

# PROJECT REPORT

FOR

## Express Parking

Version 1.0

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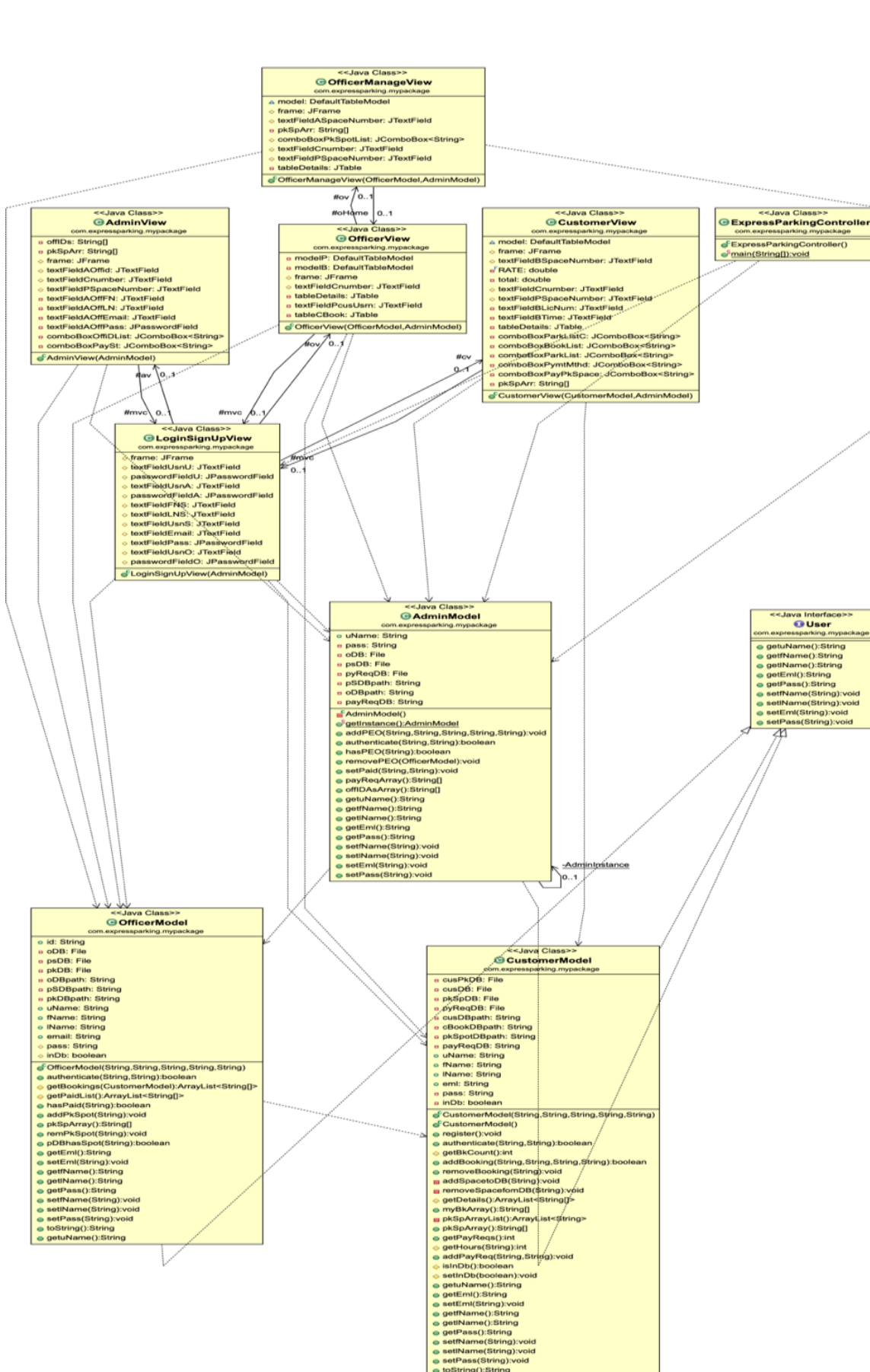
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## 1. Description of The System

Express Parking is a parking management application that allows users to reserve up to three parking spaces providing their license plate number, duration of parking in hours and pay for each of the spaces. The app provides a log in screen for three different type of users which have distinct but related features namely, Customers, Parking Enforcement Officers (P.E.O.) and a system administrator.

