**Use Cases**

**for**

**<EZParking>**

**Version 1.2**

**Prepared by <XiaoYan>**

**<rm-rf/\*>**

**<29-01-2021>**

**Revision History**

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| XiaoYan | 27-01-21 | Register, Login, Logout | 1.0 |
| XiaoYan | 28-01-21 | Carpark Details | 1.1 |
| XiaoYan | 29-01-21 | Rating, Direction | 1.2 |
| HaoLin | 14-02-21 | Refinement | 1.3 |

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| --- | --- | --- | --- |
| Use Case ID: | EZP001 | | |
| Use Case Name: | Register | | |
| Created By: | XiaoYan | Last Updated By: | XiaoYan |
| Date Created: | 27-01-21 | Date Last Updated: | 27-01-21 |

**Use Case Description**

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| Actor: | User |
| Description: | Register a new account with Email |
| Preconditions: | The user has downloaded and started the application |
| Postconditions: | 1) User account is created in the application  2) The application directs to the user’s homepage |
| Priority: | Low |
| Frequency of Use: | Low |
| Flow of Events: | 1) The user selects “Sign up for an account”  2) The user inputs the email, username and password  3) The user selects “Sign up”  4) The application validates the user details  5) The user account is created  6) The information will be updated in the cloud database  7) The application displays a successful message  8) The application directs to the user’s homepage  9) Use case ends |
| Alternative Flows: | If user inputs invalid email address, password or an existing email address  1) The application displays an error message  2) The application returns to step 2)  If user inputs empty fields  1) The application displays an error message  2) The application returns to step 2) |
| Exceptions: | EX1: Failed to register because cannot access to the cloud database |
| Includes: | - |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP002 | | |
| Use Case Name: | Login with Email | | |
| Created By: | XiaoYan | Last Updated By: | HaoLin |
| Date Created: | 27-01-21 | Date Last Updated: | 14-02-21 |

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| Actor: | User |
| Description: | Login with user’s registered email address |
| Preconditions: | User must have registered successfully with a valid email account |
| Postconditions: | User is successfully logged in and direct to the Homepage |
| Priority: | Medium |
| Frequency of Use: | Medium |
| Flow of Events: | 1) The user inputs email address and password  2) The user selects “SIGN IN”  3) The application validates the user details  4) The application direct to the homepage  5) Use case ends |
| Alternative Flows: | If user inputs invalid email address, password   1. The application display an error message 2. The application return to step 1) |
| Exceptions: | EX1: If user is not registered  1) The application display message “Account doesn’t exist”  2) The user starts from step 1) of “Register” use case |
| Includes: | Register |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP003 | | |
| Use Case Name: | Login with Facebook Account | | |
| Created By: | HaoLin | Last Updated By: | HaoLin |
| Date Created: | 14-02-21 | Date Last Updated: | 14-02-21 |

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| --- | --- |
| Actor: | User, Facebook |
| Description: | Login with user’s Facebook account |
| Preconditions: | User must have a Facebook account |
| Postconditions: | User is successfully logged in and direct to the Homepage |
| Priority: | Medium |
| Frequency of Use: | Medium |
| Flow of Events: | Login with Facebook  1) The user selects “Login with Facebook”  2) The application direct to Facebook application request the permission  3) The user selects “LINK ACCOUNT”  4) The application validates the user details  5) The user account is granted permission  6) The application displays a successful message  7) The application direct to the user’s homepage |
| Alternative Flows: | If user already has a Facebook App installed in the mobile phone  1) The application will directly bring the user to the main page.  If the Facebook App is not installed  1) The application displays an error message  2) The application returns to Homepage |
| Exceptions: | - |
| Includes: | - |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP004 | | |
| Use Case Name: | Login with Google Account | | |
| Created By: | HaoLin | Last Updated By: | HaoLin |
| Date Created: | 14-02-21 | Date Last Updated: | 14-02-21 |

