Use Case ID:	1		
Use Case Name:	Search Location		
Created By:	Haozheng	Last Updated By:	Haozheng
Date Created:	30/08/2023	Date Last Updated:	01/09/2023

Actor:	User, Geolocation API
Description:	To show carpark information near the user's searched location.
Preconditions:	1. Device must be connected to Wi-Fi/Mobile Data
Postconditions:	1. System will display nearby carpark to the user
Priority:	High
Frequency of Use:	0-20 times per day
Flow of Events:	1. User navigate to the Search page from the sidebar 2. User will enter the 6-digit postal code or street name of his desired location 3. System will search for carpark that is near the location 4. System will show the number of parking lots available in each carpark and information of the carpark
Alternative Flows:	-
Exceptions:	-
Includes:	Recommend nearby carpark
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	2		
Use Case Name:	Favourite Carpark		
Created By:	Haozheng	Last Updated By:	Haozheng
Date Created:	30/08/2023	Date Last Updated:	01/09/2023

Actor:	User
Description:	To bookmark user's favourite carpark
Preconditions:	1. Device must be connected to Wi-Fi/Mobile Data
Postconditions:	1. User will be able to save their favourite carpark 2. Carpark information will be added to 'View Favourite Carpark' list
Priority:	Medium
Frequency of Use:	1-10 times per lifetime
Flow of Events:	1. User navigate to their Search page from the sidebar 2. User will enter the 6-digit postal code or street name of his desired location 3. System will search for nearest carpark 4. System will show the carpark details page 5. User click on the hollow star icon 6. System will display a coloured star icon 7. System will store user's favourite carpark.
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	3		
Use Case Name:	View Favourite Carpark		
Created By:	Haozheng	Last Updated By:	Haozheng
Date Created:	30/08/2023	Date Last Updated:	01/09/2023

Actor:	User
Description:	To view user's favourited carpark
Preconditions:	1. Device must be connected to Wi-Fi/Mobile Data
Postconditions:	1. User will be able to see their favourite carpark
Priority:	Medium
Frequency of Use:	0-10 times per day
Flow of Events:	1. User navigate to the view favourite page from the sidebar 2. System will retrieve the list of user's favourite carpark 3. System will display all the user's favourite carpark to the favourite page
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	User can have no favourite carpark If user has no favourite carpark, system will display empty page

Use Case ID:	4		
Use Case Name:	Remove Favourite Carpark		
Created By:	Haozheng	Last Updated By:	Haozheng
Date Created:	30/08/2023	Date Last Updated:	01/09/2023

Actor:	User
Description:	To remove the user's favourite carpark
Preconditions:	1. Device must be connected to Wi-Fi/Mobile Data 2. User must have at least one favourite carpark.
Postconditions:	1. The favourite carpark selected by the user will be removed from the system
Priority:	Medium
Frequency of Use:	0-10 times per lifetime
Flow of Events:	1. User navigate to the view favourite page from the sidebar 2. System will retrieve the list of user's favourite carpark from the system 3. System will display all the favourite carpark to the favourite page 4. User select the carpark that he wish to remove from favourite list 5. System will display the carpark details 6. User click on the coloured star icon 7. System will display a hollow star icon 8. System will remove the carpark from the system
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	5		
Use Case Name:	Retrieve Carpark Locations		
Created By:	Wei Hong	Last Updated By:	Wei Hong
Date Created:	01/09/2023	Date Last Updated:	01/09/2023

Actor:	Geolocation API
Description:	To retrieve and display the locations of carparks in Singapore on a digital map.
Preconditions:	1. The list of carparks in Singapore must be obtained 2. The geolocation API must be reachable.
Postconditions:	1. The locations of the carparks in Singapore are displayed on the digital map
Priority:	High
Frequency of Use:	1 time per backend startup
Flow of Events:	1. The locations of the carparks are queried from the geolocation API using the coordinates. 2. The geolocation API maps the coordinates to points on a digital map. 3. The geolocation API pinpoints the carpark locations in Singapore on the digital map with a parking logo.
Alternative Flows:	-
Exceptions:	EX.5: If the geolocation API does not respond to the query 1. A “Geolocation API is unreachable” error is shown on the screen.
Includes:	Retrieve Carpark Information
Special Requirements:	-
Assumptions:	The Geolocation API is in an operational state.
Notes and Issues:	-

Use Case ID:	6		
Use Case Name:	Retrieve Carpark Information		
Created By:	Wei Hong	Last Updated By:	Wei Hong
Date Created:	01/09/2023	Date Last Updated:	01/09/2023

Actor:	System
Description:	To get the coordinates of all the carparks in Singapore, along with their ID for cross-referencing with its availability.
Preconditions:	1. The dataset containing Singapore's carpark coordinates and IDs must be available.
Postconditions:	1. The system obtains information on Singapore's carpark coordinates and IDs.
Priority:	High
Frequency of Use:	1 time per backend startup
Flow of Events:	1. The system retrieves the carpark dataset from data.gov.sg. 2. The system unpacks the dataset. 3. System retrieves list of carparks alongside with their IDs through its internal dataset.
Alternative Flows:	-
Exceptions:	EX.6: The data.gov.sg dataset cannot be retrieved. 1. A "The carpark dataset could not be retrieved." error is shown.
Includes:	-
Special Requirements:	-
Assumptions:	The dataset from data.gov.sg is available.
Notes and Issues:	-