## 2. UML Class Diagrams

### 2.1. Final Design UML Diagram

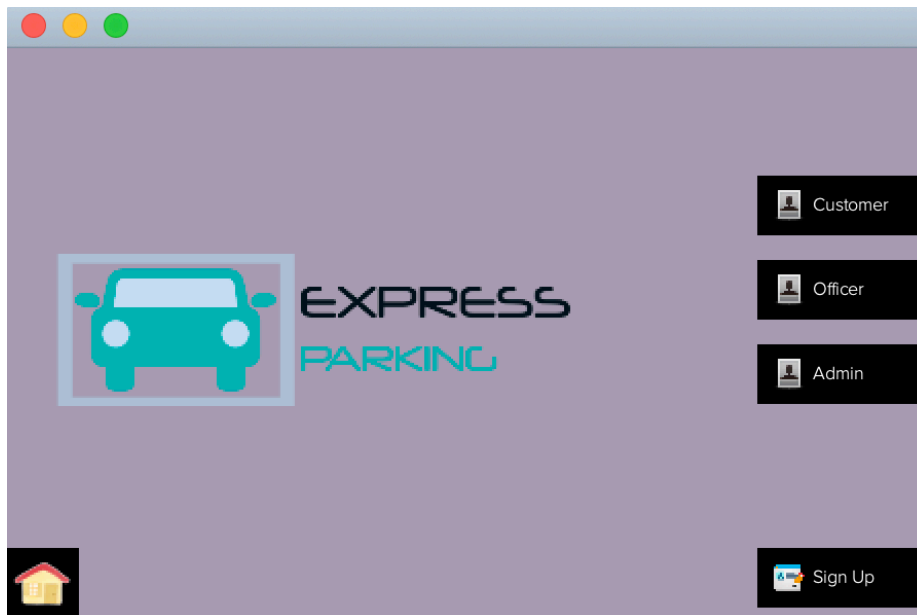


## 2.2. Problems with Initial Design

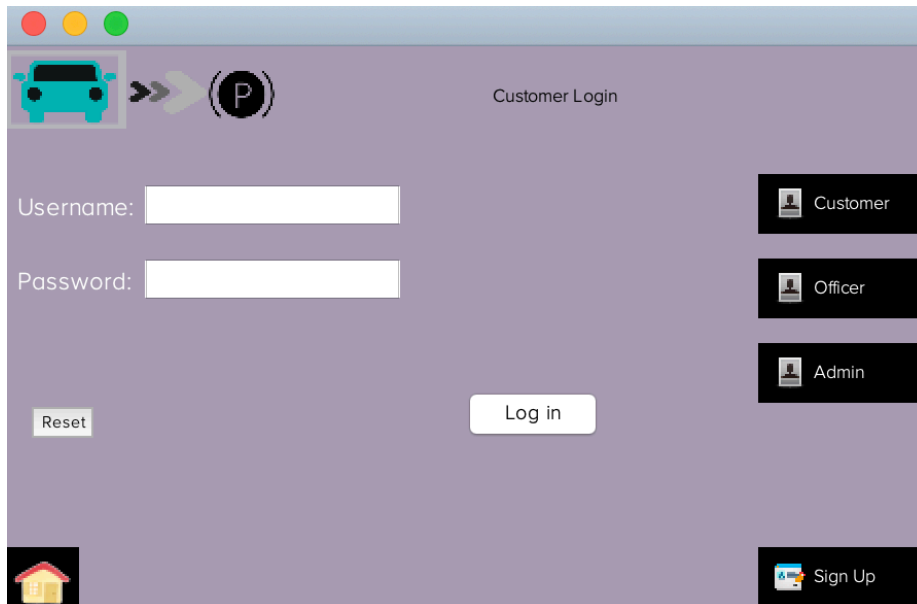
My initial design allowed for more than one admin object to be created because I used a public constructor. In my final design however I have ensured that only one instance of the admin object can be created by applying singleton design pattern. Also, my initial design divided up the workload of the project more because I was not considering the GUI implementation. After thinking about the best way to design the GUI I decided to make the app using an MVC approach so that led me towards combining all the related functionalities for the customer, Officer, and admin into individual models to aid data storage and retrieval and also for the controller and view of the app to relate with.

