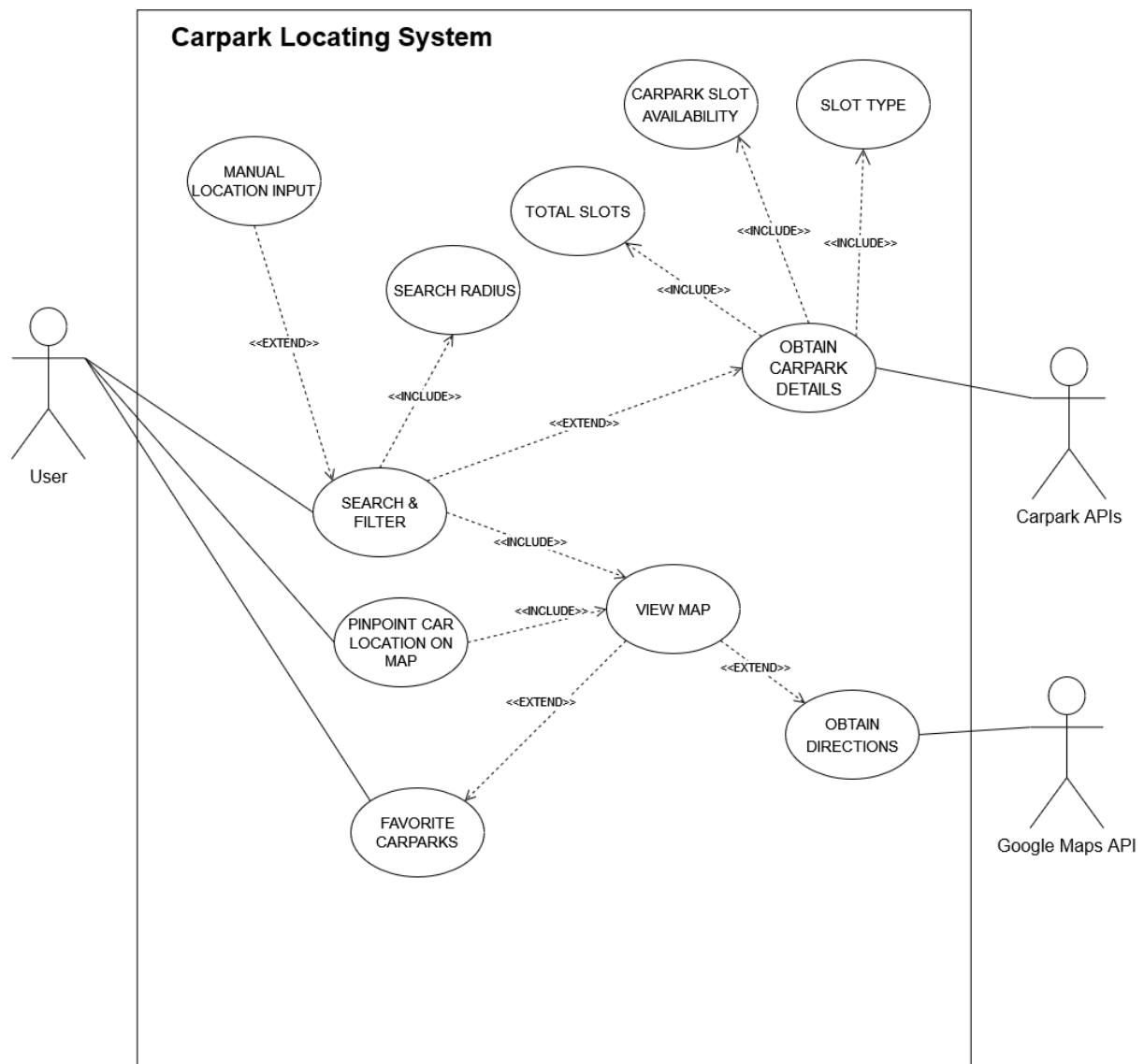


## Use Case Diagram



User Case ID	01		
Use Case Name	Search & Filter		
Created By	Chee Han	Last Updated by	Chee Han
Date Created	03/09/2023	Date Last Updated	03/09/2023
Actor	User		
Description	This use case involves searching for carpark based on location, distance, and availability, with optional filtering by price		
Preconditions	<ul style="list-style-type: none"> <li>• Location services are enabled</li> <li>• User has network connectivity</li> </ul>		
Postconditions	<ul style="list-style-type: none"> <li>• Carpark results displayed</li> <li>• Map display updated</li> </ul>		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. User opens app</li> <li>2. System displays map with preferred search radius</li> <li>3. System initiates search</li> <li>4. System filters results based on search radius</li> <li>5. System displays results on map</li> </ol>		
Alternative Flows			
Exceptions			
Includes	View Map, Preferred Search Radius		
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	02		
Use Case Name	Manual Location Input		
Created By	Chee Han	Last Updated by	Chee Han
Date Created	03/09/2023	Date Last Updated	03/09/2023
Actor	User,Google Maps API		
Description	This use case allows the user to manually input a location		
Preconditions	User presses the search bar		
Postconditions	User presses enter		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. User press on search bar</li> <li>2. User keys in location</li> <li>3. System initiates Search and Filter</li> </ol>		
Alternative Flows			
Exceptions			
Includes	-		
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	03		
Use Case Name	Search Radius		
Created By	Chee Han	Last Updated by	Chee Han
Date Created	03/09/2023	Date Last Updated	03/09/2023
Actor	User		
Description	Users can set a preferred search radius (e.g. 1 km, 5 km) for nearby carparks		
Preconditions	User navigates to change search radius		
Postconditions	Radius setting completed		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. System displays search results based previous filters</li> <li>2. User press filter icon</li> <li>3. User set new preferred search radius</li> <li>4. System filters current results according to new search radius</li> </ol>		
Alternative Flows			
Exceptions			
Includes	-		
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	04		
Use Case Name	Pinpoint Car Location on Map		
Created By	Chee Han	Last Updated by	Chee Han
Date Created	03/09/2023	Date Last Updated	07/09/2023
Actor	User		
Description	Users can pinpoint their car's location on the map		
Preconditions	User pins location as car location		
Postconditions	<ul style="list-style-type: none"> <li>• Car location displayed on map</li> <li>• Car location unpinned by user</li> </ul>		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. User reaches carpark</li> <li>2. User presses pin car location button</li> <li>3. System prompts for carpark slot details</li> <li>4. User enters parking slot details</li> <li>5. System marks car location and slot details</li> </ol>		
Alternative Flows			
Exceptions			
Includes	-		
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	05		
Use Case Name	Favorite Carparks		
Created By	Chee Han	Last Updated by	Chee Han
Date Created	03/09/2023	Date Last Updated	03/09/2023
Actor	User		
Description	Users can bookmark and view their handpicked carparks		
Preconditions	<ul style="list-style-type: none"> <li>• Users pressed favorite icon on specific carparks</li> <li>• Users pressed favorite option in menu</li> </ul>		
Postconditions	<ul style="list-style-type: none"> <li>• Carparks marked as favorite</li> <li>• Favorites list displayed</li> </ul>		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. User press on carpark bubble</li> <li>2. User press star icon</li> <li>3. System saves carpark as favorite</li> </ol>		
Alternative Flows			
Exceptions			
Includes	-		
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	06		
Use Case Name	View Map		
Created By	Arjun	Last Updated by	Arjun
Date Created	03/09/2023	Date Last Updated	03/09/2023
Actor	User, Google Maps API		
Description	Display of carpark locations within the map.		
Preconditions	User launches app		
Postconditions	<ol style="list-style-type: none"> <li>1. Show the nearest carpark to the user's location</li> <li>2. Show the availability of carpark slots in those nearby carpark</li> </ol>		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. User launches app</li> <li>2. System initiates Search &amp; Filter</li> <li>3. System display results on map</li> </ol>		
Alternative Flows			
Exceptions			
Includes	NIL		
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	07		
Use Case Name	Obtain Directions		
Created By	Arjun	Last Updated by	Arjun
Date Created	03/09/2023	Date Last Updated	03/09/2023
Actor	Google Maps API		
Description	Uses the google maps API to obtain the directions to the carpark that the user has chosen.		
Preconditions	User clicks on the carpark that he has chosen.		
Postconditions	The map shows the directions to the carpark that the user has chosen		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. User press on 'Go Here!'</li> <li>2. Google API obtains relevant directions to carpark from current location</li> </ol>		
Alternative Flows			
Exceptions			
Includes	Calculate Travelling Time and Distance		
Special Requirements			
Assumptions			
Notes and Issues			



User Case ID	08		
Use Case Name	Obtain Carpark Details		
Created By	Arjun	Last Updated by	Arjun
Date Created	03/09/2023	Date Last Updated	07/09/2023
Actor	Carpark APIs		
Description	The carpark details are retrieved by the Carpark APIs		
Preconditions	User clicks on the carpark bubble		
Postconditions	The carpark details are retrieved by the Carpark APIs		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. System initiates Search &amp; Filter</li> <li>2. Carpark API obtains relevant carpark details</li> <li>3. Update color of carpark bubble on map based on availability</li> <li>4. User presses on carpark bubble</li> <li>5. System shows carpark details</li> </ol>		
Alternative Flows			
Exceptions			
Includes	Slot Type, Carpark Slot Availability, Total Slots		
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	09		
Use Case Name	Carpark Slot Availability		
Created By	Aaron	Last Updated by	Aaron
Date Created	03/09/2023	Date Last Updated	05/09/2023
Actor	Carpark APIs		
Description	The carpark APIs provides the number of carpark lots available in the carpark for all carpark in the API.		
Preconditions	System initiates Search & Filter.		
Postconditions	The number of carpark slots available in the selected carpark would be displayed on the user interface.		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. Search &amp; Filter initiates Obtain Carpark Details</li> <li>2. Carpark API retrieves carpark slot availability</li> </ol>		
Alternative Flows			
Exceptions			
Includes			
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	11		
Use Case Name	Slot Type		
Created By	Aaron	Last Updated by	Aaron
Date Created	03/09/2023	Date Last Updated	05/09/2023
Actor	Carpark APIs		
Description	There are primarily 3 different types of carpark slots in a carpark depending on the type of vehicle, i.e. cars, motorcycles, lorries/trucks.		
Preconditions	System initiates Search & Filter.		
Postconditions	Results of the carpark type availability would be shown on the user interface.		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. Search &amp; Filter initiates Obtain Carpark Details</li> <li>2. Carpark API retrieves slot type</li> </ol>		
Alternative Flows			
Exceptions			
Includes			
Special Requirements			
Assumptions			
Notes and Issues			

User Case ID	12		
Use Case Name	Total Slots		
Created By	Aaron	Last Updated by	Aaron
Date Created	03/09/2023	Date Last Updated	05/09/2023
Actor	Carpark APIs		
Description	Through the carpark APIs, the total carpark capacity can be retrieved.		
Preconditions	System initiates Search & Filter.		
Postconditions	Details of the car park would be produced upon entering the search input. Such details include the carpark's total capacity.		
Priority			
Frequency of Use			
Flow of Events	<ol style="list-style-type: none"> <li>1. Search &amp; Filter initiates Obtain Carpark Details</li> <li>2. Carpark API retrieves the total number of slots in a carpark</li> </ol>		
Alternative Flows			
Exceptions			
Includes			
Special Requirements			
Assumptions			
Notes and Issues			