

Project Title: Provincial Population density and Housing Pressure Index

Members:

Austria, Carlos E.

Patawaran, Paolo Theodore L.

Scope:

This project is aimed to make a program that will calculate a province's Population Density and Housing Pressure Index. These two factors help us to understand if the province and their cities have adequate housing for their citizens. This program aims to be a diagnostic tool that will overview a settlement's sustainability and if they are in need of intervention. This project follows the standards of the UN SDG 11; Sustainable Cities and Communities.

Population Density will be calculated using this formula:

$$\frac{\text{Population Size}}{\text{Total Area (km}^2\text{)}}$$

HPI will be calculated using this formula:

$$\frac{\text{Population density (per km}^2\text{)} \times \text{Average household size}}{\text{Number of formal Housing Units}}$$

Core Functions:

User Registration - Program will need a log in, the credentials for each file will be that of the governor of the file's respective province. File encryption will be done through a Caesar cipher.

Add Records – The user can be prompted to add a new city to that province's file. Once the city is created, the user will have to input a barangay in that city. The user will have to input data about that barangay such as population, the number of formal housing units in the barangay, average size of a household, and the total area that the barangay occupies. After inputting the barangay, the user will be asked if they want to add more barangays to the city, then this process will continue until the user will decline adding another barangay. The user can also add more cities in the province.

Update/Edit Records – The user can update the individual records of each barangay in a city.

Computation - The program will compute the population density and the Housing Pressure Index (HPI) of the cities within the file. Once the information about the cities are computed and stored, they will

also be used to compute the average population density and HPI of the entire province.

View Records – The user can view the information regarding the province's average population density and HPI, the individual city's population density and HPI, and the individual barangay's data.

Sort – Each city within the province can be sorted either alphabetically or by their population density. The cities with the highest population density will be viewed first.

Search – The user can search for a specific city or barangay by inputting its name into a built-in search function. Once the program has detected the specified city or barangay, it will display its data and information to the user.