

**NANYANG
TECHNOLOGICAL
UNIVERSITY**
SINGAPORE

School Of Computer Science & Engineering

SC2006 Software Engineering

Tutorial Group A29

Group Name

DGJMQZ

Team Members

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1. Project Name and Mission

1.1 Project Name

CalMe by HDB

1.2 Project Background

It is relatively simple for people to make a quick google search for a house they want to buy. However, in Singapore, various grants and subsidies are provided for home buyers depending on variables such as household income, family nucleus, and ownership history. This makes figuring out the exact amount payable tedious for potential home buyers. As such, our team aims to improve customer's quality of life by building a platform where the net purchase price of the property can be immediately calculated.

1.3 Project Mission

Team DGJMQZ will develop a website that enables prospective home buyers to estimate the net cost of a property purchase specific to the user, as well as allow sellers to list their property for sale. This project delivers quality of life improvements to home buyers and sellers through the use of technology to advance Singapore's Smart Nation development.

2. Functional and Non-Functional Requirements

2.1 Functional Requirements

1. User Registration

- 1.1. The user must have a registered account to log into the system.
 - 1.1.1. The user shall key in a username, email and a password to register an account.
 - 1.1.1.1. The user must key in a alphanumeric username of less than 32 characters
 - 1.1.1.2. The user must key in a alphanumeric password
 - 1.1.1.2.1. The password shall be more than 8 characters long
 - 1.1.1.2.2. The password shall be less than 64 characters long
 - 1.1.1.2.3. The password must have at least 1 uppercase letter (A-Z)
 - 1.1.1.2.4. The password must have at least 1 lowercase letter (a-z)
 - 1.1.1.2.5. The password must have at least 1 number (0-9)
 - 1.1.1.2.6. The password must have at least 1 special character (e.g., !, @, #, \$, %, etc.)

2. Login

- 2.1. The user shall log into the system using their username/email and password.
 - 2.1.1. The user must key in their alphanumeric username
 - 2.1.2. The user must key in their alphanumeric password
 - 2.1.3. If the user's username does not match their password, the user shall be returned to the login page

3. User as Seller

- 3.1. The user can act as a seller to list properties for sale
 - 3.1.1. The seller shall provide information about the property, including location size, price, and other relevant details
 - 3.1.2. The seller shall provide contact information, including email, for potential buyers to reach them
 - 3.1.3. The system shall assist the user in updating and managing resale property listings (refer to 8.)

4. User as Buyer

- 4.1. The user can act as a buyer to research for resale properties listed by sellers
 - 4.1.1. The user can select resale property listings based on their preferences, such as location, size, and price (refer to 9.)

5. Navigating User Homepage and View Personal Profile

- 5.1. The homepage will appear once the user is logged in. It must have a navigation bar on the top of the page, where tabs 'Explore', 'Saved Properties', 'My Resale Property' and 'My Particulars'
- 5.2. The 'Explore' Tab is pre-selected, and the system display resale properties in the form of cards
 - 5.2.1. Each cards must contain a photo of the property
 - 5.2.2. Each cards must contain the published date
 - 5.2.3. Each card must contain the property name
 - 5.2.4. Each card must contain a 'Save' button
 - 5.2.5. Each card must contain the property details
 - 5.2.6. Each card must contain the contact details of the seller, eg. email
- 5.3. A filter must appear on the right hand side of the page (refer to 9.)

6. Add Personal Particular (Residency Status, Grants etc.)

- 6.1. The user shall inform the system of their personal particulars
 - 6.1.1. The user shall select their residency status from a drop-down box
 - 6.1.2. The user shall select their age range from a drop-down box
 - 6.1.3. The user shall select their marital status from a drop-down box
 - 6.1.4. The user shall select their ownership history from a drop-down box
 - 6.1.5. The user shall select their income range from a drop-down box
 - 6.1.6. The user shall select their family nucleus(family with children, family no children etc) from a drop-down box
 - 6.1.7. The user shall select their employment status from a drop-down box
- 6.2. The system shall use the personal particulars of the user to determine what grants they are eligible for

7. Create Resale Property

- 7.1. In order to create a new resale property listing, the user must switch to the 'Manage Resale Properties' tab by clicking on it on the navigation bar.
 - 7.1.1. The sub-tab 'Create New Resale Property Listing' is pre-selected. The user can proceed to enter resale property details.

- 7.1.1.1. The user must click the 'Upload Picture (if any)' box if they wish to include images of the resale property.
 - 7.1.1.1.1. This will redirect them to select image files from their computer. These may be .jpg or .png files.
- 7.1.1.2. The user must provide a resale property title, which is a string of at least 3 characters and no more than 250 characters.
- 7.1.1.3. The user must include a resale property description, composed of a string of at least 2 characters and no more than 3000 characters.
- 7.1.1.4. The user must provide details such as location, size, price, and other relevant information
- 7.1.1.5. The user must include contact information for potential buyers to reach them
- 7.1.1.6. The user must add the date of listing in a dd/mm/yyyy format. The date must be the day the resale property is listed.
- 7.1.1.7. Once all details are filled, the user will click the 'Post Listing' button at the end of the page.
 - 7.1.1.7.1. At this point, if the user does not meet the character requirements for each resale property detail, error messages will be displayed on the top of the webpage, and a red border around those specific containers will appear. Error messages will keep on being displayed when the 'Post Listing' button is clicked until all issues are resolved.
- 7.1.1.8. Once successfully listed, a pop-up message will appear with the words 'Resale Property Listing Successfully Posted.'

8. Update or Delete Resale Property

- 8.1. On the 'Manage Resale Properties' tab, the user must click on the 'View All Resale Properties' sub-tab.
 - 8.1.1. The user may choose to update any of the contents in the resale property listing, including images, description, price, contact information, and more.
 - 8.1.2. Once the 'Update Listing' button is clicked and no errors are detected, a pop-up message will appear with the words 'Resale Property Listing Successfully Updated'

- 8.2. Each resale property listing contains a bin icon on the left of the 'Update Listing' button. When clicked, a pop-up message will ask the user to confirm deleting the resale property listing.
 - 8.2.1. The user must choose 'Confirm' to delete the resale property listing or choose 'Cancel' to withdraw the operation.

9. Filter Functionality

- 9.1. The user shall filter for the property they are interested in
 - 9.1.1. The user shall filter their flat-type from a drop-down box
 - 9.1.2. The user shall filter their preferred location from a drop-down box
 - 9.1.3. The user shall filter their preferred storey level from a drop-down box
 - 9.1.4. The user shall filter their lease commencement date from a drop-down box
- 9.2. The system shall filter and sort based on the user's choices

10. View property details

- 10.1. The user shall select the property they are interested in
 - 10.1.1. The user shall see property details
 - 10.1.1.1. The user shall see the number of bedrooms the property has
 - 10.1.1.2. The user shall see the size of the property in square feet
 - 10.1.1.3. The user shall see how many bathrooms the property has
 - 10.1.1.4. The user shall see the type of the property
 - 10.1.1.5. The user shall see the address of the property
 - 10.1.1.6. The user shall see a map of the area surrounding the property
 - 10.1.1.7. The user shall see the price of the property

11. Pricing Calculation

- 11.1. The user shall inform the system of their property choice
 - 11.1.1. The user shall select their flat-type from a drop-down box
 - 11.1.2. The user shall select their preferred location from a drop-down box
 - 11.1.3. The user shall select their preferred storey level from a drop-down box
 - 11.1.4. The user shall select their lease commencement date from a drop-down box
 - 11.1.5. The user shall select their Monthly household income ceiling from a drop-down box
 - 11.1.6. The user shall key in their cash savings

- 11.1.7. The user shall key in their CPF savings if applicable
- 11.2. The system shall use the details of the user to determine the estimated budget required
 - 11.2.1. The system shall list all grants that the user is eligible for
 - 11.2.1.1. The system shall show the budget required after grant price reduction

12. Saved Searches and Favorites

- 12.1. The system shall keep data on saved and favorite property
 - 12.1.1. The user shall select the preferred favorite choices
 - 12.1.2. The user shall view the saved property
 - 12.1.3. The user shall delete the resale property from the favorite

13. Booking and Contact

- 13.1. The user can book an appointment with HDB
 - 13.1.1. The user shall select the preferred time and day of the appointment
 - 13.1.2. The user shall key in his/her name
 - 13.1.3. The user shall key in his/her contact details
- 13.2. The user can find the different contact details of relevant department

2.2 Non-Functional Requirements

1. Security

- 1.1. During login, when a valid username is entered with an incorrect password 5 times, data relating to that user is deleted, and the account is deregistered
- 1.2. System shall have data encryption, access control, and data retention policies
- 1.3. System shall have a firewall to prevent hackers

2. Usability

- 2.1. A help button shall be included on the top right corner of the page which brings up a pop-up with text to help navigate the website
- 2.2. User Interface (UI) consistency
 - 2.2.1. System shall maintain a consistent look and feel throughout the website.

3. Performance

- 3.1. When search is clicked, search results must appear in less than 15 seconds
- 3.2. When user is inactive for 15mins, system shall exit the session

4. Compliance and Legalality

- 4.1. System shall comply with relevant laws and regulations

5. Third-party Integrations

- 5.1. Specify requirements for third-party services or APIs, including reliability and data security.
- 5.2. Adaptable to other Web browsers (Chrome, Firefox, Edge, etc)