## 3. Functionality/UI Screenshots

### 3.1. Log in and Sign-Up Pages



**Welcome page**



A screenshot of a web browser window displaying a "Customer Login" page. The page has a purple background. At the top left, there is a blue car icon followed by a grey arrow pointing right to a black circle with a white "P" inside. The title "Customer Login" is at the top right. Below the car icon, there are two white input fields: "Username:" and "Password:". To the right of these fields are three black buttons with white text and icons: "Customer" (with a person icon), "Officer" (with a person icon), and "Admin" (with a person icon). Below the "Username:" field is a "Reset" button. Below the "Password:" field is a "Log in" button. At the bottom left is a house icon, and at the bottom right is a "Sign Up" button with a plus icon.

Customer Login

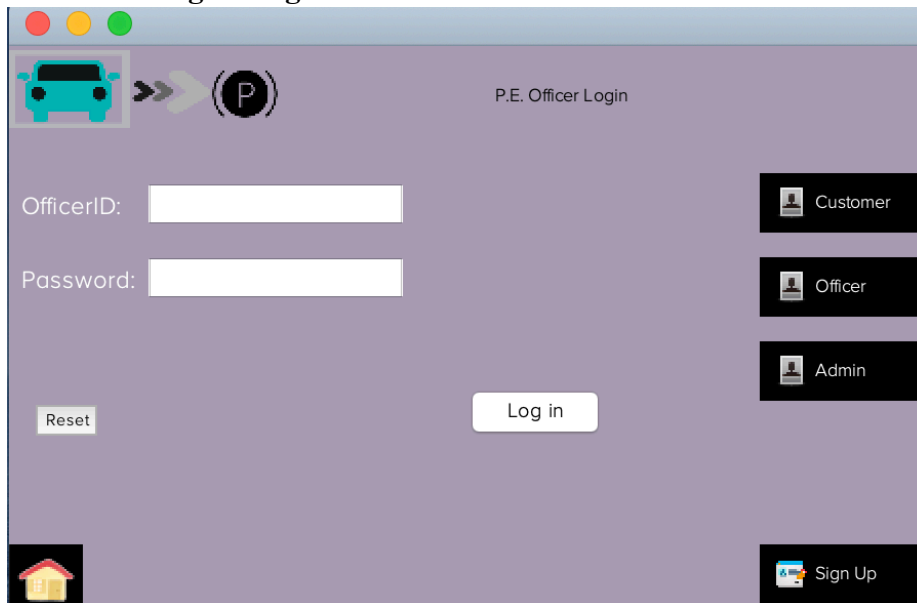
Username:

Password:

Reset Log in

Customer Officer Admin Sign Up

### Customer Log-in Page



A screenshot of a web browser window displaying a "P.E. Officer Login" page. The page has a purple background. At the top left, there is a blue car icon followed by a grey arrow pointing right to a black circle with a white "P" inside. The title "P.E. Officer Login" is at the top right. Below the car icon, there are two white input fields: "OfficerID:" and "Password:". To the right of these fields are three black buttons with white text and icons: "Customer" (with a person icon), "Officer" (with a person icon), and "Admin" (with a person icon). Below the "OfficerID:" field is a "Reset" button. Below the "Password:" field is a "Log in" button. At the bottom left is a house icon, and at the bottom right is a "Sign Up" button with a plus icon.

P.E. Officer Login

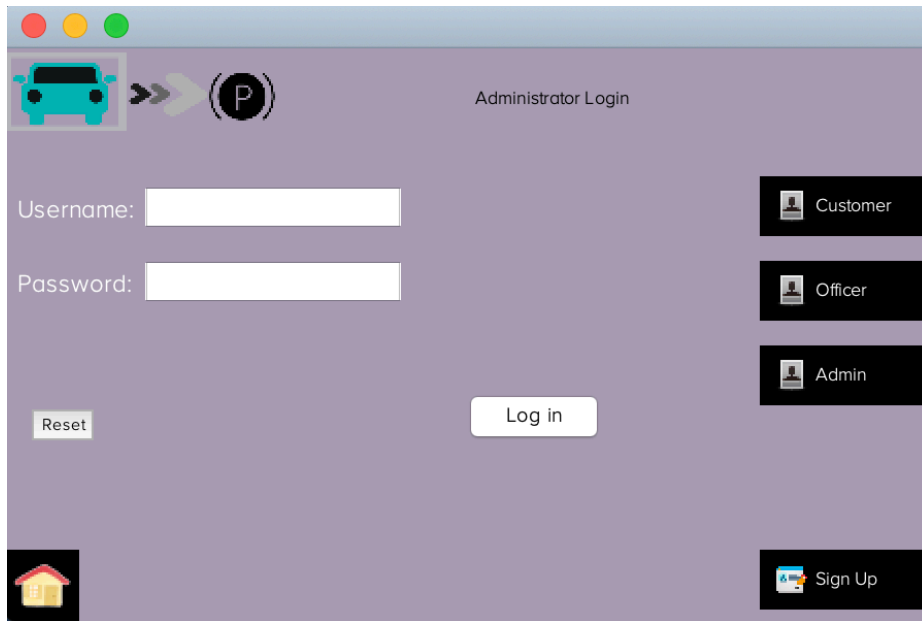
OfficerID:

Password:

Reset Log in

Customer Officer Admin Sign Up

### Parking Enforcement Officer Log-in



A screenshot of a web application window titled "Administrator Login". The window has a purple background and a light blue header bar with three colored circles (red, yellow, green). In the top left corner, there is a small icon of a blue car with a white arrow pointing right, followed by a black circle with a white "P" inside. The main content area contains a "Username:" label followed by a white text input field, and a "Password:" label followed by a white text input field. Below the password field is a "Reset" button. To the right of the input fields is a "Log in" button. On the far right, there is a vertical stack of three black buttons with white text and icons: "Customer" (with a person icon), "Officer" (with a person icon), and "Admin" (with a person icon). At the bottom left, there is a small icon of a house with a red roof. At the bottom right, there is a black button with a white "Sign Up" label and a small icon of a person with a plus sign.

Administrator Login

Username:

Password:

Reset

Log in

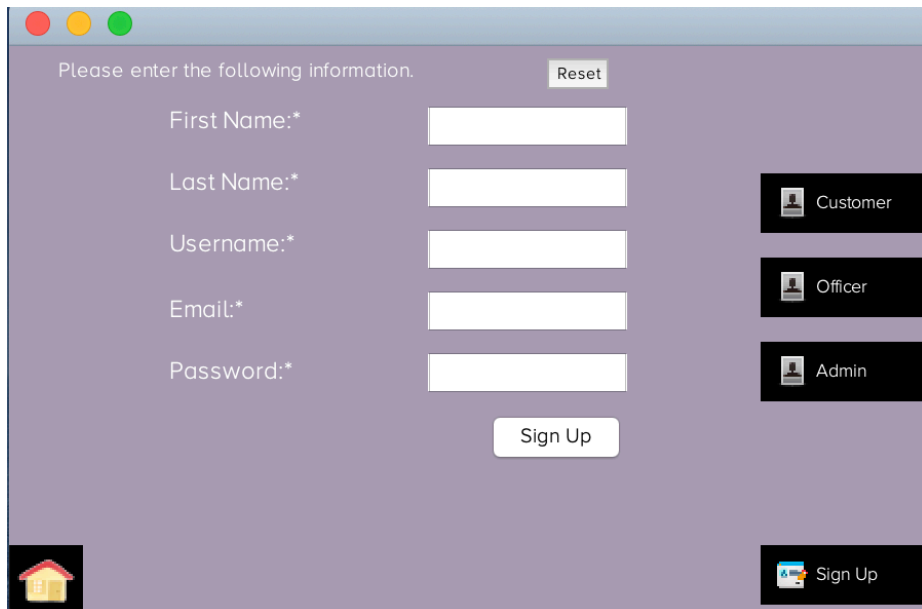
Customer

Officer

Admin

Sign Up

**System Administrator Log-in**



A screenshot of a web application window titled "Customer Sign-Up". The window has a purple background and a light blue header bar with three colored circles (red, yellow, green). In the top left corner, there is a small icon of a house with a red roof. The main content area contains the text "Please enter the following information." followed by a "Reset" button. Below this text are five labels with asterisks: "First Name:", "Last Name:", "Username:", "Email:", and "Password:". Each label is followed by a white text input field. To the right of the input fields is a vertical stack of three black buttons with white text and icons: "Customer" (with a person icon), "Officer" (with a person icon), and "Admin" (with a person icon). Below the input fields is a "Sign Up" button. At the bottom right, there is a black button with a white "Sign Up" label and a small icon of a person with a plus sign.

