Analyzing and Predicting Housing Prices in Bengaluru

Problem Statement:

The Bengaluru housing market exhibits complex pricing dynamics influenced by various factors such as location, area type, property size, and amenities. This project aims to develop a predictive model to estimate property prices based on these attributes. The insights derived will assist potential buyers, real estate agents, and policymakers in making informed decisions.

Project Report

Introduction: Bengaluru is a rapidly growing city with a booming real estate market. Accurate price estimation for properties can enhance transparency and aid stakeholders in decision-making. This project leverages machine learning techniques to predict property prices based on a dataset containing features such as area type, location, size, and other attributes.

Dataset Overview: The dataset contains **13,320** entries and **9** columns. Below is a brief summary of the dataset:

Results: Several models were trained to predict property prices, including:

- **Linear Regression:**
  - R^2 Score: 0.94
  - RMSE: 7.33 lakhs
- **Decision Tree:**
  - R^2 Score: 0.998
  - RMSE: 1.32 lakhs
- **Random Forest:**
  - R^2 Score: 0.999
  - RMSE: 0.73 lakhs

The Random Forest model demonstrated the best performance and consistency, making it the preferred choice for deployment.

6. Conclusions and Recommendations:

- The project successfully predicted property prices with high accuracy, leveraging robust preprocessing and machine learning techniques.
- The Random Forest model is recommended for real-world use due to its superior performance and generalization capability.

7. Future Work:

- Explore hyperparameter tuning for further optimization.
- Deploy the model using a web interface or API for practical use by stakeholders.

8. Deliverables:

- **PowerPoint Presentation:** A concise summary of the project, including key findings.
- **Video Presentation:** A recorded explanation of the project.
- **GitHub Repository:** Contains the following:
  - Problem Statement
  - Project Notebook
  - Processed Dataset
  - ReadMe file with video URL and project details.

GitHub Repository Link: https://github.com/ZeenatTanveer/DataScience/upload/main