PROJECT REPORT
PRACTICE ON SOFTWARE ENGINEERING

Group 25

PARKING LOT MANAGEMENT APP

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Changelog

No	Date	Content	Member
1	20/5/2020	"Section 2 Introduction " initialized "Section 3 Functional Requirement " initialized "Section 4 Work assignment " initialized	Dang Viet Trung Nhan Duong Dinh Trung Vu Quang Minh
2	13/6/2020	"Section 2 Introduction " updated "Section 3 Functional Requirement updated "Section 4 Work assignment " updated	Le Thien Thanh Dang Viet Trung Nhan Nguyen Tien Phat
3	29/72020	Finish report	Dang Viet Trung Nhan

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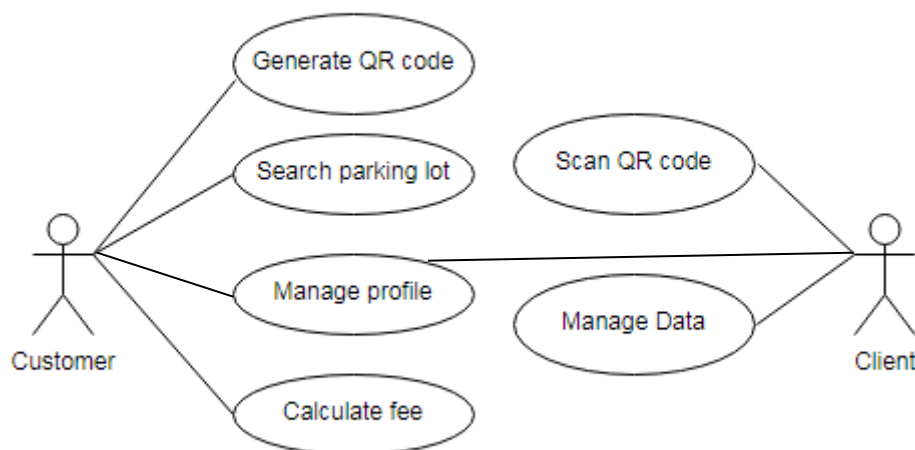
I.   Introduction

The aim of this project is to assist customers to experience the fast and best way for putting in the parking lot. Normally, when you put your vehicles via the other applications, you usually receive a magnetic card. This is a problem because it is so easy to drop and lose the card. With this project, we use QR code instead of magnetic card to handle the procedure of parking. Moreover, you can look for the parking lot used this application on the google map. Our application also gives you solutions for managing your information , calculating the fees and showing service history.

II.   Functional requirements

1.   *Functions*

- *Generate QR code*: Generate unique QR code for every customers and the ability to scan QR code.
- *Search parking lot*: A registered user can look for the parking lot related to the
- *Manage profile*: user can manage their profile (edit, delete, upload, sign up, login, logout…).
- *Calculate fee*: users can calculate the fee they have to pay .
- *Manage data*: a client can manage all of data, including monthly income, customer information.
- *Scan QR code*: a client will scan the QR code generated by customer via camera of the smart phone.

2.   *Use case diagram*

3.   *Methods of implementation*

- *Platform*: application.
- *Front-end*: React Native framework with MVC architecture.
- *Back-end*: NodeJS and Express framework.
- *Database*: MongoDB.

4. *Use case description*

a. *Generate QR code*

Name	Generate QR code
Actor	Customer
Description	Customer will create QR code uniquely.
Preconditions	
Normal flow	1. Customers open the app. 2.Customers must login to their account, if user doesn't have an account yet, user must create an account, and then login. 3.Customers choose the generate QR button.
Exceptions	Exception at step 3: Customers cannot find Generate QR button if they don't log in.
Alternative flow	Alternative at step 2: The application will notify that you don't have an account.

