# **Use Case Description**

| **Use Case ID:** | **01** | | |
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| **Use Case Name:** | **Get source and destination location** | | |
| **Created By:** | **Cao XingPing** | **Last Updated By:** | **Chen Yanjin** |
| **Date Created:** | **04/02/2024** | **Date Last Updated:** | **13/02/2024** |

| **Actor:** | **User** |
| --- | --- |
| **Description:** | Initiating User inputs the destination and starting location with GPS permission enabled in the web-based application. |
| **Preconditions:** | 1. The user opens the web-based application.  2. The application requests and is granted GPS permission by the user.  3. The user device has GPS capability |
| **Postconditions:** | The application successfully read the valid destination and starting location user input. |
| **Priority:** | High |
| **Flow of Events:** | 1. The user opens the web-based application.  2. The application prompts the user to grant GPS permission.  3. The user grants GPS permission within the application.  4. The application captures the current GPS location of the user's device.  6. The user inputs the destination address.  7. The application displays the captured start and destination address and allows the user to confirm it.  8. The user confirms the locations displayed by the application.  9. The application validates the entered destination and starting locations to ensure they are valid in Singapore. |
| **Alternative Flows:** | AF-1: The user prefers manually entering the starting location.  1. The user selects the option to input the starting location manually.  2. The application presents a text input field for the user to enter the starting location.  3. The user enters the starting location manually.  4. Return to step 6.  AF-2: User Provides an Invalid Address  1. The user provides an invalid address destination or starting location.  2. The application detects the invalid address.  3. The application prompts the user with an error message indicating that the provided address is invalid.  4. The user is instructed to input a valid address.  5. Return to step 6 or AF-1 |
| **Exceptions:** | NIL |
| **Includes:** |  |
| **Special Requirements:** | - |
| **Assumptions:** | - |
| **Notes and Issues:** | - |

| **Use Case ID:** | **02** | | |
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| **Use Case Name:** | **Recommend driving by Car** | | |
| **Created By:** | **Cao XingPing** | **Last Updated By:** | **Chen Yanjin** |
| **Date Created:** | **04/02/2024** | **Date Last Updated:** | **14/02/2024** |

| **Actor:** | **User** |
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| **Description:** | The application recommends a car to the user based on car park availability at the destination. If there are more than 10 parking lots available within 1km of the destination, the recommended mode of transport is driving a car. Users will be able to see the suggested route and traffic conditions. |
| **Preconditions:** | 1. The user has provided the valid start and destination location.  2. There are more than 10 parking lots available within 1km of the destination. |
| **Postconditions:** | Application recommends driving by car and displays carpark, route and traffic details. |
| **Priority:** | Medium |
| **Frequency of Use:** | **High** |
| **Flow of Events:** | 1. The user inputs valid start and destination.  2. The application retrieves real-time car park availability data for the destination.  3. The application evaluates the availability of parking lots at the destination based on the following criteria:   1. Parking lots availability greater than 10   4. Application recommends driving by car as mode of transport  5.The application displays the list of available carparks and price information.  6. User choose a carpark is the list  7. Using the selected carpark location as the new destination, the application shows the route and estimated travelling time.  8. User choose ‘show traffic’  9. The application displays the traffic condition |
| **Alternative Flows:** | AF-1: Expand search Radius  1. If all car parks within a set radius (default or user set) from the destination are full, prompt the user to use a different mode of transportation |
| **Exceptions:** | - |
| **Includes:** | Get source and destination location |
| **Special Requirements:** | The system recommends a car to the user based on car park availability |
| **Assumptions:** |  |

| **Use Case ID:** | **03** | | |
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| **Use Case Name:** | **Recommend Taxi** | | |
| **Created By:** | **Cao XingPing** | **Last Updated By:** | **Chen Yanjin** |
| **Date Created:** | **04/02/2024** | **Date Last Updated:** | **14/02/2024** |

| **Actor:** | **User** |
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| **Description:** | The application recommends taxi transportation to the user based on real-time taxi availability in the vicinity. If taxis are readily available nearby, the application suggests utilizing a taxi. Additionally, the application provides estimated taxi pricing and travel time to facilitate an informed decision-making process for the user. |
| **Preconditions:** | 1. The user has provided the valid start and destination location.  2. There are less than 10 parking lots available within 1km of the destination.  3. There are at least 2 available taxis within 5km of the user’s source location. |
| **Postconditions:** | Application recommends taking a taxi and displays estimated cost and travel time. |
| **Priority:** | medium |
| **Frequency of Use:** | **High** |
| **Flow of Events:** | 1. The user inputs valid start and destination.  2. The application retrieves real-time taxi availability data around the user's source location.  3. The application checks the availability of taxis based on the following criteria:   1. Taxi availability within 5 km greater than a 2.   4. The application displays estimated taxi pricing and estimated travel time. |
| **Alternative Flows:** |  |
| **Exceptions:** | - |
| **Includes:** | Get source and destination location |
| **Assumptions:** | - |

| **Use Case ID:** | **04** | | |
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| **Use Case Name:** | **Recommend Public Transport** | | |
| **Created By:** | **Ng Gim Long** | **Last Updated By:** | **Chen Yanjin** |
| **Date Created:** | **04/02/2024** | **Date Last Updated:** | **14/02/2024** |

| **Actor:** | **User** |
| --- | --- |
| **Description:** | The application recommends public transportation to the user based on the fastest route available. Additionally, the application provides estimated pricing and travel time for the recommended path. |
| **Preconditions:** | 1. The user has provided the valid start and destination location.  2. There are less than 10 parking lots available within 1km of the destination.  3. There are less than 2 available taxis within 5km of the user’s source location. |
| **Postconditions:** | Application recommends taking public transport and displays the recommended route, fare and estimated travel time. |
| **Priority:** | High |
| **Frequency of Use:** | **-** |
| **Flow of Events:** | 1. The user inputs valid start and destination.  2. The application utilizes Google API to recommend the fastest route using public transportation.  3. The application estimates the price and travel time for the recommended path.  4. The application presents the recommended path, along with the estimated price and travel time, to the user. |
| **Alternative Flows:** |  |
| **Exceptions:** | - |
| **Includes:** | Get source and destination location |
| **Assumptions:** | - |