Use Case Diagram

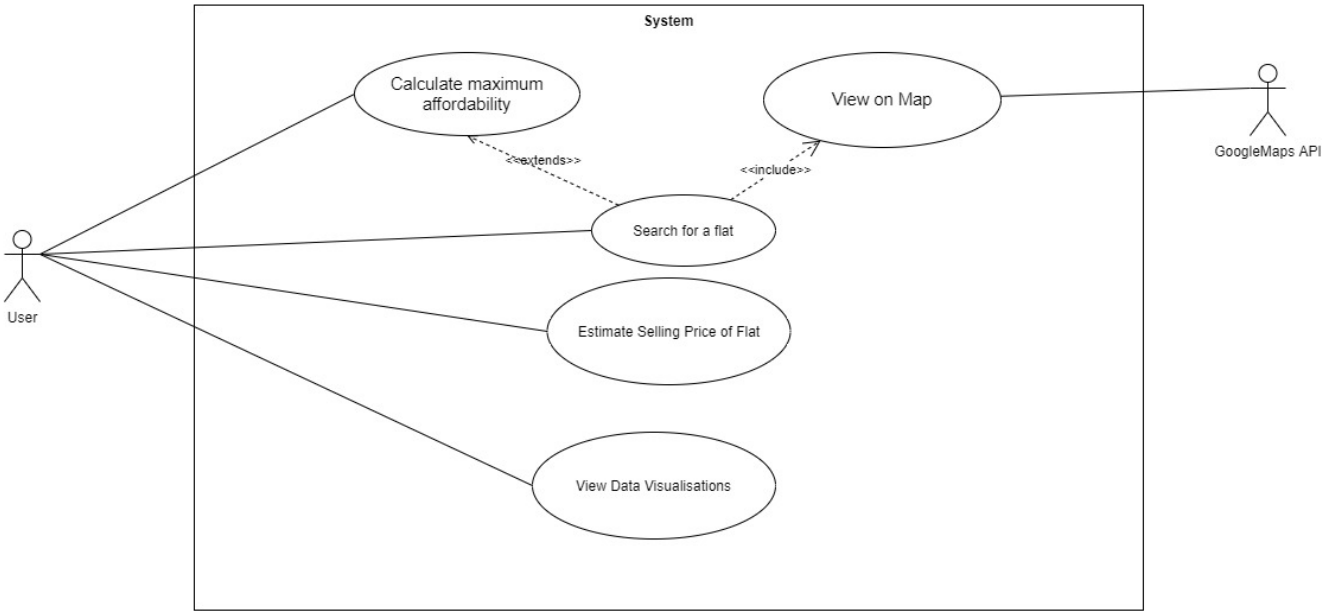

Figure 14: Use Case Diagram of HouseHunt

Use Cases Descriptions

Use Case ID:	1.0		
Use Case Name:	Search for a flat		
Created By:	Alvin Tang	Last Updated By:	Yong Wen Shiuan
Date Created:	19/8/2021	Date Last Updated:	30/8/2021

Actor:	User
Description:	User will click on the “Search for a flat” button. The system displays input fields for town, flat type, flat model, maximum price, floor area remaining lease years. User fills in the desired filters and submits it. System queries the data.gov.sg resale flat price dataset using the filter to get a filtered dataset, which is then displayed to the user.
Preconditions:	1. Database is populated with resale flat data
Postconditions:	1. A tabular listing of flats that matches the User’s search criteria is displayed
Priority:	High
Frequency of Use:	1-3 times per session
Flow of Events:	1.The user selects the “Search for a flat” button on the Home Page 2.User selects from the dropdown boxes all the fields of the form he/she wants to fill up. If not selected, by default all choices are selected (‘Town’, ‘Flat Type’, ‘Flat Model’) 3.User keys in the numerical input for the fields of the form he/she wants to fill up. If no input is keyed in, these fields will not be used as search filters. (‘Maximum price’, ‘Floor Area’ ‘Remaining Lease Years’) 4.User clicks the “Submit” button. 5. System queries the data.gov.sg resale flat price data with the filled in filters, and obtains a filtered listing of flats. 6.System displays a tabular listing of flats that matches the User’s search criteria.

Alternative Flows:	
Exceptions:	
Includes:	UC 3.0 View on Map
Extends:	UC 4.0 Calculate maximum affordability
Special Requirements:	
Assumptions:	
Notes and Issues:	-Only flats which have undergone resale transactions are displayed

Use Case ID:	2.0		
Use Case Name:	Estimate Selling Price		
Created By:	Yong Wen Shiuan	Last Updated By:	Yong Wen Shiuan
Date Created:	19/8/2021	Date Last Updated:	30/8/2021