Commented [1]: i think can remove 1. and 2.; the dataset should already be stored somewhere; static

Use Case ID:	7		
Use Case Name:	Unselect Carpark to Visit		
Created By:	Wei Hong	Last Updated By:	Wei Hong
Date Created:	01/09/2023	Date Last Updated:	01/09/2023

Actor:	User
Description:	To unselect a previously selected carpark
Preconditions:	1. The user must have previously selected a carpark to visit. 2. Device must be connected to Wi-Fi/Mobile Data
Postconditions:	1. The carpark previously selected by the user to park at will be unselected in the system.
Priority:	High
Frequency of Use:	0-10 times per day
Flow of Events:	1. The user searches for the carpack previously selected. 2. The system returns the result of the search. 3. The user enters the carpark details page. 4. The user selects the “Unselect” button on the carpark details page.
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	8		
Use Case Name:	Check radius of location		
Created By:	Wei Hong	Last Updated By:	Wei Hong
Date Created:	01/09/2023	Date Last Updated:	01/09/2023

Actor:	Geolocation API
Description:	To search for other locations within a radius of a specific point on the map. This is used for searching carparks from the user's selected location.
Preconditions:	1. A location must be selected by the user
Postconditions:	1. A list of carparks within 1 kilometre is given as a list to the user with the exact distance from the location.
Priority:	High
Frequency of Use:	0-20 times per day
Flow of Events:	1. The user chooses a location. 2. The chosen location is given to the geolocation API. 3. The geolocation API to search within a 1 kilometre radius of the chosen location. 4. If at least one carpark is found, the list of carparks nearby is shown to the user.
Alternative Flows:	AF-S4: If no carpark is within a 1 kilometre radius of the location. 1. Display a "No carparks found nearby" error message. 2. The geolocation API returns to the step 1.
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	The Geolocation API is in an operational state.
Notes and Issues:	-

Use Case ID:	9		
Use Case Name:	Recommend Nearby Carparks		
Created By:	Jia Ying	Last Updated By:	Jia Ying
Date Created:	30/08/2023	Date Last Updated:	01/09/2023

Actor:	System
Description:	Show a list of carparks near User's searched location
Preconditions:	1. User must key in a search location 2. Geolocation API must be operational 3. Search location keyed in by User must be valid
Postconditions:	1. System will display the carparks within 1km radius of search location 2. System will display the carpark availability for the corresponding carparks
Priority:	High
Frequency of Use:	0-20 times per day
Flow of Events:	1. User keys in a search location 2. System will register the selected location 3. System will retrieve the carparks' information within 1km radius of the search location 4. System will display the carparks' information
Alternative Flows:	-
Exceptions:	-
Includes:	Check radius of location
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	10		
Use Case Name:	Select Carpark To Visit		
Created By:	Jia Ying	Last Updated By:	Jia Ying
Date Created:	30/08/2023	Date Last Updated:	01/09/2023

Actor:	User
Description:	To select which carpark they would like to visit, and see more information regarding that carpark.
Preconditions:	1. Device must be connected to Wi-Fi/Mobile Data
Postconditions:	1. The selected carpark details will be displayed on the web
Priority:	High
Frequency of Use:	0-20 times per day
Flow of Events:	1. User will search for a location 2. System will recommend nearby carparks 3. System will display a few options of carpark for user to choose from 4. User will select their choice of carpark
Alternative Flows:	AF-S1: User selects from list of favourited carparks 1. User selects view favourite carparks 2. System display the list of user's favourite carpark 3. User selects their choice of carpark
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	11		
Use Case Name:	Send Low availability notification		
Created By:	Jia Ying	Last Updated By:	Jia Ying
Date Created:	30/08/2023	Date Last Updated:	01/09/2023

Actor:	System
Description:	To send a low carpark availability notification to user
Preconditions:	1. Queried the data.gov.sg API 2. User has selected a carpark 3. Carpark availability for the chosen carpark is less than 5
Postconditions:	1. System will send a notification to users, informing them that the carpark availability for chosen carpark is running low 2. Notification will also display the current updated parking lot availability for chosen carpark
Priority:	Low
Frequency of Use:	0-5 times per day
Flow of Events:	1. System will continuously retrieve data via carpark availability API every minute 2. System will output the updated carpark availability 3. System will check if user has a selected carpark 4. System will retrieve the data and checks if the selected carpark has carpark availability less than 5 5. If the carpark availability is less than 5, system will display a low availability notification
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	12		
Use Case Name:	Retrieve Carpark Availability		
Created By:	Jia Ying	Last Updated By:	Jia Ying
Date Created:	30/08/2023	Date Last Updated:	01/09/2023

Actor:	Data.gov.sg API
Description:	To retrieve the number of available parking lots across all carparks in Singapore
Preconditions:	1. The Carpark Availability API must be reachable
Postconditions:	1. The carpark availability for all carparks will be updated in the list of recommended carparks
Priority:	High
Frequency of Use:	1 time per minute
Flow of Events:	1. The data is queried from data.gov.sg API 2. The corresponding carpark availability along with the carpark number will be updated in the list of recommended carparks
Alternative Flows:	-
Exceptions:	EX.1: The Carpark Availability API is inaccessible 1. System will display the last updated carpark availability 2. System will show time for the last updated information
Includes:	-
Special Requirements:	-
Assumptions:	The Carpark Availability API is in an operational state.
Notes and Issues:	-