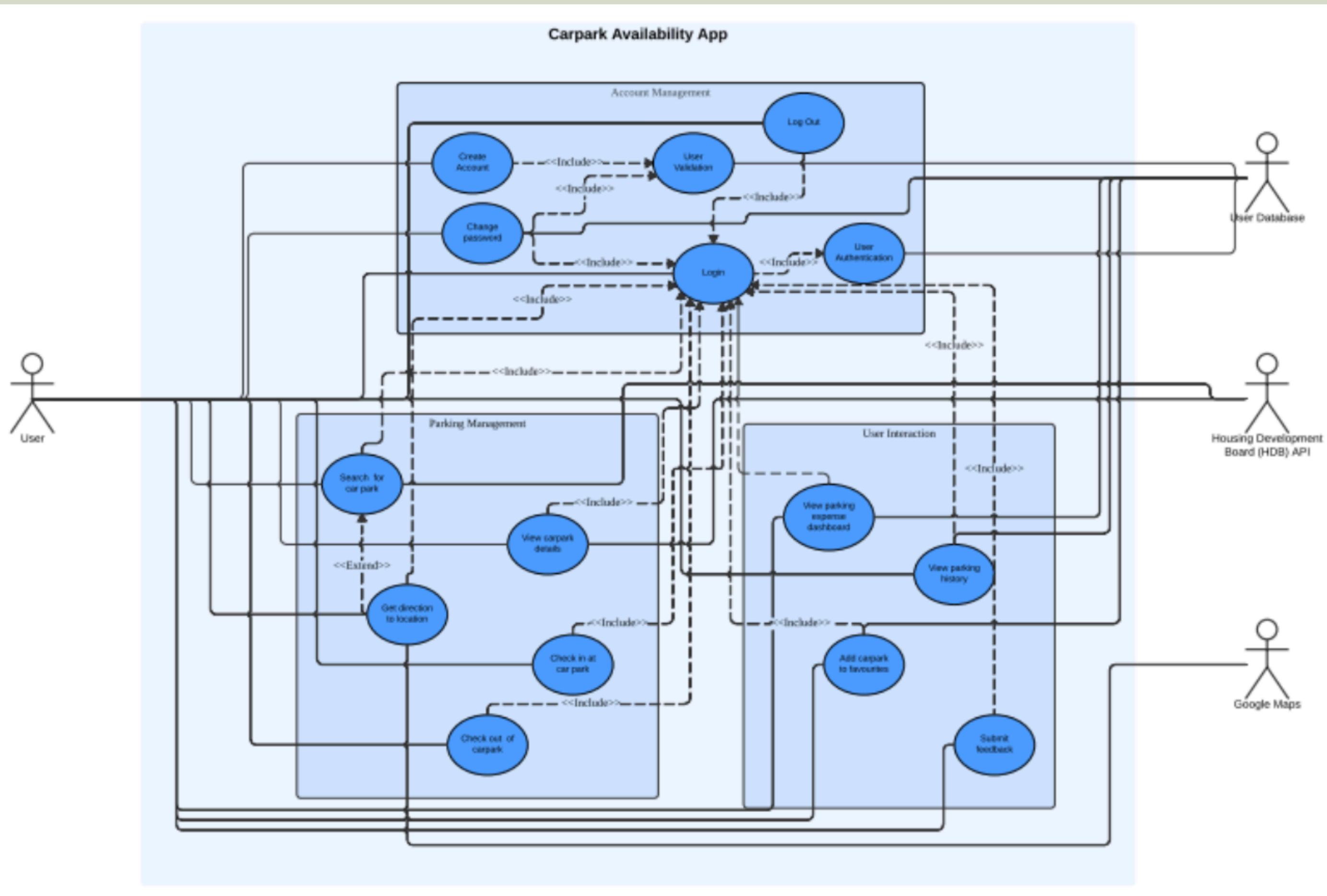
Back-end



ex



USE CASE DIAGRAM





DEMONSTRATION



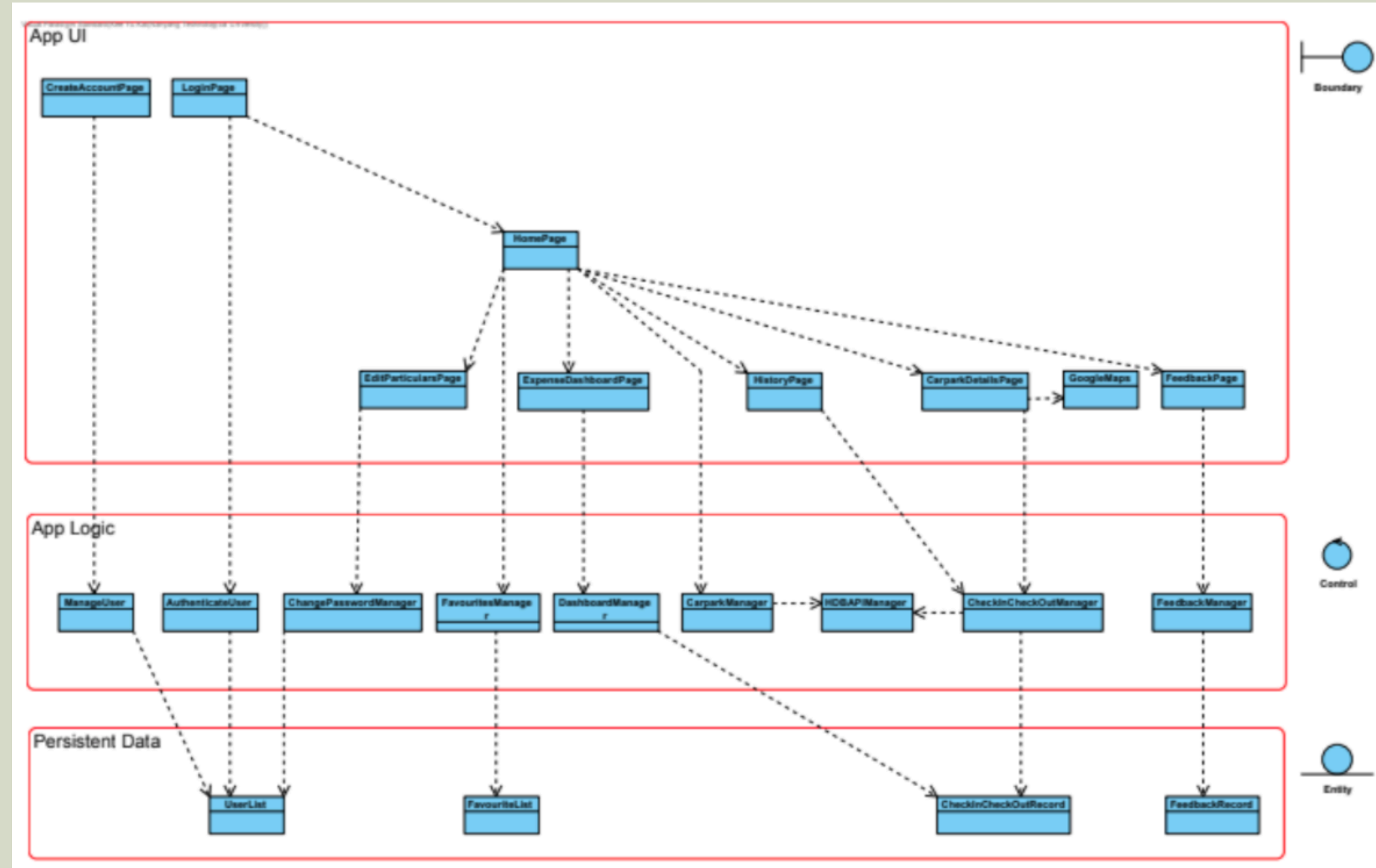
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SOFTWARE ENGINEERING PRINCIPLES

3 LAYERED ARCHITECTURE

Page-Boundary
Manager-Control
Record/List-Entity

- All functionalities are built in separated components
- Reduce the need for repeated code → better maintainability of codes

