

Use Case ID:	1		
Use Case Name:	Update transport data (mrt delay)		
Created By:	Jiahua	Last Updated By:	Jiahua
Date Created:	31 Aug 2023	Date Last Updated:	31 Aug 2023

Actor:	LTA Dataset
Description:	The LTA Dataset, acting as an external actor, provides real-time public transport data to the application.
Preconditions:	<ol style="list-style-type: none"> 1. The LTA Dataset API is available and accessible. 2. The application has a designated module to fetch and process real-time transport data. 3. The application's database is capable of storing and managing the incoming real-time data.
Postconditions:	<ol style="list-style-type: none"> 1. The mrt information data is updated with the latest information fetched from the LTA Dataset API. 2. Users of the application can access up-to-date and accurate mrt time information.
Priority:	
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. The LTA Dataset API provides the application with real-time transport data for mrt information. 2. The application's transport data module receives the incoming data from the API. 3. The application processes the received data and updates its internal database with the new information. 4. The updated transport data <u>is now available for users</u> to access through various features of the application, such as route planning, estimated travel times, and alternative route suggestions during delays.
Alternative Flows:	AF-S1: Data Unavailability <ol style="list-style-type: none"> 1. If the LTA Dataset API experiences downtime or is unable to provide real-time data, the application continues to use the last successfully

	retrieved data until the API becomes accessible again. Users may experience outdated information during this period.
Exceptions:	2
Includes:	
Special Requirements:	<ol style="list-style-type: none"> 1. The application must have a <u>secure and reliable</u> method of fetching data from the LTA Dataset API. 2. Data parsing and storage mechanisms must be robust to ensure the accuracy and integrity of the received data.
Assumptions	<ol style="list-style-type: none"> 1. The LTA Dataset API consistently provides accurate and reliable real time transport data. 2. The application's database structure is designed to accommodate various types of transport-related information provided by the LTA Dataset API.
Notes and Issues	- The accuracy and timeliness of the transport data heavily influence the effectiveness of the application's features that rely on this information, such as dynamic re-routing during delays or breakdowns.


Use Case ID:	2		
Use Case Name:	Travel Time Estimation (Real Time Monitoring)		
Created By:	Russell	Last Updated By:	Russell
Date Created:	30 Aug 2023	Date Last Updated:	30 Aug 2023

Actor:	User (The person (commuter) who plans to travel using public transport)
Description:	User estimates the travel time by inputting his starting point, start time, mode of transport and destination.
Preconditions:	<ol style="list-style-type: none"> 1. The system has up-to-date public transport schedules and routes. 2. The user <u>has access to the software</u> (either via a mobile app, web browser, etc) <u>through Wifi / Cellular Data.</u>

	3. The system has access to real-time data (for more accurate estimates in case of disruptions)
Postconditions:	The user receives an accurate estimated travel time (less than 10 minutes discrepancy from actual travel time) for their journey using available public transport options.
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> 1. User launches travel planner software. 2. User inputs starting location and desired destination. 3. User chooses specific criteria (e.g., preferred mode of transport, travel time, fewest transfers, sheltered transfers) 4. The system processes the query, consulting its database of public transport schedules, routes and real-time data. 5. The system presents at least one travel option with an estimated travel time. 6. The user views the estimated travel time and can explore further details of the suggested route(s), such as ... whether route is sheltered, directions to bus-stop / train from current location, etc.
Alternative Flows:	<ol style="list-style-type: none"> 1. If the system cannot find a direct route or a route preferred by the user, it suggests alternative routes of different mode of transport. 2. If there is real-time disruption or delay in the public transport system: <ol style="list-style-type: none"> 2.1 The System alerts the user about the delay. 2.2 It recalibrates travel times based on this real-time data and provides updated estimates. 2.3 It suggests alternate routes in case of significant delays are expected. 3. If the user provides an unclear or ambiguous location, the system prompts the user to reselect from a list of potential matching locations, or asks the user to refine his search.
Exceptions:	<ol style="list-style-type: none"> 1. In case of a technical issue where the system cannot access real-time data, it informs the user that real-time data is unavailable and provides estimates based solely on scheduled data.

	2. The system cannot find viable routes between the selected locations – it alerts the user that no routes are available and suggests checking the locations or trying again later.
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	3		
Use Case Name:	Cost Estimation		
Created By:	Jiahua	Last Updated By:	Jiahua
Date Created:	30 Aug 2023	Date Last Updated:	31 Aug 2023

Actor:	User
Description:	User estimates the cost by inputting the starting point and destination. The system then provides a list of cost estimates for different transportation options.
Preconditions:	 <ol style="list-style-type: none"> 4. The system has up-to-date public transport schedules and routes. 5. The user has access to the software (either via a mobile app, web browser, etc.) through Wi-Fi / Cellular Data. 6. The system has access to real-time data (for more accurate estimates in case of disruptions). 7. The user is authenticated and logged into the application, ensuring that only authorized users can access the cost estimation feature. 8. The map page is successfully loaded with all necessary components, including the interface for inputting the starting point and destination. 9. The application's real-time data connection is active and functional, allowing for accurate retrieval of transportation information. 10. The user's device maintains a stable internet connection, ensuring the ability to access the real-time dataset and perform required