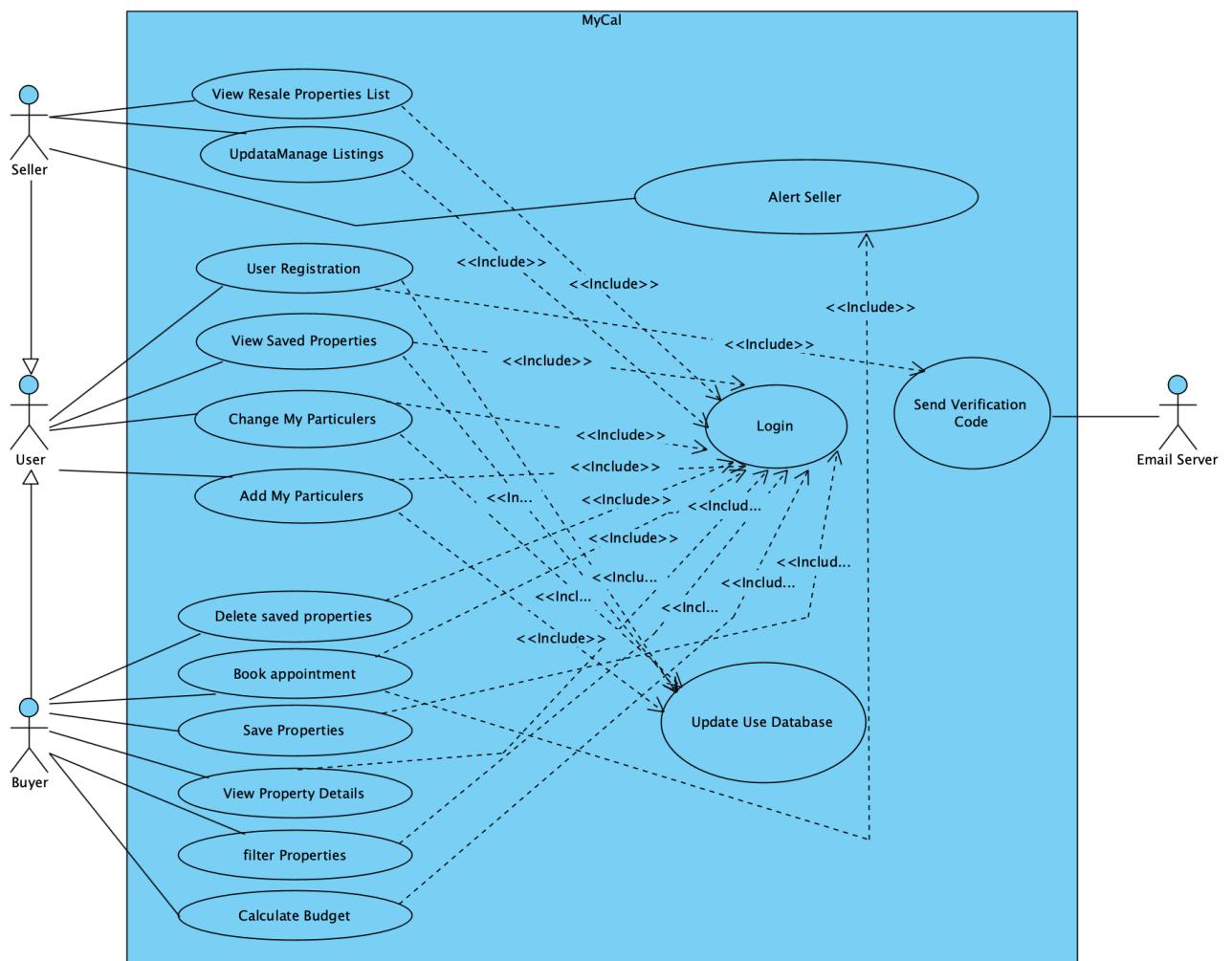
3. Data Dictionary

Term	Definition
User registration	The process by which a person creates an account to access the system.
Username	An alphanumeric identifier chosen by the user for logging into the system.
Password	A secret alphanumeric code used for user authentication, must meet specific criteria.
Alphanumeric	A combination of letters (A-Z, a-z) and numbers (0-9).
Special character	A list of punctuation characters like !, @, #, \$ etc.
User Account	A registered user's profile containing personal information and preferences.
Login	The action of providing valid credentials (username and password) to access the system.
User as Seller	A user role allowing individuals to list properties for sale on the platform.
Property Information	Details provided by a seller about a property, including location, size, and price.
Contact Information	Seller's contact details, such as email, for potential buyers to reach them.
User as Buyer	A user role enabling individuals to search for resale properties listed by sellers.
Property Preferences	Criteria used by buyers to filter and search for resale properties.
Homepage	The main interface displayed upon user login, featuring navigation tabs and property listings.
Navigation Tabs	Tabs on the homepage, including 'Explore,' 'Saved Properties,' 'My Resale Property,' and 'My Particulars.'

Explore	The default tab showing resale property listings in a grid format with property details.
Saved Properties	A section where users can view and manage their saved property listings.
Filter	A feature allowing users to refine property listings based on various criteria.
Personal Particulars	Information collected from the user, including residency status, age, marital status, etc.
Family Nucleus	Information collected from the user, specifying family status like family with or without children.
Grants	Financial incentives provided to eligible users based on their personal particulars.
Create Resale Property	The process of a seller adding a new resale property listing to the system.
Update or Delete Resale Property	Options for sellers to modify or remove existing property listings.
Filter Functionality	The ability for users to filter property listings based on preferences like flat type and location.
Pricing Calculation	The system's computation of an estimated budget required for a property choice, considering grants and user inputs.
Saved Searches	A feature allowing users to save and manage specific property search criteria.
Favorites	A section where users can save and revisit their preferred property listings.
Booking	The capability for users to schedule appointments with HDB for property-related inquiries.
Contact	Access to contact details of relevant departments for user support.

Security Log	A record of security-related actions, including failed login attempts and account deregistration.
Data Encryption	Protection of sensitive information by converting it into a secure code.
Access Control	Limiting system access based on user roles and permissions.
Data Retention Policies	Rules governing the storage and disposal of user data.
Firewall	A security barrier designed to prevent unauthorized access and attacks.
Help Button	A feature providing assistance and guidance on navigating the website.
User Interface (UI) Consistency	Ensuring a uniform look and feel throughout the website for user-friendly interactions.
Performance	System responsiveness, with search results appearing in under 15 seconds and session timeout after 15 minutes of inactivity.
Compliance and Legality	Ensuring that the system adheres to relevant laws and regulations.
Third-party Integrations	Requirements for external services or APIs, emphasizing reliability and data security.
Adaptable to Web Browsers	Compatibility with various web browsers such as Chrome, Firefox, Edge, etc.

4. Use Case Diagram



5. Use Case Specification

Use Case ID:	U0001		
Use Case Name:	User Registration		
Created By:	Zane	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	User
Description:	Create a user account
Preconditions:	User do not have an account
Postconditions:	User now have an account
Priority:	High
Frequency of Use:	Only when the user first accessing the system
Flow of Events:	<ol style="list-style-type: none"> 1. The user enter the information including (email address and password) 2. The user click submit button 3. The system send a email to the user for verification 4. The user click on the link in the email for verification
Alternative Flows:	<ol style="list-style-type: none"> 1. Email in used <ol style="list-style-type: none"> a. The system alert there is an account using the same email address b. The user then key in a different email address or the user remembered that they already have an account. 2. Invalid email <ol style="list-style-type: none"> a. The system alert the user that the email they key in an invalid email format 3. Invalid password <ol style="list-style-type: none"> a. The system alert the user their password is too simple b. The user key in a different password
Exceptions:	<p>U0001.EX.1:</p> <ol style="list-style-type: none"> 1. Invalid email 2. Invalid password <p>U0001.EX.2:</p>

	Email have been used
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	U0002		
Use Case Name:	Login		
Created By:	Zane	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	User
Description:	Login into the app
Preconditions:	User must have an account
Postconditions:	The system are now able to identify the user
Priority:	High
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. The user key in their Email and password to login 2. The use click the login button 3. The system redirected the use to the homepage
Alternative Flows:	<ol style="list-style-type: none"> 1. User not found <ol style="list-style-type: none"> a. The system alert the user that they may have key in the wrong email address b. The user reenter their email address 2. Incorrect password <ol style="list-style-type: none"> a. The system alert the use that he/she may have key in the wrong password b. The user reenter the password
Exceptions:	U0002.EX.1:User not found U0002.EX.1: Wrong password
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	

Use Case ID:	U0003		
Use Case Name:	Add Personal Particular		
Created By:	Qingyang	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	User
Description:	Users providing their personal information to the system
Preconditions:	The user is logged in to the system
Postconditions:	The user's personal particulars are stored in the system
Priority:	High
Frequency of Use:	Once during initial registration or when it needs to be updated
Flow of Events:	<ol style="list-style-type: none"> 1. User selects the "Add Personal Particular" option 2. User provides personal information (nationality, age range, marital status, ownership history, income range, family nucleus, employment status) through a series of drop-down boxes 3. User clicks confirm 4. The personal particular is saved to the database
Alternative Flows:	-
Exceptions:	<p>U0003.EX.1: No internet connection:</p> <ol style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection <p>U0003.EX.2: Invalid Personal Particular format</p>
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	U0004		
Use Case Name:	Change Personal Particular		
Created By:	Qingyang	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	User
Description:	User makes changes to the personal particular
Preconditions:	<ol style="list-style-type: none"> 1. The user is logged in 2. The user have already filled in the personal particular
Postconditions:	The personal particular in the database should be updated
Priority:	Medium
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. The user clicks on change personal particular 2. User provides personal information to be changed (nationality, age range, marital status, ownership history, income range, family nucleus, employment status) through a series of drop-down boxes 3. The user click confirm 4. The changes is saved to the database
Alternative Flows:	
Exceptions:	<p>U0004.EX.1: No internet connection:</p> <ol style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection <p>U0004.EX.2: Invalid Personal Particular for net</p>
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	S0001		
Use Case Name:	Create Resale Property Listing		
Created By:	Qingyang	Last Updated By:	
Date Created:	11 Sep 2023	Date Last Updated:	

Actor:	Seller
Description:	Sellers can create and post new resale property listings on the webpage.
Preconditions:	<ol style="list-style-type: none"> 1. The user must be logged in 2. There must be an internet connection
Postconditions:	<ol style="list-style-type: none"> 1. The new resale property listing will be added to the webpage 2. The new resale property listing will be stored in the database
Priority:	High
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. Seller selects the “Create New Resale Property Listing” option 2. The system presents a form for the seller to fill out with details of the resale property 3. Seller provides the details 4. Seller submit the form
Alternative Flows:	
Exceptions:	<p>S0001.EX.1: No internet connection:</p> <ol style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	S0002		
Use Case Name:	Update Resale Property Listing		
Created By:	Qingyang	Last Updated By:	
Date Created:	11 Sep 2023	Date Last Updated:	

Actor:	Seller
Description:	Sellers can edit and update the details of their existing resale property listings on the webpage.
Preconditions:	<ol style="list-style-type: none"> 1. The seller must be logged in 2. The seller must have existing resale property listings on the webpage 3. There must be an internet connection
Postconditions:	<ol style="list-style-type: none"> 1. The database will be updated with the new resale property details 2. The webpage will display the updated resale property listing
Priority:	High
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. Seller selects the "Manage Resale Properties" option. 2. The system displays a list of the seller's existing resale property listings. 3. Seller selects the specific resale property listing they want to update. 4. Seller makes the necessary updates. 5. Seller submits the updated form.
Alternative Flows:	
Exceptions:	<p>S0002.EX.1: No internet connection:</p> <ol style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	S0003		
Use Case Name:	View Resale Property Listing		
Created By:	Qingyang	Last Updated By:	
Date Created:	11 Sep 2023	Date Last Updated:	

Actor:	Seller
Description:	Sellers can view their existing resale property listings
Preconditions:	1. There must be an internet connection
Postconditions:	1. Resale property listings must be visible
Priority:	Median
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. The seller click on “View Resale Property Listing” 2. The system display all the resale properties posted by the seller
Alternative Flows:	
Exceptions:	<p>S0003.EX.1: No internet connection:</p> <ol style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	S0004		
Use Case Name:	Delete Resale Property Listing		
Created By:	Qingyang	Last Updated By:	
Date Created:	11 Sep 2023	Date Last Updated:	

Actor:	Seller
Description:	The seller deletes existing resale property
Preconditions:	<ol style="list-style-type: none"> There must be an internet connection The resale property must exist in the database
Postconditions:	<ol style="list-style-type: none"> The resale property will be dropped from the database Webpage will no longer show the project
Priority:	Median
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> The seller clicks on delete resale property The system drops the project from the database
Alternative Flows:	
Exceptions:	<p>S0004.EX.1: No internet connection:</p> <ol style="list-style-type: none"> The system displays an error message The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	B0001		
Use Case Name:	Filter		
Created By:	Zane	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	Buyer
Description:	Filter for available house for rent
Preconditions:	-
Postconditions:	-
Priority:	Median
Frequency of Use:	everytime the user looking for house
Flow of Events:	<ol style="list-style-type: none"> 1. The buyer key in the info of the house they want to buy(e.g town name) 2. The system the list of available house for rent
Alternative Flows:	<ol style="list-style-type: none"> 1. House not found <ol style="list-style-type: none"> a. The system display in showing it cannot find a house that fit the description b. The renter reenter another search
Exceptions:	B0001.EX.1: Error 404 house not found
Includes:	List available house
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	B0002		
Use Case Name:	Pricing Calculation		
Created By:	Qingyang	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	Buyer
Description:	To calculate the estimated budget and view eligible grants
Preconditions:	The user is logged to the system The user has entered personal particulars
Postconditions:	The user receives an estimated budget and a list of eligible grants
Priority:	High
Frequency of Use:	-
Flow of Events:	<ol style="list-style-type: none"> 1. User select “Pricing Calculation option” 2. User selects flat-type, preferred location, storey level, lease commencement date, and monthly household income ceiling through drop-down boxes 3. User enters cash savings and CPF savings (if applicable) 4. User submits the information 5. The system calculates the estimated budget, list eligible grants, and displays the budget after grant price reduction
Alternative Flows:	-
Exceptions:	<p>B0002.EX.1: No internet connection:</p> <ol style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	B0003		
Use Case Name:	Save Favorite Property		
Created By:	Qingyang	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	Buyer
Description:	Allow user to save their preferred property
Preconditions:	The user is logged in to the system
Postconditions:	The user's saved property is stored in the system
Priority:	Low
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. User selects the “Save To Favourite” option 2. The system display message “Saved to favourite”
Alternative Flows:	
Exceptions:	<p>B0003.EX.1: No internet connection:</p> <ol style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	B0004		
Use Case Name:	View Saved Property		
Created By:	Qingyang	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	Buyer
Description:	View the property the user saved
Preconditions:	The user is logged into the system
Postconditions:	-
Priority:	Low
Frequency of Use:	
Flow of Events:	3. User click on My Favourite 4. User could see each of his/her saved property
Alternative Flows:	
Exceptions:	B0004.EX.1: No internet connection: 1. The system displays an error message 2. The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	B0005		
Use Case Name:	Delete Saved Property		
Created By:	Qingyang	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	Buyer
Description:	Delete the property the user saved
Preconditions:	The user is logged into the system
Postconditions:	-
Priority:	Low
Frequency of Use:	-
Flow of Events:	<ul style="list-style-type: none"> 5. User click on My Favourite 6. User could see each of his/her saved property 7. The user clicks on delete saved property 8. The system drops the saved property from the database
Alternative Flows:	
Exceptions:	<p>B0005.EX.1: No internet connection:</p> <ul style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	B0006		
Use Case Name:	View Property Details		
Created By:	Qingyang	Last Updated By:	
Date Created:	12 Sep	Date Last Updated:	