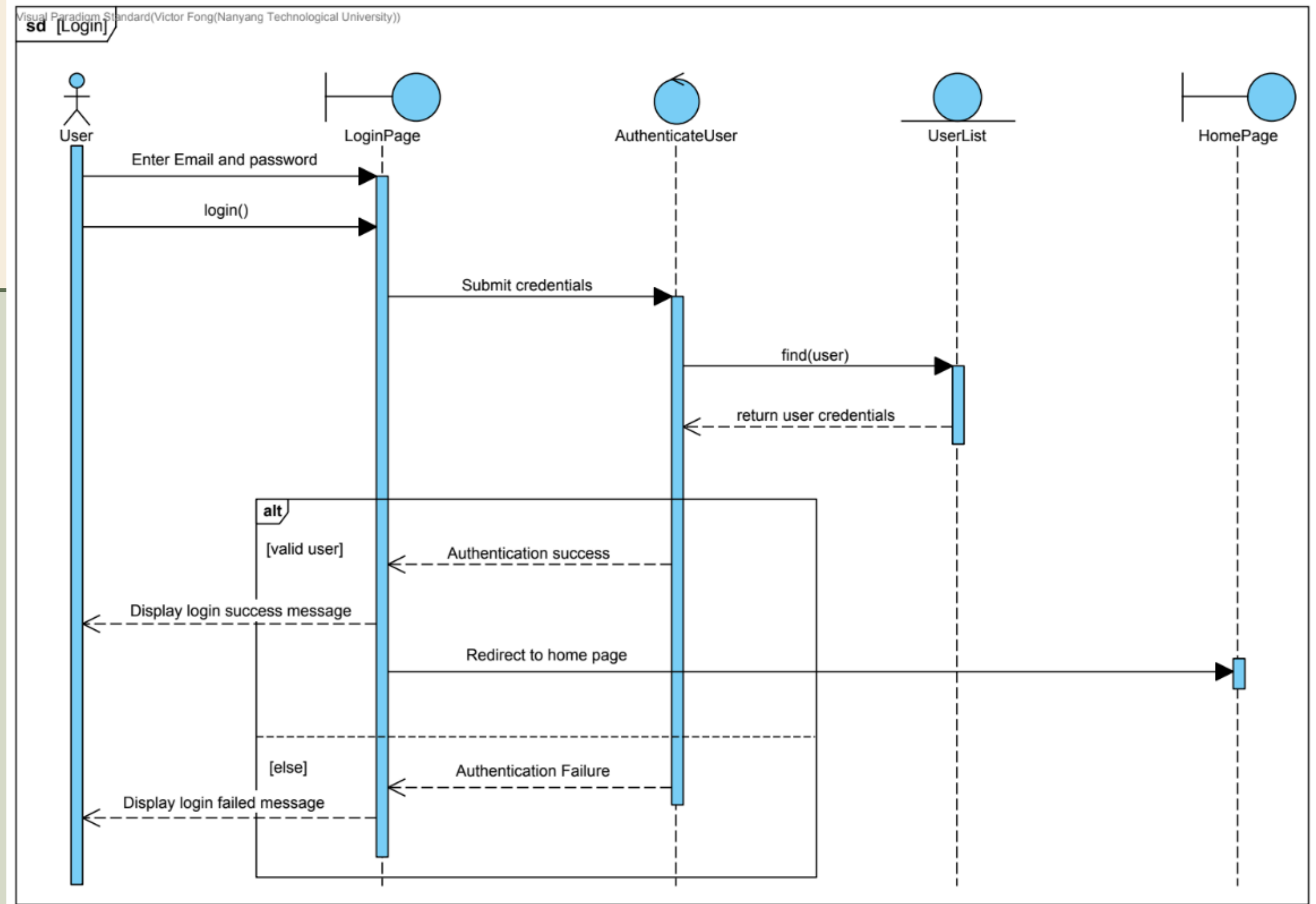


TRACEABILITY

Login

Password

Email



TESTING

Login

Password

Wrong

Empty

Email

Invalid

Empty

Test ID	Scenario	Email	Password	Expected Result	Actual Result
1	User keys in valid email and password	testuser1@email.com	12345678aA!	Redirect to home page	Redirect to home page
2	User key in wrong password	testuser1@email.com	12345678	"Invalid credentials" message	"Invalid credentials" message
3	User key in invalid email	invalid@email.com	12345678aA!	"Invalid credentials" message	"Invalid credentials" message
4	User leave the email field empty and click on login button		12345678aA!	"Invalid credentials" message	"Invalid credentials" message
5	User leave the password field empty and click on login button	testuser1@email.com		"Invalid credentials" message	"Invalid credentials" message

