

# **PROJECT SYNOPSIS**

## **Smart Home Location Selector**

### **1. Introduction**

With the rapid growth of cities and smart infrastructure, choosing a suitable place to live has become an important but difficult task. People consider many factors such as house price, safety, pollution, availability of facilities, and overall living conditions before selecting a residential location. However, comparing all these factors manually for different areas is time-consuming and confusing. Therefore, there is a need for a system that can analyze these factors together and help users select a suitable location for a smart home in a simple and efficient manner.

### **2. Problem Statement**

Selecting a residential location is not a simple decision because it depends on multiple parameters like affordability, safety, environmental conditions, and accessibility to essential services. At present, there is no single platform that combines all these factors and provides a clear recommendation. As a result, users often rely on partial information or personal judgment, which may not always give the best outcome.

### **3. Objectives of the Project**

The objectives of this project are as follows:

- To study various factors that influence residential location selection.
- To design a data-driven system for recommending smart home locations.
- To compare and rank different residential areas based on defined parameters.
- To help users make better and informed decisions while selecting a place to live.

### **4. Proposed Methodology**

In this project, major cities and residential areas are first identified. A structured dataset is then prepared containing information related to housing cost, safety, pollution level, accessibility to facilities, and lifestyle factors. The data is processed and normalized to ensure fair comparison.

Based on these parameters, a scoring mechanism is used to evaluate and rank residential locations. The final system recommends suitable locations according to the calculated scores.

## **5. Tools and Technologies Used**

- Python
- Data Analysis Techniques
- Machine Learning concepts
- Pandas and NumPy libraries
- Streamlit (for proposed user interface)

## **6. Applications of the Project**

- Helps home buyers and tenants select suitable residential locations.
- Can be useful for real estate analysis and comparison.
- Supports smart city planning and decision-making.
- Acts as a basic recommendation system for housing selection.

## **7. Expected Outcome**

The expected outcome of this project is a recommendation system that provides a ranked list of residential locations based on multiple factors. The system aims to simplify the decision-making process and help users choose a smart and suitable home location.

## **8. Future Scope**

In the future, the system can be improved by integrating real-time data such as live pollution and traffic information. Map-based visualization and mobile application support can also be added to enhance usability and accuracy.