**Use Cases**

**for**

**Car Park app**

**Version 1.0 approved**

**Prepared by Samuel Ong Jing Siang**

**Exe5**

**26/08/2022**

**Revision History**

| **Name** | **Date** | **Reason For Changes** | **Version** |
| --- | --- | --- | --- |
| Samuel Ong Jing Siang | 26/08/2022 |  | 1.0 |
|  |  |  |  |

| Use Case ID: | 1 | | |
| --- | --- | --- | --- |
| Use Case Name: | Search Car Park | | |
| Created By: | Ong Jun Heng | Last Updated By: | Samuel Ong Jing Siang |
| Date Created: | 26/08/2022 | Date Last Updated: | 26/08/2022 |

| Actor: | User |
| --- | --- |
| Description: | The use case waits for the user to search for car parks in Singapore using either maps, car park no. or destination address. |
| Preconditions: | N.A. |
| Postconditions: | N.A. |
| Priority: | 1 |
| Frequency of use: | 1 to 3 times per app launch |
| Flow of Events: | 1. System uses the use case <Display Map> 2. System prompts for a destination or a car park number |
| Alternative Flows: | N.A. |
| Exceptions: | N.A |
| Includes: | Search car park via car park number  Search car park via the map  Search car park via a destination  Display Map  Display Car park details |
| Special Requirements: |  |
| Assumptions: |  |
| Notes and Issues: |  |

| Use Case ID: | 1.1 | | |
| --- | --- | --- | --- |
| Use Case Name: | Search car park via car park number. | | |
| Created By: | Samuel Ong Jing Siang | Last Updated By: | Samuel Ong Jing Siang |
| Date Created: | 26/08/2022 | Date Last Updated: | 26/08/2022 |

| Actor: | User |
| --- | --- |
| Description: | Search for a car park in Singapore using a car park number |
| Preconditions: | N.A. |
| Postconditions: | N.A. |
| Priority: | 1 |
| Frequency of use: | Once per app launch |
| Flow of Events: | 1. User inputs the car park number 2. System uses Google Map API to locate the car park 3. System pans to the car park surroundings 4. User presses on the pin 5. System displays the car park details 6. User closes the program |
| Alternative Flows: | User provides duration of stay at the car park  6.1 User inputs the duration of stay at the car park  6.2 System calculate cost of stay at the car park  6.3 System displays the cost of stay at the car park  6.4 Go to Step 6  Car park number not found  2.1 System uses the Google Map API to find the most relevant location.  2.2 Go to step 3 |
| Exceptions: | Google API unable to locate car park  2.1 System alerts user that the car park is not found  2.2 Go to step 1  User decides to search for another car park  5.1 User clicks on the back button  5.2 Go to step 1  Google API is unavailable  2.1 System is unable to query Google API due to maintenance or service unavailable.  2.2 System displays an error message to the user “Service currently unavailable, please try again later”  2.3 Go to step 1 |
| Includes: | Display Map  Display Car park details |
| Special Requirements: |  |
| Assumptions: |  |
| Notes and Issues: |  |

| Use Case ID: | 1.2 | | |
| --- | --- | --- | --- |
| Use Case Name: | Search car park via the map | | |
| Created By: | Samuel Ong Jing Siang | Last Updated By: | Samuel Ong Jing Siang |
| Date Created: | 26/08/2022 | Date Last Updated: | 26/08/2022 |

| Actor: | User |
| --- | --- |
| Description: | Search for a car park in Singapore using the map |
| Preconditions: | N.A. |
| Postconditions: | N.A. |
| Priority: | 1 |
| Frequency of use: | Once per app launch |
| Flow of Events: | 1. User pans the map to desired location 2. System displays updated map 3. User presses on a pin 4. System displays the car park details 5. User closes the program |
| Alternative Flows: | User provides duration of stay at the car park  5.1 User inputs the duration of stay at the car park  5.2 System calculate cost of stay at the car park  5.3 System displays the cost of stay at the car park  5.4 Go to Step 5 |
| Exceptions: | User decides to search for another car park  4.1 User clicks on the back button  4.2 Go to step 1 |
| Includes: | Display Map  Display Car park details |
| Special Requirements: |  |
| Assumptions: |  |
| Notes and Issues: |  |

| Use Case ID: | 1.3 | | |
| --- | --- | --- | --- |
| Use Case Name: | Search car park via destination | | |
| Created By: | Samuel Ong Jing Siang | Last Updated By: | Samuel Ong Jing Siang |
| Date Created: | 26/08/2022 | Date Last Updated: | 26/08/2022 |

