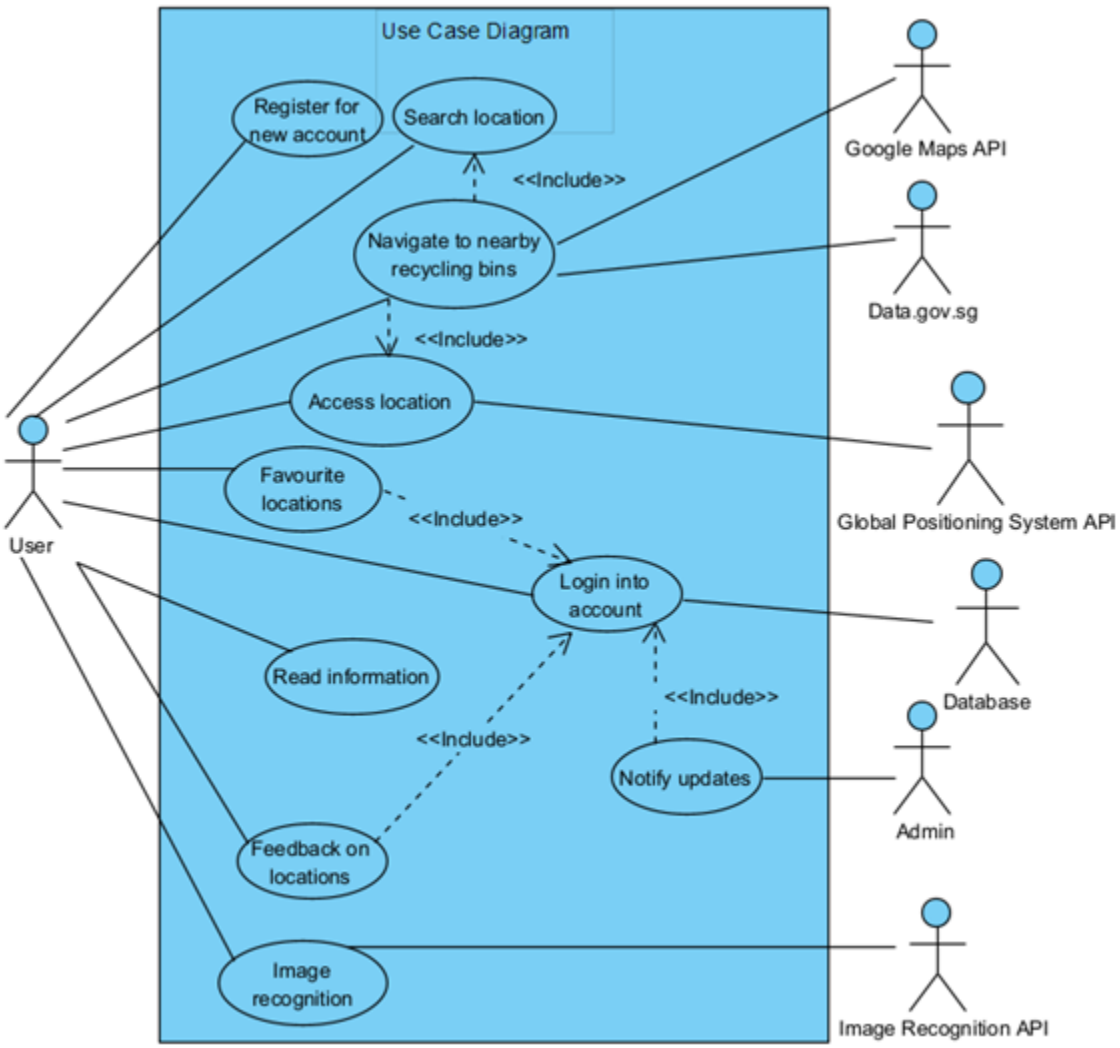
Use Case Diagram:



Use Case Description:

Use Case ID:	1		
Use Case Name:	Register for a new account		
Created By:	Zeng Lam	Last Updated By:	Meredydd Ho
Date Created:	23/8/22	Date Last Updated:	27/8/22

Actor:	User
Description:	User can register for a new account.
Preconditions:	1. User must not have an existing account in the database. 2. Mobile must be connected to WiFi/Mobile Data.
Postconditions	A verification code will be sent to the user's registered email address.
Priority:	Medium
Frequency of Use:	1 time per user
Flow of Events:	1. User selects the sign up button. 2. User enters a username, email address and a password. 3. User selects the register button. 4. System validates the username with the database. 5. System validates that the email address is valid, and verifies with the database that the email address is unique. 6. System validates the password and confirms password fields is identical. 7. System will send a verification email to the user. 8. User will key in the verification code in the field provided.
Alternative Flows:	AF-S4: The username existed in the database. 1. System will display "Username is already taken" 2. Return to step 2. AF-S5-1: The email address input is invalid. 1. System will display "Invalid email address. Please try again." 2. Return to step 2. AF-S5-2: The email address exists in the database. 1. System will display "Email address is already taken" 2. Return to step 2. AF-S6: System detects mismatch between the password and confirm password. 1. System displays error message "Password and Confirm Password mismatch. Please re-enter." 2. Return to step 2.
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	2		
Use Case Name:	Login into account		
Created By:	Zeng Lam	Last Updated By:	Zeng Lam
Date Created:	23/8/22	Date Lasted Updated:	28/8/22

Actor:	User (Initiating Actor), Database
Description:	Account authentication process through username and password.
Preconditions:	1. User account must already exist in the database. 2. Mobile must be connected to WiFi/Mobile Data.
Postconditions	1. User is able to bookmark their favourite locations for recycling. 2. User is able to publish feedback about the place where they have recycled from. 3. User is able to remove their favourite locations for recycling. 4. User is able to look at their recycling history.
Priority:	Medium
Frequency of Use:	1 time per login
Flow of Events:	1. User selects the account login button 2. User is prompted to fill in his username and password in the respective fields. 3. User selects the sign-in button. 4. The system validates the account by checking the user's credentials with the Database. 5. System authenticates the user to login successfully.
Alternative Flows:	AF-S3: System detects empty username or password fields. 1. System displays error message "Username or password field cannot be empty." 2. Return to step 2. AF-S4: Username and password does not match the database records 1. System will display "Incorrect username or password provided. Please re-enter." 2. Return to step 2.
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	3		
Use Case Name:	Navigate to nearby recycling bins		
Created By:	Zeng Lam	Last Updated By:	Meredydd Ho
Date Created:	23/8/22	Date Last Updated:	27/8/22

Actor:	User (Initiating Actor), Google Maps API, Data.gov.sg
Description:	User is able to navigate to a recycling location of choice.
Preconditions:	User must have a device that is compatible with Google Maps
Postconditions	User must be provided with a suggested route to a recycling location.
Priority:	High
Frequency of Use:	0 - 20 times per day
Flow of Events:	1. User selects the navigation button. 2. User selects one or more types of waste that he/she is recycling. 3. User clicks the search button. 4. The device uses the included case location access. 5. A list of locations, ranked in order of proximity from the user's current location, is displayed. 6. User selects the location of his/her choosing. 7. The current location is pinned to indicate the start point. 8. A map with the route from the user's current location to the location of the recycling bin is displayed.
Alternative Flows:	AF-3: User does not select any type of waste 1. System displays "No waste type is chosen" 2. Return to step 2. AF-7: User selects another location for start location instead of current location. 1. User uses the search location use case. 2. Skip to step 8.
Exceptions:	-
Includes:	Location access, Search location
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	4		
Use Case Name:	Favourite location		
Created By:	Zeng Lam	Last Updated By:	Meredydd Ho
Date Created:	23/8/22	Date Last Updated:	27/8/22

Actor:	User
Description:	User is able to favourite locations for future use.
Preconditions:	User must be logged into his/her account.
Postconditions	1. A selected location is bookmarked 2. User can view the list of favourite locations.
Priority:	Low
Frequency of Use:	0 - 20 times per day
Flow of Events:	1. System prompts user to provide a recycling location. 2. User searches for a recycling location on the map. 3. User clicks on the favourite icon to bookmark the location. 4. System will add the chosen location to the user's list of favourite locations.
Alternative Flows:	AF-3: User has previously bookmarked the location 1. System displays "Location is already bookmarked". 2. Return to step 2.
Exceptions:	-
Includes:	Login into account
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	5		
Use Case Name:	Read information		
Created By:	Zeng Lam	Last Updated By:	Meredydd Ho
Date Created:	23/8/22	Date Last Updated:	23/8/22

Actor:	User
Description:	Provide user with information on the importance of recycling and ways to dispose their waste properly.
Preconditions:	User must be connected to the server site through mobile data or wifi.
Postconditions:	User will be able to view the provided information.
Priority:	Medium
Frequency of Use:	0 - 20 times per day
Flow of Events:	1. User selects the information button. 2. System displays educational information to raise awareness of recycling. 3. If interested, users can click on “more information” button which directs them to external organisation sites. 4. User is able to read these information.
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	6		
Use Case Name:	Feedback on locations		
Created By:	Zeng Lam	Last Updated By:	Meredydd Ho
Date Created:	23/8/22	Date Last Updated:	27/8/22

Actor:	User
Description:	User will be able to give rating and a text feedback on a particular recycling location.
Preconditions:	User must be logged into his/her account.
Postconditions	The ratings and text feedback given will be updated to the respective recycling locations.
Priority:	-
Frequency of Use:	-
Flow of Events:	1. User selects the feedback button. 2. From a list of recycling locations, user selects one to give a feedback. 3. From a range of 0 to 5, user selects a rating based on his/her experience. 4. User writes a text-feedback that complements the rating. 5. User selects submit button 6. System validates the rating and text feedback. 7. System publishes the feedback in the respective location feedback box.
Alternative Flows:	AF-6: User did not a select a rating for the location. 1. System displays “No ratings given” 2. Return to step 4. AF-6: User did not provide any text feedback. 1. System displays “No text feedback given”. 2. Return to step 4.
Exceptions:	-
Includes:	Login into account
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	7		
Use Case Name:	Access locations		
Created By:	Zeng Lam	Last Updated By:	Zeng Lam
Date Created:	23/8/22	Date Last Updated:	23/8/22

Actor:	User (Initiating Actor), Global Positioning System API
Description:	To obtain the current location of the device for navigation to recycling locations.
Preconditions:	Device must have GPS functions.
Postconditions	Displays the location of the device on the map.
Priority:	-
Frequency of Use:	0-20 times per day
Flow of Events:	1. User chooses to navigate. 2. Global Positioning System API sends a request to the system to access the location. 3. User allows location access on his/her device. 4. Location of the device is displayed on the map.
Alternative Flows:	AF-3: User declines access to his/her device 1. Return to step 2
Exceptions:	Device GPS function is faulty.
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	8		
Use Case Name:	Search Location		
Created By:	Zeng Lam	Last Updated By:	Zeng Lam
Date Created:	26/8/22	Date Last Updated:	26/8/22

Actor:	User
Description:	User is able to search for a location as a start point for navigation.
Preconditions:	User must remove the current location from the search box
Postconditions	The selected location is chosen as the start point.
Priority:	-
Frequency of Use:	-
Flow of Events:	1. User inputs the name of location in the search box. 2. User selects the search button.

	3. The chosen location is pinned.
Alternative Flows:	AF-2: User inputs a place that does not exist. 1. System displays “Location does not exist”. 2. Return to step 1.
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	9		
Use Case Name:	Notify updates		
Created By:	Zeng Lam	Last Updated By:	Zeng Lam
Date Created:	23/8/22	Date Last Updated:	23/8/22

Actor:	Admin
Description:	Admin is able to disseminate new updates of the recycling bins, such as a temporary maintainance through email.
Preconditions:	Admin requires new information to disseminate.
Postconditions	The new updates are published for registered users to view.
Priority:	-
Frequency of Use:	-
Flow of Events:	1. Admin uses the included use case “login into account” to enter into his/her account. 2. Admin selects the notify button. 3. Admin creates his announcements. 4. Admin selects the send button. 5. System validates the information. 6. System emails all registered users of the information.
Alternative Flows:	AF-5: Admin left the announcement empty. 1. System displays “Announcement cannot be empty”. 2. Return to step 3.
Exceptions:	-
Includes:	Login into account
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	10		
Use Case Name:	Image recognition		
Created By:	Zeng Lam	Last Updated By:	Zeng Lam
Date Created:	23/8/22	Date Last Updated:	23/8/22

Actor:	User (Initiating Actor), Image Recognition API
Description:	System classifies the type of waste image submitted into the correct category.
Preconditions:	User must have an image available to be recognised.
Postconditions	System displays the type of waste from the image submitted by the user.
Priority:	-
Frequency of Use:	-
Flow of Events:	1. User selects image recognition button 2. User selects an image of the waste from his/her image gallery. 3. User selects the submit button. 4. System displays the type of waste.
Alternative Flows:	AF- : Image Recognition API is unable to recognise the submitted image. 1. The system displays “Unable to recognise, try another photo” 2. Return to step 2.
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-