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| Actor: | User, Google |
| Description: | Login with user’s Google account |
| Preconditions: | User must have a Google account |
| Postconditions: | User is successfully logged in and direct to the Homepage |
| Priority: | Medium |
| Frequency of Use: | Medium |
| Flow of Events: | Login with Google  1) The user selects “Login with Google ”  2) The user selects “LINK ACCOUNT”  3) The application validates the user details  4) The user account is granted permission  5) The application displays a successful message  6) The application direct to the user’s homepage  7) Use case ends |
| Alternative Flows: | If user already has a Google App installed in the mobile phone  1) The application will directly bring the user to the main page.  If Google App is not installed  1) The application displays an error message  2) The application returns to step Homepage |
| Exceptions: | - |
| Includes: | - |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP005 | | |
| Use Case Name: | Logout | | |
| Created By: | XiaoYan | Last Updated By: | HaoLin |
| Date Created: | 27-01-21 | Date Last Updated: | 14-02-21 |

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| Actor: | User |
| Description: | Log out of the account |
| Preconditions: | User has successfully logged in to the application |
| Postconditions: | User has successfully logged out of the application |
| Priority: | Low |
| Frequency of Use: | Low |
| Flow of Events: | 1) The user selects “LOG OUT”  2) The user has logged out of the application  3) Use case ends |
| Alternative Flows: | - |
| Exceptions: | - |
| Includes: | Login with Email/Login with Facebook Account/Login with Google Account |
| Special Requirements: | - |
| Assumptions: | User has already logged in |
| Notes and Issues: | - |

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| Use Case ID: | EZP006 | | |
| Use Case Name: | Display all the carparks nearby | | |
| Created By: | Ruizhi | Last Updated By: | HaoLin |
| Date Created: | 28-01-21 | Date Last Updated: | 14-02-21 |

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| Actor: | User |
| Description: | The use case allows the user to view the nearby carpark of the current location by selecting the specific ranges provided by the application. |
| Preconditions: | User has successfully logged into the application and gained the location permission |
| Postconditions: | Display all the carparks nearby with status (slots and availability) |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | Display all the carparks by current location  1) The application has the location permission  2) The user clicks the target button  3) The application gets the user’s current location from system  4) The application read and retrieves the information from updated local API json file  5) The application displays all the nearby carparks with updated status (represent by color) for the default range provided by the application  6) The user selects other ranges (via the filter button) to view the carparks within a smaller or larger range  7) Use case ends |
| Alternative Flows: | No location permission given from user  1) return to gain the location permission from system |
| Exceptions: | - |
| Includes: | Filter Carpark by Type, Gov API caller |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP007 | | |
| Use Case Name: | Search for the Carpark | | |
| Created By: | XiaoYan | Last Updated By: | XiaoYan |
| Date Created: | 28-01-21 | Date Last Updated: | 28-01-21 |

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| Actor: | User |
| Description: | The use case allows the user to search for a carpark near the selected location |
| Preconditions: | User has successfully logged in to the application |
| Postconditions: | Display the search result carpark |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | Search carpark by full address or postcode  1) The user selects the search bar  2) The user inputs the full address or post code  3) The user press search  4) The application tries to access the local database  5) The application tries to display the closest search results in drop box by user’s input  6) The user selects the result in the drop box  7) The application displays the searched carpark and other carparks nearby with status (represent by color and number)  8) Use case ends |
| Alternative Flows: | No carpark information can be found in database  1) The application displays “No carpark nearby”  2) The user inputs the details again |
| Exceptions: | - |
| Includes: | Gov API caller |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP008 | | |
| Use Case Name: | Filter Carpark by Type | | |
| Created By: | XiaoYan | Last Updated By: | HaoLin |
| Date Created: | 28-01-21 | Date Last Updated: | 14-02-21 |