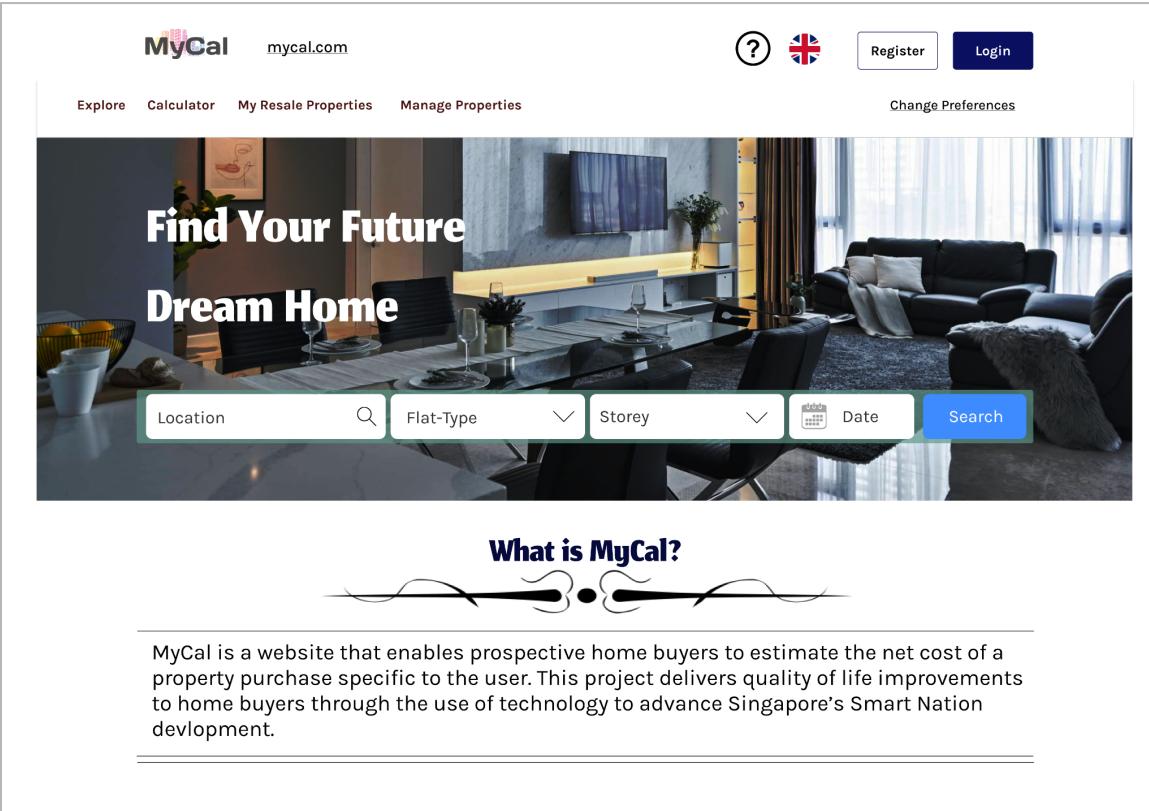
Actor:	Buyer
Description:	Users can view the details of each property
Preconditions:	The user must be logged in to the system
Postconditions:	The user is presented with the detailed information of the property
Priority:	Median
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. User navigates to the webpage and select the property he is interested in 2. The system should call the map api from google to retrieve the location 3. The system retrieve and display the detail of the property
Alternative Flows:	
Exceptions:	<p>B0006.EX.1: No internet connection:</p> <ol style="list-style-type: none"> 1. The system displays an error message 2. The system waits for an internet connection
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

Use Case ID:	B0007		
Use Case Name:	Booking and Contact		
Created By:	Zane	Last Updated By:	
Date Created:	9 Sep 2023	Date Last Updated:	

Actor:	Buyer and seller
Description:	
Preconditions:	User must logged in into the system and had selected the house the user interested in
Postconditions:	
Priority:	High
Frequency of Use:	
Flow of Events:	<ol style="list-style-type: none"> 1. The buyer click contact seller 2. The system prompt the buyer to confirm 3. The system prompt the buyer to select the date and time he want the seller 4. The buyer key in the date and time 5. The system prompt the buyer to confirm date and time 6. The system then notified the seller with the buyer contact info
Alternative Flows:	<ol style="list-style-type: none"> 1. The user click no upon prompting for confirmation <ul style="list-style-type: none"> a. The system go back to previous page 2. The buyer and seller have an conflicting schedules and unable to meet up <ul style="list-style-type: none"> a. The user go back search for an alternate house
Exceptions:	
Includes:	
Special Requirements:	
Assumptions:	
Notes and Issues:	

6. UI Mock-ups

Homepage



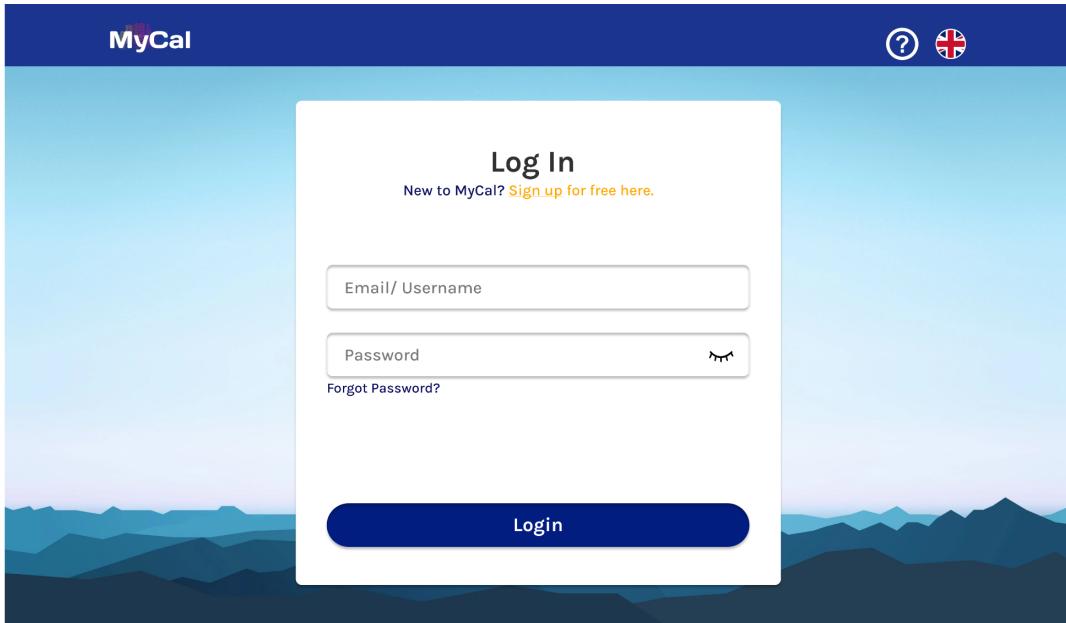
The screenshot shows the homepage of the MyCal website. At the top, there is a navigation bar with the MyCal logo, the URL mycal.com, and links for Explore, Calculator, My Resale Properties, Manage Properties, Register, and Login. A British flag icon is also present. Below the navigation bar is a large banner featuring a modern living room interior with the text "Find Your Future Dream Home". Below the banner is a search bar with fields for Location, Flat-Type, Storey, Date, and a Search button. At the bottom of the page, there is a section titled "What is MyCal?" with a decorative graphic of two interlocking gears.

MyCal is a website that enables prospective home buyers to estimate the net cost of a property purchase specific to the user. This project delivers quality of life improvements to home buyers through the use of technology to advance Singapore's Smart Nation development.

The Homepage is the introductory page of our website. It will contain more information on our website's purpose and instructions, giving an overview of what the average user would expect from this website.

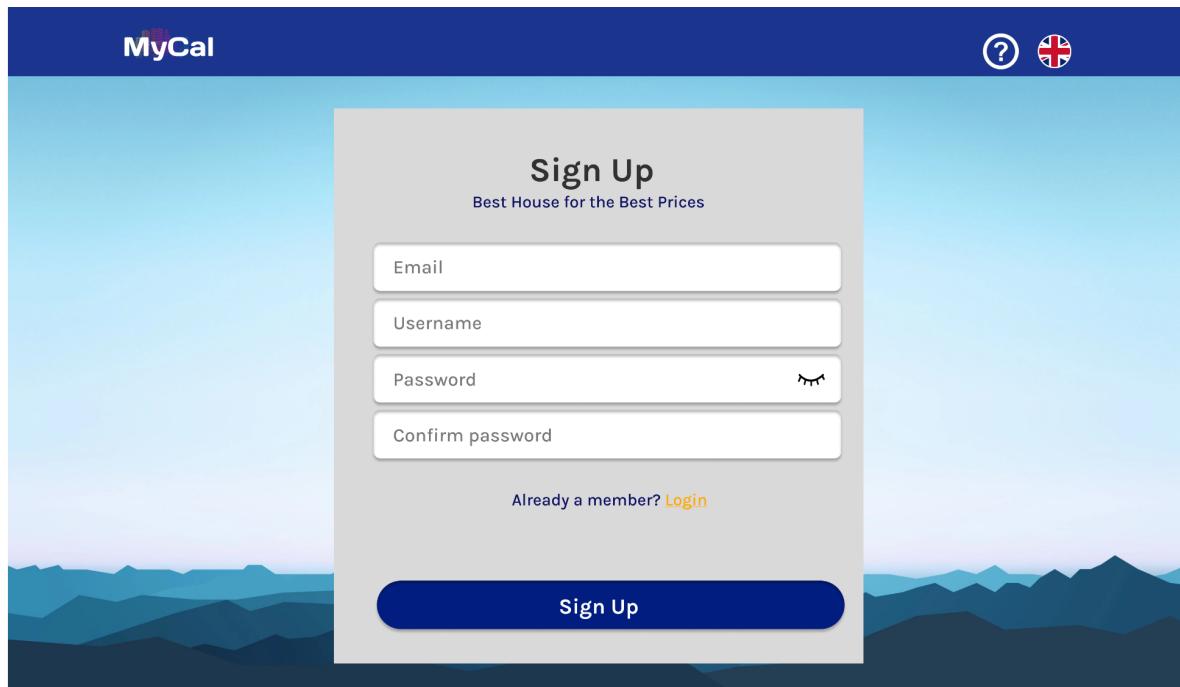
From this page, users would be able to either Login or Sign up if they're a new comer.