Actor:	User
Description:	User will click on the “Estimate selling price” button. The system displays input fields for town, flat type, flat model, floor area and remaining lease years. User fills in and submits the information, and the system calculates the estimated house price and displays it.
Preconditions:	1. User is aware of the flat’s town, flat type, flat model, floor area and remaining lease years
Postconditions:	1. A page containing the estimated selling price of the flat
Priority:	Medium
Frequency of Use:	Around 1 time per session
Flow of Events:	1.User clicks the “Estimate Selling Price” button. 2.User selects the dropdown for each required field. (town, flat type, flat model) 3.User keys in the numerical inputs for the required fields. (floor area and remaining lease) 4.User clicks the “Submit” button. 5. If all fields have been filled, System calculates estimated price using a regression model and returns a number. 6.System redirects to a new page that lists the price estimate.
Alternative Flows:	AF-5a 1.If not all fields have been filled, System displays the error message “Please fill in this field.” at the first field which has not been filled

	AF-5b 1.If Remaining Lease in years field input value is not between 44 and 99 inclusive, 1.1 If the input value > 99, System displays the error message “Ensure this value is less than or equal to 99.” 1.2 If the input value < 44, System displays the error message “Ensure this value is greater than or equal to 44.” AF-5c 1.If ‘Floor area (in sqm):’ field input value is not between 0 and 249 inclusive, 1.1 If the input value > 249, System displays the error message “Ensure this value is less than or equal to 249.” 1.2 If the input value < 0, System displays the error message “Ensure this value is greater than or equal to 0.”
Exceptions:	EX-1 1.System returns an estimated price that is negative (i.e. less than 0). 2.System redirects to a new page that displays “Error: Unable to provide an accurate estimate of the flat’s selling price”.
Includes:	-
Extends:	-
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	3.0		
Use Case Name:	View on Map		
Created By:	Spriha	Last Updated By:	Suhana
Date Created:	19/8/2021	Date Last Updated:	30/8/2021

Actor:	Google Maps API
Description:	User clicks on Google Maps button or View Map button. The system requests the Google Maps API for either a street view or a dynamic map view, and retrieves the image. User is then redirected to a page with the map view displayed.
Preconditions:	1. User must have searched for a flat as per Use Case 1.0 2. Database is populated with resale flat data
Postconditions:	1. Google Maps image based on flat address is displayed 2. User is also able to utilise Google Maps API within the application for the flat address of interest
Priority:	Medium
Frequency of Use:	Around 5 times per search
Flow of Events:	1. System retrieves address and block number. attribute of a flat from the list of flats saved in the database. 2. System queries Google Maps API for a street view for the Street attribute of the flat. 3. Google Maps API returns a Google Maps image based on flat address 4. User can select ‘Google Maps’ button to be redirected 5. User presses ‘Enter’ to retrieve Geolocation coordinates and display flat on Google Maps API 6. User can access street view, satellite view, and other features available from Google Maps API

Alternative Flows:	
Exceptions:	
Includes:	-
Extends:	-
Special Requirements:	
Assumptions:	
Notes and Issues:	Google API gives users only $200 in free usage before charging. Budget constraints in our project forces us to limit the use of Google API, and therefore limit how many times the map view use case is called.

Use Case ID:	4.0		
Use Case Name:	Calculate maximum affordability		
Created By:	Suhana	Last Updated By:	Esmond
Date Created:	19/8/2021	Date Last Updated:	30/8/2021

Actor:	User
Description:	User clicks on the “Calculate Affordability Button”. The system displays input fields for monthly income, debts, down payment and loan interest rate. User fills in and submits the information, and the system calculates the house affordability and displays it.
Preconditions:	User is aware of his/her monthly income, monthly debt, down payment and loan interest rate
Postconditions:	An estimate of the maximum amount the user should spend on a flat is calculated and displayed
Priority:	Medium
Frequency of Use:	1 time per session
Flow of Events:	1.User clicks on the “Calculate maximum affordability” button. 2.User fills in all the input fields. (Monthly fixed income, cash towards down payment, monthly debt, loan interest rate) 3.User clicks the “Submit” button. 4.System validates that all the fields have been filled. 5.System calculates the maximum amount the user can spend on a flat and returns the value calculated. 6.User is redirected to a new page displaying the maximum amount they can spend on a flat. 7. User can click on ‘Search for a flat with this price’ to do so as per Use Case 1.0, with the maximum price field filled up

Alternative Flows:	AF-2 1.If User has not filled in all of the fields, System displays the error message “Please fill in this field.” at the first field which has not been filled
Exceptions:	
Includes:	-
Extends:	-
Special Requirements:	
Assumptions:	
Notes and Issues:	-User input here is not stored in the database

Use Case ID:	5.0		
Use Case Name:	View Data Visualisations		
Created By:	Esmond	Last Updated By:	Sabrina
Date Created:	19/8/2021	Date Last Updated:	30/8/2021

Actor:	User
Description:	View Data Visualisations of different flat prices
Preconditions:	1. Database is populated with resale flat data
Postconditions:	-
Priority:	Medium
Frequency of Use:	1-3 times per session
Flow of Events:	1. User clicks the “View Data Visualisations” button. 2. User clicks one of the buttons: “Resale price by town”, “Resale price by flat type”, “Resale price by year of sale” 3. The visual corresponding to the selected option is displayed 4. The user can click the “Return” button to return to step 2 and view other graphs 5. User can click the “HouseHunt” button to return to the home page
Alternative Flows:	-
Exceptions:	-
Includes:	-
Extends:	-

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