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| Actor: | User |
| Description: | The use case allows the user to filter the carpark near the current or selected location |
| Preconditions: | User has successfully found the nearby carpark or already seen the searched result of carparks |
| Postconditions: | Display the same type of carpark |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | Display the same type of carpark  1) The user selects the specific type of carpark  2) The application compares the information in local database  3) The application displays the type of carpark under the same category  4) User Case ends |
| Alternative Flows: | Type of carpark not found  1) The application displays not found  2) The message box displays the message  3) The application displays all the carparks icons same as before doing the type filter |
| Exceptions: | - |
| Includes: | Gov API caller, Search for the Carpark, Display all the carparks nearby |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP009 | | |
| Use Case Name: | View Carpark Information | | |
| Created By: | XiaoYan | Last Updated By: | XiaoYan |
| Date Created: | 28-01-21 | Date Last Updated: | 28-01-21 |

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| Actor: | User |
| Description: | The use case allows the user to view the information about the selected carpark |
| Preconditions: | User has successfully found the nearby carpark |
| Postconditions: | The application displays the information for selected carpark |
| Priority: | Medium |
| Frequency of Use: | Medium |
| Flow of Events: | 1) The user clicks on a specific carpark  2) The application displays a specific carpark page with the following information:  · Full address  · Number of available parking slots  · Total capacity  · Carpark type  · Operating Hours  · Parking Fee for different time slots  · Review  3) Use case ends |
| Alternative Flows: | - |
| Exceptions: | - |
| Includes: | Search for the Carpark, Display all the carparks nearby, Gov API caller |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP0010 | | |
| Use Case Name: | Rate Carpark | | |
| Created By: | XiaoYan | Last Updated By: | HaoLin |
| Date Created: | 29-01-21 | Date Last Updated: | 14-02-21 |

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| Actor: | User |
| Description: | The use case allows user to rate specific carpark |
| Preconditions: | 1) The user has logged in  2) The user selects a specific carpark  3) The application displays the detailed information for the selected carpark |
| Postconditions: | Rate the carpark in terms of the given conditions from 1 to 5 stars |
| Priority: | Low |
| Frequency of Use: | Low |
| Flow of Events: | 1) The user selects the amount of star rating to give in terms of cost, convenience and security  2) The application reads the previous rating from database  3) The application calculates the new rating  4) The application updates the new rating to database  5) The application displays the new rating  6) Use case ends |
| Alternative Flows: | If user is not login  1) Application will provide an informative message to the user asking them to login  2) User login  3) The application returns to step 1) |
| Exceptions: | - |
| Includes: | Login with Email/Login with Facebook Account/Login with Google Account |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP0011 | | |
| Use Case Name: | Google Map to Navigate the Direction | | |
| Created By: | XiaoYan | Last Updated By: | XiaoYan |
| Date Created: | 28-01-21 | Date Last Updated: | 28-01-21 |

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| Actor: | User, Google |
| Description: | The use case allows user get the direction from google map |
| Preconditions: | The user selected on a specific carpark |
| Postconditions: | The user get direction from google map |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1) The user selects “get direction”  2) The application copies the address to google map  3) The application calls google map API  4) The application directs to google map application  5) Use case ends |
| Alternative Flows: | - |
| Exceptions: | - |
| Includes: | View Carpark Information |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

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| Use Case ID: | EZP012 | | |
| Use Case Name: | Gov API caller | | |
| Created By: | XiaoYan | Last Updated By: | HaoLin |
| Date Created: | 28-01-21 | Date Last Updated: | 14-02-21 |

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| Actor: | User, Government |
| Description: | The use case allows the user to get the updated carpark information every 30s |
| Preconditions: | The user has selected a specific range for the nearby carpark display |
| Postconditions: | The application updates local database with latest carpark information |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1) The user is at the page where shows the nearby carpark  2) The application calls the gov carpark API every 30s  3) The application gets the response  4) The application updates local database  5) The application displays the latest carpark information  6) Use case ends |
| Alternative Flows: | Successfully get the response with multiple calling  1) The application fails the get the correct response at first time calling the API  2) The application will try another 2 times to call the API  3) The application gets the response  4) The application updates local database  Fail to get the response   1. The application displays the previous information |
| Exceptions: | EX1 - no network access, access failure |
| Includes: | - |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |