**Project Mission Statement**

We will develop an Android application for first-time homebuyers to be informed of the current public housing unit prices and their financial capability to afford public housing. The application capitalizes on government data to help first-time homebuyers make pragmatic decisions when purchasing properties according to their financial capability and goals. The system will be completed when ZEA approve the system proposal.

**Functional Requirements**

1. The system must prompt the user for personal information to calculate the mortgage.

1.1. The system must prompt the user to select age.

1.2. The system must prompt the user to select whether he/she is a Singapore Citizen.

1.3. The system must prompt the user to input gross monthly salary.

1.4. The system must prompt the user to select whether he/she is buying a public housing unit alone or with a partner.

1.4.1. If the user is buying a public housing unit with a partner, the system must prompt the user to select age of their partner.

1.4.2. If the user is buying a public housing unit with a partner, the system must prompt the user to select whether their partner is a Singapore Citizen.

1.4.3. If the user is buying a public housing unit with a partner, the system must prompt the user to input gross monthly salary of their partner.

2. The system must prompt the user for additional personal information to check eligibility of available grants.

2.1. The system must prompt the user to input the number of additional members in the household.

2.1.1. The system must prompt the user to input gross monthly salary of each additional member in the household.

2.1.2. The system must provide a default value of 0 for gross monthly salary of each additional member in the household if there is no input.

2.2. The system must prompt the user to input Central Provident Fund Ordinary Account balance.

2.2.1. The system must provide a default value of 0 for Central Provident Fund Ordinary Account balance.

2.3. The system must prompt the user to input monthly financial liabilities.

2.3.1. The system must prompt the user to input monthly car loan.

2.3.1.1. The system must provide a default value of 0 for monthly car loan if there is no input.

2.3.2. The system must prompt the user to input monthly credit card debt.

2.3.2.1. The system must provide a default value of 0 for monthly credit card debt if there is no input.

2.3.3. The system must prompt the user to input monthly study loan.

2.3.3.1. The system must provide a default value of 0 for monthly study loan if there is no input.

2.3.4. The system must prompt the user to input other loan commitments.

2.3.4.1. The system must provide a default value of 0 for other loan commitments if there is no input.

2.4. The system must allow the user to skip the input of additional personal information.

3. The system must allow the user to modify the input given in point 1 and 2 from other screens in the application.

4. The system must calculate the maximum mortgage amount for the user.

5. The system must calculate the maximum public housing unit purchase price for the user.

6. The system must display a summary for the financial capability of the user.

6.1. The summary must consist of the maximum public housing unit price purchasable.

6.2. The summary must consist of the eligible mortgage amount.

6.3. The summary must consist of the eligible mortgage period.

7. The system must display a list of recommended public housing developments with public housing units for sale below the maximum public housing price purchasable by the user in a tab.

7.1. The system must display a message to notify the user if there are no public housing developments with public housing units valued below the maximum public housing price purchasable by the user.

7.2. The system must display a message to notify the user if there are no public housing developments for sale.

7.3. Each listing under the list of recommended public housing developments must include information about the public housing development.

7.3.1. The information about the public housing development must include an artist impression of the public housing development.

7.3.2. The information about the public housing development must include the name of the public housing development.

7.3.3. The information about the public housing development must include the estate of the public housing development.

7.3.4. The information about the public housing development must include the housing type available in the public housing development.

7.3.4.1. The system must display the flat type valued below the maximum public housing price purchasable by the user.

7.3.4.2. The system must hide the flat type valued above the maximum public housing price purchasable by the user.

7.4. Each listing under the list of recommended public housing developments must be expandable to display additional information about the public housing development.

7.4.1. The system must allow the user to generate an affordability report for each flat type valued below the maximum public housing price purchasable by the user.

7.4.1.1. The affordability report must display the maximum public housing purchase price purchasable by the user.

7.4.1.2. The affordability report must display the maximum mortgage amount eligible.

7.4.1.3. The affordability report must display the maximum mortgage tenure eligible.

7.4.1.4. The affordability report must display the price of the current listing.

7.4.1.5. The affordability report must display the grants applied for the current listing.

7.4.1.6. The affordability report must display the down payment required for the current listing.

7.4.1.7. The affordability report must display the loan amount for the current listing.

7.4.1.8. The affordability report must display the monthly repayment sum for the current listing.

7.4.1.9. The system must allow user to save a copy of the affordability report.

7.4.2. The system must not allow the user to generate an affordability report for each flat type valued above the maximum public housing price purchasable by the user.