Mock-up:

b. *Search Parking Lot*

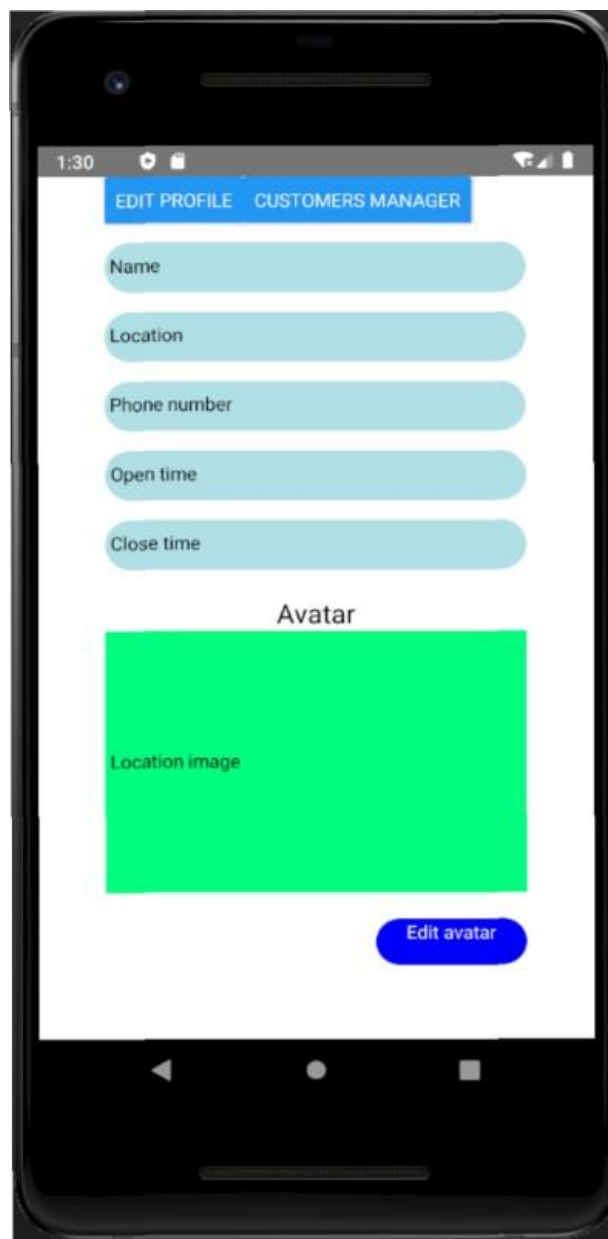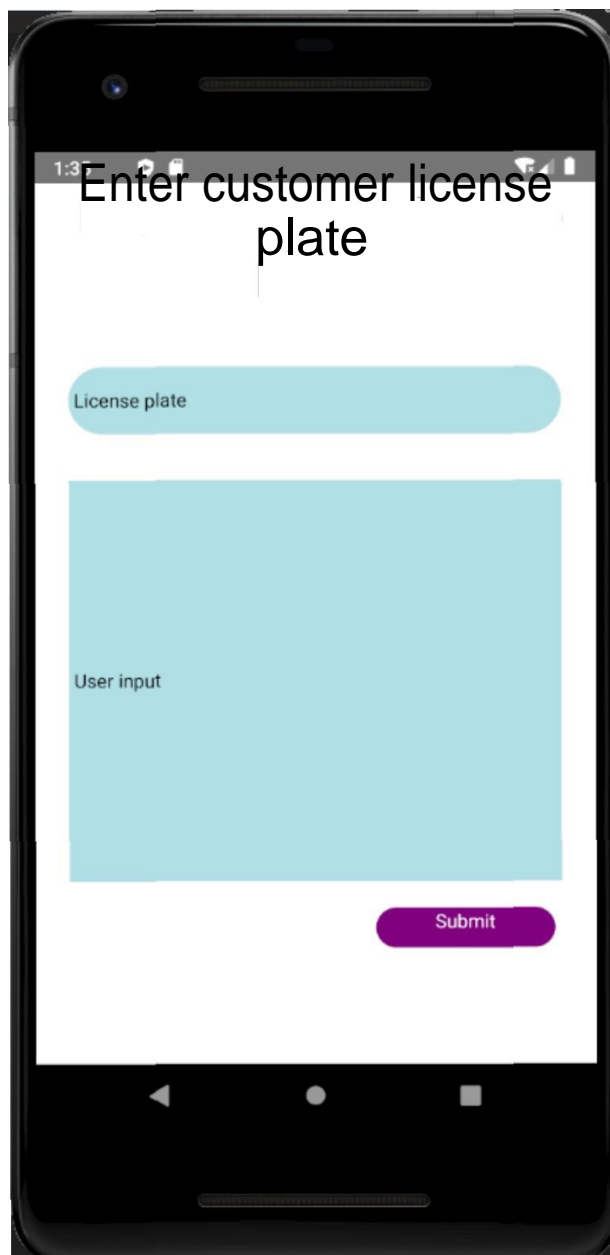| Name	Search parking lot
Actor	Customer
Description	Customer will see the parking lot related to this project on google map.
Preconditions	
Normal flow	1. Customers open the application. 2. Customers must login to their account, if user doesn't have an account yet, user must create an account, and then login. 3. Customers push the button named Search parking lot.
Exceptions	Exception 1: at step 3: Probably, you cannot find the parking lot that nears to you.
Alternative flow	Alternative 1: at exception 2: Website will notify that user hasn't logged into his/her account.