Login



For users who have created an account, upon successful login, the user would be directed to the [Explore Page](#).

Sign Up



For user who have not created an account, upon successful sign up, user would be prompted to [Login](#) to use the website.

Explore Page

The screenshot shows the 'Explore' page of the MyCal application. At the top, there is a navigation bar with links for 'Explore', 'Calculator', 'My Resale Properties', and 'Manage Properties'. There are also icons for help ('?'), language ('UK'), a menu ('≡'), and a user profile ('User'). Below the navigation bar is a search bar with fields for 'Location', 'Flat-Type', 'Storey', 'Date', and a 'Search' button. A large banner image of a modern apartment interior with a view of a city skyline at night serves as the background. Below the banner, the text 'Welcome back, User' is displayed. Underneath the banner, there is a section titled 'Recently Added' featuring three property listings:

- Bobby's House**
Yishun Blk 87
Posted 10 mins ago
- Tower of Boom**
78 Jurong Road
Posted a day ago
- Fancy Room**
902 Yellow Street
Posted 3 hours ago

At the bottom right of this section is a 'View more' button. Navigation arrows are present on the left and right sides of the property cards.

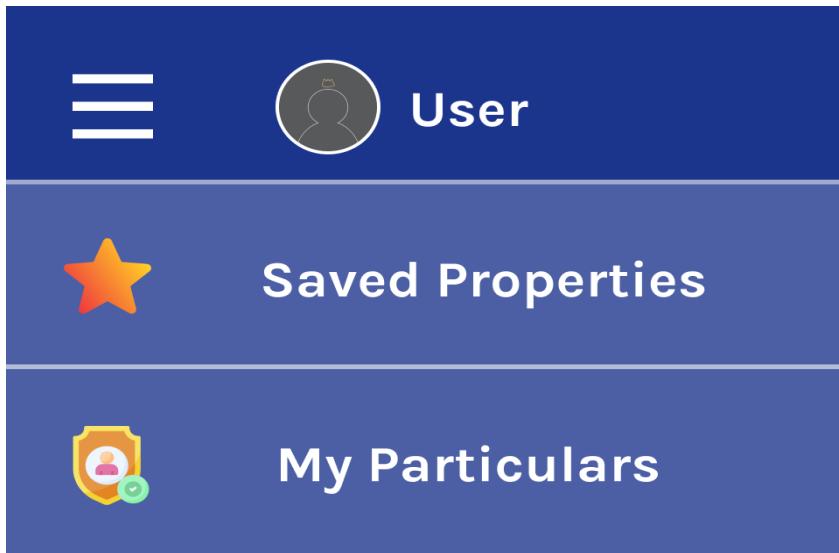
This page would display Resale Properties that have been created recently from Sellers and also a Search function that allows Buyers to filter apartments that they're looking for.

From here, Users would be able to

- Search for a Resale Property using the search bar, which would lead to the [Search Resale Property page](#).
- Calculate the estimated Resale Property price by clicking [Resale Calculator](#).
- View Resale Properties that have been bought by the logged in Buyer/ User by clicking onto [My Resale Properties](#).
- Modify or create Resale Properties by clicking the [Manage Properties](#)
- View Saved Properties or change [My Particulars](#) by clicking onto the [User Tab](#) on the top left corner.

Additionally, Buyers would be able to change the language by clicking onto the icon next to the [User Tab](#) and also request help by clicking the question mark icon which would lead to the [Help and Chat Support](#).

User Tab



Saved Properties

The "Saved Properties" page from the MyCal app has a dark blue header with the MyCal logo, navigation links (Explore, Calculator, My Resale Properties, Manage Properties), and a user icon. The main content area has a white background. It displays a heading "Saved Properties" above a grid of property cards. The first card shows a living room interior with a red star icon in the top right corner. Below the image, the text reads "RiverTree's Residence 23 Elmo Road". A "View More" button is located at the bottom of the card.

This page displays some Resale Properties the User favours, clicking the 'View More' Button would display all of the saved properties.

My Particulars Pop-up

Personal Particulars

Nationality

Marital Status

Employment

Ownership History

Age:

Income Range:

Family Nucleus

- Orphaned siblings
- Married couples and/ or parent(s) with child(ren)
- Multi-generation families
- Orphaned sibling(s)
- Families with non-residents
- Others:

[Cancel](#) [Update](#)

This popup is used to edit the personal data of the logged in user, this popup will be triggered when a new User signs up and is left on the User Tab for any modification.

Note that the popup will also be triggered if the User wants to calculate the Resale Price but has left the personal particulars empty.

Help & Chat Support

MyCal Explore Calculator My Resale Properties Manage Properties     User

FAQs

What is MyCal?	+
How do I use the Rental Calculator?	+
How do I contact the agent?	+
What are the payment methods?	+
How can I cancel my bookings	+

Send us a Message 
Contact our agents about any enquiries, and we'll reply as soon as possible.

Whatsapp 

Email 

Call us
For any emergency, you can call us 24/7 on a local or international phone number.

Phone Number 

This page is used to answer any enquiries and displays the possible methods to contact the agents of the website.