7.4.3. The additional information about the public housing development must include a map of the amenities within 1.5 kilometre of the public housing unit.

7.4.3.1. The system must retrieve map coordinates from Google Cloud.

7.4.3.2. The map must display Mass Rapid Transit stations within 1.5 kilometre of the public housing development.

7.4.3.3. The map must display educational institutes within 1.5 kilometre of the public housing development.

7.4.3.4. The map must display polyclinics within 1.5 kilometre of the public housing development.

7.4.3.5. The map must display markets within 1.5 kilometre of the public housing development.

7.4.3.6. The map must display food centres within 1.5 kilometre of the public housing development.

8. The system must display a list of all public housing developments for sale in a tab.

8.1. The system must display a message to notify the user if there are no public housing developments for sale.

8.2. Each listing under the list of all public housing developments must include information about the public housing development.

8.2.1. The information about the public housing development must include an artist impression of the public housing development.

8.2.2. The information about the public housing development must include the name of the public housing development.

8.2.3. The information about the public housing development must include the estate of the public housing development.

8.2.4. The information about the public housing development must include the flat type available in the public housing development.

8.2.4.1. The system must display the flat type valued below the maximum public housing price purchasable by the user.

8.2.4.2. The system must hide the flat type valued above the maximum public housing price purchasable by the user.

8.3. Each listing under the list of all public housing developments must be expandable to display additional information about the public housing development.

8.3.1. The system must allow the user to generate an affordability report for each flat type valued below the maximum public housing price purchasable by the user.

8.3.1.1. The affordability report must display the maximum public housing purchase price purchasable by the user.

8.3.1.2. The affordability report must display the maximum mortgage amount eligible.

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**Non-Functional Requirements**

1. The system must meet or exceed 99% uptime.
2. The system must provide up-to-date information regarding available grants refreshed within 24 hours.
3. The system must provide up-to-date information regarding available property refreshed within 24 hours.
4. 80% of first-time users must be able to generate an affordability report for a public housing unit within 5 minutes of entering their personal information.
5. The system must be able to run on Android version 7.0 or later.
6. The system must be able to show all documentation pertaining to the grants provided by housing development board.
7. The system must interface with the application programming interface from data.gov.sg to extract property tax information.
8. The system must interface with the application programming interface from data.gov.sg to extract personal tax information.
9. The system must scrape documentation about grants from HDB.gov.sg.
10. The system must scrape prices of public houses from HDB.gov.sg.
11. All external data retrieved during the session must be stored locally on the device.
12. All external data retrieved during the session must be destroyed upon exiting the system.
13. All user input must be stored locally on the device during the session.
14. All user input must be destroyed upon exiting the session.

**Data Dictionary**

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| Public Housing | Public housing in Singapore is a residential housing development managed by the Housing and Development Board under temporary leaseholds for 99 years only. |
| Mortgage | A mortgage is a debt instrument, secured by the collateral of specified real estate property, that the borrower is obliged to pay back with a predetermined set of payments. Mortgages are used to make large real estate purchases without paying the entire purchase price up front. |
| Educational Institutes | Educational Institute includes Primary School, Secondary School, Pre-University, Polytechnic, Institute of Technical Education, University. |
| Mass Rapid Transit | A rapid transit system forming the major component of the railway system in Singapore, spanning most of the city-state. |
| Financial Capability | The maximum amount that the user can afford for buying a property this includes all liquidable and debt assets the user can gather. |
| Thumbnail of the estate | The artist’s rendition of the estate provided by HDB, in image format. |
| Flat Type | HDB flats span across different categories to cater to different household sizes and budgets, from 2-Room Flexi, 3-Room, 4-Room, Executive Flat. |
| Grant | Grant is the sum of money given by the government to reduce housing costs. Can be stack between different grants types.  Type of grants: Additional CPF Housing Grant (AHG) and Special CPF Housing Grant (SHG). |
| Central Provident Fund (CPF) Ordinary Account | Ordinary account is the primary account into which the maximum percentage of your CPF savings get deposited. The amount that gets deposited in the CPF ordinary account is used to fund housing, insurance, education and investment needs of CPF account holders. |
| Average Gross Monthly Household Income | It is the limit on how much gross income a household can earn to be eligible for a housing development board loan. |
| Session | The duration of which the system is active on the user’s device. |
| Recommended Public Housing Developments with Public Housing Unit | The public housing unit for which the system thinks that is eligible for the user. |
| Estates | They are self-contained satellite towns that consists of important amenities and facilities like schools, supermarkets, clinics, hawker centres, and sports and recreational facilities. |