# Use Cases

## for

# MyTripDiary

**Version Alpha approved**

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# Revision History

| Name | Date | Reason For Changes | Version |
|------|------|--------------------|---------|
|      |      |                    |         |
|      |      |                    |         |

# Use Cases

| Use Case ID: | AT01 | | |
|---|---|---|---|
| Use Case Name: | Add Trip | | |
| Created By: | Tan Ming Rui, Ezra | Last Updated By: | Tan Ming Rui, Ezra |
| Date Created: | 31/01/23 | Date Last Updated: | 31/01/23 |

| | |
|---|---|
| Actor: | User |
| Description: | Adds a trip, which is defined by the trip's start point and end point. Each trip also has a name. |
| Preconditions: | 1. The user must be logged in. |
| Postconditions: | 1. The user is able to Execute trip |
| Priority: | High |
| Frequency of Use: | Low |
| Flow of Events: | 1. User fills in the name, start point, and end point of the trip they wish to create.<br>2. User clicks "Save". |
| Alternative Flows: | |
| Exceptions: | EX-S2: User clicks "Cancel"<br>   1. System returns to homepage |
| Includes: | GP01 |
| Special Requirements: | |
| Assumptions: | 1. The connection of the app and the Database is established |
| Notes and Issues: | |

| Use Case ID: | RR01 |
|---|---|
| Use Case Name: | Register |
| Created By: | Tan Ming Rui, Ezra | Last Updated By: | Tan Ming Rui, Ezra |
| Date Created: | 31/01/23 | Date Last Updated: | 31/01/23 |

| Actor: | User |
|---|---|
| Description: | The user registers an account with their email address and password. |
| Preconditions: | 1. The User's device must be connected to WiFi/Cellular Data.<br>2. The email address given is not registered in the System. |
| Postconditions: | 1. The registered user account is stored in the database.<br>2. The User can login to the System using the registered account. |
| Priority: | High |
| Frequency of Use: | Once per User |
| Flow of Events: | 1. The System requests the User to input the following information fields:<br>    • Email address<br>    • Password<br>    • Confirm Password<br>2. The System validates the required fields.<br>3. User clicks on the Register button<br>4. The System sends an email with a confirmation link to the registered email address.<br>5. If the User clicks on the confirmation link, the user account is successfully created.<br>6. Return to User Login menu after confirmation of account creation. |
| Alternative Flows: | AF-S4: Text fields are not filled in appropriately<br>    1. The System will prompt the User to fill in the required fields.<br>    2. The System returns to Step 1.<br>AF-S2: Email already exists in the database<br>    1. The System will prompt an error message "Email address is already in use"<br>AF-S2: Username already exists in the database<br>    1. The System will prompt an error message "Username is already in use" |
| Exceptions: | |
| Includes: | |

| Special Requirements: | |
|---|---|
| Assumptions: | |
| Notes and Issues: | |

| Use Case ID: | LL01 | | |
|---|---|---|---|
| Use Case Name: | Login | | |
| Created By: | Tan Ming Rui, Ezra | Last Updated By: | Tan Ming Rui, Ezra |
| Date Created: | 31/01/23 | Date Last Updated: | 31/01/23 |

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|---|---|
| Actor: | User |
| Description: | Login to System through verification of User's account email and password. |
| Preconditions: | 1. The User's device must be connected to WiFi/Cellular Data. 2. The System currently does not have a User logged in.<br>3. User has an existing and verified account associated with the email stored in the database.<br>4. The System must be able to communicate with the Database.<br>5. The hosted Database must be online. |
| Postconditions: | - |
| Priority: | High |
| Frequency of Use: | Low |
| Flow of Events: | 1. The User inputs the email address and password<br>2. The User clicks the "Login" button.<br>3. The System verifies the login credentials.<br>4. If the login credentials are verified, the User successfully logs in.<br>5. The User can proceed to use the System. |
| Alternative Flows: | AF-S4: If the login credentials are invalid<br>    1.   The System informs the User the login has failed.<br>    2.   The System returns to Step 1. |
| Exceptions: | |
| Includes: | |
| Special Requirements: | |
| Assumptions: | |
| Notes and Issues: | |

| Use Case ID: | DT01 | | |
|---|---|---|---|
| Use Case Name: | Delete Trip | | |
| Created By: | Nepal Aaradh | Last Updated By: | Nepal Aaradh |
| Date Created: | 01/02/2023 | Date Last Updated: | 01/02/2023 |

| | |
|---|---|
| Actor: | User |
| Description: | Delete a trip that has been saved |
| Preconditions: | 1. The user must be logged in<br>2. The trip being requested to be deleted must exit |
| Postconditions: | The trip is no longer existent |
| Priority: | |
| Frequency of Use: | |
| Flow of Events: | 1. The user selects a trip to delete from a list of previously saved trips<br>2. The user confirms that the deletion should take place |
| Alternative Flows: | 1. The user does not confirm the deletion and instead decides to cancel the delete request |
| Exceptions: | |
| Includes: | |
| Special Requirements: | |
| Assumptions: | 1. The connection of the app and the Database is established |
| Notes and Issues: | |

| Use Case ID: | ET01 | | |
|---|---|---|---|
| Use Case Name: | Edit Trip | | |
| Created By: | Nepal Aaradh | Last Updated By: | Nepal Aaradh |
| Date Created: | 01/02/2023 | Date Last Updated: | 01/02/2023 |

| Actor: | User |
|---|---|
| Description: | Edit the name of a previously saved trip |
| Preconditions: | 1. The user must be logged in<br>2. The trip being requested to be edited must exit |
| Postconditions: | The trip name has been updated |
| Priority: | |
| Frequency of Use: | |
| Flow of Events: | 1. The user selects a trip to edit from a list of previously saved trips<br>2. The user enters the new name for the trip with which to replace the current trip name<br>3. The user confirms the change |
| Alternative Flows: | |
| Exceptions: | EX1: If user cancels while editing<br>1. System returns to "Manage trips" screen |
| Includes: | |
| Special Requirements: | |
| Assumptions: | 1. The connection of the app and the Database is established |
| Notes and Issues: | |

| Use Case ID: | ST01 | | |
|---|---|---|---|
| Use Case Name: | Star Trip | | |
| Created By: | Nepal Aaradh | Last Updated By: | Nepal Aaradh |
| Date Created: | 01/02/2023 | Date Last Updated: | 01/02/2023 |

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|---|---|
| Actor: | User |
| Description: | 'Star' a trip (indicate a trip as a frequently used trip) |
| Preconditions: | 1. The user must be logged in<br>2. The trip being requested to be starred must exit |
| Postconditions: | The trip is pinned to top of the list of previously saved trips making it easily accessible to the user |
| Priority: | |
| Frequency of Use: | |
| Flow of Events: | 1. The user selects a trip to star from a list of previously saved trips |
| Alternative Flows: | |
| Exceptions: | |
| Includes: | |
| Special Requirements: | |
| Assumptions: | 1. The connection of the app and the Database is established |
| Notes and Issues: | |

| Use Case ID: | ET02 | | |
|---|---|---|---|
| Use Case Name: | Execute Trip | | |
| Created By: | Goel Armaan | Last Updated By: | Goel Armaan |
| Date Created: | 31/01/23 | Date Last Updated: | 31/01/23 |

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|---|---|
| Actor: | User |
| Description: | Records an instance of a saved trip with the user's selected mode of transport. |
| Preconditions: | 1. User is logged in<br>2. User has the trip saved |
| Postconditions: | 1. An instance of the saved trip is added to the user's trip history |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1. User clicks a saved trip<br>2. User chooses their preferred mode of transport<br>3. User reviews the estimated price<br>4. User clicks the execute trip button<br>5. An instance of the saved trip is recorded in the system |
| Alternative Flows: | |
| Exceptions: | EX1: User cancels execution<br>1. User can choose not to execute a trip, at which point the use case exits at either step 2 or step 3<br><br>EX2: Trip cannot be executed<br>1. If a chosen mode of transport is unavailable, the user cannot move on to review estimated prices.<br>2. The user is informed of this limitation and is asked to choose another mode of transportation. |
| Includes: | GR01, GP01 |
| Special Requirements: | |
| Assumptions: | The user executes a trip right before they embark on it |
| Notes and Issues: | |

| Use Case ID: | GR01 | | |
|---|---|---|---|
| Use Case Name: | Get Route | | |
| Created By: | Goel Armaan | Last Updated By: | Goel Armaan |
| Date Created: | 31/01/23 | Date Last Updated: | 31/01/23 |

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|---|---|
| Actor: | Google Maps API |
| Description: | Retrieves the route between a trip's starting point and destination point for the chosen mode of transport |
| Preconditions: | 1. User is logged in<br>2A. User is adding a new trip<br>or<br>2B. User is executing a saved trip<br>3. User device has a working WiFi or Cellular connection |
| Postconditions: | 1. The correct route from the trip's starting point to the trip's destination point with the chosen mode of transport is displayed |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1. User has entered the starting and destination point for a new trip<br>2. The API is queried and the route for a private car is displayed by default. |
| Alternative Flows: | AF-S1: User is executing a saved trip<br>1. If the user is executing a saved trip, they do not have to enter the starting and destination point as required in step 1.<br><br>AF-S2: User chooses another mode of transport<br>1. If the user chooses another mode of transport, the API is queried again and a route with the new mode of transport is displayed. |
| Exceptions: | EX1: No route can be found<br>1. If there is no route between the start and destination point for the selected mode of transport, a route cannot be displayed.<br>2. The user is informed of this limitation and is asked to try another mode of transportation<br><br>EX2: API is unavailable<br>1. If the Google Maps API is unavailable or cannot be queried, a route cannot be displayed.<br>2. The user is informed of this limitation and is asked to try again later. |
| Includes: | |

| Special Requirements: | |
|---|---|
| Assumptions: | |
| Notes and Issues: | |

| Use Case ID: | GP01 | | |
|---|---|---|---|
| Use Case Name: | Get Price | | |
| Created By: | Goel Armaan | Last Updated By: | Goel Armaan |
| Date Created: | 31/01/23 | Date Last Updated: | 31/01/23 |

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|---|---|
| Actor: | Car Park API, Public Transport API, Taxi API |
| Description: | Calculates an estimated price of a route with the chosen mode of transportation |
| Preconditions: | 1. User is logged in<br>2A. User is adding a new trip<br>or<br>2B. User is executing a saved trip<br>3. The trip's route is valid<br>4. User device has a working WiFi or Cellular connection |
| Postconditions: | 1. A well-estimated price of a route with the chosen mode of transportation is displayed |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1. User selects a valid mode of transportation for a trip<br>2. The respective API is queried<br>3. The price for the trip's route with the chosen mode of transportation is displayed |
| Alternative Flows: | AF-S2:<br>1. If the mode of transportation is biking or walking, no API is queried. The price is 'free'. |
| Exceptions: | EX1: API is unavailable<br>1. If the API used in calculating the price for a chosen mode of transportation is unavailable, then the estimated price cannot be calculated<br>2. Instead, a message is shown to the user stating the estimated pricing for the chosen mode of transportation is currently unavailable |
| Includes: | GR01 |
| Special Requirements: | |
| Assumptions: | |
| Notes and Issues: | |

| Use Case ID: | VS01 | | |
|---|---|---|---|
| Use Case Name: | View Stats | | |
| Created By: | Xu Yinfeng | Last Updated By: | Xu Yinfeng |
| Date Created: | 01-02-2023 | Date Last Updated: | 01-02-2023 |

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|---|---|
| Actor: | User, Database |
| Description: | System get analytics data from database and display on the analytics dashboard |
| Preconditions: | 1. User is connected to WiFi/Cellular Data<br>2. User has logged into their user account<br>3. User has completed at least 1 trip |
| Postconditions: | - |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1. User completes a trip, trip recorded in trip history<br>2. System functions calculate/store trip information statistics<br>3. System get trip statistics and display in the analytics dashboard |
| Alternative Flows: | AF1:<br>1. If user has not completed any trips, display "No Stats Available" |
| Exceptions: | - |
| Includes: | - |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

| Use Case ID: | VH01 | | |
|---|---|---|---|
| Use Case Name: | View Trip History | | |
| Created By: | Xu Yinfeng | Last Updated By: | Xu Yinfeng |
| Date Created: | 01-02-2023 | Date Last Updated: | 01-02-2023 |

| | |
|---|---|
| Actor: | Database, User |
| Description: | Get user trip history, display user trip history |
| Preconditions: | 1. User is connected to WiFi/Cellular Data<br>2. User has logged into their user account |
| Postconditions: | - |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1. User login to their user account<br>2. User clicked on "Trip History" side bar<br>3. System retrieve user trip history from database<br>4. System display trip history by user choosen order |
| Alternative Flows: | AF1:<br>    1. If user has not completed any trips, display "No trip history" |
| Exceptions: | - |
| Includes: | EP01 |
| Special Requirements: | - |
| Assumptions: | User has logged into their account |
| Notes and Issues: | - |

| Use Case ID: | EP01 | | |
|---|---|---|---|
| Use Case Name: | Edit Past Trip Price | | |
| Created By: | Xu Yinfeng | Last Updated By: | Xu Yinfeng |
| Date Created: | 01-02-2023 | Date Last Updated: | 01-02-2023 |