	<p>computations.</p> <p>11. Users have actively selected the mode of transportation for which they want to estimate the cost (e.g., public transportation, taxi).</p>
Postconditions:	<p>3. The estimated cost for the route with the highest priority (lowest cost) is prominently displayed to the user.</p> <p>4. A list of alternative transportation options is presented, allowing users to compare costs and make informed decisions.</p> <p>5. Users can explore the details of each transportation option, such as the estimated time of arrival.</p> <p>6. The system provides an option to save the estimated cost and route details for future reference.</p> <p>7. Users have the choice to initiate navigation based on their selected route.</p>
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	<p>5. User opens the map page within the application.</p> <p>6. User clicks on the "Cost Estimation" option or bar.</p> <p>7. The system provides input fields for the user to input the starting point and destination.</p> <p>8. User inputs the locations of the starting point and destination.</p> <p>9. The system initiates the computation of estimated costs using different algorithms.</p> <p>10. The system sorts the calculated costs of various transportation routes in ascending order.</p> <p>11. The sorted list of cost estimates is displayed to the user, showing the route with the lowest cost at the top.</p>
Alternative Flows:	<p>AF-S4: User input an invalid location</p> <p>4. User inputs a location that cannot be recognized or is not within the service coverage area.</p> <p>5. The system prompts the user with an error message indicating that the location is invalid.</p> <p>6. User is given the option to re-enter the location or correct any errors in the input.</p> <p>7. If the user fails to provide a valid location after a</p>

	<p>certain number of attempts, the system suggests using a nearby landmark or known location.</p> <p>AF-S5: No routes found</p> <ol style="list-style-type: none"> After computation, the system determines that there are no available routes between the specified starting point and destination. The system notifies the user that no suitable transportation options are available for the given route. Users are prompted to adjust their starting point or destination, consider different transportation modes, or seek alternative routes.
Exceptions:	<p>- Connection Failure:</p> <ol style="list-style-type: none"> If the real-time dataset connection is lost during the estimation process, the system informs the user about the data unavailability and suggests trying again when the connection is restored. <p>- Calculation Error:</p> <ol style="list-style-type: none"> In the event of an internal calculation error or system malfunction, the system displays an error message and advises the user to attempt the estimation again later.
Includes:	
Special Requirements:	<ol style="list-style-type: none"> The application should incorporate a user-friendly interface that guides users through the process of inputting locations and interpreting the presented cost estimates. Regular updates to the transportation data and cost algorithms are necessary to ensure accuracy.
Assumptions	
Notes and Issues	-

Use Case ID:	4		
Use Case Name:	Reminder for bad weather condition (notification)		
Created By:	JUN HAO	Last Updated By:	JUN HAO
Date Created:	31 AUG 2023	Date Last Updated:	31 AUG 2023

Actor:	User
Description:	Notification that reminds of bad weather
Preconditions:	<ol style="list-style-type: none"> 1. The application has access to weather forecast 2. The application has access to notification 3. The application has access to location
Postconditions:	The user receive notification that notifies of bad weather and remind the user to bring appropriate tools
Priority:	Low
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> 1. User opens the application. 2. User inputs starting location and desired destination. 3. System checks the weather of desired destination using weather forecast API. 4. System notifies the user if the weather is bad.
Alternative Flows:	AF-S1: An event is added <ol style="list-style-type: none"> 1. User added an event in the calendar. 2. 30 minutes before the event starts, the system checks the weather of desired destination using weather forecast API. 3. System notifies the user if the weather is bad.
Exceptions:	No access to weather forecast
Includes:	
Special Requirements:	
Assumptions:	Weather forecast is accurate
Notes and Issues:	

Use Case ID:	5		
Use Case Name:	Event Manager		
Created By:	YAU JUN HAO	Last Updated By:	YAU JUN HAO
Date Created:	31 AUG 2023	Date Last Updated:	31 AUG 2023

Actor:	User
Description:	Add events to calendar and receive reminder before event starts.
Preconditions:	<ol style="list-style-type: none"> 1. Application has access to calendars or links with third-party calendar applications.

	2. The application has access to notification.
Postconditions:	A reminder is received.
Priority:	Low
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. User open application. 2. User choose a desired date and time on the calendar. 3. User add an event to the desired date. 4. A reminder will be received on the day before the date of the event. 5. A reminder is received 30 minutes before the event. 6. User use route searching function to calculate route.
Alternative Flows:	
Exceptions:	
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	6		
Use Case Name:	Reachable destination under time constraints		
Created By:	JUN HAO	Last Updated By:	JUN HAO
Date Created:	31 AUG 2023	Date Last Updated:	31 AUG 2023

Actor:	User
Description:	An area is drawn on the map to show the reachable destination under a selected time.
Preconditions:	<ol style="list-style-type: none"> 1. Application has access to location. 2. The application has access to real-time data (for more accurate estimates in case of disruptions)
Postconditions:	Users can see a shaded area on the map to indicate reachable destination and pick available route to travel to desired destination.
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	1. User can choose the type of transportation.

	<p>2. User can choose a time constraint to see reachable destination.</p> <p>3. User can see a shaded area on the map to indicate reachable destination.</p> <p>4. User can pick available route to travel to desired destination.</p>
Alternative Flows:	<p>AF-S1: Multiple starting point</p> <p>1. User pick multiple starting point.</p> <p>2. Overlapping of reachable area is shown on map.</p> <p>3. User choose desired destination and available route is shown.</p> <p>4. User choose desired origin and travel to desired destination.</p>
Exceptions:	<p>1. No reachable destination under certain time constraint.</p> <p>2. No overlapping for multiple starting points.</p>
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:			
Use Case Name:			
Created By:		Last Updated By:	
Date Created:		Date Last Updated:	

Actor:	
Description:	
Preconditions:	
Postconditions:	
Priority:	
Frequency of Use:	

Flow of Events:	
Alternative Flows:	
Exceptions:	
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	