Mock-up:

c. <u>*Profile management*</u>

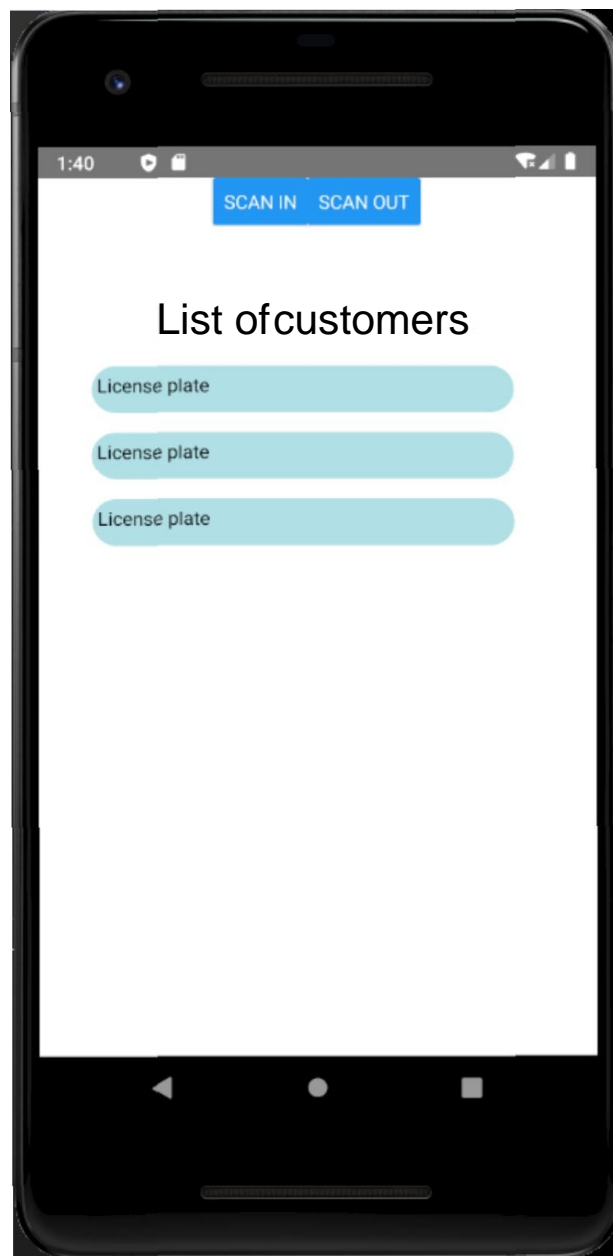| Name	Manage profile
Actor	Customer and client
Description	Customer and client are able to edit, delete upload their personal information, including First name, last name, date of birth, phone number
Preconditions	
Normal flow	1. Open the application 2. Push choose edit info 3. The user now has the ability to modify their account profile 4. Save the changed information 5. System will replace the new information with the new ones
Exceptions	Exception 1: at step 4 If the user did not click the "Save" button, new information would not be saved to the database
Alternative flow	Alternative 1: at step 2 Users can choose "Log out" If they already logged in

Mock-up

d. Calculate fee

Name	Calculate fee
Actor	Customer
Description	Customer can calculate the fee they have to pay for the client
Preconditions	
Normal flow	1. Open the application. 2. Customers must login to their account . 3. Customers push the button named show the fee.
Exceptions	Exception 1 at step 3: If you don't scan QR code, you can't show the money you have to pay.
Alternative flow	Alternative 1: at exception 1: You push "generate QR code" and give it to client to scan.