TRACEABILITY

Change
Password

Old
Password

New
Password

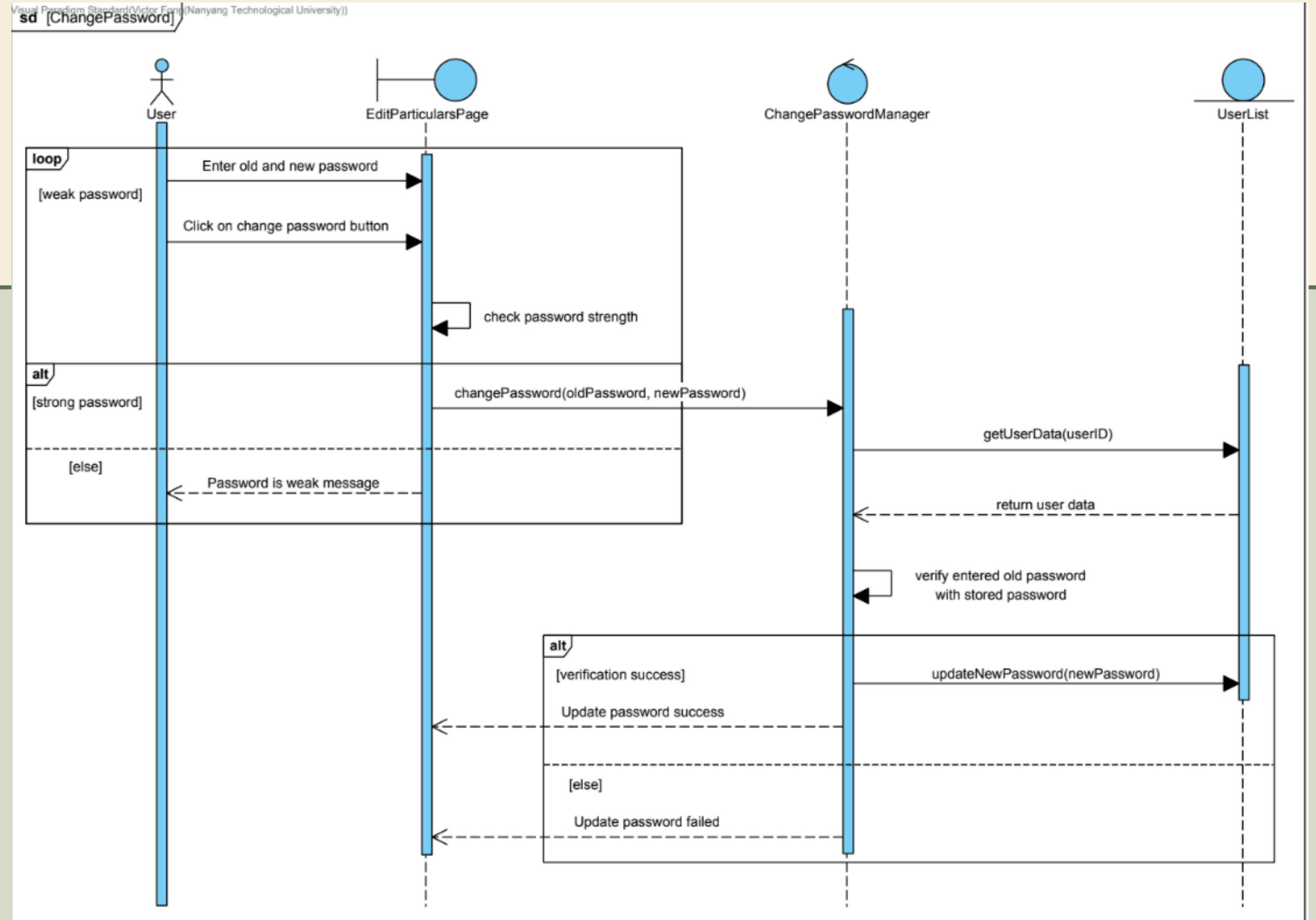
Confirm
Password

a minimum
of 8
characters

at least 1
lowercase
letter

at least 1
uppercase
letter

at least 1
special
character



TESTING

Change
Password

Old
Password

Wrong

New
Password

Weak

Empty

Confirm
Password

Not
match

Empty

Test ID	Scenario	Old Password	New Password	Confirm Password	Expected Result	Actual Result
1	User keys in valid old password, new password and confirmation password	12345678aA!	23456789aA!	23456789aA!	Password changed successfully	Password changed successfully
2	User key in wrong old password	12345678	23456789aA!	23456789aA!	Wrong password message	Wrong password message
3	User key in invalid new password	12345678aA!	23456789aA	23456789aA	“New password is weak” message	“New password is weak” message
4	Confirm password and new password not the same	12345678aA!	23456789aA!	23456789a	New password and confirm password does not match message	New password and confirm password does not match message
5	New password field empty	12345678aA!		23456789aA!	Please fill in all the required fields message	Please fill in all the required fields message
6	Confirm password field empty	12345678aA!	23456789aA!		Please fill in all the required fields message	Please fill in all the required fields message

FUTURE IMPROVEMENT

More Data

Carpark space at various places, such as shopping malls, hotels, and tourist attraction can be added with real-time availability and parking rates

Payment Integration

- Digital wallet integration
- Automated payment upon exit
- Receipt generation

Wider Functionality

- Community ratings and reviews for car parks
- Reserved parking spot system
- Machine learning integration to predict parking availability based on historical data

Optimization

More space for database, enhance user experience

How?

- Clear separation in responsibilities
- Highly maintainable code
- Ensures high cohesion and low coupling
- Using CI/CD pipeline with githubAction for continuous deployment

Capable of integration with minimal effort:

- Adding new map information
- Integrating multiple carpark charging schemes
- Increasing route-checking considerations

THANK YOU