| Actor: | User |
| --- | --- |
| Description: | Search for a car park in Singapore using a location |
| Preconditions: | N.A. |
| Postconditions: | N.A. |
| Priority: | 1 |
| Frequency of use: | Once per app launch |
| Flow of Events: | Normal flow whereby User picks a pin.   1. User inputs the location 2. System uses Google Map API to locate the nearby car parks 3. System pans to the location with the nearby car parks in view 4. User presses on the pin 5. System displays the car park details 6. User closes the program |
| Alternative Flows: | User opens the list of car parks and sorts them based on certain factors  4.1 User opens list of car parks  4.2 System provides a Sort Button to sort based on Price, Distance and Availability  4.3 User picks a sort function  4.4 System sorts the car parks  4.5 User picks a car park  4.6 Go to step 5  User provides duration of stay at the car park  6.1 User inputs the duration of stay at the car park  6.2 System calculate cost of stay at the car park  6.3 System displays the cost of stay at the car park  6.4 Go to Step 6 |
| Exceptions: | Google API unable to locate car park  2.1 System alerts user that the car park is not found  2.2 Go to step 1  User decides to search for another car park  5.1 User clicks on the back button  5.2 Go to step 1 |
| Includes: | Display Map  Display Car park details |
| Special Requirements: |  |
| Assumptions: |  |
| Notes and Issues: |  |

| Use Case ID: | 2 | | |
| --- | --- | --- | --- |
| Use Case Name: | Display Map | | |
| Created By: | Samuel Ong Jing Siang | Last Updated By: | Samuel Ong Jing Siang |
| Date Created: | 26/08/2022 | Date Last Updated: | 26/08/2022 |

| Actor: | User |
| --- | --- |
| Description: | Display the map |
| Preconditions: | N.A. |
| Postconditions: | Car park pins are updated on the map |
| Priority: | 1 |
| Frequency of use: | Every time the map must be updated due to new inputs |
| Flow of Events: | 1. System displays the map via the Google Map API 2. System updates the pins for the car parks located |
| Alternative Flows: | N.A. |
| Exceptions: | N.A. |
| Includes: |  |
| Special Requirements: |  |
| Assumptions: |  |
| Notes and Issues: |  |

| Use Case ID: | 3 | | |
| --- | --- | --- | --- |
| Use Case Name: | Display Car Park Details | | |
| Created By: | Ong Jun Heng | Last Updated By: | Ong Jun Heng |
| Date Created: | 27/8/22 | Date Last Updated: | 27/8/2022 |

| Actor: | Car Park Availability API, Car Park Rate API |
| --- | --- |
| Description: | Displays information on the car park provided by the APIs. Information will always be in the same format, containing car park number, location, parking rates, availability/ occupancy of the car park and the last updated date and time. It will also include the cost of parking if duration of stay is provided. If any information is not applicable, the system will display N.A. instead. |
| Preconditions: | 1. User must have selected a car park |
| Postconditions: | 1. System must have displayed information on the car park |
| Priority: | 1 |
| Frequency of use: | Once per app launch |
| Flow of Events: | Normal flow whereby User has provided a car park   1. System retrieves information on the availability/ occupancy of the car park and the last updated date and time and the rates of the car park using the car park number provided. 2. System displays the information in a fixed format. |
| Alternative Flows: | User provides duration of stay at the car park  2.1 System calculates the cost of the parking for the duration provided.  2.2 System displays the information in the same format, replacing the parking rates with the cost of parking.  System is unable to retrieve the availability or the rates of the car park  2.1 System displays the information retrieved in the same format, while using N.A. for information that was unable to be retrieved. |
| Exceptions: | N.A. |
| Includes: |  |
| Special Requirements: |  |
| Assumptions: | The database is assumed to have the information of all the car parks that the Google Map API has. |
| Notes and Issues: |  |

| Use Case ID: | 4 | | |
| --- | --- | --- | --- |
| Use Case Name: | Calculate Cost | | |
| Created By: | Ong Jun Heng | Last Updated By: | Ong Jun Heng |
| Date Created: | 27/8/22 | Date Last Updated: | 27/8/2022 |

| Actor: |  |
| --- | --- |
| Description: | Calculate the cost of the parking fee given the car park number and the start and end time of parking. |
| Preconditions: | 1. User must have selected a car park 2. User must have indicated a start and end time |
| Postconditions: | N.A. |
| Priority: | 1 |
| Frequency of use: | Once per app launch |
| Flow of Events: | Normal flow whereby User has provided a car park and the start and end time   1. System calculates the cost of the parking for the duration provided. 2. System displays the information in the same format, replacing the parking rates with the cost of parking. |
| Alternative Flows: | N.A. |
| Exceptions: | N.A. |
| Includes: |  |
| Special Requirements: |  |
| Assumptions: |  |
| Notes and Issues: |  |