Mock-up:

e. Manage Data

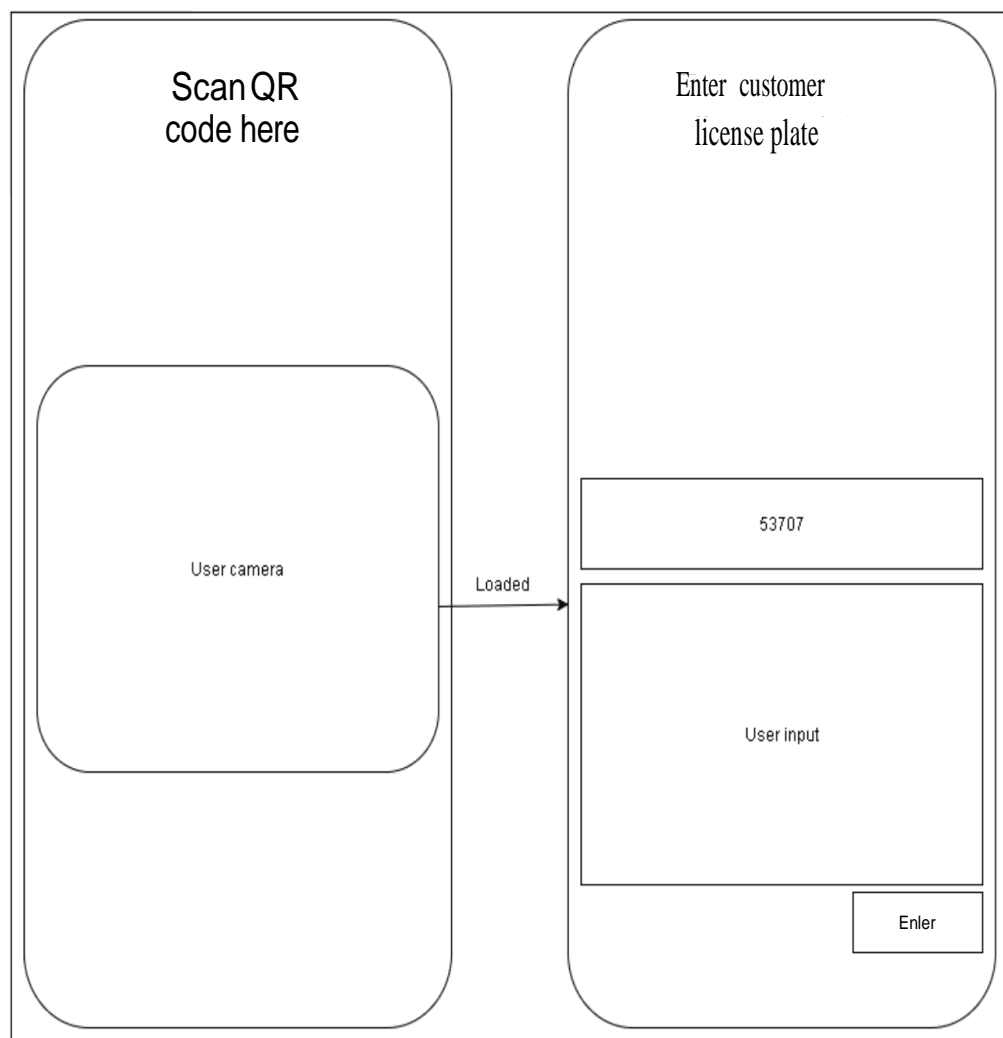| Name	Data management
Actor	Client
Description	Client can manage all of data, including monthly income, customer information.
Preconditions	Client must have database management system Get information from register form
Normal flow	1. Open the application 2. Log in the application 3. Get the database of customer 4. Export the monthly income, if necessary 5. Get the customer information, if necessary
Exceptions	
Alternative flow	At step 5, users can edit delete their information if it necessary

Mock-up:

f. Scan QR code

Name	Scan QR code
Actor	Client
Description	Client can use the camera of smart phone to scan the qr code generated from the customers.
Preconditions	Client must have database management system
Normal flow	1. Open the application 2. Log in the application 3. Get the database of customer 4. Access the camera 5. Scan QR code
Exceptions	
Alternative flow	

Mock-up:

III.   Work assignment

Front end:
+ Customer : Vũ Quang Minh
               Nguyễn Tiến Phát

+Client: Lê Thiện Thành

Back end: Đặng Việt Trung Nhân
              Dương Đình Trung