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|---|---|
| Actor: | User, Database |
| Description: | User enter/edit trip price information upon completion of a trip |
| Preconditions: | 1. User is connected to WiFi/Cellular Data<br>2. User has logged into their user account<br>3. User has completed at least 1 trip |
| Postconditions: | - |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1. User completes a trip, trip recorded in trip history<br>2. User goes into trip history and click "edit" button<br>3. User changes the value of "trip price" for trip<br>4. User click "confirm edit"<br>5. System send post request to update database trip price |
| Alternative Flows: | AF1:<br>    1. If user has not completed any trips, display "No trip available" |
| Exceptions: | - |
| Includes: | - |
| Special Requirements: | - |
| Assumptions: | - |
| Notes and Issues: | - |

| Use Case ID: | VT01 | | |
|---|---|---|---|
| Use Case Name: | View Saved Trips | | |
| Created By: | Nepal Aaradh | Last Updated By: | Nepal Aaradh |
| Date Created: | 02/02/2023 | Date Last Updated: | 02/02/2023 |

| Actor: | User |
|---|---|
| Description: | Displays the previously saved trips to the user |
| Preconditions: | 1. The user must be logged in<br>2. The user must have saved from trips previously |
| Postconditions: | 1. The user can view the previously saved trips |
| Priority: | |
| Frequency of Use: | |
| Flow of Events: | |
| Alternative Flows: | |
| Exceptions: | |
| Includes: | DT01, ST01, ET01 |
| Special Requirements: | |
| Assumptions: | 1. The connection of the app and the Database is established |
| Notes and Issues: | |

| Use Case ID: | GA01 | | |
|---|---|---|---|
| Use Case Name: | Get Carpark Availability | | |
| Created By: | Xu Yinfeng | Last Updated By: | Xu Yinfeng |
| Date Created: | 28/01/2023 | Date Last Updated: | 28/01/2023 |

| | |
|---|---|
| Actor: | Carpark API, System, User |
| Description: | System gets carpark availability information based on user destination |
| Preconditions: | 1.   Users need to be connected to WiFi/Cellular data<br>2.   Users need to enter a valid destination<br>3.   Users need to tick "yes" for travelling by car |
| Postconditions: | - |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1.   Users select destination and preference ranking<br>2.   Users tick "yes" for travelling by car<br>3.   Upon route search, System should send get request to Carpark API to get carpark availability information |
| Alternative Flows: | - |
| Exceptions: | EX1: Invalid destination<br>1.   Display error message and prompt user to reenter destination<br>EX2: Carpark API Query failure<br>1.   System prompts error message<br>2.   "Retry" button enabled for retrying API query |
| Includes: | - |
| Special Requirements: | - |
| Assumptions: | 1.   Carpark API is online and querable |
| Notes and Issues: | - |

| Use Case ID: | GP01 | | |
|---|---|---|---|
| Use Case Name: | Get Parking Price | | |
| Created By: | Xu Yinfeng | Last Updated By: | Xu Yinfeng |
| Date Created: | 28/01/2023 | Date Last Updated: | 28/01/2023 |

| | |
|---|---|
| Actor: | Carpark API, System, User |
| Description: | Get parking rate information of carparks and calculate parking fees based on parking duration and time of the day |
| Preconditions: | 1.   Users need to be connected to WiFi/Cellular data<br>2.   Users need to enter a valid destination<br>3.   Users need to tick "yes" for travelling by car |
| Postconditions: | - |
| Priority: | High |
| Frequency of Use: | High |
| Flow of Events: | 1.   Users select destination and preference ranking<br>2.   Users tick "yes" for travelling by car<br>3.   Users enter duration of stay and time of arrival<br>4.   System gets carpark rate from Carpark API<br>5.   System calculates total parking fee based on carpark rate, time of day and length of stay |
| Alternative Flows: | - |
| Exceptions: | EX1: Invalid destination<br>1.   Display error message and prompt user to reenter destination<br>EX2: Carpark API Query failure<br>1.   System prompts error message<br>2.   "Retry" button enabled for retrying API query |
| Includes: | - |
| Special Requirements: | - |
| Assumptions: | 1. Carpark API is online and querable |
| Notes and Issues: | - |