Project Mission Statement

ParkNow - An application for drivers in Singapore to be able to obtain information on available car park spaces near them. This project aims to create an accessible platform to help the drivers save time, and ease the process of searching for available spaces to park their cars, while being aware of the different options available to them.

Functional Requirements

Register

1. The user must be able to register for an account on the system.
    1.1. The system must display text fields for the user to enter login details.
        1.1.1. The text fields must consist of a username field.
        1.1.2. The text fields must consist of an email address field.
        1.1.3. The text fields must consist of a password field.
    1.2. The system must verify the fields when the user clicks the 'Register' button.
        1.2.1. The user must fill in all of the text fields before clicking the "Register" button.
        1.2.2. The username must contain a minimum of 8 and a maximum of 32 alphanumeric characters.
        1.2.3. The username must be unique for all users of this system.
        1.2.4. The email given has never registered in the system.
        1.2.5. The email given must be of a correct email format.
            1.3.3.1 The system must send an OTP to the user's email address.
        1.2.6. The password given must contain at least 1 uppercase character and 1 special character.
        1.2.7. The password given must contain at least 8 characters.
        1.2.8. The system must provide error messages describing the reason the user's inputs are rejected.
        1.2.9. All the text fields must be emptied when the user's login details are rejected.

1.3. The system must create an account for the user upon verification of login details.

1.3.1. The system must create a record of the user account in the database.

1.3.1.1. The record must contain either a username or an email address.

1.3.1.2. The record must contain a password.

1.4. The system must log the user into the main page of the system.

Login

2. The user must be able to log into the system.

2.1. The system must display text fields for the user to enter login details.

2.1.1. The text fields must contain a user ID field.

2.1.2. The text fields must contain a password field.

2.2. The user must fill in all of the text fields before clicking 'Log In' button.

2.3. The system must verify the fields filled in by the user before logging the user into the system.

2.3.1. The user must enter either a username or an email address into the user ID field.

2.3.1.1. If the user enters a username, the username must be found in the database of the system.

2.3.1.2. If the user enters an email address, the email address must be found in the database of the system.

2.3.2. The password entered must match the password of the user in the database of the system.

2.3.3. The system must provide error messages describing the reason the user's inputs are rejected.

2.4. If the user input obtained from the text fields are verified to be valid, the system must log the user into the main page of the system.

2.5. The user must be able to log out of account at any time after they log in.

Search for Nearest Car Parks

3. The system landing page must have a search bar.

3.1. The application search bar must accept an input of the user's current location or a location specified by the user.

3.1.1. If a user selects current location as input, the system must request for permission to access the user's location.

3.2. The input location must be identifiable using Google Maps API.

3.3. The system must be able to display a list of up to 10 nearest car parks within a radius of 5 kilometers in response to the search request from the user.

3.3.1. The system must list must sort the listed carparks from shortest to longest linear distance from the user's current location.

Query Car Park Details

4. The user should be able to select a car park from the search result list.

4.1. The system must access real-time car park details from the API for the selected car park.

4.1.1. The system must display the number of car parking spaces in the selected car park.

4.1.2. The system must display the number of motorcycle parking spaces in the selected car park.

4.1.3. The system must display the parking costs within six months of the selected car park.

4.2. The system must display a recommended route to the selected car park.

4.2.1. The system should report the estimated travel time by car to the selected car park.

Add Car Park to Favourites

5. The user should be able to add carparks into the favorites folder.

5.1. The system must be able to display the carparks in the favorites folder by multiple orders.

5.1.1. The system must be able to sort the carparks by time of addition.

5.1.2. The system must be able to sort the carparks by alphabetical order.

5.1.3. The sytem must be able to display the carparks by increasing and. decreasing order

5.2. When the user selects a carpark from the favorites folder, the system must access real-time API for the selected park.

5.2.1. The system must display the number of car parking spaces in the selected car park.

5.2.2. The system must display the number of motorcycle parking spaces in the selected car park.

5.2.3. The system must display the parking costs within six months of the selected car park.

View Profile Page

6. The system must have a profile page to display user information.

6.1. The system must display user's current profile picture.

6.1.1. The system must allow user to change profile picture.

6.2. The system must display user's username.

6.3. The system must display user's email address.

6.3.1. The system must allow user to change email address.

6.3.1.1. The system must resend verification email to verify the user's new email address.

6.4. The system must allow user to change password.

6.5. The system must allow user to log out in the profile page.

Share Car Parks

7. The user should be able to share information about carparks

7.1. The user must be able to choose the type of information to generate via menu

7.1.1. The system must be able to copy the location of the carpark in plain text to clipboard.

7.1.2. The system must be able to generate the link to Google Maps on clipboard.

7.1.3. The system must be able to generate the link to Waze on clipboard.

7.1.4. The system must be able to generate the link to Apple Maps on clipboard.

7.1.5. The system must be able to generate the link to ParkNow on clipboard.

7.1.5.1. If the user has logged in, the user must be ablt on access the link in ParkNow.

Share Drives

8. The user should be able to share drive information.

8.1. The system must be able to generate the link to ParkNow on clipboard.

8.1.1. Other users who have access to the link must be able to see the user's progress on the current route

8.1.1.1. If other users select a carpark on the map, they must be able to query the car park's details.