

Bangalore House Price Prediction

This project uses machine learning techniques to predict house prices in Bangalore, India, based on various property features. It is developed as a Jupyter Notebook, providing an end-to-end solution from data preprocessing to model evaluation and visualization. The dataset used in this project includes information on property characteristics such as location, size, and square footage.

Project Structure

- **Data Preprocessing:** The notebook begins with importing necessary libraries and loading the dataset. It includes steps to clean the data, handle missing values, and convert categorical variables. Notable preprocessing steps:
 - **Feature Engineering:** Combines similar features and creates new ones, such as calculating the price per square foot to normalize property values.
 - **Outlier Detection and Removal:** Identifies and removes outliers in the data to improve model accuracy.
- **Exploratory Data Analysis (EDA):** Visualizes data distributions and relationships between features and the target variable (price). Key insights from EDA include:
 - Distributions of various features such as location, area size, and number of bedrooms.
 - Correlations and trends that influence house prices in Bangalore.
- **Model Building:** This section applies multiple machine learning algorithms to build predictive models for house prices, including:
 - **Linear Regression**
- **Evaluation and Comparison:** The models are evaluated based on common regression metrics, such as Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE), to determine the best-performing model for predicting house prices. The notebook also provides insights into the most important features impacting the predictions.

Installation and Setup

To run this notebook, you'll need the following dependencies:

- Python 3.x
- Jupyter Notebook
- Pandas
- Numpy
- Scikit-learn
- Matplotlib

- Seaborn

Usage

1. Clone this repository to your local machine.
2. Open the Bangalore_House_Price_Prediction.ipynb file in Jupyter Notebook or JupyterLab.
3. Run each cell sequentially to preprocess data, build models, and evaluate results.

Results and Insights

The project provides a comparative analysis of different models and suggests an optimal approach for predicting property prices in Bangalore based on model performance. The results section outlines the best model chosen and offers a visual representation of actual versus predicted prices.