Search Rental Property

The screenshot shows the MyCal website interface for searching rental properties. At the top, there is a navigation bar with links for 'Explore', 'Calculator', 'My Resale Properties', 'Manage Properties', a help icon, a British flag icon, a menu icon, and a 'User' profile icon. Below the navigation is a search bar with dropdown menus for location ('Sengkang'), property type ('Condo'), and condition ('Storey'), along with a date selector ('31 Jun 2023') and a 'Search' button. A large banner image of a modern apartment complex with extensive green roofs is displayed, with the text 'Home To Sengkang' overlaid. Below the banner, a message indicates '11 results of rental flats found in Sengkang'. A filter button labeled '3 Filters' is also present. Two property listings are shown in cards:

- RiverTree's Residence**, 23 Elmo's Road. Price: \$S 4,800,000. Available from 28 June 2023. Features: 2 Bedrooms, 1 Bathroom, 612 sqft. Distance: 3.2 kms from Exit B of Sengkang MRT. Posted by Ethan L. Contact button.
- Greenvale Town**, Rose Street 805. Price: \$S 5,200,000. Available. Features: 3 Bedrooms, 2 Bathroom, 789 sqft. Distance: 4.3 kms from Exit A of Sengkang MRT. Posted by Jessie H. Contact button.

This page would display any available or soon to be available Resale Properties once the user have decided to use the Search function in the Explore Page.

From here, the User would be able to

- Find more information on the Resale Property by clicking the 'Contact' button, which will direct them to the Property Information page.
- Add to Saved Properties by clicking the star icon on the chosen property.

Property Information

MyCal Explore Calculator My Resale Properties Manage Properties ?  User

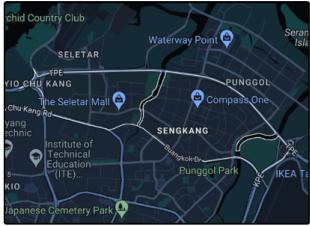


Bedroom 2 **House Size** 612 sqft **Bathroom** 1 **Apartment- Type** Condo

RiverTree's Residence

 SengKang, 23 Elmo's Road, Blk 564 #15-890 [Show on Map](#)
3.2 kms from Exit B of Sengkang MRT

Starting from \$S4,800,000
Available from 28 June 2023



 Very Real Agency

 Ethan Liu
10 Reviews (4.5 stars)

[Whatsapp](#) 

[Phone Number](#) 

[Live Chat](#) 

Book

This page would include all of the information needed to buy the Resale Property. If unsure, the User would be able to contact the Seller through various methods and then make a decision. The User can then click onto the 'Book' if they would like to buy the Resale Property, which would lead to the [Booking Confirmation](#).

Booking Confirmation

Booking Confirmation



RiverTree's Residence
23 Elmo's Road
\$S 4,800,000
Available from 28 June 2023

Name

Contact Number Commence Date

Cancel **Confirm**

My Resale Properties

The screenshot shows the 'My Resale Properties' section of the MyCal app. At the top, there is a navigation bar with links for 'Explore', 'Calculator', 'My Resale Properties', 'Manage Properties', a help icon, a UK flag, a menu icon, and a user profile icon. Below the navigation bar is a search bar with fields for 'Location', 'Flat-Type', 'Storey', and 'Date', followed by a 'Filter' button. A search bar for 'Search Saves' is also present. A property listing for 'RiverTree's Residence' at '23 Elmo's Road' is displayed, showing '2 Bedrooms', '1 Bathroom', and '612 sqft'. To the right of the listing is the 'Commence' date '31 Jun 2023'.

This page displays the purchased Properties and the date of commencement for each Property.

Resale Calculator

The screenshot shows the 'Rental Calculator' section of the MyCal app. The top navigation bar is identical to the previous page. The main area contains fields for 'Location', 'Flat-Type', 'Storey', and 'Commence Date'. Below these are sections for 'Income' with three input fields for 'Monthly Household Income' (each showing '\$S'). To the right is a blue sidebar titled 'Eligibility for Grants/ Subsidies:' containing placeholder text for 'Original Price:' and 'Discounted Price:', both showing '\$S'. It also includes a section for 'Grants and Subsidies:' which is currently empty. At the bottom is a large blue 'Calculate' button.

This page can be used to calculate the estimated Resale Property Price including contributing factors that may affect the price point. With that, the calculator also includes government subsidies and grants that would help lower the price, therefore, the User must fill up their personal particulars in My Particulars for this function to work.

Manage Properties

The screenshot shows the 'Manage Properties' section of the MyCal app. At the top, there is a banner with the text 'Best Places for the Best Prices' and a blue 'Create' button. Below the banner is a search bar with a magnifying glass icon. The main area displays three recently added properties: 'Bobby's House' (Yishun Blk 87), 'Tower of Boom' (78 Jurong Road), and 'Fancy Room' (902 Yellow Street). Each property card includes a yellow edit icon at the top left and a red 'Delete' button at the top right. A 'View all' button is located at the bottom of the list. The top navigation bar includes links for 'Explore', 'Calculator', 'My Resale Properties', 'Manage Properties', and a user profile icon.

This page would display resale properties recently created from the logged in User.

From this, Sellers would be able to

- Create new Resale Properties.
- Search for existing Properties.
- Edit existing properties by clicking the yellow icon on the top left of each property.
- Delete any of the existing properties by clicking-and-holding the chosen property then tapping the delete button, which will then prompt a confirmation popup.

Create new Resale Properties

The screenshot shows the 'Create Resale Property' page on the MyCal website. The page has a white background with a dark blue header bar at the top. The header contains the 'MyCal' logo, navigation links for 'Explore', 'Calculator', 'My Resale Properties', 'Manage Properties', a help icon, a UK flag icon, a menu icon, and a user profile icon.

The main form area is titled 'Create Resale Property'. It includes the following fields:

- Title:** An input field for entering the title of the property.
- Description:** An input field for entering a detailed description of the property.
- Location:** An input field with a search icon for specifying the location.
- Flat-Type:** A dropdown menu for selecting the flat type.
- Storey:** A dropdown menu for selecting the storey level.
- Commence Date:** A date picker for selecting the commencement date.

On the right side of the form, there are two large, light-gray rectangular boxes. The top box contains a small image icon with a plus sign, suggesting where to upload a photo. The bottom box contains a video camera icon, suggesting where to upload a video.

A blue 'Create' button is located at the bottom center of the form.

This page is used to create Resale Properties, all components must be filled up for the property to be successfully added into the website.