Please enter the following information. Reset

First Name:\*

Last Name:\*

Username:\*

Email:\*

Password:\*

Sign Up

Customer

Officer

Admin

Sign Up

**Customer Sign-Up page**

## 3.2. Admin Features

### 3.2.1. Add Parking Enforcement Officer

ADMIN PROFILE

ADD PARKING ENFORCEMENT OFFICER

Officer ID:

First name:

Last Name:

Email:

Password:

☒ ADD OFFICER

☐ REMOVE OFFICER

☒ SET PAYMENT STATUS

### Parking enforcement Officer Added

### 3.2.2. Remove Parking Enforcement Officer

ADMIN PROFILE

REMOVE PARKING ENFORCEMENT OFFICER

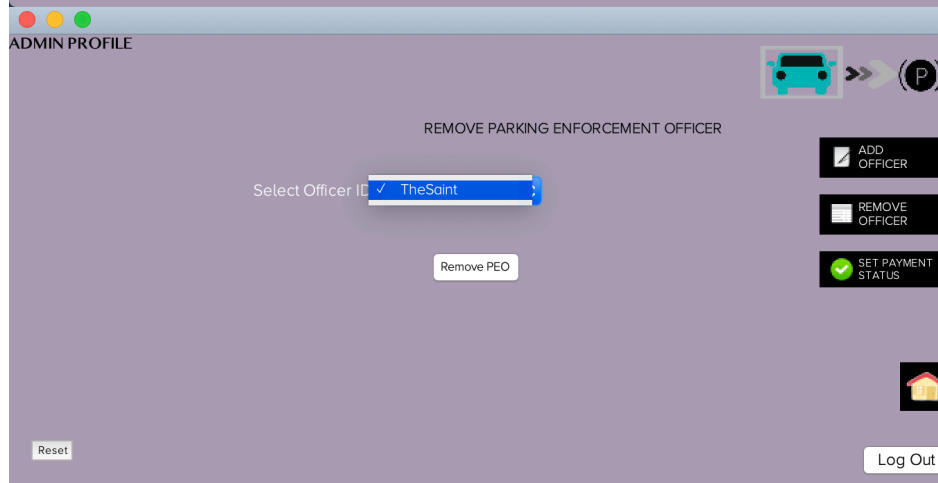
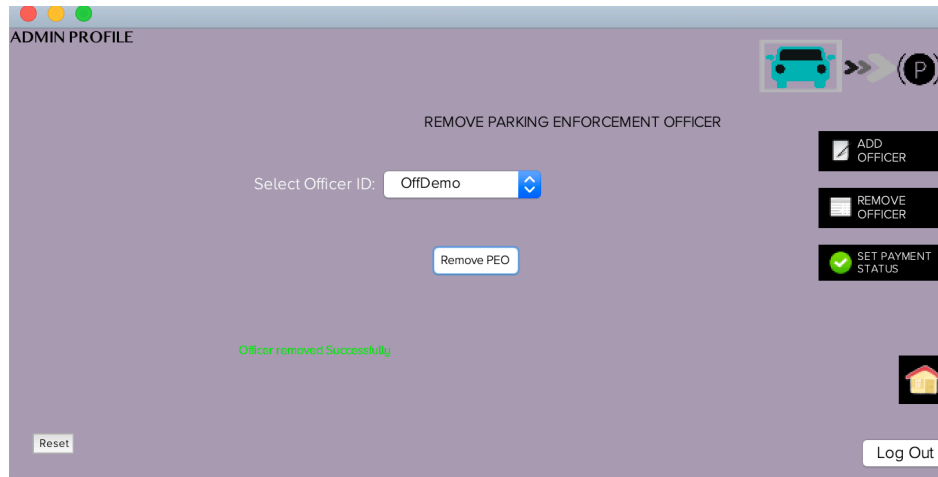
Select Officer ID:

☒ ADD OFFICER

☐ REMOVE OFFICER

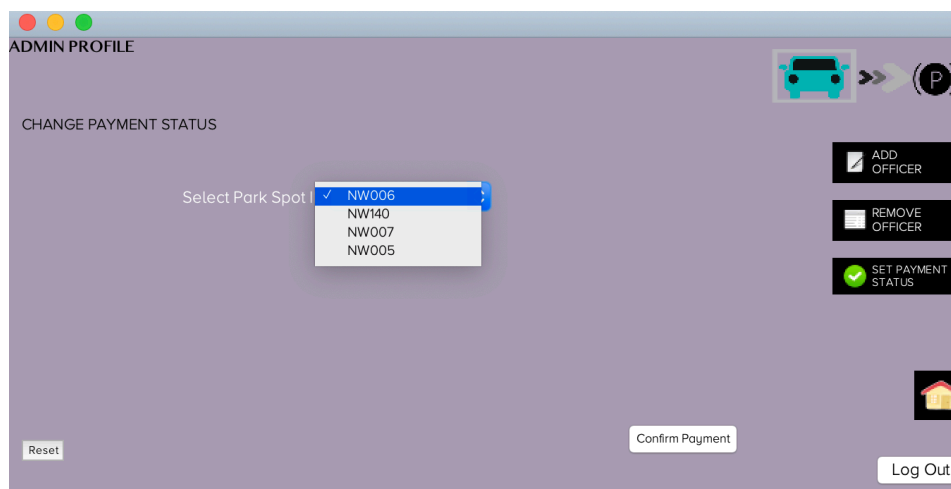
☒ SET PAYMENT STATUS

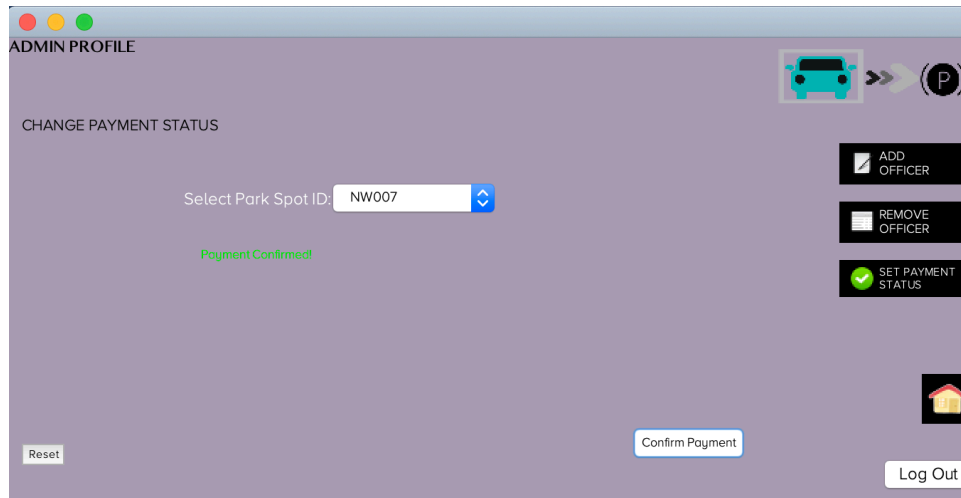




## Parking enforcement Officer Added

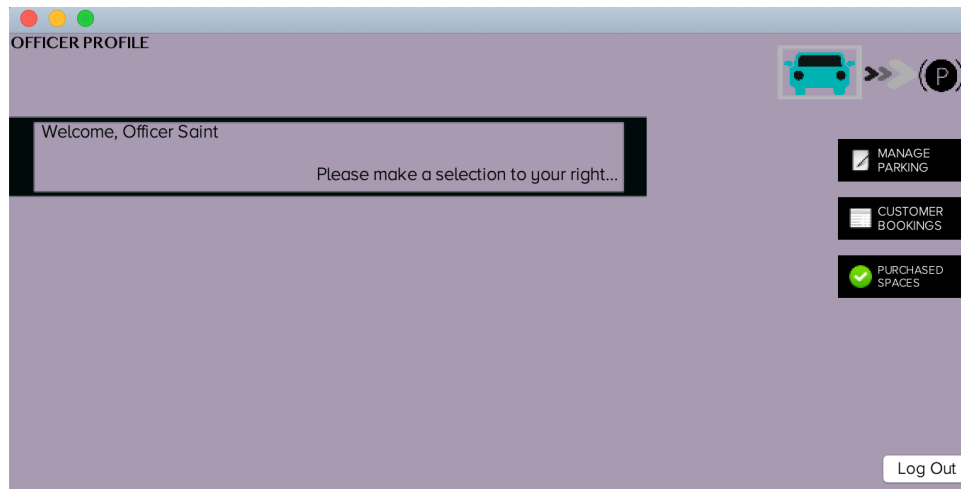
### 3.2.3. Change Payment Status





## Payment Confirmed

### 3.3. Officer Features



#### 3.3.1. Manage Parking

### 3.3.2. Add space

MANAGE PARKING SPACES

Enter Parking Space Number:

Add Space

ADD SPACE

ADD SPACE

REMOVE SPACE

Reset

### 3.3.3. Remove space

MANAGE PARKING SPACES

Select Parking Space:

NW007

NW005

NW140

NW129

NW128

REMOVE SPACE

ADD SPACE

REMOVE SPACE

Reset

### 3.3.4. View Customer Bookings

OFFICER PROFILE

Enter Customer Username:

Meruem

View Details

CUSTOMER BOOKINGS

MANAGE PARKING

CUSTOMER BOOKINGS

PURCHASED SPACES


Username	Space Number	Expiry Time	License Plate
Meruem	NW006	2021-04-22T16:31:08.702	lcc1234

Reset

Log Out

### 3.3.5. View Purchased Spaces

OFFICER PROFILE

 >>> (P)

ACTIVE PURCHASED SPACES

Park Spot ID	Purchase Date/Time
NW006	2021-04-22T17:50:04.683
NW005	2021-04-23T16:22:02.077
NW007	2021-04-23T17:44:53.842
NW128	2021-04-23T19:42:41.071

MANAGE PARKING


CUSTOMER BOOKINGS

PURCHASED SPACES

Log Out

## 3.4. Customer Features

CUSTOMER PROFILE

 >>> (P)

Welcome, Meruem-sama

Please make a selection to your right...

BOOK SPACE

MY BOOKINGS


PAY

CANCELLATIONS

Log Out

### 3.4.1. Book Space

CUSTOMER PROFILE

 >>> (P)

Select Parking Space: NW129

Enter License Plate No.:

Booking duration (Hrs):

Book Space

BOOK SPACE

MY BOOKINGS

PAY

CANCELLATIONS

Reset

Log Out

### 3.4.2. View My Bookings

CUSTOMER PROFILE

MY BOOKINGS

Select Parking Space: 

NW006  
NW129

View Details

BOOK SPACE

MY BOOKINGS

PAY

CANCELLATIONS

Log Out

CUSTOMER PROFILE

MY BOOKINGS

Parking Space Number	Expiry Time	License Plate
NW006	2021-04-22T16:31:08.702	lcc1234

Back

BOOK SPACE

MY BOOKINGS

PAY

CANCELLATIONS

Log Out

### View Details

### 3.4.3. Make Payment Request

CUSTOMER PROFILE

PURCHASE SPACE

Select Parking Space: 

NW129

Select Payment Method: 

DEBIT

Total To Pay: \$21.06

Request Payment

BOOK SPACE

MY BOOKINGS

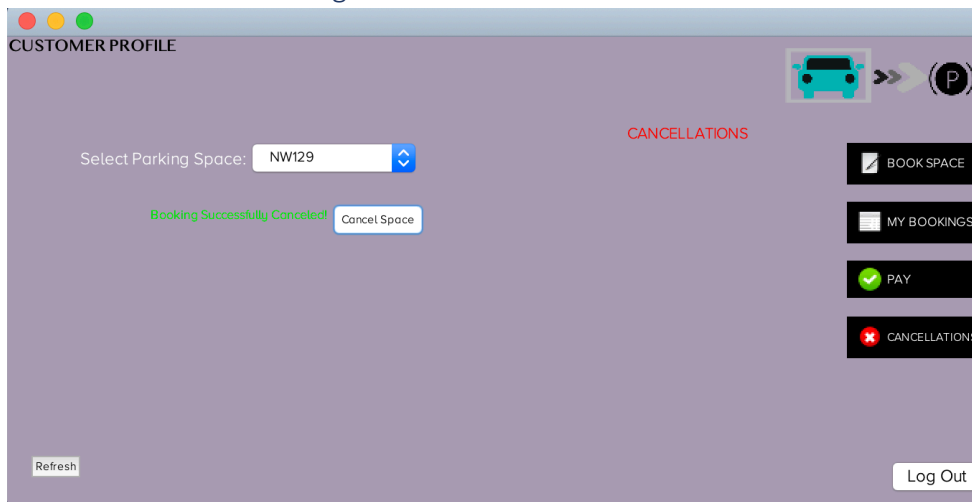
PAY

CANCELLATIONS

Reset

Log Out

### 3.4.4. Cancel Booking



### 3.5. Log-out

